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LETTER REPORT REGARDING FOURTH QUARTER MONITORING REPORT FOR SOLID WASTE MANAGEMENT UNITS 6 AND 7 TREATABILITY STUDY NS MAYPORT FL
2/14/2004
TETRA TECH NUS

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Document No. 04JAX0072

February 12, 2004

Project Number N4259

Commander, Southern Division
Naval Facilities Engineering Command
ATTN: Adrienne Wilson (Code ES31)
2155 Eagle Drive
North Charleston, South Carolina 29406
(PLA: NAVFAC EFD SOUTH
CHARLESTON SC)
UIC: 62467

Reference: CLEAN Contract Number N62467-94-D-0888
Contract Task Order Number 0253

Subject: Fourth Quarter Monitoring Report for Solid Waste Management Units (SWMUs) 6 and 7 Treatability Study
Naval Station (NAVSTA) Mayport, Mayport, Florida.

Dear Ms. Wilson:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit the Fourth Quarter Monitoring Letter Report for the subject site. This report was prepared for the United States Navy (Navy) Southern Division, Naval Facilities Engineering Command under Contract Task Order (CTO) 0253 for the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888. This letter report provides the results of the fourth quarter natural attenuation (NA) sampling event conducted in September 2003, including a description of the fieldwork and results of the analytical sampling. Also included is a summary of the sampling results for the three previous quarters of NA sampling that were conducted between November of 2002 and May 2003. This monitoring data was collected in support of the Treatability Study for SWMU 7, and the information will be incorporated into the Treatability Study Evaluation report.

Site Summary

NAVSTA Mayport is located near the town of Mayport within the city limits of Jacksonville, Florida, in northeastern Duval County on the south shore of the confluence of the St. Johns River and the Atlantic Ocean (Figure 1). NAVSTA Mayport, occupying 3,401 acres, has been in service since 1942. Current activities include support services for surface fleet and aircraft, including ship and aircraft repair and maintenance. The general locations of SWMUs 6 and 7 at NAVSTA Mayport are shown on Figure 1. SWMU 6, located directly east and adjacent to SWMU 7 (see Figure 2), served as a waste oil pit and sludge drying bed prior to the installation of SWMU 7 in 1979. SWMU 7 was the Oily Water Treatment Plant (OWTP) sludge drying beds, which were enclosed by earthen berms. The sludge drying beds received sludge from the OWTP clarifiers and bilge water from receiving tanks. Records indicate that approximately 1,500 gallons of sludge were transferred to the drying beds on the average of twice per week until late 1994. The easternmost drying bed was excavated in 1989, at which time a lined, diked enclosure and three bilge water receiving tanks were constructed.

Between 1992 and 2001, SWMU 7 underwent two pilot studies, low-temperature thermal desorption (LTTD), and bioventing/bioslurping. Neither of these methods successfully remediated the site.

During previous investigations and studies, free product has been detected at the site on numerous occasions. The wells at the site that have historically exhibited a measurable presence of free product are as follows: MW01S, MW02S, MW03S, MW04S, MW06S, MW07S, MW11S, and MW15S. For brevity, the monitoring well identifiers have been abbreviated in this report (for example: MPT-8-MW01S is simply MW01S). Any monitoring well with a different identifier (MPT-S-MW02S and MPT-S-MW03S) will not be abbreviated. Of these wells, MW07S and MW11S were converted to extraction wells for the bioslurping system and MW15S was destroyed and replaced by MW15SR. Figure 3 shows the locations of all monitoring wells associated with SWMUs 6 and 7.

Groundwater samples were collected on a semi-annual basis during 1999 and 2000. Four wells (MW04S, MW09S, MW15S, and MW16S) contained constituents detected in excess of Florida Department of Environmental Protection (FDEP) Groundwater Cleanup Target Levels (GCTLs) (TtNUS, 2002; *Draft Treatability Study Work Plan for SWMUs 6 & 7*). Well MW04S was reported to have exceedances of 1-methylnaphthalene, 2-methylnaphthalene, and Total Recoverable Petroleum Hydrocarbons (TRPH). The only reported constituent in excess of GCTLs in MW09S was TRPH during the fourth quarter sampling event of 2000. 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene were detected in MW15S before it was destroyed. MW16S had reported concentrations of 1-methylnaphthalene and 2-methylnaphthalene exceeding GCTLs.

Soil contamination has been documented at the site during many of the above-referenced assessment activities. However, the extent of soil contamination has yet to be completely defined. Most previous efforts focused on free-product recovery. Preliminary Total Petroleum Hydrocarbon Criteria Working Group (TPHCWG) testing was completed in March 2002 and indicated exceedances of several individual petroleum hydrocarbon compounds and TRPH (TtNUS, 2002; *Draft Treatability Study Work Plan for SWMUs 6 & 7*).

Purpose and Goals

This Treatability Study was conducted to evaluate the applicability of remediation alternatives for groundwater NA, free-product recovery, and soil bioremediation. As part of this treatability study fourth quarter event, groundwater NA and free-product monitoring were performed. This included groundwater NA sampling and free-product recovery. Groundwater was sampled and analyzed for field and laboratory NA parameters to determine if NA was a viable groundwater treatment alternative. Passive free-product recovery was tested at the site to determine if this technology was a viable method for decreasing the free-product thickness on the groundwater surface. PIG SKIMMER® absorbent socks and a Keck passive skimmer were installed and monitored as part of the free-product recovery. No efforts to evaluate soil bioremediation tests were conducted during the fourth quarter.

Previous TtNUS Field Activities

First Quarter

TtNUS personnel conducted the first quarter (three monthly sampling events in November 2002, December 2002, and January 2003) and second quarter (February 2003) NA sampling events. Field events for the first quarter began in November 2002 with the installation of an up gradient (background) well for NA monitoring activities. On November 13, 2002, TtNUS personnel supervised the installation of shallow background monitoring well MW19S, just south of SWMUs 6 and 7 (see Figure 3). The November sampling event was the baseline sampling event in which 10 wells were sampled for volatile organic compound (VOC), polynuclear aromatic hydrocarbon (PAH), TRPH, and NA parameters. Four additional wells were sampled during the baseline event only for PAHs and VOCs. The four wells were sampled to provide additional baseline data on any groundwater constituents of concern that may have been present. During the December 2002 and January 2003 first quarter sampling events, 10 groundwater monitoring wells were sampled for field and laboratory NA parameters only.

Baseline Event
No PAH, VOC, or TRPH detections were reported to exceed FDEP GCTLs during the baseline sampling event. Laboratory NA, biogenic gases, and field NA analysis results are summarized in Table 1. Free-product measurements of 0.54 feet and 0.01 feet were measured in monitoring wells MW02S and MW03S, respectively.

Event 2 – First Quarter
NA parameters, biogenic gases, and field NA analysis results are summarized in Table 1. Free product was measured at 0.40 feet in monitoring well MW02S.

Event 3 – First Quarter
NA parameters, biogenic gases, and field NA analysis results are summarized in Table 1. Free-product measurements of 0.45 feet and 0.02 feet were encountered in monitoring wells MW02S and MW03S, respectively.

Second Quarter

The second quarter NA sampling event consisted of 10 groundwater monitoring wells being sampled for field and laboratory NA parameters only. Soil samples from 10 locations, see Figure 4, were collected and sent to a fixed-based laboratory for TPHCWG analysis during the second quarter. A 4-inch recovery well (RW01) was installed on February 18, 2003 and a passive skimmer was placed in the recovery well to test if free-product recovery was feasible.

NA parameters, biogenic gases, and field NA analysis results are summarized in Table 1. Free-product measurements of 0.40 foot and 0.10 foot were recorded for monitoring wells MW02S and MW03S, respectively.

Third Quarter

The third quarter NA sampling event consisted of 10 groundwater monitoring wells being sampled for field and laboratory NA parameters only. Two split soil samples were collected near recovery well RW01 and sent to Enzyme Technologies in Portland, Oregon and Catalina BioSolutions in Portland Oregon for bio-treatability tests. PIG SKIMMER® absorbent socks were placed in groundwater monitoring wells MW02S, MW03S, and four bioslurping wells (all containing free-product) to see if the socks could effectively remove free-product. Free-product recovery was also checked weekly in the passive skimmer that was installed in recovery well RW01.

NA parameters, biogenic gases, and field NA analysis results are summarized in Table 1. Free-product measurements of 0.63 foot, 0.01, and 0.01 foot were recorded for monitoring wells MW02S, MW16S, and MW17S, respectively.

TtNUS Field Activities – Fourth Quarter

In September 2003, TtNUS conducted the fourth quarter groundwater monitoring event, including measuring depth to groundwater and collecting groundwater samples from the 10 site monitoring wells. The samples were analyzed for NA parameters only. Groundwater samples were collected from monitoring wells MW01S, MW04S, MW06S, MW09S, MW16S, MW17S, MW18S, MW19S, MPT-S-MW02S, and MPT-S-MW03S and analyzed for iron and manganese, alkalinity, select anions, ammonia, total organic carbon (TOC), biogenic gases (methane, ethene, ethane, hydrogen, oxygen, nitrogen, and carbon dioxide) by laboratory analysis. Field NA parameters [ferrous iron, sulfide, carbon dioxide, dissolved oxygen (DO), and hydrogen sulfide] were measured by TtNUS field personnel.

Groundwater samples were collected from each well in general accordance with the current FDEP Standard Operating Procedures (SOPs). Depth-to-water was measured in each well prior to purging and sample collection. Purging was accomplished with a peristaltic pump using a low flow purge technique. During purging, field parameters (pH, conductivity, temperature, DO, and oxidation-reduction potential) were

measured at approximately 5 to 10 minute intervals using either a YSI® Model 556 or Horiba U-22 water quality meter. The instrument was calibrated according to the manufacturer's specifications and FDEP SOPs at the beginning of each day and at the end of the last sampling event day. A Field Calibration Log is provided in Attachment A. In addition, turbidity was monitored using a LaMotte 2020 Turbidimeter. Following well purging activities, groundwater samples were analyzed in the field for the following NA parameters: ferrous iron, carbon dioxide, DO, hydrogen sulfide, and sulfide. Groundwater Sample Log Sheets, Low Flow Purge Data Sheets, and Natural Attenuation Parameter Sheets compiled during purging and sampling at each location are also provided in Attachment A. Additional groundwater samples were collected for NA analysis [alkalinity by United States Environmental Protection Agency (USEPA) Method E310.1, cations and anions by USEPA 300 series, TOC by USEPA Method 415.1, Dissolved Organic Carbon (DOC) by USEPA SW-846 Method 9060, Fractional Organic Carbon (FOC) by USEPA SW-846 Method 900, iron and manganese by USEPA Method SW-846 6010B, and ammonia by USEPA Method 350.1] at an off-site laboratory. Groundwater samples were shipped to Laucks Laboratories in Seattle, Washington by the TtNUS field personnel. In addition, biogenic gas samples were shipped to Microseeps Inc., in Pittsburgh, Pennsylvania for analysis by AMG20GAX. All samples were shipped on ice via Federal Express priority overnight service. Chain of custody seals were placed on each cooler sent. The validated groundwater analytical reports are included in Attachment B.

Free-product recovery was checked weekly in the Keck passive skimmer that was installed in recovery well RW01. The PIG SKIMMER® absorbent socks [installed in MW02S, MW03S, and four bioslurping wells (all containing free-product)] were also checked weekly and replaced as needed when they became saturated with free-product. All fluids (non-hazardous petroleum contact water) from the passive skimmer and free-product saturated absorbent socks were containerized in a department of transportation approved 55-gallon drum stored on the site.

Groundwater Sampling Results

Table 2 provides a summary of depth-to-water measurements from top of casing. Figure 5 provides a graphical representation of groundwater flow at this site. Groundwater flow is generally north toward the St. Johns River. Table 1 provides a summary of the groundwater NA parameters and biogenic gases that were sent to a fixed-based laboratory during the fourth quarter groundwater sampling event. Groundwater NA parameters that were collected and analyzed in the field are summarized in Table 3. The monitoring well locations were presented on Figure 3.

Free-Product Recovery Results

Free-product recovery using the Keck passive skimmer has been ineffective at removing free-product from the soil-groundwater interface. Free-product measurements in the recovery well were approximately 0.02 foot each week. However, weekly inspections of the skimmer showed no free-product was being recovered by the skimmer.

The PIG SKIMMER® absorbent socks absorbed free-product from the wells and had to be periodically replaced. Free-product levels in the wells following sock changing were reduced to only a skim (less than 0.01 foot).

Conclusion

Groundwater NA attenuation parameters were monitored for four quarters at SWMU 6 and 7. Free-product has been continuously detected in wells MW02S, MW03S, RW01, and several of the bioslurping wells. Free-product recovery using a Keck passive skimmer was found to be ineffective. Based on conversations with the passive skimmer vendor (Geotech Environmental Equipment, Inc.), they believed that the free-product (a bunker C type fuel oil) is too viscous to flow through the screen of the passive skimmer for recovery. The passive skimmer was removed from recovery well RW01 on September 12, 2003, because of its ineffectiveness to recover free-product, and replaced by a PIG SKIMMER® absorbent sock. The absorbent socks have effectively removed free-product from the site wells. The socks have been installed in all wells containing free-product and are continually being monitored on a weekly basis. Reports

presenting the results from the bio-treatability test vendors were received in January 2004. An evaluation of free-product recovery, groundwater NA sampling, and bio-treatability studies will be provided in the forthcoming Treatability Study Evaluation Report.

If you have any questions with regard to this submittal, please contact me at (850) 385-9866 or via e-mail at hansent@ttnus.com.

Sincerely,

Charles Mc for

Terry Hansen P.G.
Task Order Manager

TH/cm

Attachments (4)

c: Mr. J. Cason P.G., FDEP (2 copies)
Ms. C. Mitchell, NAVSTA Mayport
Ms. D. Lancaster, NAVSTA Mayport
Mr. C. Benedikt, USEPA
Mr. M. Halil P.E., JA Jones
Ms. D. Wroblewski, TtNUS (cover letter only)
Mr. M. Perry, TtNUS (unbound copy)
Mr. Mike Albert P.E., TtNUS
Project File

TABLES

TABLE 1
SUMMARY OF ANALYTES DETECTED IN GROUNDWATER - SWMUs 6 & 7
SEPTEMBER 2003 SAMPLING EVENT

FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

Sample ID			MPT-S-MW02S						MPT-S-MW03S					
Sample Location			S - MW02S						S - MW03S					
Collect Date			11/20/02	12/17/02	01/15/03	02/11/03	05/20/03	09/11/03	11/21/02	12/17/02	01/15/03	02/11/03	05/20/03	09/11/03
	Units	GCTL[1]												
Metals[2]														
Iron	µg/L	300	85.7	62.3	--	--	1300	1047	8280	NS	NS	4020	920	1900
Manganese	µg/L	50	14.2	10.7	23.3	8.4	--	47.0	556	NS	NS	190	110	121
Miscellaneous[3]														
Alkalinity	mg/L	NC	370	380	380	380	350	390	410	NS	NS	370	320	280
Ammonia	mg/L	2.8	0.91	0.6	1.2 J	0.78	1.1	1.2	1.2	NS	NS	0.48	0.26	0.33
Chloride	mg/L	250	420	420	110 J	150	160	340	15 J	NS	NS	14	16	8
Dissolved Organic Carbon	mg/L	NC	12	NA	NA	NA	NA	NA	NA	NS	NS	NA	NA	NA
Fractional Organic Carbon	mg/L	NC	77	NA	NA	NA	NA	NA	NA	NS	NS	NA	NA	NA
Nitrate	mg/L	10	0.36 J	0.18	0.25 J	0.80 J	0.14	0.6	--	NS	NS	--	0.13	--
Nitrite	mg/L	1	--	--	--	--	--	--	--	NS	NS	--	--	--
Orthophosphate	mg/L	NC	--	--	--	--	0.2	--	--	NS	NS	--	0.18	--
Sulfate	mg/L	250	46 J	32	20	25	11	42	50 J	NS	NS	40	31	12
Total Organic Carbon	mg/L	NC	13	13	11	13	20	26	28	NS	NS	2	5	3.7
Biogenic Gases[4]														
Carbon Dioxide	mg/L	NC	61	51 J	47	52 J	66000	63	110	NS	NS	56 J	56000	72
Ethane	µg/L	NC	0.29	0.25 J	0.22	0.24 J	0.2	0.230	0.830	NS	NS	0.48 J	1	0.97
Ethene	µg/L	NC	0.003 J	--	--	--	--	--	0.007	NS	NS	--	0.013	--
Hydrogen	nM	NC	2.2	1.1 J	0.71	1.3 J	1.1	1	12	NS	NS	1.8 J	0.48	45
Methane	mg/L	NC	2300	2.1 J	2.5	2.8 J	3900	3.5	550	NS	NS	0.18	56	0.29
Nitrogen	mg/L	NC	14	15 J	14	13 J	13000	14	14	NS	NS	16 J	16000	16
Oxygen	mg/L	NC	2	2.4 J	4.1	4.6 J	3000	2	2.4	NS	NS	2.8 J	4300	2.6

See notes at end of table

TABLE 1
SUMMARY OF ANALYTES DETECTED IN GROUNDWATER - SWMUs 6 & 7
SEPTEMBER 2003 SAMPLING EVENT

FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

Sample ID			MPT-8-MW01S						MPT-8-MW03S					
Sample Location			MW01S						8 - MW03S					
Collect Date			11/19/02	12/19/02	01/13/03	02/10/03	05/20/03	09/11/03	11/19/02	12/19/03	01/13/03	02/10/03	05/20/03	09/11/03
	Units	GCTL[1]												
Metals[2]														
Iron	µg/L	300	815	826	183	--	420	--	NS	486	NS	NS	NS	NS
Manganese	µg/L	50	34.5	26.6	22.4	26.4	--	14.7	NS	132	NS	NS	NS	NS
Miscellaneous[3]														
Alkalinity	mg/L	NC	180	170	160 J	170	160	160	NS	510	NS	NS	NS	NS
Ammonia	mg/L	2.8	0.17	NA	0.38	0.39	0.26	0.18	NS	NA	NS	NS	NS	NS
Chloride	mg/L	250	17	16	18	17	13	9	NS	17	NS	NS	NS	NS
Dissolved Organic Carbon	mg/L	NC	4.8	NA	2.7	NA	NA	NA	NS	NA	NS	NS	NS	NS
Fractional Organic Carbon	mg/L	NC	34	NA	46	NA	NA	NA	NS	NA	NS	NS	NS	NS
Nitrate	mg/L	10	--	--	0.14 J	--	--	--	NS	--	NS	NS	NS	NS
Nitrite	mg/L	1	--	--	--	--	--	--	NS	--	NS	NS	NS	NS
Orthophosphate	mg/L	NC	--	--	--	--	0.54	--	NS	--	NS	NS	NS	NS
Sulfate	mg/L	250	39 J	29	31	31	36	37	NS	18	NS	NS	NS	NS
Total Organic Carbon	mg/L	NC	5.8	2.9	2.4	3.1	45	3.6	NS	50	NS	NS	NS	NS
Biogenic Gases[4]														
Carbon Dioxide	mg/L	NC	11	11 J	8.9	6.6 J	7.4	10	NS	160 J	NS	NS	NS	NS
Ethane	µg/L	NC	0.008	0.02 J	0.015	0.012 J	0.013	0.007	NS	0.053 J	NS	NS	NS	NS
Ethene	µg/L	NC	0.009	--	0.006	--	0.005	0.007	NS	--	NS	NS	NS	NS
Hydrogen	nM	NC	2	1.1 J	2.1	2 J	0.4	2.2	NS	3.6 J	NS	NS	NS	NS
Methane	mg/L	NC	0.045	0.12 J	0.087	0.11 J	0.18	0.066	NS	5.2 J	NS	NS	NS	NS
Nitrogen	mg/L	NC	16	18 J	18	17 J	17	18	NS	11 J	NS	NS	NS	NS
Oxygen	mg/L	NC	3.8	1.2 J	1.1	3.4 J	3.5	1.2 J	NS	3.2 J	NS	NS	NS	NS

See notes at end of table.

TABLE 1
SUMMARY OF ANALYTES DETECTED IN GROUNDWATER - SWMUs 6 & 7
SEPTEMBER 2003 SAMPLING EVENT

FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

Sample ID			MPT-8-MW04S						MPT-8-MW-06S					
Sample Location			MW04S						MW06S					
Collect Date			11/21/02	12/17/02	01/15/03	02/13/04	05/21/03	09/11/03	11/21/02	12/18/02	01/14/03	02/13/03	05/19/03	09/11/03
	Units	GCTL[1]												
Metals[2]														
Iron	µg/L	300	NS	12900	13600	14100	14000	8060	60.1	--	--	--	1600	--
Manganese	µg/L	50	NS	212	233	226	250	202	6.7	8.0	4.3	40.9	95	21.1
Miscellaneous[3]														
Alkalinity	mg/L	NC	NS	280	280	500	500	490	180	190	170 J	180	160	180
Ammonia	mg/L	2.8	NS	5.3	4.2 J	5	5.1	3.9	0.37	--	--	0.24	--	--
Chloride	mg/L	250	NS	16	16 J	15	14	15	7.4 J	7.7	6.3	11	8	5
Dissolved Organic Carbon	mg/L	NC	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fractional Organic Carbon	mg/L	NC	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate	mg/L	10	NS	--	--	--	--	--	0.98 J	0.44	0.33 J	--	0.88	0.4
Nitrite	mg/L	1	NS	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate	mg/L	NC	NS	--	--	--	0.79	--	--	--	--	--	--	--
Sulfate	mg/L	250	NS	3	4	0.19	--	--	16 J	15	17	14	17	17
Total Organic Carbon	mg/L	NC	NS	30	38	34	35	20	2.1	1.1	1.8	2.9	3	2.6
Biogenic Gases[4]														
Carbon Dioxide	mg/L	NC	NS	150 J	160	140	190000	170	12	9.9 J	8.6	9.5	10000 J	15
Ethane	µg/L	NC	NS	0.13 J	0.022	0.01	--	--	--	--	0.001 J	--	0.003 J	0.003 J
Ethene	µg/L	NC	NS	0.01 J	--	--	--	--	0.012	--	0.003 J	--	0.013 J	0.01
Hydrogen	nM	NC	NS	2.2 J	1.8	3	2.5	3.5	1.7	1.2 J	1.4	0.5	0.21 J	1.9
Methane	mg/L	NC	NS	7.5 J	6.7	9.4	10000	10	0.00014	0.00008 J	0.00003	0.00006	0.1 J	0.00066
Nitrogen	mg/L	NC	NS	10 J	9.5	8.2	6500	7.1	14	17 J	15	16	16000 J	17
Oxygen	mg/L	NC	NS	2.1 J	3.5	1.5	1800	0.85	7	5.4 J	6.6	4.3	5400 J	3.6

See notes at end of table.

TABLE 1
SUMMARY OF ANALYTES DETECTED IN GROUNDWATER - SWMUs 6 & 7
SEPTEMBER 2003 SAMPLING EVENT

FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

Sample ID			MPT-8-MW09S						MPT-8-MW15SR					
Sample Location			MW09S						MW15SR					
Collect Date			11/19/02	12/18/02	01/14/03	02/10/03	05/21/03	09/11/03	11/21/02	12/18/02	01/15/03	02/10/03	05/21/03	09/11/03
	Units	GCTL[1]												
Metals[2]														
Iron	µg/L	300	--	1200	1580	1650	900	--	14000	NS	4330	NS	NS	NS
Manganese	µg/L	50	44.0	211	214	231	280	--	118	NS	58.0	NS	NS	NS
Miscellaneous[3]														
Alkalinity	mg/L	NC	310	370	390 J	330	360	170	610	NS	640	NS	NS	NS
Ammonia	mg/L	2.8	0.22	0.24	0.41	3.9	0.66	--	4	NS	--	NS	NS	NS
Chloride	mg/L	250	140	190	83 J	17	120	25	370 J	NS	400 J	NS	NS	NS
Dissolved Organic Carbon	mg/L	NC	5.6	NA	NA	NA	NA	NA	NA	NS	NA	NS	NS	NS
Fractional Organic Carbon	mg/L	NC	68	NA	NA	NA	NA	NA	NA	NS	NA	NS	NS	NS
Nitrate	mg/L	10	0.42 J	0.16	0.15 J	--	--	0.5	--	NS	--	NS	NS	NS
Nitrite	mg/L	1	--	--	--	--	--	--	--	NS	--	NS	NS	NS
Orthophosphate	mg/L	NC	--	--	--	--	0.90	--	2.5	NS	4.6 J	NS	NS	NS
Sulfate	mg/L	250	33 J	20	11	0.67	10	73	46 J	NS	150	NS	NS	NS
Total Organic Carbon	mg/L	NC	5.5	15	16	35	16	2.9	160	NS	44	NS	NS	NS
Biogenic Gases[4]														
Carbon Dioxide	mg/L	NC	54	72 J	68	55 J	82000	14	60	NS	44	NS	NS	NS
Ethane	µg/L	NC	0.002 J	0.011 J	--	--	--	0.008	0.68	NS	0.55	NS	NS	NS
Ethene	µg/L	NC	0.01	--	--	--	--	--	0.022	NS	0.01	NS	NS	NS
Hydrogen	nM	NC	2	1.6 J	3.4	2.9 J	2.2	1.5	2.8	NS	1.8	NS	NS	NS
Methane	mg/L	NC	0.005	0.340 J	1.1	0.87 J	650	0.00007	2.7	NS	2.4	NS	NS	NS
Nitrogen	mg/L	NC	14	17 J	16	16 J	15000	16	13	NS	14	NS	NS	NS
Oxygen	mg/L	NC	6.2	2 J	2.2	2.4 J	3500	5.8	3.4	NS	4.3	NS	NS	NS

See notes at end of table.

TABLE 1
SUMMARY OF ANALYTES DETECTED IN GROUNDWATER - SWMUs 6 & 7
SEPTEMBER 2003 SAMPLING EVENT

FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

Sample ID			MPT-8-MW16S						MPT-8-MW17S					
Sample Location			MW16S						MW17S					
Collect Date			11/21/02	12/18/02	01/15/03	02/11/03	05/20/03	09/11/03	11/21/02	12/17/02	01/13/03	02/13/03	05/19/03	09/11/03
	Units	GCTL[1]												
Metals[2]														
Iron	µg/L	300	NS	5120	10500	14800	13000	8760	6690	3340	3100	2390	4800	3290
Manganese	µg/L	50	NS	141	206	270	270	241	133	83.1	99.1	78.8	110	117
Miscellaneous[3]														
Alkalinity	mg/L	NC	NS	510	140	570	580	540	380	350	320 J	300	320	350
Ammonia	mg/L	2.8	NS	2.4	1.4 J	3.9	5.5	5.0	0.91	0.23	0.4	0.25	0.32	0.38
Chloride	mg/L	250	NS	20	23 J	17	19	13	20 J	13	11	11	11	15
Dissolved Organic Carbon	mg/L	NC	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fractional Organic Carbon	mg/L	NC	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate	mg/L	10	NS	0.12	0.22 J	--	2.3 J	--	--	--	--	--	--	--
Nitrite	mg/L	1	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate	mg/L	NC	NS	--	--	--	--	--	--	--	--	--	0.12	--
Sulfate	mg/L	250	NS	14	11	0.67	--	--	11 J	13	15	14	9	13
Total Organic Carbon	mg/L	NC	NS	22	37	35	41	24	10	6.3	2.9	2.9	6	6.3
Biogenic Gases[4]														
Carbon Dioxide	mg/L	NC	NS	180 J	180	200 J	210000	200	100	68 J	61	56	58000 J	60
Ethane	µg/L	NC	NS	0.13 J	0.027	0.056 J	--	--	0.009	--	--	--	--	--
Ethene	µg/L	NC	NS	--	--	--	--	--	0.006 J	--	0.004	--	--	--
Hydrogen	nM	NC	NS	3.5 J	1.2	1.9 J	2	12	2.1 J	1.3 J	2.8	1.1	0.37 J	0.94
Methane	mg/L	NC	NS	7.4 J	5.8	8 J	11000	10	2	0.610 J	0.310	0.51	690 J	0.68
Nitrogen	mg/L	NC	NS	10 J	10	7.8 J	5100	6.6	14	17 J	17	16	16000 J	16
Oxygen	mg/L	NC	NS	0.98 J	3.4	3.1 J	2900	1.4	2.5	1.4 J	2.5	1.1	2300 J	0.77

See notes at end of table.

TABLE 1
SUMMARY OF ANALYTES DETECTED IN GROUNDWATER - SWMUs 6 & 7
SEPTEMBER 2003 SAMPLING EVENT

FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

Sample ID			MPT-8-MW18S						MPT-8-MW19S					
Sample Location			MW18S						MW19S					
Collect Date			11/20/02	12/19/02	01/14/03	02/13/03	05/19/03	09/11/03	11/20/02	12/18/02	01/14/03	02/11/03	05/20/03	09/11/03
	Units	GCTL[1]												
Metals[2]														
Iron	µg/L	300	1230	1280	1410	1300	2100	2000	84.2	--	--	--	--	--
Manganese	µg/L	50	59.0	77.4	67.5	58.8	95	126	3.7	2.9	2.4	94.4	--	--
Miscellaneous[3]														
Alkalinity	mg/L	NC	240	230	230 J	220	290	300	160	170	130 J	130	98	140
Ammonia	mg/L	2.8	0.22	NA	0.15		0.049	0.08	0.21	--	0.14	--	--	--
Chloride	mg/L	250	9.9	9.1	7.2 J	6.6	9	10	28	24	21	23	11	9
Dissolved Organic Carbon	mg/L	NC	NA	NA	NA	NA	NA	NA	4.8	5.6	5.7	4.2	7	5.0
Fractional Organic Carbon	mg/L	NC	45	NA	NA	NA	NA	NA	32	31	27	29	NA	NA
Nitrate	mg/L	10	0.11 J	--	--	--	--	--	1.1 J	1.5	1.3 J	2.0 J	0.78	4.0
Nitrite	mg/L	1	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate	mg/L	NC	--	--	--	--	--	--	--	--	--	--	--	--
Sulfate	mg/L	250	17 J	15	18	15	3 J	5	33 J	33	34	36	28	32
Total Organic Carbon	mg/L	NC	7.4	3.8	3.5	2.8	5	7.1	5	4.8	6.1	4.6	22	4.8
Biogenic Gases[4]														
Carbon Dioxide	mg/L	NC	34	13 J	17	23	35000 J	32	7.3	4 J	3.3	4 J	7800	9.2
Ethane	µg/L	NC	0.007	--	0.002	--	0.005 J	0.007	--	--	0.001 J	--	0.002	0.004 J
Ethene	µg/L	NC	0.011	--	--	--	0.008 J	--	0.01	--	0.001 J	--	0.016	0.013
Hydrogen	nM	NC	1.9	1.4 J	1.6 J	2	0.39 J	7	2.5	1 J	1.5	1.1 J	0.3	1.7
Methane	mg/L	NC	0.097	0.068 J	0.100	0.18	120 J	0.084	0.00009	0.0002 J	0.00014	0.0004 J	0.42	0.00028
Nitrogen	mg/L	NC	16	18 J	17	18	17000 J	17	13	16 J	16	16 J	15000	16
Oxygen	mg/L	NC	2.1	1.5 J	2.5	1.7	2100 J	1.1	10	5.8 J	5.7	7 J	6800	5.7

Notes:

[1] GCTLs = Groundwater Cleanup Taget Levels from Chapter 62-777, F.A.C.
[2] SW-846 6010B (Metals)
[3] USEPA 310.1 (Alkalinity); USEPA 350.2 (Ammonia); USEPA 300.0 (Anions); SW-846 9060 (DOC, FOC, TOC)
[4] AMG20GAX (Biogenic Gases)
-- = Compound not detected
J = Compound detected at an estimated concentration

NA = Not analyzed
NS = Not Sampled
NC = No criteria
nM = nanomolar
mg/L = milligrams per liter
µg/L = micrograms per liter

TABLE 2
SUMMARY OF GROUNDWATER ELEVATIONS - SWMUs 6 & 7
SEPTEMBER 2003 SAMPLING EVENT

FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

Well Number	Total Depth of Well (ft)	Top of Casing Elevation[1] (ft)	Depth to Water, ft (BTOC)						Groundwater Elevation[1]					
			11/19/02	12/17/02	01/13/03	02/13/03	05/21/03	09/12/03	11/19/02	12/17/02	01/13/03	02/13/03	05/21/03	09/12/03
MPT-8-MW01S	16.30	19.75	8.51	9.10	8.81	9.51	9.21	9.47	11.24	10.65	10.94	10.24	10.54	10.28
MPT-8-MW02S	15.22	NA	11.54	11.94	11.85	12.22	11.81	11.04	NA	NA	NA	NA	NA	NA
MPT-8-MW03S	15.40	NA	11.58	11.48	10.92	12.23	11.33	10.83	NA	NA	NA	NA	NA	NA
MPT-8-MW04S	15.50	11.90	10.04	10.33	10.14	10.39	9.62	8.89	1.86	1.57	1.76	1.51	2.28	3.01
MPT-8-MW06S	15.20	NA	7.06	7.53	7.42	8.18	6.99	7.64	NA	NA	NA	NA	NA	NA
MPT-8-MW08S	14.60	NA	9.02	9.64	NM	NM	9.43	7.91	NA	NA	NA	NA	NA	NA
MPT-8-MW09S	14.85	12.55	8.96	9.09	9.03	9.54	8.95	5.90	3.59	3.46	3.52	3.01	3.60	6.65
MPT-8-MW12S	18.10	NA	10.97	11.33	11.25	11.65	10.65	10.15	NA	NA	NA	NA	NA	NA
MPT-8-MW13S	15.25	NA	10.45	10.70	10.55	10.95	10.01	9.03	NA	NA	NA	NA	NA	NA
MPT-8-MW13I	39.45	NA	10.65	10.83	10.55	11.06	10.17	8.74	NA	NA	NA	NA	NA	NA
MPT-8-MW15SR	35.50	NA	10.15	10.61	10.47	10.91	10.12	9.05	NA	NA	NA	NA	NA	NA
MPT-8-MW16S	15.00	NA	8.55	8.77	8.67	9.00	8.22	7.32	NA	NA	NA	NA	NA	NA
MPT-8-MW17S	14.89	NA	9.22	9.46	9.26	9.40	8.77	7.71	NA	NA	NA	NA	NA	NA
MPT-8-MW18S	15.02	8.80	5.61	6.92	6.86	7.12	6.22	5.86	3.19	1.88	1.94	1.68	2.58	2.94
MPT-8-MW19S	16.30	NA	5.82	5.47	5.26	NM	5.81	6.08	NA	NA	NA	NA	NA	NA
MPT-S-MW02S	15.22	NA	7.85	8.58	8.83	9.98	8.31	7.17	NA	NA	NA	NA	NA	NA
MPT-S-MW03S	15.40	11.90	10.20	10.57	10.43	10.82	NM	9.13	1.70	1.33	1.47	1.08	NM	2.77

Notes:
[1] Based on benchmark elevation of southeast corner of concrete transformer slab assumed to be 30.00 ft.
ft = feet
BTOC = below top of casing
NM = not measured
NA = not available

TABLE 3
SUMMARY OF FIELD SAMPLED NATURAL ATTENUATION PARAMETERS - SWMUs 6 & 7
SEPTEMBER 2003 SAMPLING EVENT

FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

Sample ID	MPT-8-MW01S						MPT-8-MW04S					
Collect Date	**11/19/02**	**12/19/02**	**01/13/03**	**02/10/03**	**05/20/03**	**09/05/03**	**Nov-02**	**12/19/02**	**01/15/03**	**02/13/03**	**05/21/03**	**09/04/03**
Temperature (^{o}C)	26.31	22.97	21.21	21.12	23.33	26.88	NS	24.99	22.88	23.25	23.88	26.51
pH (Standard Units)	7.51	11.13	7.54	8.02	7.56	7.55	NS	10.12	6.70	7.22	6.64	6.70
Conductivity (mS/cm)	0.495	0.349	0.342	0.404	0.343	0.339	NS	0.832	0.780	1.030	0.852	0.841
Turbidity (NTU)	2.8	2.6	0	0	0.59	1.3	NS	8.2	0	11.6	0.93	0.3
Redox Potential (Millivolts)	-149	-162	-227	-198	-59.3	-96.3	NS	-175	-181	-129	-59.1	-113.1
Dissolved Oxygen (mg/L)	0.4	0.8	0.6	1.0	0.6	6.0	NS	0.2	0.6	0.3	0.6	3.0
Carbon Dioxide (mg/L)	13	10	<10	<10	<10	<10	NS	90	145	110	170	160
Sulfide (mg/L)	0.06	0.05	0.03	0.19	0.03	0	NS	0.23	0.32	0.15	0.10	0.13
Ferrous Iron (mg/L)	0.05	0.13	0.23	0.12	0.13	0	NS	4.3	6.4	6.0	6.8	5.2
Hydrogen Sulfide (mg/L)	0.1	0.1	0	0.5	0.3	0	NS	2	2.0	2.0	2.0	0.1

Sample ID	MPT-8-MW06S						MPT-8-MW09S					
Collect Date	**11/21/02**	**12/18/02**	**01/14/03**	**02/13/03**	**05/19/03**	**09/04/03**	**11/19/02**	**12/18/02**	**01/14/03**	**02/10/03**	**05/21/03**	**09/05/03**
Temperature (^{o}C)	25.11	22.42	19.86	19.91	23.05	26.81	25.15	23.45	21.45	20.70	23.67	27.66
pH (Standard Units)	7.54	8.49	7.32	7.88	7.39	7.4	7.22	10.34	6.85	7.20	6.86	7.40
Conductivity (mS/cm)	0.423	0.33	0.294	0.362	0.307	0.303	1.100	1.620	0.768	0.669	0.898	0.500
Turbidity (NTU)	0	0	0	0.2	0	0.2	0	0	0	0.2	0.55	1.7
Redox Potential (Millivolts)	-47	87	74	7	92.1	101.8	-97	-97	-59	-74	35	149.2
Dissolved Oxygen (mg/L)	4.0	5.0	6.0	5.0	4.0	3.0	2.0	1.0	1.0	0.8	1.0	3.0
Carbon Dioxide (mg/L)	<10	<10	10	12	<10	13	25	45	50	29	70	13
Sulfide (mg/L)	0.03	0	0	0	0.01	0.13	0.01	0.01	0	0.01	0.05	0
Ferrous Iron (mg/L)	0.01	0.01	0.01	0.05	0.06	0.09	0	0.98	1.27	1.49	0.4	0
Hydrogen Sulfide (mg/L)	0	0	0	0	0	0	0	0	0.3	0.5	0.3	0

See notes at end of table.

TABLE 3
SUMMARY OF FIELD SAMPLED NATURAL ATTENUATION PARAMETERS - SWMUs 6 & 7
SEPTEMBER 2003 SAMPLING EVENT

FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

Sample ID	MPT-8-MW015SR						MPT-8-MW016S					
Collect Date	**11/21/02**	**Dec.**	**01/15/03**	**02/01/03**	**05/01/03**	**09/01/03**	**11/21/02**	**12/18/02**	**01/15/03**	**02/11/03**	**05/20/03**	**09/03/03**
Temperature (^oC)	24.48	NS	22.23	NS	NS	NS	25.90	24.41	22.45	22.50	23.42	26.59
pH (Standard Units)	7.40	NS	7.41	NS	NS	NS	6.84	10.39	6.70	7.30	6.64	6.67
Conductivity (mS/cm)	2.580	NS	2.670	NS	NS	NS	0.908	0.863	1.200	1.180	0.936	0.841
Turbidity (NTU)	>999	NS	277	NS	NS	NS	0	8.4	0	16.9	1.47	2.1
Redox Potential (Millivolts)	-394	NS	-368	NS	NS	NS	-169	-120	-215	-120	-44	-128.2
Dissolved Oxygen (mg/L)	0.3	NS	0.40	NS	NS	NS	0.20	0.8	0.4	1.0	1.0	0.2
Carbon Dioxide (mg/L)	35	NS	50	NS	NS	NS	50	160	70	160	200	225
Sulfide (mg/L)	>0.8	NS	>0.80	NS	NS	NS	0.09	0.06	0.09	0.07	0.03	0.03
Ferrous Iron (mg/L)	1.60	NS	0.1	NS	NS	NS	4.80	4	6	5.6	2.81	5.2
Hydrogen Sulfide (mg/L)	>5	NS	>5.0	NS	NS	NS	0.5	0.1	0.5	0.1	0.5	0.5

Sample ID	MPT-8-MW017S						MPT-8-MW018S					
Collect Date	**11/21/03**	**12/17/02**	**01/13/03**	**02/13/03**	**05/19/03**	**09/04/03**	**11/21/02**	**12/19/02**	**01/14/03**	**02/13/03**	**05/19/03**	**09/04/03**
Temperature (^oC)	25.90	24.09	21.81	22.08	23.07	26.25	26.12	24.10	22.47	21.70	23.24	25.51
pH (Standard Units)	6.84	10.41	6.99	7.59	6.95	6.97	7.16	11.26	7.05	7.63	7.11	7.15
Conductivity (mS/cm)	0.908	0.608	0.512	0.556	0.539	0.547	0.551	0.404	0.384	0.428	0.483	0.440
Turbidity (NTU)	0	0	0	6.7	0.21	0.8	0	0	0	0	0	0.8
Redox Potential (Millivolts)	-169	-182	-132	-128	-52.6	-104.4	-157	-206	-133	-106	-49.1	-92.7
Dissolved Oxygen (mg/L)	0.0	0.4	0.4	1.0	0.1	2.0	0.3	1.0	1.0	1.0	0.6	4.0
Carbon Dioxide (mg/L)	50	30	25	30	35	45	20	28	17	16	20	20
Sulfide (mg/L)	0.09	0.09	0.04	0.08	0.03	0.17	0.01	0.01	0.03	0	0.01	0
Ferrous Iron (mg/L)	4.8	2.61	2.25	1.92	2.64	1.68	0.86	1.17	0.97	0.68	1.76	0.97
Hydrogen Sulfide (mg/L)	0.5	0.5	0	0	0	0	0	NM	0	0	0	0

See notes at end of table.

TABLE 3
SUMMARY OF FIELD SAMPLED NATURAL ATTENUATION PARAMETERS - SWMUs 6 & 7
SEPTEMBER 2003 SAMPLING EVENT

FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

Sample ID	**MPT-8-MW019S**						**MPT-S-MW02S**					
Collect Date	**11/20/02**	**12/18/03**	**01/14/03**	**02/11/03**	**05/20/03**	**09/04/03**	**11/20/02**	**12/17/03**	**01/15/03**	**02/11/03**	**05/20/03**	**09/03/03**
Temperature (^oC)	23.63	18.40	16.80	16.44	29.17	32.62	23.52	23.14	21.14	21.38	22.47	26.45
pH (Standard Units)	7.54	8.11	7.54	8.42	7.61	7.58	7.47	10.36	7.29	7.70	7.04	7.04
Conductivity (mS/cm)	0.491	0.345	0.334	0.429	0.337	0.338	2.780	2.780	1.390	1.390	1.034	2.618
Turbidity (NTU)	0	0	0	4.7	0.14	0.7	0	0	0	5.7	0.48	0
Redox Potential (Millivolts)	51	98	75	42	130.5	175.3	-73	-160	-150	-57	-20.3	83.4
Dissolved Oxygen (mg/L)	3.0	4.0	6.0	6.0	4.0	2.0	1.0	1.0	2.0	3.0	1.0	1.0
Carbon Dioxide (mg/L)	<10	<10	<10	<10	<10	<10	25	25	18	20	20	45
Sulfide (mg/L)	0	0.01	0	0.03	0.01	0	0.03	0.04	0.01	0	0.15	0
Ferrous Iron (mg/L)	0	0.03	0.03	0.01	0.01	0	0.03	0.06	0	0	1.13	0
Hydrogen Sulfide (mg/L)	0	0	0	0	0	0	0	0	0	0	2	0

Sample ID	**MPT-S-MW03S**					
Collect Date	**11/21/03**	**12/19/02**	**01/14/03**	**02/11/03**	**05/20/03**	**09/03/03**
Temperature (^oC)	25.82	NS	NS	21.69	23.60	26.41
pH (Standard Units)	6.93	NS	NS	7.53	7.01	6.93
Conductivity (mS/cm)	0.928	NS	NS	0.740	0.566	0.694
Turbidity (NTU)	2.5	NS	NS	0	1	0
Redox Potential (Millivolts)	-253	NS	NS	-109	-1	-2
Dissolved Oxygen (mg/L)	0.3	NS	NS	1.0	0.4	2.0
Carbon Dioxide (mg/L)	34	NS	NS	35	30	60
Sulfide (mg/L)	0.25	NS	NS	0.01	0.01	0
Ferrous Iron (mg/L)	4.6	NS	NS	2.81	0.87	2.52
Hydrogen Sulfide (mg/L)	5	NS	NS	0	0	0

Notes:

Ft = Feet
^oC = Degrees Celsius
mS/cm = Millisiemens per Centimeter
NTU = Nephelometric Turbidity Unit

Redox = Oxidation - Reduction
mg/L = Milligrams per Liter
NM=Not measured
NS = Not Sampled

FIGURES

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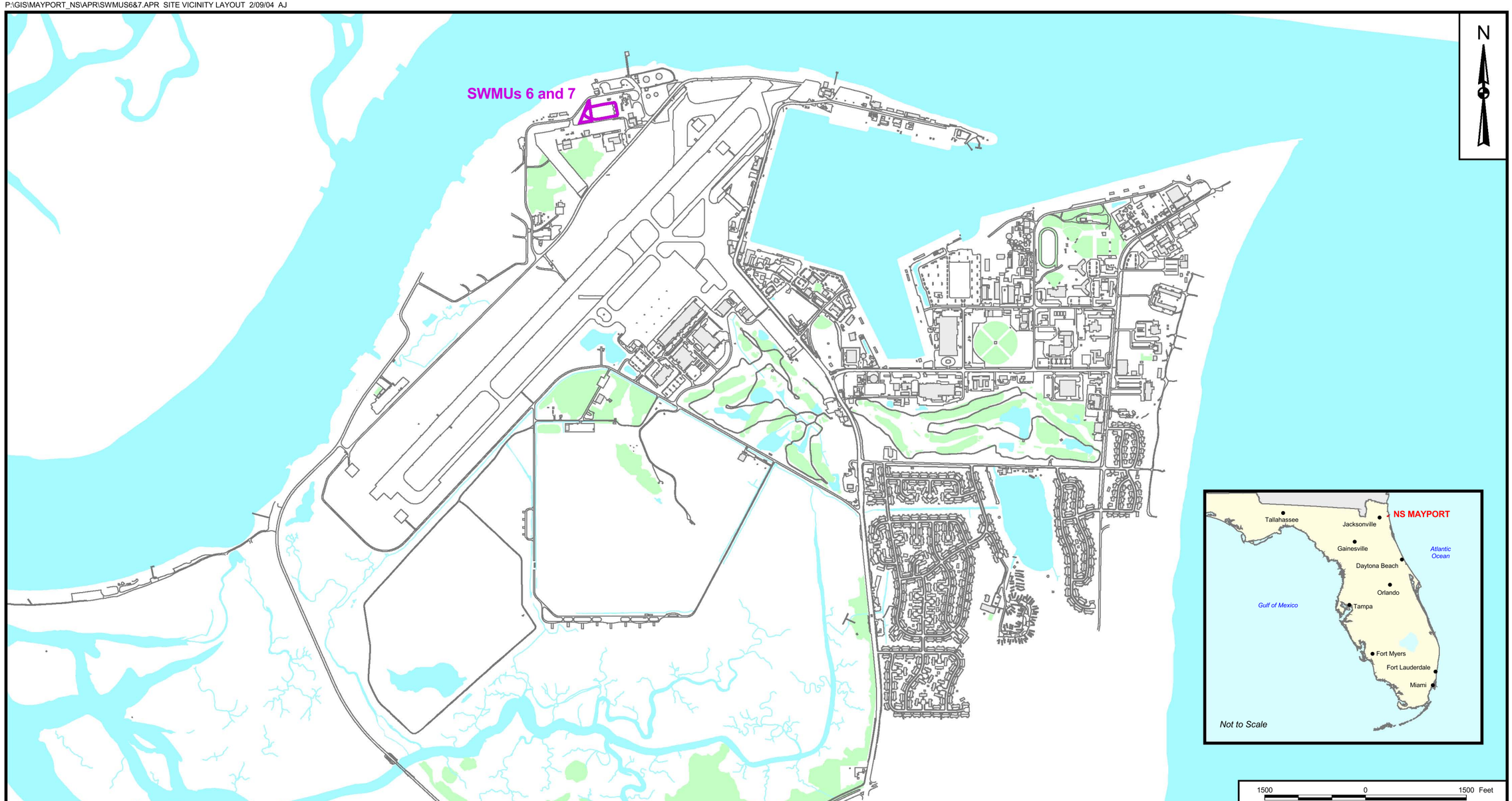

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY A. JANOCHA	DATE 8/01/03
CHECKED BY C. METZ	DATE 2/09/04
COST/SCHED-AREA	
SCALE AS NOTED	

SITE VICINITY MAP
FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
SWMUs 6 AND 7
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

CONTRACT NO. 4259	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 1	REV. 0

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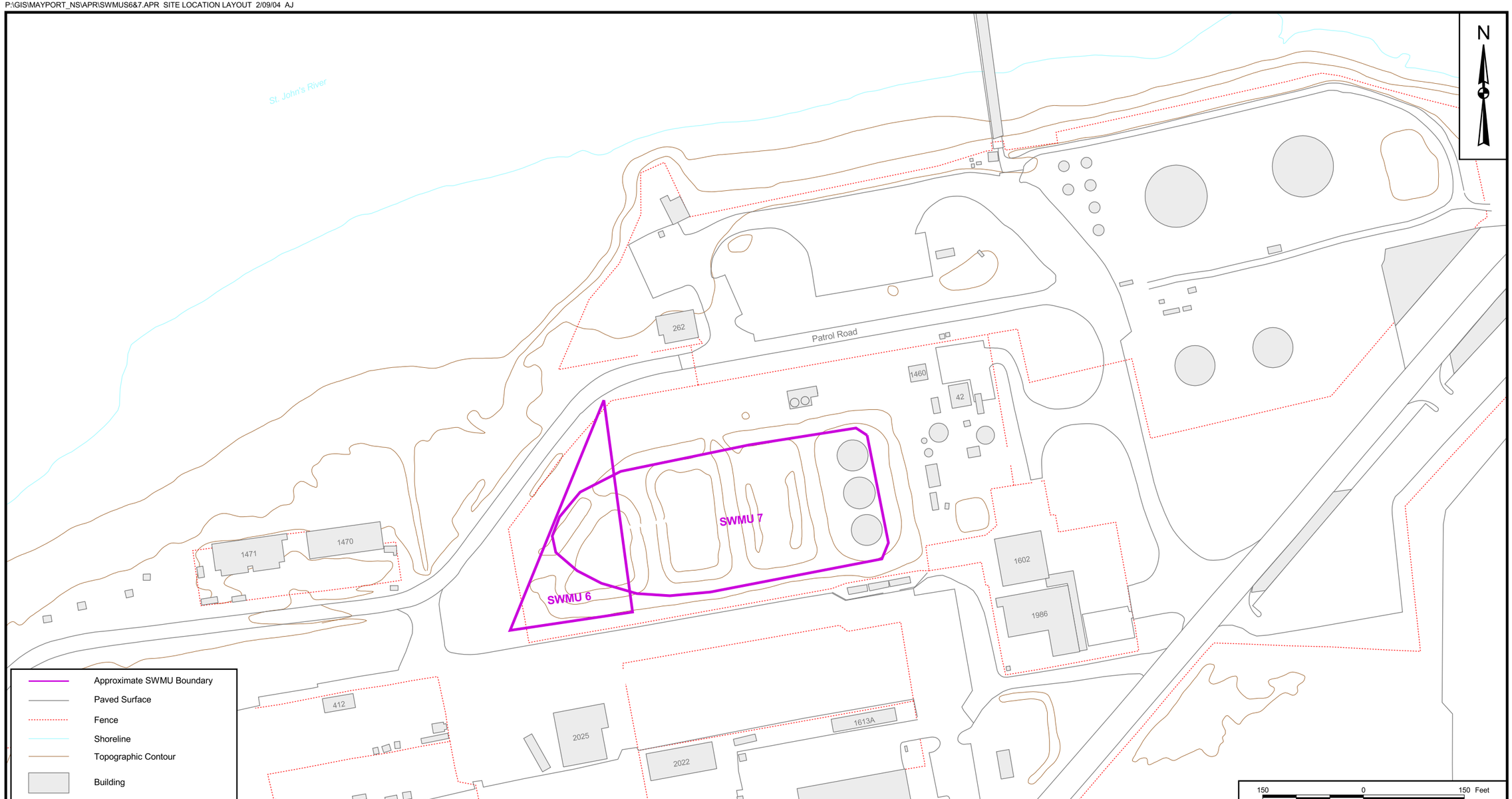


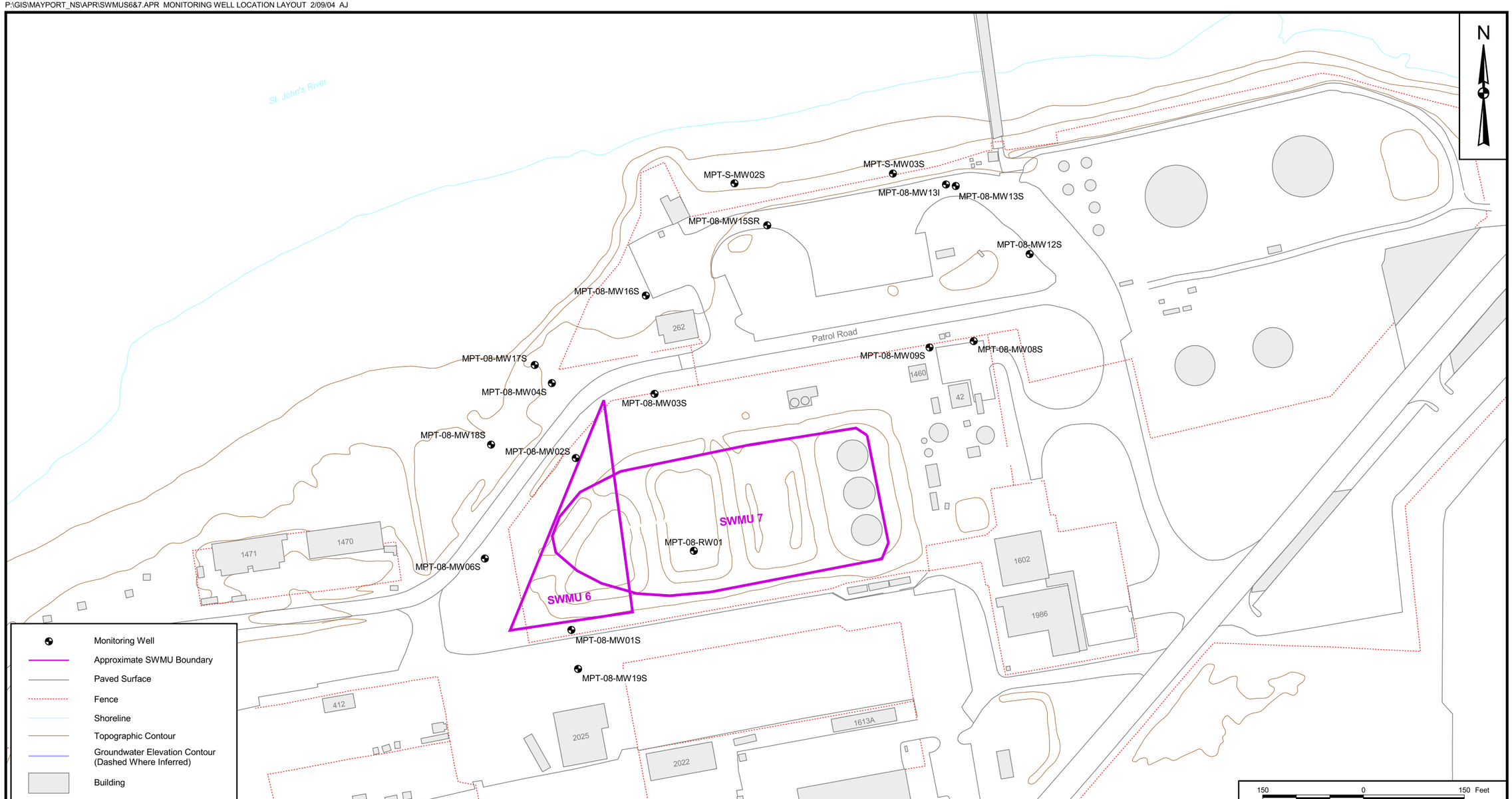
NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY A. JANOCHA	DATE 8/01/03
CHECKED BY C. METZ	DATE 2/09/04
COST/SCHED-AREA	
SCALE AS NOTED	

SITE LOCATION MAP
FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
SWMUs 6 AND 7
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

CONTRACT NO. 4259	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 2	REV. 0

P:\GIS\MAYPORT_NS\APR\SWMUS6&7.APR MONITORING WELL LOCATION LAYOUT 2/09/04 AJ



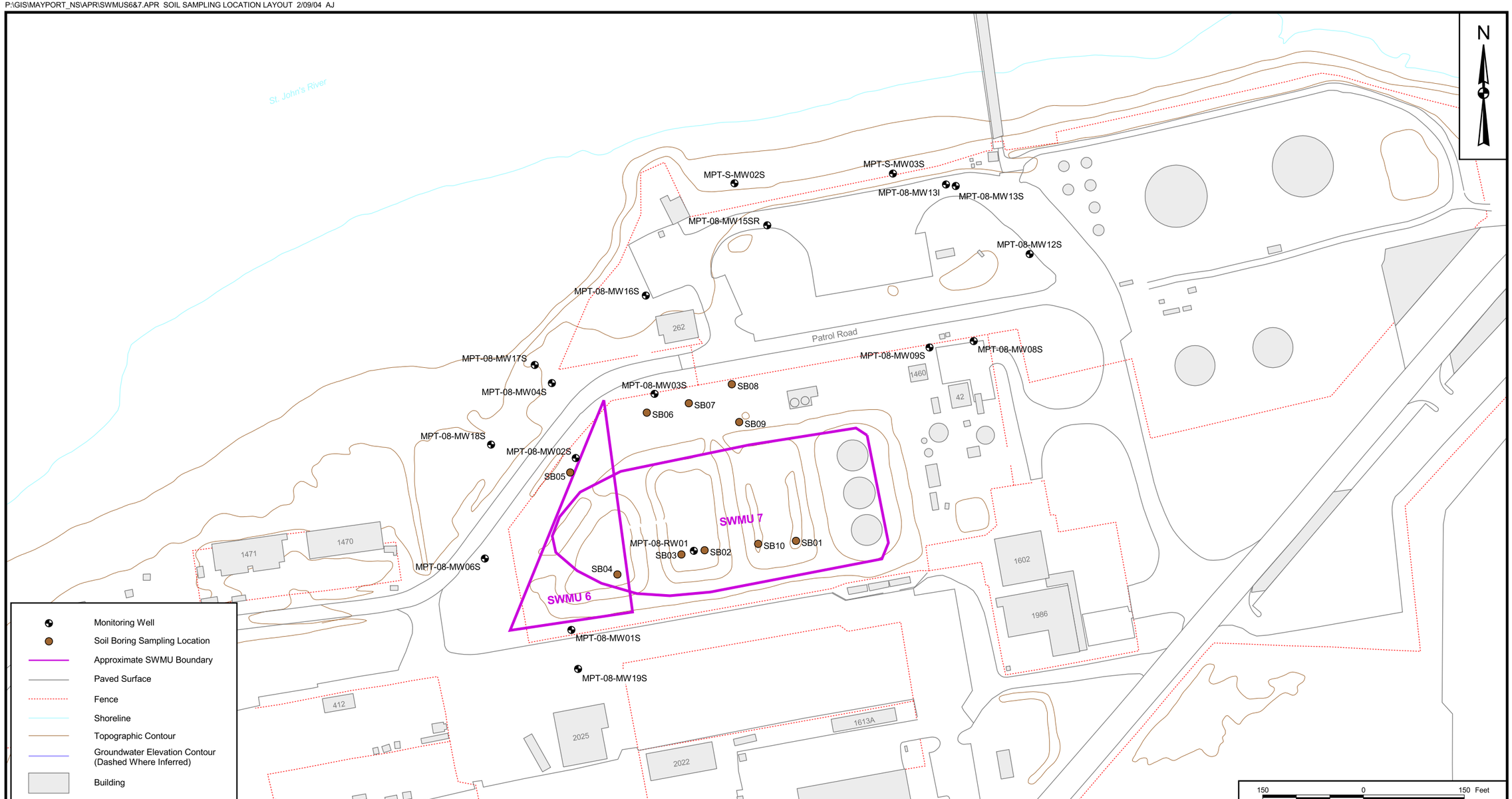
NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY	DATE
A. JANOCHA	8/01/03
CHECKED BY	DATE
C. METZ	2/09/04
COST/SCHED-AREA	
SCALE	
AS NOTED	

MONITORING WELL LOCATION MAP
FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
SWMUs 6 AND 7
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

CONTRACT NO.	
4259	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO.	REV.
FIGURE 3	0

P:\GIS\MAYPORT_NS\APR\SWMUS6&7.APR SOIL SAMPLING LOCATION LAYOUT 2/09/04 AJ



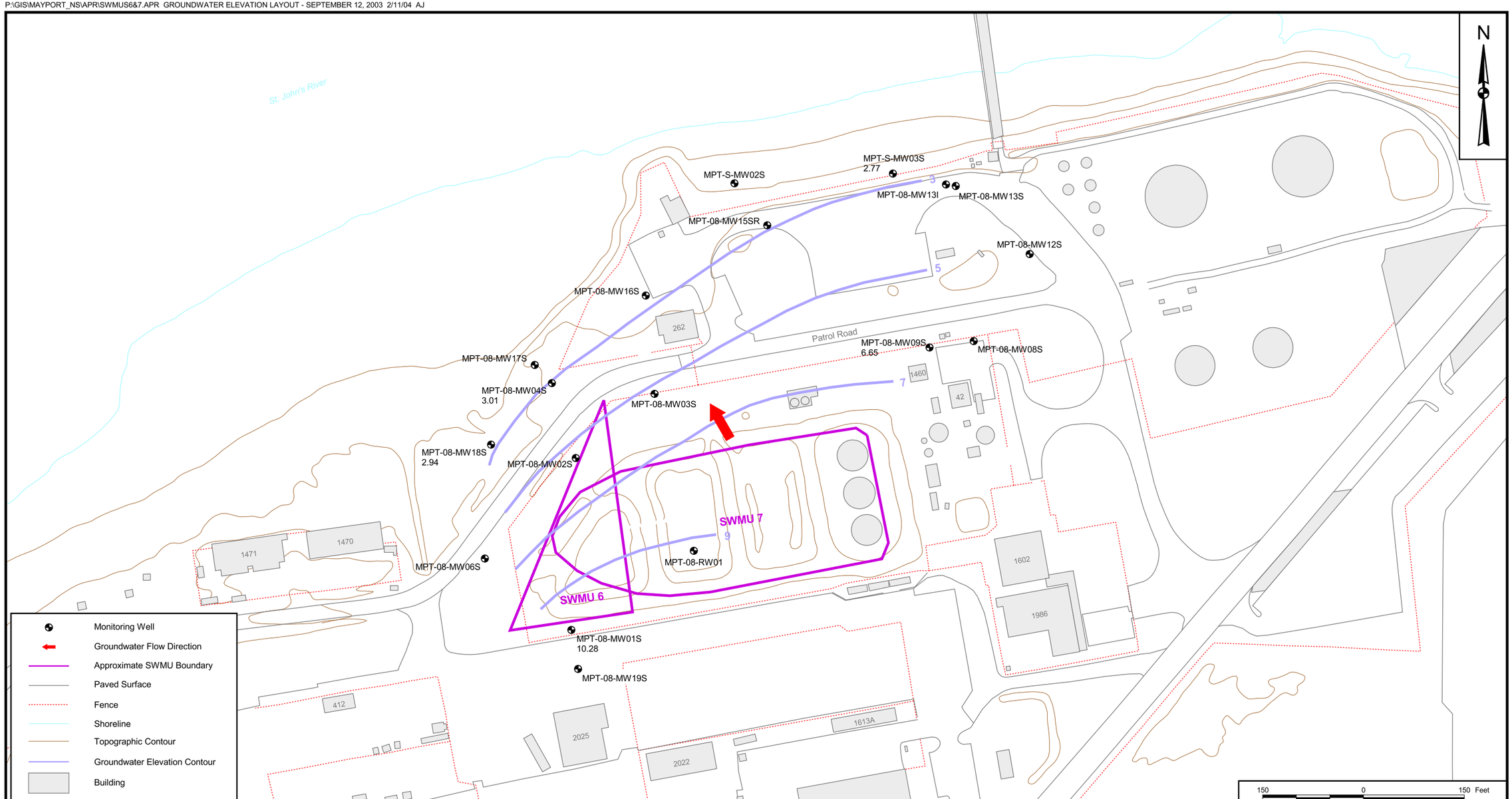
NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY	DATE
A. JANOCHA	8/01/03
CHECKED BY	DATE
C. METZ	2/09/04
COST/SCHED-AREA	
SCALE	
AS NOTED	

SOIL SAMPLING LOCATIONS
FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
SWMUs 6 AND 7
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

CONTRACT NO.	
4259	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO.	REV.
FIGURE 4	0

P:\GIS\MAYPORT_NS\APR\SWMUS6&7.APR GROUNDWATER ELEVATION LAYOUT - SEPTEMBER 12, 2003 2/11/04 AJ



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY	DATE
A. JANOCHA	2/09/04
CHECKED BY	DATE
C. METZ	2/11/04
COST/SCHED-AREA	
SCALE	
AS NOTED	

GROUNDWATER ELEVATION AND CONTOUR MAP
SEPTEMBER 12, 2003
FOURTH QUARTER GROUNDWATER MONITORING LETTER REPORT
SWMUs 6 AND 7
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

CONTRACT NO.	
4259	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO.	REV.
FIGURE 5	0

ATTACHMENT A

FIELD DATA FORMS

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: SWMU 7 **Project No.:** N4259
Location: Mayport **Personnel:** P.Leverette
Weather Conditions: **Measuring Device:** Water interface probe
Tidally Influenced: Yes ____ No ____ **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-8-MW01S	9/12/2003		19.75	16.3	9.47			
MPT-8-MW02S	9/12/2003			15.22	11.04			
MPT-8-MW03S	9/12/2003			15.4	10.83			
MPT-8-MW04S	9/12/2003		11.9	15.5	8.89			
MPT-8-MW06S	9/12/2003			15.2	7.64			
MPT-8-MW08S	9/12/2003			14.6	7.91			
MPT-8-MW09S	9/12/2003		12.55	14.85	5.90			
MPT-8-MW12S	9/12/2003		12.93	18.1	10.15			
MPT-8-MW13S	9/12/2003		11.33	15.25	9.03			
MPT-8-MW13I	9/12/2003			39.45	8.74			
MPT-8-MW15SR	9/12/2003			35.5	9.05			
MPT-8-MW16S	9/12/2003			15	7.32			
MPT-8-MW17S	9/12/2003			14.89	7.71			
MPT-8-MW18S	9/12/2003		8.8	15.02	5.86			
MPT-8-MW19S	9/12/2003			16.3	6.08			
MPT-S-MW02S	9/12/2003		10.08	15.22	7.17			
MPT-S-MW03S	9/12/2003		11.9	15.4	9.13			

* All measurements to the nearest 0.01 foot

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW 01S -05
Project No.:	N4259 (CTO 253)	Sample Location:	MW 01S
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 11 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1330	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	7.53	0.416	1.2	0.39	27.42	-39.9	

PURGE DATA

Date: 9/ 11 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic	1300	-	-	-	-	-	-	START PURGE
Monitor Reading (ppm): 0	1305	7.55	0.428	5.0	0.76	27.36	-38.0	400/2.0
Well Casing Diameter: 2"	1310	7.53	0.417	3.2	0.76	27.46	-66.1	400/4.0
Well Casing Material: PVC	1315	7.53	0.415	2.1	0.71	27.49	-65.6	400/6.0
Total Well Depth (TD): 16.4	1320	7.53	0.416	1.6	0.52	27.39	-51.4	400/8.0
WTH: 9.46	1325	7.53	0.416	1.2	0.39	27.42	-39.9	400/10.0
One Casing Volume(gal/L): 4.3								
Start Purge (hrs): 1300	SAMPLE TIME 1330							
End Purge (hrs): 1325								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 10.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW 04S -05
Project No.:	N4259 (CTO 253)	Sample Location:	MW
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 11 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1050	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	6.75	0.958	2.8	0.07	25.96	-113.3	

PURGE DATA

Date: 9/ 11 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic	1020	—	—	—	—	—	—	START PURGE
Monitor Reading (ppm): 0	1025	6.77	0.987	8.6	0.39	26.12	-98.6	400/2.0
Well Casing Diameter: 2"	1030	6.76	0.963	5.3	0.17	26.01	-105.5	400/4.0
Well Casing Material: PVC	1035	6.76	0.959	3.9	0.12	25.98	-109.3	400/6.0
Total Well Depth (TD): 15.35	1040	6.76	0.958	3.3	0.10	25.95	-111.7	400/8.0
WTH: 8.95	1045	6.75	0.958	2.8	0.07	25.96	-113.3	400/10.0
One Casing Volume(gal/0): 4.0								
Start Purge (hrs): 1020		SAMPLE	TIME	1050				
End Purge (hrs): 1045								
Total Purge Time (min): 25								
Total Vol. Purged (gal/0): 10.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW 06S -05
Project No.:	N4259 (CTO 253)	Sample Location:	MW06S
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/11/2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1405	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	7.08	0.358	0.59	2.48	26.91	-14.1	

PURGE DATA

Date: 9/11/2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic	1345	—	—	—	—	—	—	Start
Monitor Reading (ppm): 0	1355	7.23	0.357	2.80	2.76	26.98	-20.2	
Well Casing Diameter: 2"	1358	7.10	0.358	0.61	2.53	26.92	-18.3	
Well Casing Material: PVC	1400	7.08	0.358	0.53	2.45	26.90	-15.5	
Total Well Depth (TD): 15.1	1402	7.08	0.358	0.59	2.48	26.91	-14.1	
Static 7.68								
One Casing Volume(gal/L):								
Start Purge (hrs): 1345	1405 = Sample Time							
End Purge (hrs): 1400								
Total Purge Time (min): 15								
Total Vol. Purged (gal/L): 4.5								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s): Charles Metz
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW09S -05
Project No.:	N4259 (CTO 253)	Sample Location:	MW
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 11 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1320	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	7.24	0.504	1.18	8.24	29.05	-8.5	

PURGE DATA

Date: 9/ 11 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic	1300	—	—	—	—	—	—	Start
Monitor Reading (ppm): 0	1310	7.45	0.510	1.65	8.13	29.15	-25.4	
Well Casing Diameter: 2"	1313	7.23	0.504	1.21	8.25	29.06	-5.7	
Well Casing Material: PVC	1315	7.24	0.505	1.43	7.87	29.04	-8.2	
Total Well Depth (TD): 12.35	1318	7.24	0.504	1.18	8.24	29.05	-8.5	
STATIC 4.15								
One Casing Volume(gal/L):	1320 = Sample Time							
Start Purge (hrs): 1300								
End Purge (hrs): 1318								
Total Purge Time (min): 18								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s): Charles Metz
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW/6 S -05
Project No.:	N4259 (CTO 253)	Sample Location:	MW
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/11/2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1000	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	6.49	0.956	5.59	0.18	26.56	-50	

PURGE DATA

Date: 9/11/2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic	0940	—	—	—	—	—	—	START PURGE
Monitor Reading (ppm): 0	0950	6.59	0.960	10.2	0.30	26.47	-50.8	
Well Casing Diameter: 2"	0952	6.53	0.959	7.13	0.26	26.44	-49.1	
Well Casing Material: PVC	0955	6.51	0.958	6.34	0.21	26.48	-49.8	
Total Well Depth (TD): 14.92	0958	6.49	0.956	5.59	0.18	26.56	-50.0	
STATIC 7.48								
One Casing Volume(gal/L):								
Start Purge (hrs): 0940								
End Purge (hrs): 0955								
Total Purge Time (min): 15								
Total Vol. Purged (gal/L): 4.5								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s): Charles Metz
MS/MSD	Duplicate ID No.: MPT-8-DU01-05	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW/175 -05
Project No.:	N4259 (CTO 253)	Sample Location:	MW
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 11 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1040	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	6.71	0.667	1.70	0.07	25.45	-57.5	

PURGE DATA

Date: 9/ 11 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic	1020	—	—	—	—	—	—	Start Purge
Monitor Reading (ppm): 0	1030	6.73	0.668	2.25	0.08	25.51	-62.1	
Well Casing Diameter: 2"	1032	6.72	0.667	2.06	0.07	25.48	-59.1	
Well Casing Material: PVC	1035	6.71	0.667	1.81	0.07	25.45	-57.2	
Total Well Depth (TD): 14.95	1038	6.71	0.667	1.70	0.07	25.45	-57.5	
Static 7.77								
One Casing Volume(gal/L):								
Start Purge (hrs): 1020								
End Purge (hrs): 1038								
Total Purge Time (min): 18								
Total Vol. Purged (gal/L): 50								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s): Charla Metz
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW 18S -05
Project No.:	N4259 (CTO 253)	Sample Location:	MW 18S
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 11 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1420	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	7.09	0.621	0.6	0.09	26.11	-88.3	

PURGE DATA

Date: 9/ 11 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic	1345	—	—	—	—	—	—	START PURGE
Monitor Reading (ppm): 0	1350	7.14	0.636	2.3	0.30	25.86	-77.3	400/2.0
Well Casing Diameter: 2"	1355	7.11	0.623	1.6	0.13	26.13	-80.2	400/4.0
Well Casing Material: PVC	1400	7.10	0.621	1.3	0.12	26.15	-84.6	400/6.0
Total Well Depth (TD): 14.54	1405	7.10	0.621	0.9	0.11	26.14	-86.4	400/8.0
WTH = 6.00	1410	7.10	0.620	0.7	0.09	26.16	-87.5	400/10.0
One Casing Volume(gal/L): 5.2	1415	7.09	0.621	0.6	0.09	26.11	-88.3	400/12.0
Start Purge (hrs): 1345								
End Purge (hrs): 1415	SAMPLE TIME 1420							
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 12.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW 19s -05
Project No.:	N4259 (CTO 253)	Sample Location:	MW 19s
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 11 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1440	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	7.48	0.353	0.9	5.14	31.20	-47.8	

PURGE DATA

Date: 9/ 11 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic	1420	—	—	—	—	—	—	Start
Monitor Reading (ppm): 0	1430	—	—	—	—	—	—	—
Well Casing Diameter: 2"	1433	7.45	0.354	1.8	5.20	31.23	-38.2	
Well Casing Material: PVC	1435	7.47	0.353	1.3	5.16	31.19	-44.3	
Total Well Depth (TD):	1438	7.48	0.353	0.9	5.14	31.20	-47.8	
One Casing Volume(gal/L):								
Start Purge (hrs): 1420	1440 = Sample Time							
End Purge (hrs): 1438								
Total Purge Time (min): 18								
Total Vol. Purged (gal/L)								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s): Charla M
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-S-MW-02S-05
Project No.:	N4259 (CTO 253)	Sample Location:	MW
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/11/2003	Color Visual	pH Standard	S.C. mS/cm	Turbidity NTU	DO mg/l	Temp. °C	ORP mV	Other
Time: 0920								
Method: Low Flow Peristaltic	Clear	7.08	2.227	1.18	0.39	26.11	-16.5	

PURGE DATA

Date: 9/11/2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic	0905	—	—	—	—	—	—	Start Pu.
Monitor Reading (ppm): 0	0910	7.11	2.233	2.21	0.39	26.10	-6.9	
Well Casing Diameter: 2"	0912	7.09	2.229	1.87	0.39	26.11	-13	
Well Casing Material: PVC	0915	7.08	2.227	1.18	0.39	26.11	-16.5	
Total Well Depth (TD): 7								
7.40	0920 = Sample Time							
One Casing Volume(gal/L): 0.7								
Start Purge (hrs): 0905								
End Purge (hrs): 0915								
Total Purge Time (min): 10								
Total Vol. Purged (gal/L): 3								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s): Charles Metz
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-S-MW03S -05
Project No.:	N4259 (CTO 253)	Sample Location:	MW
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/11/2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1010	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	7.12	0.554	1.2	0.13	26.18	-71.4	

PURGE DATA

Date: 9/11/2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic	0940	–	–	–	–	–	–	START PURGE
Monitor Reading (ppm): 0	0945	7.19	0.540	5.8	0.29	26.06	-91.7	400/2.0
Well Casing Diameter: 2"	0950	7.14	0.550	2.4	0.23	26.10	-86.4	400/4.0
Well Casing Material: PVC	0955	7.13	0.552	1.7	0.20	26.11	-83.7	400/6.0
Total Well Depth (TD): 15.15	1000	7.12	0.553	1.3	0.15	26.16	-75.6	400/8.0
WTH: 9.35	1005	7.12	0.554	1.2	0.13	26.18	-71.4	400/10.0
One Casing Volume(gal/L): 3.5								
Start Purge (hrs): 0940		SAMPLE TIME 1010						
End Purge (hrs): 1005								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 10.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	**MPT-8-MW01S-05**
Project No.:	N4259 (CTO 253)	Sample Location:	MW01S
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 5 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 0935	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	7.55	0.339	1.3	0.45	26.88	-96.3	

PURGE DATA

Date: 9/ 5 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): **16.3'**								
WTH: 9.35								
One Casing Volume(gal/D): 4.3								
Start Purge (hrs): 0900								
End Purge (hrs): 0930								
Total Purge Time (min): 30								
Total Vol. Purged (gal/D): 12.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓
Biogenic Gases	None	1-40mL glass water vial and ??mL glass air vial	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD

Duplicate ID No.: MPT-8-DUP01-05

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)

WELL ID: MPT-8-MW01S-05
DATE: 9/5/2003

Time (Hrs.)	Water Level (Ft. below TOC)	Cumul. Volume (Liters)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (+/-mv)	Comments
0900	9.35	–	400	–	–	–	–	–	–	START PURGE
0905	9.61	2.0	400	7.58	0.358	3.7	0.73	26.80	-73.4	
0910	9.61	4.0	400	7.54	0.346	1.8	1.01	26.84	-82.3	
0915	9.61	6.0	400	7.55	0.343	1.6	0.67	26.81	-89.4	
0920	9.61	8.0	400	7.55	0.342	1.5	0.55	26.89	-93.5	
0925	9.61	10.0	400	7.55	0.340	1.7	0.48	26.90	-95.8	
0930	9.61	12.0	400	7.55	0.339	1.3	0.45	26.88	-96.3	
	SAMPLE	TIME	0935							

SIGNATURE(S): [signature]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **SWMU 7**

Project No.: **N4259 (CTO 253)**

Sampled By: C. Metz, P. Leverette

Field Analyst: P. LEVERETTE

Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: **MPT-8-MW01S-05**

Sample Location: **MW01S**

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Date: 9/5/03							
Time: 0935							
Method: Low Flow Peristaltic	CLEAR	7.55	0.339	1.3	0.45	26.88	-96.3

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 1-12 mg/L)

Analysis Time: 0950

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
_____	x 0.01	= mg/L
_____	x 0.02	= mg/L

CHEMetrics: 6.0 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 0945

Concentration: 0.0 mg/L

Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

Equipment: CHEMetrics (Range: 10-100 mg/L)

Analysis Time: 0938

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
_____	x 0.1	= mg/L
_____	x 0.2	= mg/L
_____	x 1.0	= mg/L
_____	x 2.0	= mg/L

CHEMetrics: <10 mg/L

Notes:

☐

GROUNDWATER SAMPLE LOG SHEET
NATURAL ATTENUATION PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW01S-05
Project No.:	N4259 (CTO 253)	Sample Location:	MW01S
		Sampled By:	C. Metz, P. Leverette

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Equipment: HACH DR-890 Colorimeter

Analysis Time: 0943

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.0 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 0940

Program/Module: 33 / 500nm

Concentration: 0.0 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	**MPT-8-MW04S-05**
Project No.:	N4259 (CTO 253)	Sample Location:	MW04S
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 4 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1105	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	6.70	0.841	0.3	2.98	26.51	-113.1	

PURGE DATA

Date: 9/ 4 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): **16.3'**								
WTH : 10.35								
One Casing Volume(gal/L): 3.7								
Start Purge (hrs): 1035								
End Purge (hrs): 1100								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 7.5								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓
Biogenic Gases	None	1-40mL glass water vial and ??mL glass air vial	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)

WELL ID: MPT-8-MW04S-05
DATE: 9/4/2003

Time (Hrs.)	Water Level (Ft. below TOC)	Cumul. Volume (Liters)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (+/-mv)	Comments
1035	10.35	–	300	–	–	–	–	–	–	START PURGE
1040	10.48	1.5	300	6.73	0.851	12.3	2.01	26.41	-106.9	
1045	10.50	3.0	300	6.71	0.844	9.3	2.38	26.50	-110.9	
1050	10.50	4.5	300	6.71	0.842	1.1	2.97	26.55	-111.1	
1055	10.50	6.0	300	6.71	0.841	0.6	2.98	26.53	-112.7	
1100	10.50	7.5	300	6.70	0.841	0.3	2.98	26.51	-113.1	
Stop Time 1105										

SIGNATURE(S): [illegible]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SWMU 7
Project No.: N4259 (CTO 253)
Sampled By: C. Metz, P. Leverette
Field Analyst: D. Leverette
Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: MPT-8-MW04S-05
Sample Location: MW04S
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Date: 9/4/03							
Time: 1105							
Method: Low Flow Peristaltic	CLEAR	6.70	0.841	0.3	2.98	26.51	-113.1

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 1-12 mg/L) Analysis Time: 1108

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
_____	x 0.01 =	mg/L
_____	x 0.02 =	mg/L

CHEMetrics: 3.0 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 1114

Concentration: 0.1 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

Equipment: CHEMetrics (Range: 100-100 mg/L) Analysis Time: 1109

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
_____	x 0.1 =	mg/L
_____	x 0.2 =	mg/L
_____	x 1.0 =	mg/L
_____	x 2.0 =	mg/L

CHEMetrics: 160 mg/L

Notes:

☐

GROUNDWATER SAMPLE LOG SHEET
NATURAL ATTENUATION PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW04S-05
Project No.:	N4259 (CTO 253)	Sample Location:	MW04S
		Sampled By:	C. Metz, P. Leverette

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Equipment: HACH DR-890 Colorimeter

Analysis Time: 1115

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.13 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: COLOR WHEEL

Analysis Time: 1113

Program/Module: 33 / 500nm

Concentration: 5.2 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	**MPT-8-MW06S-05**
Project No.:	N4259 (CTO 253)	Sample Location:	MW06S
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 4 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1340	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	7.40	0.303	0.2	2.78	26.81	101.8	

PURGE DATA

Date: 9/ 4 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): **16.3'**								
DTH : 7.76								
One Casing Volume(gal/L): 5.3								
Start Purge (hrs): 1300								
End Purge (hrs): 1335								
Total Purge Time (min): 35								
Total Vol. Purged (gal/L): 10.5								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓
Biogenic Gases	None	1-40mL glass water vial and ??mL glass air vial	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)

WELL ID: MPT-8-MW06S-05
DATE: 9/4/2003

Time (Hrs.)	Water Level (Ft. below TOC)	Cumul. Volume (Liters)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (+/-mv)	Comments
1300	7.76	—	300	—	—	—	—	—	—	START PURGE
1305	7.94	1.5	300	7.31	0.298	5.4	3.71	26.94	146.6	
1310	7.96	3.0	300	7.35	0.300	3.2	3.42	26.97	133.3	
1315	7.97	4.5	300	7.37	0.301	2.8	3.07	26.84	124.1	
1320	7.97	6.0	300	7.38	0.302	1.7	2.99	26.81	118.8	
1325	7.97	7.5	300	7.39	0.302	1.3	2.83	26.83	110.3	
1330	7.97	9.0	300	7.40	0.303	1.3	2.80	26.81	104.6	
1335	7.97	10.5	300	7.40	0.303	1.2	2.78	26.81	101.8	

SAMPLE TIME 1340

SIGNATURE(S): [illegible]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **SWMU 7**

Project No.: **N4259 (CTO 253)**

Sampled By: C. Metz, P. Leverette

Field Analyst:

Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: **MPT-8-MW06S-05**

Sample Location: **MW06S**

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (^{0}C)	ORP (Eh) (+/- mv)
Date: 9/4/03							
Time: 1340							
Method: Low Flow Peristaltic	CLEAR	7.40	0.303	0.2	2.78	26.81	101.8

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 3.0 mg/L)

Analysis Time: 1345

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
_____	x 0.01	= mg/L
_____	x 0.02	= mg/L

CHEMetrics: _____ mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 1347

Concentration: 0.0 mg/L

Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

Equipment: CHEMetrics (Range: 10-100 mg/L)

Analysis Time: 1353

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
_____	x 0.1	= mg/L
_____	x 0.2	= mg/L
_____	x 1.0	= mg/L
_____	x 2.0	= mg/L

CHEMetrics: 13 mg/L

Notes:

☐

GROUNDWATER SAMPLE LOG SHEET
NATURAL ATTENUATION PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW06S-05
Project No.:	N4259 (CTO 253)	Sample Location:	MW06S
		Sampled By:	C. Metz, P. Leverette

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Equipment: HACH DR-890 Colorimeter

Analysis Time: 1356

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.13 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1351

Program/Module: 33 / 500nm

Concentration: 0.09 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	**MPT-8-MW09S-05**
Project No.:	N4259 (CTO 253)	Sample Location:	MW09S
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/5/2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1055	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	7.40	0.500	1.7	4.74	27.66	149.2	

PURGE DATA

Date: 9/5/2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): **16.3'**								
WTH: 7.34								
One Casing Volume(gal/L): 0.5.6								
Start Purge (hrs): 1020								
End Purge (hrs): 1050								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 12.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓
Biogenic Gases	None	1-40mL glass water vial and ??mL glass air vial	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Pete Leverette

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)

WELL ID: MPT-8-MW09S-05
DATE: 9/ 5/2003

Time (Hrs.)	Water Level (Ft. below TOC)	Cumul. Volume (Liters)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (+/-mv)	Comments
1020	7.34	—	400	—	—	—	—	—	—	START PURGE
1025	7.48	2.0	400	7.39	0.504	12.8	5.76	27.86	124.6	
1030	7.49	4.0	400	7.40	0.501	8.3	5.18	27.72	134.8	
1035	7.49	6.0	400	7.40	0.501	3.7	5.01	27.69	141.2	
1040	7.49	8.0	400	7.40	0.501	2.8	4.95	27.69	144.1	
1045	7.49	10.0	400	7.40	0.501	2.2	4.84	27.68	146.7	
1050	7.49	12.0	400	7.40	0.500	1.7	4.74	27.66	149.2	
	SAMPLE TIME 1055									

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: SWMU 7

Project No.: N4259 (CTO 253)

Sampled By: C. Metz, P. Leverette

Field Analyst: P. LEVERETTE

Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: MPT-8-MW09S-05

Sample Location: MW09S

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

Date: 9/5/03	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (^{0}C)	ORP (Eh) (+/- mv)	
Time: 1055								
Method: Low Flow Peristaltic	CLEAR							

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 1-12 mg/L)

Analysis Time: 1059

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
_____	x 0.01	= mg/L
_____	x 0.02	= mg/L

CHEMetrics: 3 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 1103

Concentration: 0 mg/L

Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

Equipment: CHEMetrics (Range: 60-100 mg/L)

Analysis Time: 1101

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
_____	x 0.1	= mg/L
_____	x 0.2	= mg/L
_____	x 1.0	= mg/L
_____	x 2.0	= mg/L

CHEMetrics: 13 mg/L

Notes:

☐

GROUNDWATER SAMPLE LOG SHEET
NATURAL ATTENUATION PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW09S-05
Project No.:	N4259 (CTO 253)	Sample Location:	MW09S
		Sampled By:	C. Metz, P. Leverette

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Equipment: HACH DR-890 Colorimeter

Analysis Time: 1105

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1102

Program/Module: 33 / 500nm

Concentration: 0 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	**MPT-8-MW16S-05**
Project No.:	N4259 (CTO 253)	Sample Location:	MW16S
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 3 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1425	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	clear	6.67	0.841	2.1	0.31	26.59	-128.2	

PURGE DATA

Date: 9/ 3 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): ~~16.3~~ 15								
Static = 9.40								
One Casing Volume(gal/L): 3.7								
Start Purge (hrs): 1355								
End Purge (hrs): 1420								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 7.5								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓
Biogenic Gases	None	1-40mL glass water vial and ??mL glass air vial	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s): Charles Metz
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)

WELL ID: MPT-8-MW16S-05
DATE: 9/ /2003

Time (Hrs.)	Water Level (Ft. below TOC)	Cumul. Volume (Liters)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (+/-mv)	Comments
1355	9.40	0	360	—	—	—	—	—	—	Start Purge
1405	9.58	3		—	—	—	—	—	—	
1410	9.57	4.5		6.66	0.855	2.4	0.36	26.44	-124.8	
1412	9.57	5.0		6.66	0.852	2.8	0.34	26.54	-125.1	
1415	9.57	6		6.67	0.843	2.3	0.32	26.53	-126.4	
1418	9.57	7.0		6.67	0.842	2.4	0.31	26.55	-127.1	
1420	9.57	7.5		6.67	0.841	2.1	0.31	26.59	-128.2	

1425 = Sample Time

SIGNATURE(S): Charles Mas

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **SWMU 7**

Project No.: **N4259 (CTO 253)**

Sampled By: C. Metz, P. Leverette

Field Analyst: CM

Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: **MPT-8-MW16S-05**

Sample Location: **MW16S**

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Date: 9-3-03							
Time: 1425							
Method: Low Flow Peristaltic	Clear	6.67	0.841	2.1	0.31	26.59	+128.2

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 0-1 mg/L)

Analysis Time: 1428

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
	x 0.01	= mg/L
	x 0.02	= mg/L

CHEMetrics: 0.2 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 1427

Concentration: 0.5 mg/L

Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

Equipment: CHEMetrics (Range: 100-1000 mg/L)

Analysis Time: 1430

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
	x 0.1	= mg/L
	x 0.2	= mg/L
	x 1.0	= mg/L
	x 2.0	= mg/L

CHEMetrics: 225 mg/L

Notes:

☐

GROUNDWATER SAMPLE LOG SHEET
NATURAL ATTENUATION PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW16S-05
Project No.:	N4259 (CTO 253)	Sample Location:	MW16S
		Sampled By:	C. Metz, P. Leverette

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Equipment: HACH DR-890 Colorimeter

Analysis Time: 1435

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.03 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter Colorwheel

Other: _____

Analysis Time: 1433

Program/Module: 33 / 500nm

Concentration: 5.2 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	**MPT-8-MW17S-05**
Project No.:	N4259 (CTO 253)	Sample Location:	MW17S
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 4 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1115	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	6.97	0.547	0.8	0.37	26.25	-104.4	

PURGE DATA

Date: 9/ 4 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): **16.3'**								
WTH : 9.45								
One Casing Volume(gal/L): 4.3								
Start Purge (hrs): 1040								
End Purge (hrs): 1110								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 9.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓
Biogenic Gases	None	1-40mL glass water vial and ??mL glass air vial	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)

WELL ID: MPT-8-MW17S-05
DATE: 9/4/2003

Time (Hrs.)	Water Level (Ft. below TOC)	Cumul. Volume (Liters)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (+/-mv)	Comments
1040	9.45	—	300	—	—	—	—	—	-	START PURGE
1045	9.53	1.5	300	6.93	0.579	5.7	1.31	26.41	-90.1	
1050	9.53	3.0	300	6.95	0.563	3.1	0.66	26.51	-93.8	
1055	9.53	4.5	300	6.97	0.550	1.4	0.57	26.19	-100.9	
1100	9.53	6.0	300	6.97	0.548	1.2	0.41	26.23	-103.6	
1105	9.53	7.5	300	6.97	0.547	1.1	0.38	26.24	-104.1	
1110	9.53	9.0	300	6.97	0.547	0.8	0.37	26.25	-104.4	
SAMPLE TIME			1115							

SIGNATURE(S): [signature]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW17S-05
Project No.:	N4259 (CTO 253)	Sample Location:	MW17S
Sampled By: C. Metz, P. Leverette		Duplicate:	☐
Field Analyst:		Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (^{0}C)	ORP (Eh) (+/- mv)
Date: 9/4/03							
Time: 1115							
Method: Low Flow Peristaltic	CLEAR	6.97	0.547	0.8	0.37	26.25	-104.4

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 1-12 mg/L) Analysis Time: 1128

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
_____	x 0.01	= mg/L
_____	x 0.02	= mg/L

CHEMetrics: 2.0 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 1119

Concentration: 0.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

Equipment: CHEMetrics (Range: 10-100 mg/L) Analysis Time: 1123

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
_____	x 0.1	= mg/L
_____	x 0.2	= mg/L
_____	x 1.0	= mg/L
_____	x 2.0	= mg/L

CHEMetrics: 45 mg/L

Notes:

☐

GROUNDWATER SAMPLE LOG SHEET
NATURAL ATTENUATION PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SWMU 7
Project No.: N4259 (CTO 253)

Sample ID No.: MPT-8-MW17S-05
Sample Location: MW17S
Sampled By: C. Metz, P. Leverette

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Equipment: HACH DR-890 Colorimeter
Analysis Time: 1125
Wave / Program: 93 / 610nm
TtNUS Serial No.: _____

Concentration: 0.17 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter
Other: _____
Analysis Time: 1121
Program/Module: 33 / 500nm
Concentration: 1.68 mg/L
Filtered: ☐
Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	**MPT-8-MW18S-05**
Project No.:	N4259 (CTO 253)	Sample Location:	MW18S
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 4 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1010	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	7.15	0.440	0.8	0.60	25.51	-72.7	

PURGE DATA

Date: 9/ 4 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): **16.3'**								
WTH: 6.93'								
One Casing Volume(gal/L): 6.8								
Start Purge (hrs): 0930								
End Purge (hrs): 1005								
Total Purge Time (min): 35								
Total Vol. Purged (gal/L): 10.5								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓
Biogenic Gases	None	1-40mL glass water vial and ??mL glass air vial	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)

WELL ID: MPT-8-MW18S-05
DATE: 9/ /2003

Time (Hrs.)	Water Level (Ft. below TOC)	Cumul. Volume (Liters)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (+/-mv)	Comments
0930	6.93	–	300	–	–	–	–	–	–	START PURGE
0935	7.03	1.5	300	7.10	0.462	0.4	1.21	25.55	-103.0	
0940	7.04	3.0	300	7.13	0.451	1.2	0.83	25.51	-100.6	
0945	7.04	4.5	300	7.14	0.447	0.9	0.67	25.53	-98.5	
0950	7.04	6.0	300	7.14	0.443	0.7	0.64	25.47	-97.3	
0955	7.04	7.5	300	7.15	0.441	1.3	0.62	25.49	-96.7	
1000	7.04	9.0	300	7.15	0.441	0.7	0.61	25.47	-94.2	
1005	7.04	10.5	300	7.15	0.440	0.8	0.60	25.51	-92.7	

SAMPLE TIME 1010

SIGNATURE(S): [illegible]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **SWMU 7**

Project No.: **N4259 (CTO 253)**

Sampled By: C. Metz, P. Leverette

Field Analyst: P. LEVERETTE

Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: **MPT-8-MW18S-05**

Sample Location: **MW18S**

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (^{0}C)	ORP (Eh) (+/- mv)
Date: 9/4/03							
Time: 1010							
Method: Low Flow Peristaltic	CLEAR	7.15	0.440	0.8	0.60	25.51	-92.7

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 1-12 mg/L)

Analysis Time: 1023

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
_____	x 0.01	= mg/L
_____	x 0.02	= mg/L

CHEMetrics: 4.0 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 1020

Concentration: 0 mg/L

Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

Equipment: CHEMetrics (Range: 10-100 mg/L)

Analysis Time: 1026

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
_____	x 0.1	= mg/L
_____	x 0.2	= mg/L
_____	x 1.0	= mg/L
_____	x 2.0	= mg/L

CHEMetrics: 20 mg/L

Notes:

☐

GROUNDWATER SAMPLE LOG SHEET
NATURAL ATTENUATION PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **SWMU 7**

Project No.: **N4259 (CTO 253)**

Sample ID No.: **MPT-8-MW18S-05**

Sample Location: MW18S

Sampled By: C. Metz, P. Leverette

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Equipment: HACH DR-890 Colorimeter

Analysis Time: 1018

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.0 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1015

Program/Module: 33 / 500nm

Concentration: 0.97 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	**MPT-8-MW19S-05**
Project No.:	N4259 (CTO 253)	Sample Location:	MW19S
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 4 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1450	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	7.58	0.339	0.7	5.17	32.62	175.3	

PURGE DATA

Date: 9/ 4 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): **16.3'**								
WTH: 5.88								
One Casing Volume(gal/L): 6.2								
Start Purge (hrs): 1410								
End Purge (hrs): 1445								
Total Purge Time (min): 35								
Total Vol. Purged (gal/L): 10.5								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓
Biogenic Gases	None	1-40mL glass water vial and ??mL glass air vial	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)

WELL ID: MPT-8-MW19S-05
DATE: 9/ 4/2003

Time (Hrs.)	Water Level (Ft. below TOC)	Cumul. Volume (Liters)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (+/-mv)	Comments
1410	5.88	—	300	—	—	—	—	—	—	START PURGE
1415	6.02	1.5	300	7.57	0.340	3.2	4.47	32.47	164.0	
1420	6.03	3.0	300	7.57	0.338	2.3	4.71	32.53	166.1	
1425	6.02	4.5	300	7.57	0.337	1.6	4.74	32.58	167.8	
1430	6.02	6.0	300	7.57	0.338	1.4	4.69	32.60	170.1	
1435	6.02	7.5	300	7.57	0.338	1.3	4.87	32.61	172.2	
1440	6.02	9.0	300	7.58	0.338	0.9	5.12	32.58	174.1	
1445	6.02	10.5	300	7.58	0.338	0.7	5.17	32.62	175.3	

SAMPLE TIME 1450

SIGNATURE(S): [signature]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **SWMU 7**

Project No.: **N4259 (CTO 253)**

Sampled By: C. Metz, P. Leverette

Field Analyst:

Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: **MPT-8-MW19S-05**

Sample Location: **MW19S**

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Date: 9/4/03							
Time: 1450							
Method: Low Flow Peristaltic	CLEAR	7.58	0.338	0.7	5.17	32.62	175.3

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 1-12 mg/L)

Analysis Time: 1507

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
	x 0.01	=	mg/L
	x 0.02	=	mg/L

CHEMetrics: 2.0 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 1503

Concentration: 0.0 mg/L

Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

Equipment: CHEMetrics (Range: 10-106 mg/L)

Analysis Time: 1454

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
	x 0.1	=	mg/L
	x 0.2	=	mg/L
	x 1.0	=	mg/L
	x 2.0	=	mg/L

CHEMetrics: < 10 mg/L

Notes:

☐

GROUNDWATER SAMPLE LOG SHEET
NATURAL ATTENUATION PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW19S-05
Project No.:	N4259 (CTO 253)	Sample Location:	MW19S
		Sampled By:	C. Metz, P. Leverette

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Equipment: HACH DR-890 Colorimeter

Analysis Time: 1459

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.0 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1457

Program/Module: 33 / 500nm

Concentration: 0.0 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-~~0~~5-MW02S-05
Project No.:	N4259 (CTO 253)	Sample Location:	MW02S
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 3 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1305	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	7.04	2.618	0	4.20	26.45	+83.4	

PURGE DATA

Date: 9/ 3 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): **16.3'**								
WTH : 8.73								
One Casing Volume(gal/L):								
Start Purge (hrs): 1240								
End Purge (hrs): 1300								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 8								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓
Biogenic Gases	None	1-40mL glass water vial and ??mL glass air vial	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)

WELL ID: MPT~~6~~5-MW02S-05
DATE: 9/ 3 /2003

Time (Hrs.)	Water Level (Ft. below TOC)	Cumul. Volume (Liters)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (+/-mv)	Comments
1240	8.73	0	400	—	—	—	—	—	—	Start Purge
1250	8.94	4	400	—	—	—	—	—	—	
1253	8.94	5		7.06	2.831	0	4.54	26.45	+111.0	
1255	8.94	6		7.05	2.624	0	4.31	26.41	+96.2	
1258	8.94	7		7.05	2.620	0	3.96	26.44	+85.6	
1300	8.94	8	✓	7.04	2.618	0	4.20	26.45	+83.4	End Purge

1305 = Sample Time

SIGNATURE(S): Charles McS

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SWMU 7

Project No.: N4259 (CTO 253)

Sampled By: C. Metz, P. Leverette

Field Analyst: CM/PL

Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: MPT-S-MW02S-05

Sample Location: MW02S

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Date: 9-3-03							
Time: 1305							
Method: Low Flow Peristaltic	Clear	7.04	2.618	0	4.20	26.45	+83.4

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 1-12 mg/L)

Analysis Time: 1308

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
	x 0.01 =	mg/L
	x 0.02 =	mg/L

CHEMetrics: 1 mg/L

Notes: Exceeded 0-1

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 1310

Concentration: 0 mg/L

Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

Equipment: CHEMetrics (Range: 10-100 mg/L)

Analysis Time: 1313

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
	x 0.1 =	mg/L
	x 0.2 =	mg/L
	x 1.0 =	mg/L
	x 2.0 =	mg/L

CHEMetrics: 45 mg/L

Notes:

☐

GROUNDWATER SAMPLE LOG SHEET
NATURAL ATTENUATION PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-~~3~~S-MW02S-05
Project No.:	N4259 (CTO 253)	Sample Location:	MW02S
		Sampled By:	C. Metz, P. Leverette

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Equipment: HACH DR-890 Colorimeter

Analysis Time: 1323

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1318

Program/Module: 33 / 500nm

Concentration: 0.0 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-~~6~~ 5-MW03S-05
Project No.:	N4259 (CTO 253)	Sample Location:	MW03S
		Sampled By:	C. Metz, P. Leverette
[ ] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 9/ 3 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1500	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	6.93	0.694	0	1.47	26.41	-1.5	

PURGE DATA

Date: 9/ 3 /2003	Time	pH	S.C.	Turbidity	DO	Temp (°C)	ORP	
Method: Low Flow Peristaltic								
Monitor Reading (ppm):								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): ~~16.8~~ 15.4								
Static = 10.81								
One Casing Volume(gal/L): 3.1								
Start Purge (hrs): 1440								
End Purge (hrs): 1500								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 6								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Ammonia	H2SO4	1L Plastic	✓
Alk, N, NO2, NO3, SO4, Cl, PO4,	None	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓
TOC	H3PO4	2 x 40 mL Vials	✓
Biogenic Gases	None	1-40mL glass water vial and ??mL glass air vial	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s): Charles Metz
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)

WELL ID: MPT-~~6~~S-MW03S-05
DATE: 9/ /2003

Time (Hrs.)	Water Level (Ft. below TOC)	Cumul. Volume (Liters)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (+/-mv)	Comments
1440	10.81	0	300	—	—	—	—	—	—	
1450	10.93	3.0		—	—	—	—	—	—	
1453	10.94	4.0		6.93	0.689	0	1.58	26.54	+1.4	
1455	10.94	4.5		6.93	0.693	0	1.49	26.47	+0.1	
1500	10.93	6.0		6.93	0.694	0	1.47	26.41	-1.5	

1500 = Sample Time.

SIGNATURE(S): [illegible]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **SWMU 7**

Project No.: **N4259 (CTO 253)**

Sampled By: C. Metz, P. Leverette

Field Analyst: CM

Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: **MPT-~~0~~5-MW03S-05**

Sample Location: **MW03S**

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (^{0}C)	ORP (Eh) (+/- mv)
Date: 9-3-03							
Time: 1500							
Method: Low Flow Peristaltic	Clear	6.93	0.694	0	1.47	26.41	-1.5

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 1-12 mg/L)

Analysis Time: 1502

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
	x 0.01	= mg/L
	x 0.02	= mg/L

CHEMetrics: 2 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 1504

Concentration: 0 mg/L

Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

Equipment: CHEMetrics (Range: 10-100 mg/L)

Analysis Time: 1515

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
	x 0.1	= mg/L
	x 0.2	= mg/L
	x 1.0	= mg/L
	x 2.0	= mg/L

CHEMetrics: 60 mg/L

Notes:

☐

GROUNDWATER SAMPLE LOG SHEET
NATURAL ATTENUATION PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-~~8~~ 5-MW03S-05
Project No.:	N4259 (CTO 253)	Sample Location:	MW03S
		Sampled By:	C. Metz, P. Leverette

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Equipment: HACH DR-890 Colorimeter

Analysis Time: 1508

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1510

Program/Module: 33 / 500nm

Concentration: 2.52 mg/L

Filtered: ☐

Notes:

ATTACHMENT B

LABORATORY ANALYTICAL REPORTS

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**T. HANSEN**	**DATE:**	**OCTOBER 6, 2003**
FROM:	**SETH C. STAFFEN**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – OVG / MISC**
CTO 253, NS MAYPORT
SDG: P0309109

SAMPLES: 11/Aqueous/OVG/MISC

MPT-8-DU01-05	MPT-8-MW01S-05	MPT-8-MW04S-05
MPT-8-MW06S-05	MPT-8-MW09S-05	MPT-8-MW16S-05
MPT-8-MW17S-05	MPT-8-MW18S-05	MPT-8-MW19S-05
MPT-S-MW02S-05	MPT-S-MW03S-05	

OVERVIEW

The sample set for CTO 253, SDG P0309109; Naval Station (NS) Mayport consists of eleven (11) aqueous environmental samples. The samples were analyzed for organic volatile gases (methane, ethane, and ethene) and miscellaneous parameters (carbon dioxide, hydrogen, nitrogen, and oxygen). One field duplicate pair was included in this SDG: MPT-8-MW01S-05 / MPT-8-DU01-05.

The samples were collected by Tetra Tech NUS, Inc. on September 3rd – 5th, 2003 and analyzed by Microseeps. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to Microseeps' Method AM20GAX analytical and reporting protocol. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Initial/Continuing Calibrations
* • Laboratory Method Blank Results
• Field Duplicate Results
* • Detection Limits

The symbol (*) indicates that all 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. Results as reported by the laboratory are presented in Appendix B.

OVG

All quality control parameters were met for this fraction.

MISC

All quality control parameters were met for this fraction.

ADDITIONAL COMMENTS

Field duplicate imprecision (RPD > 35%) was noted for sample MPT-8-MW01S-05 and its duplicate MPT-8-DU01-05 for oxygen. The positive results for oxygen were qualified as estimated, J, in the field duplicate pair.

Positive results < Reporting Limit (RL) were qualified as estimated, J, due to uncertainty near the detection limit.

The results for ethane and ethene were reported in ng/L units and results for methane were reported in ug/L on the Form Is and the EDD. The results for ethane and ethene were changed on the EDD to units of ug/L for consistency purposes.

EXECUTIVE SUMMARY

Laboratory Performance: None.

Other Factors Affecting Data Quality: Field duplicate imprecision occurred for oxygen in the field duplicate pair.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "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)."

Seth C. Staffen

Environmental Scientist/Data Validator
Tetra Tech NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
TetraTech NUS

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 Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery 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 - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery 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; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
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: 4259

SDG: P0309109 MEDIA: WATER DATA FRACTION: OVG

nsample	MPT-8-DU01-05	nsample	MPT-8-MW01S-05	nsample	MPT-8-MW04S-05
samp_date	9/5/2003	samp_date	9/5/2003	samp_date	9/4/2003
lab_id	P0309109-11	lab_id	P0309109-09	lab_id	P0309109-06
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:	MPT-8-MW01S-05	DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ETHANE	0.004	J	P
ETHENE	0.005	U	
METHANE	63		

Parameter	Result	Val Qual	Qual Code
ETHANE	0.007		
ETHENE	0.007		
METHANE	66		

Parameter	Result	Val Qual	Qual Code
ETHANE	0.005	U	
ETHENE	0.005	U	
METHANE	10000		

PROJ_NO: 4259

SDG: P0309109 MEDIA: WATER DATA FRACTION: OVG

nsample	MPT-8-MW06S-05	nsample	MPT-8-MW09S-05	nsample	MPT-8-MW16S-05
samp_date	9/4/2003	samp_date	9/5/2003	samp_date	9/3/2003
lab_id	P0309109-08	lab_id	P0309109-10	lab_id	P0309109-02
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ETHANE	0.003	J	P
ETHENE	0.010		
METHANE	0.66		

Parameter	Result	Val Qual	Qual Code
ETHANE	0.008		
ETHENE	0.005	U	
METHANE	0.07		

Parameter	Result	Val Qual	Qual Code
ETHANE	0.005	U	
ETHENE	0.005	U	
METHANE	10000		

PROJ_NO: 4259

SDG: P0309109 MEDIA: WATER DATA FRACTION: OVG

nsample	MPT-8-MW17S-05	nsample	MPT-8-MW18S-05	nsample	MPT-8-MW19S-05
samp_date	9/4/2003	samp_date	9/4/2003	samp_date	9/4/2003
lab_id	P0309109-05	lab_id	P0309109-04	lab_id	P0309109-07
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ETHANE	0.005	U	
ETHENE	0.005	U	
METHANE	680		

Parameter	Result	Val Qual	Qual Code
ETHANE	0.007		
ETHENE	0.005	U	
METHANE	84		

Parameter	Result	Val Qual	Qual Code
ETHANE	0.004	J	P
ETHENE	0.013		
METHANE	0.28		

PROJ_NO: 4259

SDG: P0309109 MEDIA: WATER DATA FRACTION: OVG

nsample	MPT-S-MW02S-05	nsample	MPT-S-MW03S-05
samp_date	9/3/2003	samp_date	9/3/2003
lab_id	P0309109-01	lab_id	P0309109-03
qc_type	NM	qc_type	NM
units	UG/L	units	~~UG~~ UG/L 10-7-03 JAS
Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ETHANE	0.230		
ETHENE	0.005	U	
METHANE	3500		

Parameter	Result	Val Qual	Qual Code
ETHANE	0.970		
ETHENE	0.005	U	
METHANE	290		

PROJ_NO: 4259

SDG: P0309109 MEDIA: WATER DATA FRACTION: MISC

nsample	MPT-8-DU01-05	nsample	MPT-8-MW01S-05	nsample	MPT-8-MW04S-05
samp_date	9/5/2003	samp_date	9/5/2003	samp_date	9/4/2003
lab_id	P0309109-11	lab_id	P0309109-09	lab_id	P0309109-06
qc_type	NM	qc_type	NM	qc_type	NM
Pct_Solids		Pct_Solids		Pct_Solids	
DUP_OF:	MPT-8-MW01S-05	DUP_OF:		DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MG/L	10		
HYDROGEN	NM	2		
NITROGEN	MG/L	18		
OXYGEN	MG/L	2	J	G

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MG/L	10		
HYDROGEN	NM	2.2		
NITROGEN	MG/L	18		
OXYGEN	MG/L	1.2	J	G

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MG/L	170		
HYDROGEN	NM	3.5		
NITROGEN	MG/L	7.1		
OXYGEN	MG/L	0.85		

PROJ_NO: 4259

SDG: P0309109 MEDIA: WATER DATA FRACTION: MISC

nsample	MPT-8-MW06S-05	nsample	MPT-8-MW09S-05	nsample	MPT-8-MW16S-05
samp_date	9/4/2003	samp_date	9/5/2003	samp_date	9/3/2003
lab_id	P0309109-08	lab_id	P0309109-10	lab_id	P0309109-02
qc_type	NM	qc_type	NM	qc_type	NM
Pct_Solids		Pct_Solids		Pct_Solids	
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MG/L	15		
HYDROGEN	NM	1.9		
NITROGEN	MG/L	17		
OXYGEN	MG/L	3.6		

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MG/L	14		
HYDROGEN	NM	1.5		
NITROGEN	MG/L	16		
OXYGEN	MG/L	5.8		

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MG/L	200		
HYDROGEN	NM	12		
NITROGEN	MG/L	6.6		
OXYGEN	MG/L	1.4		

PROJ_NO: 4259

SDG: P0309109 MEDIA: WATER DATA FRACTION: MISC

nsample	MPT-8-MW17S-05	nsample	MPT-8-MW18S-05	nsample	MPT-8-MW19S-05
samp_date	9/4/2003	samp_date	9/4/2003	samp_date	9/4/2003
lab_id	P0309109-05	lab_id	P0309109-04	lab_id	P0309109-07
qc_type	NM	qc_type	NM	qc_type	NM
Pct_Solids		Pct_Solids		Pct_Solids	
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MG/L	60		
HYDROGEN	NM	0.94		
NITROGEN	MG/L	16		
OXYGEN	MG/L	0.77		

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MG/L	32		
HYDROGEN	NM	7		
NITROGEN	MG/L	17		
OXYGEN	MG/L	1.1		

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MG/L	9.2		
HYDROGEN	NM	1.7		
NITROGEN	MG/L	16		
OXYGEN	MG/L	5.7		

PROJ_NO: 4259

SDG: P0309109 MEDIA: WATER DATA FRACTION: MISC

nsample	MPT-S-MW02S-05	nsample	MPT-S-MW03S-05
samp_date	9/3/2003	samp_date	9/3/2003
lab_id	P0309109-01	lab_id	P0309109-03
qc_type	NM	qc_type	NM
Pct_Solids		Pct_Solids	
DUP_OF:		DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MG/L	63		
HYDROGEN	NM	1		
NITROGEN	MG/L	14		
OXYGEN	MG/L	2		

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MG/L	72		
HYDROGEN	NM	45		
NITROGEN	MG/L	16		
OXYGEN	MG/L	2.6		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Client Name:	TetraTech NUS, Inc.	Page:	Page 12 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
		Client project #:	N4259 CTO 253
	Pittsburgh, PA 15220		

Lab Sample #: P0309109-11

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-DU01-05	Vapor	05 Sep. 03	08 Sep. 03

Analyte(s)	Result	Flag	PQL	Units	Method #	Analyst	Analysis Date & Time
RiskAnalysis							
Carbon dioxide	10		0.60	mg/L	AM20GAX	jl	9/16/03
Ethane	4.0	J	5.0	ng/L	AM20GAX	jl	9/16/03
Ethene	< 5.0	U	5.0	ng/L	AM20GAX	jl	9/16/03
Hydrogen	1.8		0.030	nM	AM20GAX	jl	9/16/03
Methane	63		0.02	ug/L	AM20GAX	jl	9/16/03
Nitrogen	18		0.40	mg/L	AM20GAX	jl	9/16/03
Oxygen	1.6		0.15	mg/L	AM20GAX	jl	9/16/03

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as i meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name:	TetraTech NUS, Inc.	Page:	Page 10 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
		Client project #:	N4259 CTO 253
	Pittsburgh, PA 15220		

Lab Sample #: P0309109-09

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW01S-05	Vapor	05 Sep. 03 9:35	08 Sep. 03

Analyte(s)	Result	Flag	PQL	Units	Method #	Analyst	Analysis Date & Time
RiskAnalysis							
Carbon dioxide	9.9		0.60	mg/L	AM20GAX	jl	9/16/03
Ethane	7.0		5.0	ng/L	AM20GAX	jl	9/16/03
Ethene	7.0		5.0	ng/L	AM20GAX	jl	9/16/03
Hydrogen	2.2		0.030	nM	AM20GAX	jl	9/16/03
Methane	66		0.02	ug/L	AM20GAX	jl	9/16/03
Nitrogen	18		0.40	mg/L	AM20GAX	jl	9/16/03
Oxygen	1.2		0.15	mg/L	AM20GAX	jl	9/16/03

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as 1 meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name:	TetraTech NUS, Inc.	Page:	Page 7 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
		Client project #:	N4259 CTO 253
	Pittsburgh, PA 15220		

Lab Sample #: P0309109-06

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW04S-05	Vapor	04 Sep. 03 11:05	08 Sep. 03

Analyte(s)	Result	Flag	PQL	Units	Method #	Analyst	Analysis Date & Time
RiskAnalysis							
Carbon dioxide	170		0.60	mg/L	AM20GAX	jl	9/11/03
Ethane	< 5.0	U	5.0	ng/L	AM20GAX	jl	9/11/03
Ethene	< 5.0	U	5.0	ng/L	AM20GAX	jl	9/11/03
Hydrogen	3.5		0.030	nM	AM20GAX	jl	9/11/03
Methane	10000		0.02	ug/L	AM20GAX	jl	9/11/03
Nitrogen	7.1		0.40	mg/L	AM20GAX	jl	9/11/03
Oxygen	0.85		0.15	mg/L	AM20GAX	jl	9/11/03

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as r meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name:	TetraTech NUS, Inc.	Page:	Page 9 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
		Client project #:	N4259 CTO 253
	Pittsburgh, PA 15220		

Lab Sample #: P0309109-08

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW06S-05	Vapor	04 Sep. 03 13:40	08 Sep. 03

Analyte(s)	Result	Flag	PQL	Units	Method #	Analyst	Analysis Date & Time
RiskAnalysis							
Carbon dioxide	15		0.60	mg/L	AM20GAX	jl	9/16/03
Ethane	3.0	J	5.0	ng/L	AM20GAX	jl	9/16/03
Ethene	10		5.0	ng/L	AM20GAX	jl	9/16/03
Hydrogen	1.9		0.030	nM	AM20GAX	jl	9/16/03
Methane	0.66		0.02	ug/L	AM20GAX	jl	9/16/03
Nitrogen	17		0.40	mg/L	AM20GAX	jl	9/16/03
Oxygen	3.6		0.15	mg/L	AM20GAX	jl	9/16/03

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as i meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name:	TetraTech NUS, Inc.	Page:	Page 11 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
		Client project #:	N4259 CTO 253
	Pittsburgh, PA 15220		

Lab Sample #: P0309109-10

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW09S-05	Vapor	05 Sep. 03 10:55	08 Sep. 03

Analyte(s)	Result	Flag	PQL	Units	Method #	Analyst	Analysis Date & Time
RiskAnalysis							
Carbon dioxide	14		0.60	mg/L	AM20GAX	jl	9/16/03
Ethane	8.0		5.0	ng/L	AM20GAX	jl	9/16/03
Ethene	< 5.0	U	5.0	ng/L	AM20GAX	jl	9/16/03
Hydrogen	1.5		0.030	nM	AM20GAX	jl	9/16/03
Methane	0.07		0.02	ug/L	AM20GAX	jl	9/16/03
Nitrogen	16		0.40	mg/L	AM20GAX	jl	9/16/03
Oxygen	5.8		0.15	mg/L	AM20GAX	jl	9/16/03

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as i meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name:	TetraTech NUS, Inc.	Page:	Page 3 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
		Client project #:	N4259 CTO 253
	Pittsburgh, PA 15220		

Lab Sample #: P0309109-02

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW16S-05	Vapor	03 Sep. 03 14:25	08 Sep. 03

Analyte(s)	Result	Flag	PQL	Units	Method #	Analyst	Analysis Date & Time
RiskAnalysis							
Carbon dioxide	200		0.60	mg/L	AM20GAX	jl	9/11/03
Ethane	< 5.0	U	5.0	ng/L	AM20GAX	jl	9/11/03
Ethene	< 5.0	U	5.0	ng/L	AM20GAX	jl	9/11/03
Hydrogen	12		0.030	nM	AM20GAX	jl	9/11/03
Methane	10000		0.02	ug/L	AM20GAX	jl	9/11/03
Nitrogen	6.6		0.40	mg/L	AM20GAX	jl	9/11/03
Oxygen	1.4		0.15	mg/L	AM20GAX	jl	9/11/03

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as 1 meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name:	TetraTech NUS, Inc.	Page:	Page 6 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
		Client project #:	N4259 CTO 253
	Pittsburgh, PA 15220		

Lab Sample #: P0309109-05

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW17S-05	Vapor	04 Sep. 03 11:15	08 Sep. 03

Analyte(s)	Result	Flag	PQL	Units	Method #	Analyst	Analysis Date & Time
RiskAnalysis							
Carbon dioxide	60		0.60	mg/L	AM20GAX	jl	9/11/03
Ethane	< 5.0	U	5.0	ng/L	AM20GAX	jl	9/11/03
Ethene	< 5.0	U	5.0	ng/L	AM20GAX	jl	9/11/03
Hydrogen	0.94		0.030	nM	AM20GAX	jl	9/11/03
Methane	680		0.02	ug/L	AM20GAX	jl	9/11/03
Nitrogen	16		0.40	mg/L	AM20GAX	jl	9/11/03
Oxygen	0.77		0.15	mg/L	AM20GAX	jl	9/11/03

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as ı meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name:	TetraTech NUS, Inc.	Page:	Page 5 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
		Client project #:	N4259 CTO 253
	Pittsburgh, PA 15220		

Lab Sample #: P0309109-04

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW18S-05	Vapor	04 Sep. 03 10:10	08 Sep. 03

Analyte(s)	Result	Flag	PQL	Units	Method #	Analyst	Analysis Date & Time
RiskAnalysis							
Carbon dioxide	32		0.60	mg/L	AM20GAX	jl	9/11/03
Ethane	7.0		5.0	ng/L	AM20GAX	jl	9/11/03
Ethene	< 5.0	U	5.0	ng/L	AM20GAX	jl	9/11/03
Hydrogen	7.0		0.030	nM	AM20GAX	jl	9/11/03
Methane	84		0.02	ug/L	AM20GAX	jl	9/11/03
Nitrogen	17		0.40	mg/L	AM20GAX	jl	9/11/03
Oxygen	1.1		0.15	mg/L	AM20GAX	jl	9/11/03

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as i meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name:	TetraTech NUS, Inc.	Page:	Page 8 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
		Client project #:	N4259 CTO 253
	Pittsburgh, PA 15220		

Lab Sample #: P0309109-07

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW19S-05	Vapor	04 Sep. 03 14:50	08 Sep. 03

Analyte(s)	Result	Flag	PQL	Units	Method #	Analyst	Analysis Date & Time
RiskAnalysis							
Carbon dioxide	9.2		0.60	mg/L	AM20GAX	jl	9/16/03
Ethane	4.0	J	5.0	ng/L	AM20GAX	jl	9/16/03
Ethene	13		5.0	ng/L	AM20GAX	jl	9/16/03
Hydrogen	1.7		0.030	nM	AM20GAX	jl	9/16/03
Methane	0.28		0.02	ug/L	AM20GAX	jl	9/16/03
Nitrogen	16		0.40	mg/L	AM20GAX	jl	9/16/03
Oxygen	5.7		0.15	mg/L	AM20GAX	jl	9/16/03

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as r meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name:	TetraTech NUS, Inc.	Page:	Page 2 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
		Client project #:	N4259 CTO 253
	Pittsburgh, PA 15220		

Lab Sample #: P0309109-01

Sample Description	Matrix	Sampled Date/Time	Received
MPT-S-MW02S-05	Vapor	03 Sep. 03 13:05	08 Sep. 03

Analyte(s)	Result	Flag	PQL	Units	Method #	Analyst	Analysis Date & Time
RiskAnalysis							
Carbon dioxide	63		0.60	mg/L	AM20GAX	jl	9/11/03
Ethane	230		5.0	ng/L	AM20GAX	jl	9/11/03
Ethene	< 5.0	U	5.0	ng/L	AM20GAX	jl	9/11/03
Hydrogen	1.0		0.030	nM	AM20GAX	jl	9/11/03
Methane	3500		0.02	ug/L	AM20GAX	jl	9/11/03
Nitrogen	14		0.40	mg/L	AM20GAX	jl	9/11/03
Oxygen	2.0		0.15	mg/L	AM20GAX	jl	9/11/03

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as i meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name:	TetraTech NUS, Inc.	Page:	Page 4 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
		Client project #:	N4259 CTO 253
	Pittsburgh, PA 15220		

Lab Sample #: P0309109-03

Sample Description	Matrix	Sampled Date/Time	Received
MPT-S-MW03S-05	Vapor	03 Sep. 03 15:00	08 Sep. 03

Analyte(s)	Result	Flag	PQL	Units	Method #	Analyst	Analysis Date & Time
RiskAnalysis							
Carbon dioxide	72		0.60	mg/L	AM20GAX	jl	9/11/03
Ethane	970		5.0	ng/L	AM20GAX	jl	9/11/03
Ethene	< 5.0	U	5.0	ng/L	AM20GAX	jl	9/11/03
Hydrogen	45		0.030	nM	AM20GAX	jl	9/11/03
Methane	290		0.02	ug/L	AM20GAX	jl	9/11/03
Nitrogen	16		0.40	mg/L	AM20GAX	jl	9/11/03
Oxygen	2.6		0.15	mg/L	AM20GAX	jl	9/11/03

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as ı meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

APPENDIX C

SUPPORT DOCUMENTATION

MICROSEEPS

Case Narrative
Tetra Tech NUS, Incorporated

Date: September 23, 2003

Project Number: N4259
Contract Task Order: CTO #253
Sample Mgmnt Coordinator: Ms. Amy Thomson
Site Name: NAVSTA Mayport Jacksonville FL
Laboratory Project Manager: Debbie Hallo
Analytical Method: AM20GAX
SDG: MPT-S-MW02S-05

Sample Name	Lab ID	Date Sampled	Date Rcvd.	Date Analyzed
MPT-S-MW02S-05	P0309109-01	9/03/03	9/08/03	9/11/03
MPT-8-MW16S-05	P0309109-02	9/03/03	9/08/03	9/11/03
MPT-S-MW03S-05	P0309109-03	9/03/03	9/08/03	9/11/03
MPT-8-MW18S-05	P0309109-04	9/04/03	9/08/03	9/11/03
MPT-8-MW17S-05	P0309109-05	9/04/03	9/08/03	9/11/03
MPT-8-MW04S-05	P0309109-06	9/04/03	9/08/03	9/11/03
MPT-8-MW19S-05	P0309109-07	9/04/03	9/08/03	9/16/03
MPT-8-MW06S-05	P0309109-08	9/04/03	9/08/03	9/16/03
MPT-8-MW01S-05	P0309109-09	9/05/03	9/08/03	9/16/03
MPT-8-MW09S-05	P0309109-10	9/05/03	9/08/03	9/16/03
MPT-8-DU01-05	P0309109-11	9/05/03	9/08/03	9/16/03

220 William Pitt Way, Pittsburgh, PA 15238 • Phone (412) 826-5245, Fax (412) 826-3433

Samples in SDG MPT-S-MW02S-05 were received at Microseeps on September 8, 2003. The samples were to be analyzed for Light Hydrocarbons, Permanent Gases and Hydrogen.
The analyses were conducted utilizing Analytical Method AM20GAX. Microseeps' Standard Operating Procedures for these methods were followed. No anomalies occurred during the course of the sample analyses.

Method Detection Limits
Dissolved Gases
Microseeps method
AM20GAX

Analyte	MDL
Methane	0.0005 ug/L
Ethane	.4 ng/L
Ethene	1.3 ng/L
Carbon Dioxide	0.27 mg/L
Nitrogen	0.004 mg/L
Oxygen	0.005 mg/L
Hydrogen	0.01 nM

MICROSEEPS

Client Name: TetraTech NUS, Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Anderson Drive

Pittsburgh, PA 15220

Page: Page 1 of 21
Lab Project #: P0309109
Report Date: 09/18/03
Client Proi Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Laboratory Results

Total # of pages in client package 150

Lab Sample #	Client Sample ID
P0309109-01	MPT-S-MW02S-05
P0309109-02	MPT-8-MW16S-05
P0309109-03	MPT-S-MW03S-05
P0309109-04	MPT-8-MW18S-05
P0309109-05	MPT-8-MW17S-05
P0309109-06	MPT-8-MW04S-05
P0309109-07	MPT-8-MW19S-05
P0309109-08	MPT-8-MW06S-05
P0309109-09	MPT-8-MW01S-05
P0309109-10	MPT-8-MW09S-05
P0309109-11	MPT-8-DU01-05

Microseeps test results meet all the requirements of the NELAC standards.

Approved By: Debbie Hallo

The analytical results reported here are reliable and usable to the precision expressed in this report. As required by some regulating authorities, a full discussion of the uncertainty in our analytical results can be obtained at our web site or through customer service. Unless otherwise specified, all results are reported on a wet weight basis.

220 William Pitt Way, Pittsburgh, PA 15238 • Phone (412) 826-5245, Fax (412) 826-3433

P0309109

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

NO: N4259	FACILITY: NS Mayport	PROJECT MANAGER: Jerry Hansen	PHONE NUMBER: 850-385-9899
		FIELD OPERATIONS LEADER: Charles Metz	PHONE NUMBER: 904-636-6175
		CARRIER/WAYBILL NUMBER: 8427-1834-~~8845~~5220	

LABORATORY NAME AND CONTACT: Microseeps Inc
ADDRESS: 220 William Pitt Way
CITY, STATE: Pittsburgh PA 15238

SAMPLERS (SIGNATURE): Charles Metz

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

CONTAINER TYPE PLASTIC (P) or GLASS (G): G G
PRESERVATIVE USED: — —
TYPE OF ANALYSIS: AMG 20 GAX

	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			COMMENTS
01	9-3	1305	MPT-5-MW02S-05				Air	G	2	1	1	* Sampling for
02	9-3	1425	MPT-8-MW16S-05									H, MEE, O_2, N_2,
	9	—	~~MPT-8-[illegible]~~									and CO_2
03	9-3	1500	MPT-5-MW03S-05									
04	9-4	1010	MPT-8-MW18S-05									
05	9-4	1115	MPT-8-MW17S-05									
06	9-4	1105	MPT-8-MW04S-05									
07	9-4	1450	MPT-8-MW19S-05									
08	9-4	1340	MPT-8-MW06S-05									
09	9-5	0935	MPT-8-MW01S-05									
10	9-5	1055	MPT-8-MW09S-05									
11	9-5	0000	MPT-8-DU01-05									

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	9-5-03	1430	1. RECEIVED BY: Washlaski	9/8/03	1048
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. TtNUS-001

026

P0309109

HOLDING TIME
09/30/03

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
MGL	MPT-8-DU01-05	P0309109-11	NORMAL	P0309109	CO2	09/05/03	/ /	09/16/03	0	0	11
MGL	MPT-8-MW01S-05	P0309109-09	NORMAL	P0309109	CO2	09/05/03	/ /	09/16/03	0	0	11
MGL	MPT-8-MW04S-05	P0309109-06	NORMAL	P0309109	CO2	09/04/03	/ /	09/11/03	0	0	7
MGL	MPT-8-MW06S-05	P0309109-08	NORMAL	P0309109	CO2	09/04/03	/ /	09/16/03	0	0	12
MGL	MPT-8-MW09S-05	P0309109-10	NORMAL	P0309109	CO2	09/05/03	/ /	09/16/03	0	0	11
MGL	MPT-8-MW16S-05	P0309109-02	NORMAL	P0309109	CO2	09/03/03	/ /	09/11/03	0	0	8
MGL	MPT-8-MW17S-05	P0309109-05	NORMAL	P0309109	CO2	09/04/03	/ /	09/11/03	0	0	7
MGL	MPT-8-MW18S-05	P0309109-04	NORMAL	P0309109	CO2	09/04/03	/ /	09/11/03	0	0	7
MGL	MPT-8-MW19S-05	P0309109-07	NORMAL	P0309109	CO2	09/04/03	/ /	09/16/03	0	0	12
MGL	MPT-S-MW02S-05	P0309109-01	NORMAL	P0309109	CO2	09/03/03	/ /	09/11/03	0	0	8
MGL	MPT-S-MW03S-05	P0309109-03	NORMAL	P0309109	CO2	09/03/03	/ /	09/11/03	0	0	8
NGL	MPT-8-DU01-05	P0309109-11	NORMAL	P0309109	ETHA	09/05/03	/ /	09/16/03	0	0	11
NGL	MPT-8-MW01S-05	P0309109-09	NORMAL	P0309109	ETHA	09/05/03	/ /	09/16/03	0	0	11
NGL	MPT-8-MW04S-05	P0309109-06	NORMAL	P0309109	ETHA	09/04/03	/ /	09/11/03	0	0	7
NGL	MPT-8-MW06S-05	P0309109-08	NORMAL	P0309109	ETHA	09/04/03	/ /	09/16/03	0	0	12
NGL	MPT-8-MW09S-05	P0309109-10	NORMAL	P0309109	ETHA	09/05/03	/ /	09/16/03	0	0	11
NGL	MPT-8-MW16S-05	P0309109-02	NORMAL	P0309109	ETHA	09/03/03	/ /	09/11/03	0	0	8
NGL	MPT-8-MW17S-05	P0309109-05	NORMAL	P0309109	ETHA	09/04/03	/ /	09/11/03	0	0	7
NGL	MPT-8-MW18S-05	P0309109-04	NORMAL	P0309109	ETHA	09/04/03	/ /	09/11/03	0	0	7
NGL	MPT-8-MW19S-05	P0309109-07	NORMAL	P0309109	ETHA	09/04/03	/ /	09/16/03	0	0	12
NGL	MPT-S-MW02S-05	P0309109-01	NORMAL	P0309109	ETHA	09/03/03	/ /	09/11/03	0	0	8
NGL	MPT-S-MW03S-05	P0309109-03	NORMAL	P0309109	ETHA	09/03/03	/ /	09/11/03	0	0	8
NGL	MPT-8-DU01-05	P0309109-11	NORMAL	P0309109	ETHE	09/05/03	/ /	09/16/03	0	0	11
NGL	MPT-8-MW01S-05	P0309109-09	NORMAL	P0309109	ETHE	09/05/03	/ /	09/16/03	0	0	11

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
NGL	MPT-8-MW04S-05	P0309109-06	NORMAL	P0309109	ETHE	09/04/03	/ /	09/11/03	0	0	7
NGL	MPT-8-MW06S-05	P0309109-08	NORMAL	P0309109	ETHE	09/04/03	/ /	09/16/03	0	0	12
NGL	MPT-8-MW09S-05	P0309109-10	NORMAL	P0309109	ETHE	09/05/03	/ /	09/16/03	0	0	11
NGL	MPT-8-MW16S-05	P0309109-02	NORMAL	P0309109	ETHE	09/03/03	/ /	09/11/03	0	0	8
NGL	MPT-8-MW17S-05	P0309109-05	NORMAL	P0309109	ETHE	09/04/03	/ /	09/11/03	0	0	7
NGL	MPT-8-MW18S-05	P0309109-04	NORMAL	P0309109	ETHE	09/04/03	/ /	09/11/03	0	0	7
NGL	MPT-8-MW19S-05	P0309109-07	NORMAL	P0309109	ETHE	09/04/03	/ /	09/16/03	0	0	12
NGL	MPT-S-MW02S-05	P0309109-01	NORMAL	P0309109	ETHE	09/03/03	/ /	09/11/03	0	0	8
NGL	MPT-S-MW03S-05	P0309109-03	NORMAL	P0309109	ETHE	09/03/03	/ /	09/11/03	0	0	8
NM	MPT-8-DU01-05	P0309109-11	NORMAL	P0309109	H2	09/05/03	/ /	09/16/03	0	0	11
NM	MPT-8-MW01S-05	P0309109-09	NORMAL	P0309109	H2	09/05/03	/ /	09/16/03	0	0	11
NM	MPT-8-MW04S-05	P0309109-06	NORMAL	P0309109	H2	09/04/03	/ /	09/11/03	0	0	7
NM	MPT-8-MW06S-05	P0309109-08	NORMAL	P0309109	H2	09/04/03	/ /	09/16/03	0	0	12
NM	MPT-8-MW09S-05	P0309109-10	NORMAL	P0309109	H2	09/05/03	/ /	09/16/03	0	0	11
NM	MPT-8-MW16S-05	P0309109-02	NORMAL	P0309109	H2	09/03/03	/ /	09/11/03	0	0	8
NM	MPT-8-MW17S-05	P0309109-05	NORMAL	P0309109	H2	09/04/03	/ /	09/11/03	0	0	7
NM	MPT-8-MW18S-05	P0309109-04	NORMAL	P0309109	H2	09/04/03	/ /	09/11/03	0	0	7
NM	MPT-8-MW19S-05	P0309109-07	NORMAL	P0309109	H2	09/04/03	/ /	09/16/03	0	0	12
NM	MPT-S-MW02S-05	P0309109-01	NORMAL	P0309109	H2	09/03/03	/ /	09/11/03	0	0	8
NM	MPT-S-MW03S-05	P0309109-03	NORMAL	P0309109	H2	09/03/03	/ /	09/11/03	0	0	8
UGL	MPT-8-DU01-05	P0309109-11	NORMAL	P0309109	METH	09/05/03	/ /	09/16/03	0	0	11
UGL	MPT-8-MW01S-05	P0309109-09	NORMAL	P0309109	METH	09/05/03	/ /	09/16/03	0	0	11
UGL	MPT-8-MW04S-05	P0309109-06	NORMAL	P0309109	METH	09/04/03	/ /	09/11/03	0	0	7
UGL	MPT-8-MW06S-05	P0309109-08	NORMAL	P0309109	METH	09/04/03	/ /	09/16/03	0	0	12
UGL	MPT-8-MW09S-05	P0309109-10	NORMAL	P0309109	METH	09/05/03	/ /	09/16/03	0	0	11
UGL	MPT-8-MW16S-05	P0309109-02	NORMAL	P0309109	METH	09/03/03	/ /	09/11/03	0	0	8
UGL	MPT-8-MW17S-05	P0309109-05	NORMAL	P0309109	METH	09/04/03	/ /	09/11/03	0	0	7

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
UGL	MPT-8-MW18S-05	P0309109-04	NORMAL	P0309109	METH	09/04/03	/ /	09/11/03	0	0	7
UGL	MPT-8-MW19S-05	P0309109-07	NORMAL	P0309109	METH	09/04/03	/ /	09/16/03	0	0	12
UGL	MPT-S-MW02S-05	P0309109-01	NORMAL	P0309109	METH	09/03/03	/ /	09/11/03	0	0	8
UGL	MPT-S-MW03S-05	P0309109-03	NORMAL	P0309109	METH	09/03/03	/ /	09/11/03	0	0	8
MGL	MPT-8-DU01-05	P0309109-11	NORMAL	P0309109	N2	09/05/03	/ /	09/16/03	0	0	11
MGL	MPT-8-MW01S-05	P0309109-09	NORMAL	P0309109	N2	09/05/03	/ /	09/16/03	0	0	11
MGL	MPT-8-MW04S-05	P0309109-06	NORMAL	P0309109	N2	09/04/03	/ /	09/11/03	0	0	7
MGL	MPT-8-MW06S-05	P0309109-08	NORMAL	P0309109	N2	09/04/03	/ /	09/16/03	0	0	12
MGL	MPT-8-MW09S-05	P0309109-10	NORMAL	P0309109	N2	09/05/03	/ /	09/16/03	0	0	11
MGL	MPT-8-MW16S-05	P0309109-02	NORMAL	P0309109	N2	09/03/03	/ /	09/11/03	0	0	8
MGL	MPT-8-MW17S-05	P0309109-05	NORMAL	P0309109	N2	09/04/03	/ /	09/11/03	0	0	7
MGL	MPT-8-MW18S-05	P0309109-04	NORMAL	P0309109	N2	09/04/03	/ /	09/11/03	0	0	7
MGL	MPT-8-MW19S-05	P0309109-07	NORMAL	P0309109	N2	09/04/03	/ /	09/16/03	0	0	12
MGL	MPT-S-MW02S-05	P0309109-01	NORMAL	P0309109	N2	09/03/03	/ /	09/11/03	0	0	8
MGL	MPT-S-MW03S-05	P0309109-03	NORMAL	P0309109	N2	09/03/03	/ /	09/11/03	0	0	8
MGL	MPT-8-DU01-05	P0309109-11	NORMAL	P0309109	O2	09/05/03	/ /	09/16/03	0	0	11
MGL	MPT-8-MW01S-05	P0309109-09	NORMAL	P0309109	O2	09/05/03	/ /	09/16/03	0	0	11
MGL	MPT-8-MW04S-05	P0309109-06	NORMAL	P0309109	O2	09/04/03	/ /	09/11/03	0	0	7
MGL	MPT-8-MW06S-05	P0309109-08	NORMAL	P0309109	O2	09/04/03	/ /	09/16/03	0	0	12
MGL	MPT-8-MW09S-05	P0309109-10	NORMAL	P0309109	O2	09/05/03	/ /	09/16/03	0	0	11
MGL	MPT-8-MW16S-05	P0309109-02	NORMAL	P0309109	O2	09/03/03	/ /	09/11/03	0	0	8
MGL	MPT-8-MW17S-05	P0309109-05	NORMAL	P0309109	O2	09/04/03	/ /	09/11/03	0	0	7
MGL	MPT-8-MW18S-05	P0309109-04	NORMAL	P0309109	O2	09/04/03	/ /	09/11/03	0	0	7
MGL	MPT-8-MW19S-05	P0309109-07	NORMAL	P0309109	O2	09/04/03	/ /	09/16/03	0	0	12
MGL	MPT-S-MW02S-05	P0309109-01	NORMAL	P0309109	O2	09/03/03	/ /	09/11/03	0	0	8
MGL	MPT-S-MW03S-05	P0309109-03	NORMAL	P0309109	O2	09/03/03	/ /	09/11/03	0	0	8

Client Name:	TetraTech NUS, Inc.	Page:	Page 13 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
	Pittsburgh, PA 15220	Client project #:	N4259 CTO 253

Prep Method: Hydrogen by Bubble Strip
Analysis Method: Hydrogen by Bubble Strip

M030911013-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Hydrogen	< 0.030	nM		0.030		- NA

M030911013-LCS

			TrueSpikeConc.	%Recovery	Ctl Limits
Hydrogen	22	nM	24.70	89	75 - 125

M030911013-LCSD

			TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Hydrogen	22	nM	24.70	89	75 - 125	0.00	0 - 20

Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as i meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name:	TetraTech NUS, Inc.	Page:	Page 14 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
	Pittsburgh, PA 15220	Client project #:	N4259 CTO 253

Prep Method: Methane by Bubble Strip/ GC-FID/TCD/RGD
Analysis Method: Methane by Bubble Strip/ GC-FID/TCD/RGD

M030911016-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Methane	< 0.02	ug/L		0.02		- NA

M030911016-LCS

			TrueSpikeConc.	%Recovery	Ctl Limits
Methane	300	ug/L	296.00	101	75 - 125

M030911016-LCSD

			TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Methane	310	ug/L	296.00	105	75 - 125	3.28	0 - 20

Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as r meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name: TetraTech NUS, Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Anderson Drive

Pittsburgh, PA 15220

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Lab Project #: P0309109
Report Date: 09/18/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Prep Method: Permanent Gases by Bubble Strip
Analysis Method: Permanent Gases by Bubble Strip

M030912007-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Carbon dioxide	< 0.60	mg/L		0.60		- NA
Oxygen	< 0.15	mg/L		0.15		- NA
Nitrogen	< 0.40	mg/L		0.40		- NA

M030912007-LCS

			TrueSpikeConc.	%Recovery	Ctl Limits
Carbon dioxide	5.1	mg/L	4.99	102	75 - 125
Oxygen	2.1	mg/L	1.99	106	75 - 125

M030912007-LCSD

			TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Carbon dioxide	5.1	mg/L	4.99	102	75 - 125	0.00	0 - 20
Oxygen	2.1	mg/L	1.99	106	75 - 125	0.00	0 - 20

[ ] Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as r meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name: TetraTech NUS, Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Anderson Drive

Pittsburgh, PA 15220

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Lab Project #: P0309109
Report Date: 09/18/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Prep Method: Light Hydrocarbons by Bubble Strip/GC-FID/TCD/RGD
Analysis Method: Light Hydrocarbons by Bubble Strip/GC-FID/TCD/RGD

M030912008-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Ethane	< 5.0	ng/L		5.0		- NA
Ethene	< 5.0	ng/L		5.0		- NA

M030912008-LCS

			TrueSpikeConc.	%Recovery	Ctl Limits
Ethane	99	ng/L	100.00	99	75 - 125
Ethene	98	ng/L	99.00	99	75 - 125

M030912008-LCSD

			TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Ethane	100	ng/L	100.00	100	75 - 125	1.01	0 - 20
Ethene	99	ng/L	99.00	100	75 - 125	1.02	0 - 20

[ ] Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as r meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name: TetraTech NUS, Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Anderson Drive

Pittsburgh, PA 15220

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Lab Project #: P0309109
Report Date: 09/18/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Prep Method: Permanent Gases by Bubble Strip
Analysis Method: Permanent Gases by Bubble Strip

M030916015-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Carbon dioxide	< 0.60	mg/L		0.60		- NA
Oxygen	< 0.15	mg/L		0.15		- NA
Nitrogen	< 0.40	mg/L		0.40		- NA

M030916015-LCS

			TrueSpikeConc.	%Recovery	Ctl Limits
Carbon dioxide	4.9	mg/L	4.99	98	75 - 125
Oxygen	2.2	mg/L	1.99	111	75 - 125

M030916015-LCSD

			TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Carbon dioxide	4.9	mg/L	4.99	98	75 - 125	0.00	0 - 20
Oxygen	2.1	mg/L	1.99	106	75 - 125	4.65	0 - 20

[ ] Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as 1 meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name:	TetraTech NUS, Inc.	Page:	Page 18 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
		Client project #:	N4259 CTO 253
	Pittsburgh, PA 15220		

Prep Method: Light Hydrocarbons by Bubble Strip/GC-FID/TCD/RGD
Analysis Method: Light Hydrocarbons by Bubble Strip/GC-FID/TCD/RGD

M030916016-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Ethane	< 5.0	ng/L		5.0		- NA
Ethene	< 5.0	ng/L		5.0		- NA

M030916016-LCS

			TrueSpikeConc.	%Recovery	Ctl Limits
Ethane	100	ng/L	100.00	100	75 - 125
Ethene	100	ng/L	99.00	101	75 - 125

M030916016-LCSD

			TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Ethane	100	ng/L	100.00	100	75 - 125	0.00	0 - 20
Ethene	100	ng/L	99.00	101	75 - 125	0.00	0 - 20

[ ] Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as i meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name:	TetraTech NUS, Inc.	Page:	Page 19 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
		Client project #:	N4259 CTO 253
	Pittsburgh, PA 15220		

Prep Method: Hydrogen by Bubble Strip
Analysis Method: Hydrogen by Bubble Strip

M030916019-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Hydrogen	< 0.030	nM		0.030		- NA

M030916019-LCS

			TrueSpikeConc.	%Recovery	Ctl Limits
Hydrogen	27	nM	24.70	109	75 - 125

M030916019-LCSD

			TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Hydrogen	27	nM	24.70	109	75 - 125	0.00	0 - 20

[ ] Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as i meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

Client Name:	TetraTech NUS, Inc.	Page:	Page 20 of 21
Contact:	Amy Thomson	Lab Project #:	P0309109
Address:	Foster Plaza 7	Report Date:	09/18/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
	Pittsburgh, PA 15220	Client project #:	N4259 CTO 253

Prep Method: Methane by Bubble Strip/ GC-FID/TCD/RGD
Analysis Method: Methane by Bubble Strip/ GC-FID/TCD/RGD

M030916021-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Methane	< 0.02	ug/L		0.02		- NA

M030916021-LCS

			TrueSpikeConc.	%Recovery	Ctl Limits
Methane	320	ug/L	296.00	108	75 - 125

M030916021-LCSD

			TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Methane	320	ug/L	296.00	108	75 - 125	0.00	0 - 20

[ ] Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as i meet NELAC sample acceptance criteria, L - Subcontracted Lab used.

N - NELAC certified analysis

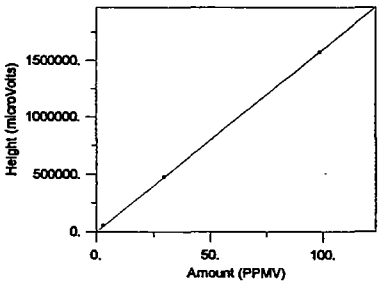
Calibration File Name: **C:\CPWIN\T80\T80AV1.CAL** Version = 1
External standard calibration
No injection volume correction
No sample weight correction
Area reject threshold = 100
Reference peak area reject threshold = 1000
Amount units = PPMV
7 components with 3 levels each

Calibration File Name: **C:\CPWIN\T81\T81AV1.CAL** Version = 1
External standard calibration
No injection volume correction
No sample weight correction
Area reject threshold = 100
Reference peak area reject threshold = 1000
Amount units = PPMV
7 components with 3 levels each

1 METHANE, PPMV

Retention time = 0.500 min., Search window = 0.050 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 1
No retention time reference component
Single peak quantification by height

Level	Amount	Height	Height/Amt	Source	Date and time
1	2.960	54889.0	18543.58	Manual	8/25/2003 7:22:4
2	29.600	477209.0	16121.93	Manual	8/25/2003 7:22:4
3	98.670	1576088.0	15973.33	Manual	8/25/2003 7:22:4

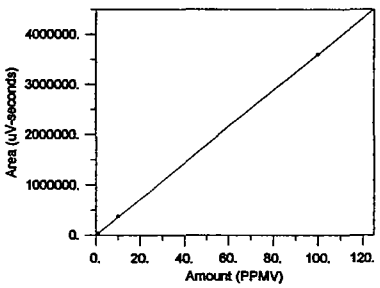


Calibration formula: Y = 15987.7 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9999, Average error = 5.64%
Average CF = 16879.6100 with RSD = 8.55%

2 ETHANE, PPMV

Retention time = 0.690 min., Search window = 0.100 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 1
No retention time reference component
Single peak quantification by area

Level	Amount	Area	Area/Amt	Source	Date and time
1	1.000	38793.0	38793	Manual	8/25/2003 7:22:4
2	10.000	378304.0	37830.4	Manual	8/25/2003 7:22:4
3	100.000	3604518.0	36045.18	Manual	8/25/2003 7:22:4

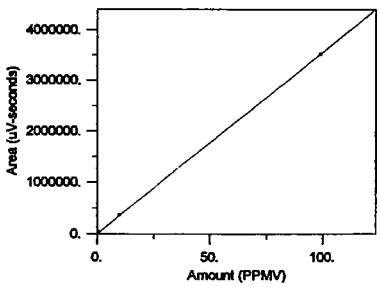


Calibration formula: Y = 36063.13 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 1.0000, Average error = 4.17%
Average CF = 37556.1900 with RSD = 3.71%

3 ETHENE, PPMV

Retention time = 0.870 min., Search window = 0.100 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 1
No retention time reference component
Single peak quantification by area

Level	Amount	Area	Area/Amt	Source	Date and time
1	0.990	37505.0	37883.84	Manual	8/25/2003 7:22:4
2	9.900	370744.0	37448.89	Manual	8/25/2003 7:22:4
3	99.000	3521664.0	35572.36	Manual	8/25/2003 7:22:4

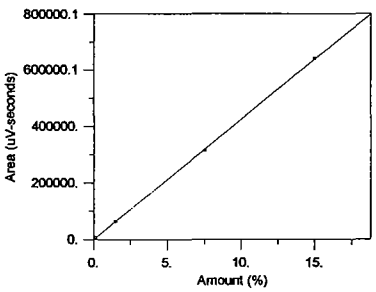


Calibration formula: Y = 35591.17 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 1.0000, Average error = 3.90%
Average CF = 36968.3600 with RSD = 3.32%

Calibration File Name: **C:\CPWIN\T81\T81BV1.CAL** Version = 1
External standard calibration
No injection volume correction
No sample weight correction
Area reject threshold = 0
Reference peak area reject threshold = 1000
Amount units = %
5 components with 4 levels each

1 CO2, %
Retention time = 5.330 min., Search window = 0.400 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 1
No retention time reference component
Single peak quantification by area

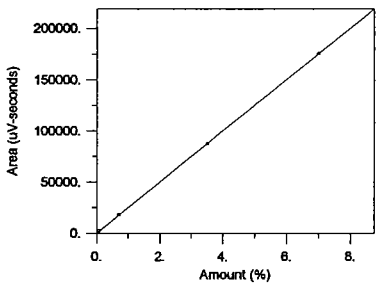
Level	Amount	Area	Area/Amt	Source	Date and time
1	0.150	6313.0	42086.66	Manual	8/25/2003 6:21:1
2	1.500	63095.0	42063.33	Manual	8/25/2003 6:21:1
3	7.500	314524.0	41936.54	Manual	8/25/2003 6:21:1
4	15.000	641197.0	42746.46	Manual	8/25/2003 6:21:1



Calibration formula: Y = 42580.31 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9999, Average error = 1.07%
Average CF = 42208.2500 with RSD = 0.86%

2 O2, %
Retention time = 6.620 min., Search window = 0.300 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 1
No retention time reference component
Single peak quantification by area

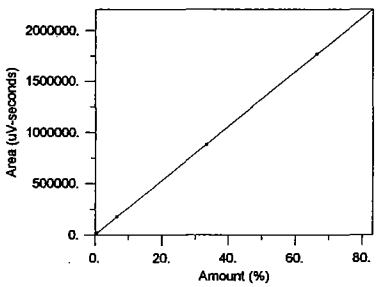
Level	Amount	Area	Area/Amt	Source	Date and time
1	0.070	2213.0	31614.29	Manual	8/25/2003 6:21:1
2	0.700	17930.0	25614.29	Manual	8/25/2003 6:21:1
3	3.500	87403.0	24972.29	Manual	8/25/2003 6:21:1
4	7.000	175509.0	25072.71	Manual	8/25/2003 6:21:1



Calibration formula: Y = 25057.61 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 1.0000, Average error = 7.20%
Average CF = 26818.3900 with RSD = 11.97%

3 N2, %
Retention time = 7.230 min., Search window = 0.500 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 1
No retention time reference component
Single peak quantification by area

Level	Amount	Area	Area/Amt	Source	Date and time
1	0.665	18093.0	27207.52	Manual	8/25/2003 6:21:1
2	6.650	179223.0	26950.83	Manual	8/25/2003 6:21:1
3	33.250	880144.0	26470.5	Manual	8/25/2003 6:21:1
4	66.500	1767886.0	26584.75	Manual	8/25/2003 6:21:1



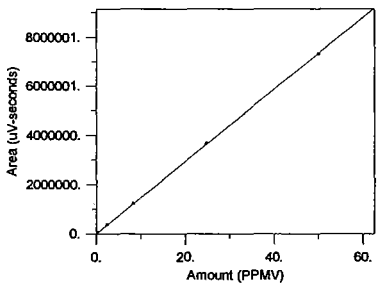
Calibration formula: Y = 26565.04 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 1.0000, Average error = 1.08%
Average CF = 26803.4000 with RSD = 1.26%

Calibration File Name: **C:\CPWIN\T80\T80CH1.CAL** Version = 1
Internal standard calibration
No injection volume correction
No sample weight correction
Area reject threshold = 100
Reference peak area reject threshold = 1000
Amount units = PPMV
1 components with 5 levels each

1 HYDROGEN

Retention time = 4.400 min., Search window = 0.450 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 1
No retention time reference component
Single peak quantification by area

Level	Amount	Area	Area/Amt	Source	Date and time
1	0.247	46698.0	189060.7	Manual	7/31/2003 3:42:5
2	2.470	377524.0	152843.7	Manual	7/31/2003 3:42:5
3	8.233	1225795.0	148888	Manual	7/31/2003 3:42:5
4	24.700	3666656.0	148447.6	Manual	7/31/2003 3:42:5
5	50.012	7318190.0	146328.7	Manual	7/31/2003 3:42:5



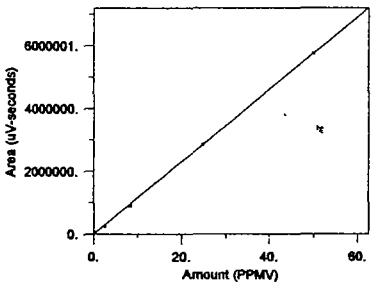
Calibration formula: Y = 146802.3 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9999, Average error = 7.15%
Average CF = 157113.8000 with RSD = 11.47%

Calibration File Name: **C:\CPWIN\T81\T81CH2.CAL** Version = 1
Internal standard calibration
No injection volume correction
No sample weight correction
Area reject threshold = 100
Reference peak area reject threshold = 1000
Amount units = PPMV
1 components with 5 levels each

1 HYDROGEN

Retention time = 4.400 min., Search window = 0.450 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 1
No retention time reference component
Single peak quantification by area

Level	Amount	Area	Area/Amt	Source	Date and time
1	0.247	32973.0	133493.9	Manual	9/15/2003 1:57:2
2	2.470	249196.0	100889.1	Manual	9/15/2003 1:57:2
3	8.233	888456.0	107914	Manual	9/15/2003 1:57:2
4	24.700	2850657.0	115411.2	Manual	9/15/2003 1:57:2
5	50.012	5748523.0	114942.9	Manual	9/15/2003 1:57:2



Calibration formula: Y = 114856.4 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9998, Average error = 7.00%
Average CF = 114530.2000 with RSD = 10.61%

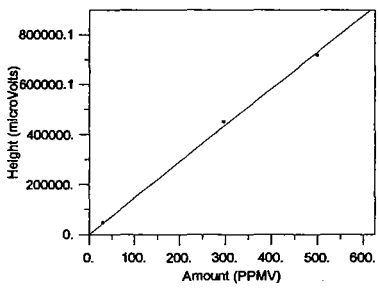
Calibration File Name: **C:\CPWIN\T80\T80DV1.CAL** Version = 1
External standard calibration
No injection volume correction
No sample weight correction
Area reject threshold = 100
Reference peak area reject threshold = 100
Amount units = PPMV
3 components with 3 levels each

Calibration File Name: **C:\CPWIN\T81\T81DV1.CAL** Version = 1
External standard calibration
No injection volume correction
No sample weight correction
Area reject threshold = 100
Reference peak area reject threshold = 100
Amount units = PPMV
3 components with 3 levels each

1 METHANE, PPMV

Retention time = 0.500 min., Search window = 0.050 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 1
No retention time reference component
Single peak quantification by height

Level	Amount	Height	Height/Amt	Source	Date and time
1	29.600	47510.0	1605.068	Manual	8/25/2003 7:38:3
2	296.000	449878.0	1519.858	Manual	8/25/2003 7:38:3
3	500.000	719128.0	1438.256	Manual	8/25/2003 7:38:3

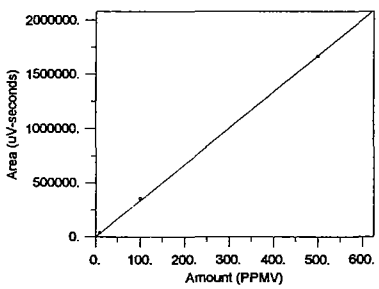


Calibration formula: Y = 1459.81 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9980, Average error = 5.18%
Average CF = 1521.0610 with RSD = 5.48%

2 ETHANE, PPMV

Retention time = 0.690 min., Search window = 0.100 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 1
No retention time reference component
Single peak quantification by area

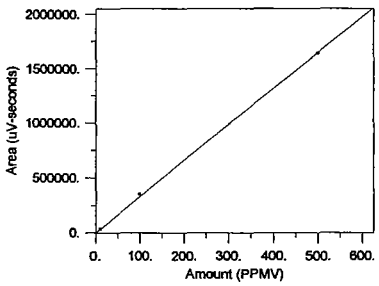
Level	Amount	Area	Area/Amt	Source	Date and time
1	10.000	37547.0	3754.7	Manual	8/25/2003 7:38:3
2	100.000	358705.0	3587.05	Manual	8/25/2003 7:38:3
3	500.000	1664961.0	3329.922	Manual	8/25/2003 7:38:3



Calibration formula: Y = 3339.971 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9996, Average error = 6.71%
Average CF = 3557.2240 with RSD = 6.01%

3 ETHYLENE, PPMV
Retention time = 0.860 min., Search window = 0.100 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 1
No retention time reference component
Single peak quantification by area

Level	Amount	Area	Area/Amt	Source	Date and time
1	9.900	36690.0	3706.061	Manual	8/25/2003 7:38:3
2	99.000	350214.0	3537.515	Manual	8/25/2003 7:38:3
3	500.000	1640358.0	3280.716	Manual	8/25/2003 7:38:3



Calibration formula: Y = 3290.561 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9996, Average error = 6.81%
Average CF = 3508.0970 with RSD = 6.11%

PO309109

P308465/P309041/P309109

Sample Names	Carbon Dioxide mg/l	Oxygen mg/l	Nitrogen mg/l	Methane ug/l	Ethane ng/l	Ethylene ng/l	Hydrogen nM	Date Analyzed	Analyst
P308465-13	0.00	0.00	0.00	7.975	10	66	1.88	9/11/03	JLL
P308465-14	0.00	0.00	0.00	3288.455	0	72	2.42	9/11/03	JLL
P308465-15	0.00	0.00	0.00	8462.011	0	0	2.53	9/11/03	JLL
P308465-16	0.00	0.00	0.00	665.022	20654	25309	31.73	9/11/03	JLL
P308465-17	0.00	0.00	0.00	1466.190	1107	4534	303.88	9/11/03	JLL
P308465-18	0.00	0.00	0.00	288.002	1354	3663	151.14	9/11/03	JLL
P308465-20	0.00	0.00	0.00	9.351	16	66	1.40	9/11/03	JLL
P309041-01	0.00	0.00	0.00	0.000	0	0	199342.54	9/11/03	JLL
P309109-01	63.32	1.95	13.72	3492.674	230	0	1.04	9/11/03	JLL
P309109-02	204.60	1.37	6.60	10027.693	0	0	12.05	9/11/03	JLL
P309109-03	72.47	2.63	15.87	288.002	969	0	45.11	9/11/03	JLL
P309109-04	31.84	1.14	17.21	83.782	7	0	6.95	9/11/03	JLL
P309109-05	59.66	0.77	16.59	680.731	0	0	0.94	9/11/03	JLL
P309109-06	173.85	0.85	7.11	10221.440	0	0	3.51	9/11/03	JLL

DETECTION LIMITS	0.60mg/l	0.15mg/l	0.40mg/l	0.015ug/l	5ng/l	5ng/l	0.03nM

028

ANALYST JLL/MM

REVIEW

Microseeps

PO 309109

Data Work-Up Sheet

P308465/P309041/P309109

Sample Name	Carbon Dioxide %	Oxygen %	Nitrogen %	Net Nitrogen %	Methane %	Methane PPMV	Ethane PPMV	Ethylene PPMV	Hydrogen PPMV	Date Analyzed	Analyst
P308465-13						152.30	0.07	0.20	0.98	9/11/03	JLL
P308465-14					6.28		0.00	0.22	1.26	9/11/03	JLL
P308465-15					16.16		0.00	0.00	1.32	9/11/03	JLL
P308465-16					1.27		151.74	76.97	16.53	9/11/03	JLL
P308465-17					2.80		8.13	13.79	158.31	9/11/03	JLL
P308465-18					0.55		9.95	11.14	78.74	9/11/03	JLL
P308465-20						178.58	0.12	0.20	0.73	9/11/03	JLL
P309041-01									103850.20	9/11/03	JLL
P309109-01	1.73	1.95	89.25	74.22	6.67		1.69	0.00	0.54	9/11/03	JLL
P309109-02	5.59	1.37	73.20	35.73	19.15		0.00	0.00	6.28	9/11/03	JLL
P309109-03	1.98	2.63	94.11	85.88	0.55		7.12	0.00	23.50	9/11/03	JLL
P309109-04	0.87	1.14	97.12	93.09	0.16		0.05	0.00	3.62	9/11/03	JLL
P309109-05	1.63	0.77	95.72	89.74	1.30		0.00	0.00	0.49	9/11/03	JLL
P309109-06	4.75	0.85	74.34	38.47	19.52		0.00	0.00	1.83	9/11/03	JLL

029

ANALYST INITIALS JLL/MM

REVIEW

Microseeps

P0309109

P0309109,9108,9134

Sample Names	Carbon Dioxide mg/l	Oxygen mg/l	Nitrogen mg/l	Methane ug/l	Ethane ng/l	Ethylene ng/l	Hydrogen nM	Date Analyzed	Analyst
P0309109-07	9.15	5.67	15.71	0.275	4	13	1.69	9/16/03	JL
P0309109-08	14.64	3.62	16.75	0.664	3	10	1.86	9/16/03	JL
P0309109-09	9.88	1.24	17.68	66.136	7	7	2.15	9/16/03	JL
P0309109-10	13.91	5.85	15.70	0.073	8	0	1.52	9/16/03	JL
P0309109-11	10.25	1.56	17.62	63.487	4	0	1.77	9/16/03	JL
P0309108-01							1.79	9/16/03	JL
P0309108-02							1.79	9/16/03	JL
P0309108-03							1.98	9/16/03	JL
P0309108-04							1.25	9/16/03	JL
P0309108-05							1.09	9/16/03	JL
P0309108-06							2.34	9/16/03	JL
P0309108-07							0.88	9/16/03	JL
P0309108-08							2.02	9/16/03	JL
P0309134-01							2.82	9/16/03	JL
P0309134-02							1.13	9/16/03	JL
DETECTION LIMITS	0.60mg/l	0.15mg/l	0.40mg/l	0.015ug/l	5ng/l	5ng/l	0.03nM		

030

ANALYST JLL

REVIEW

Microseeps

PO309109

Data Work-Up Sheet

P0309109,9108,9134

Sample Name	Carbon Dioxide %	Oxygen %	Nitrogen %	Net Nitrogen %	Methane %	Methane PPMV	Ethane PPMV	Ethylene PPMV	Hydrogen PPMV	Date Analyzed	Analyst
P0309109-07	0.25	5.68	93.73	84.96		5.26	0.03	0.04	0.88	9/16/03	JL
P0309109-08	0.40	3.63	96.09	90.62		12.69	0.02	0.03	0.97	9/16/03	JL
P0309109-09	0.27	1.24	98.19	95.66		1263.00	0.05	0.02	1.12	9/16/03	JL
P0309109-10	0.38	5.86	93.72	84.94		1.40	0.06	0.00	0.79	9/16/03	JL
P0309109-11	0.28	1.56	98.05	95.32		1212.42	0.03	0.00	0.92	9/16/03	JL
P0309108-01				-139.81					0.93	9/16/03	JL
P0309108-02				-139.81					0.93	9/16/03	JL
P0309108-03				-139.81					1.03	9/16/03	JL
P0309108-04				-139.81					0.65	9/16/03	JL
P0309108-05				-139.81					0.57	9/16/03	JL
P0309108-06				-139.81					1.22	9/16/03	JL
P0309108-07				-139.81					0.46	9/16/03	JL
P0309108-08				-139.81					1.05	9/16/03	JL
				-139.81							
P0309134-01				-139.81					1.47	9/16/03	JL
P0309134-02				-139.81					0.59	9/16/03	JL
				-139.81							
				-139.81							
				-139.81							

031

ANALYST INITIALS JLL

REVIEW nb.

Staffen, Seth

From: Metz, Charles
Sent: Thursday, October 02, 2003 9:56 AM
To: Staffen, Seth
Subject: RE: Field Dups for NS Mayport

Seth,

You are correct in that 2 of the samples have the letter S in the ID. The duplicate is different depending on which lab you have samples from. DU01 collected on 9-5-03 goes to MPT-8-MW01S-05 and was sent to Microseeps Lab in Pittsburgh, PA. DU01 collected on 9-11-03 goes to MPT-8-MW16S-05 and was sent to Laucks Lab in Seattle, WA.

Chuck

Subject: Field Dups for NS Mayport

I am looking for the corresponding environmental sample to field duplicate MPT-8-DU01-05.

CTO 253 Charge Number: 4259 SDG: P0309109. The samples were collected Sept. 3-5, 2003.

Also, there are two samples on the COC, MPT-**S**-MW02S-05 and MPT-**S**-MW03S-05. Just wanted to verify that the "S" should be an "S" and not a "5".

Thanks

Seth

Seth C. Staffen
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Field Duplicates for P0309109

	Sample		Duplicate			
Compound	MPT-8-MW01S-05		MPT-8-DU01-05		RPD	Difference
					%	
Ethane (UG/L)	0.004	J	0.007		55	0.003
Ethene (UG/L)	0.005	U	0.007		33	0.002
Methane (UG/L)	63		66		5	3
Carbon Dioxide (MG/L)	10		10		0	0
Hydrogen (NM)	2		2.2		10	0.2
Nitrogen (MG/L)	18		18		0	0
Oxygen (MG/L)	2		1.2		50	1

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **T. HANSEN** **DATE:** **NOVEMBER 5, 2003**

FROM: **JACQUELINE J. RASPANTI** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –IRON, MANGANESE AND MISCELLANEOUS PARAMETERS**
CTO- 253 NS MAYPORT
SAMPLE DELIVERY GROUP (SDG) – 25301

SAMPLES: 11/Aqueous/

MPT-5-MW02S-05	MPT-5-MW03S-05	MPT-8-DU01-05
MPT-8-MW01S-05	MPT-8-MW04S-05	MPT-8-MW06S-05
MPT-8-MW09S-05	MPT-8-MW16S-05	MPT-8-MW17S-05
MPT-8-MW18S-05	MPT-8-MW19S-05	

Overview

The sample set for CTO 253, NS MAYPORT, SDG 25301, consists of eleven (11) aqueous environmental samples. One (1) field duplicate pair (MPT-8-DU01-05 / MPT-8-MW16S-05) is included within this SDG.

All samples were analyzed for alkalinity, ammonia, chloride, nitrate, nitrite, orthophosphate, sulfate, total organic carbon and total iron and manganese. Sample MPT-8-MW19S-05 was additionally analyzed for dissolved organic carbon. The samples were collected by Tetra Tech NUS on September 11, 2003 and analyzed by Laucks Testing Laboratories, Inc. of Seattle, Washington under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Metals analyses were conducted using SW 846 method 6010B. Chloride, nitrate, nitrite, orthophosphate, and sulfate analyses were conducted using EPA method 300.0. Ammonia analyses were conducted using EPA method 350.1. Analyses for alkalinity were conducted using EPA method 310.1. Total and dissolved organic carbon analyses were conducted using EPA method 415.1.

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
* • Field Duplicate Results
* • 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	23.8 µg/L	119 µg/L
Manganese[(1)]	2.16 µg/L	10.8 ug/L

[(1)] Maximum concentration present in a laboratory 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 were taken into consideration when evaluating for blank contamination. Positive results less than the action level reported for iron were qualified as non-detected, (U) as a result of laboratory blank contamination. Manganese was not qualified for blank contamination because all results reported for manganese were either greater than the action level or non-detects.

Notes

The chain of custody listed fractional organic carbon to be analyzed for sample MPT-8-MW19S-05. However, sample MPT-8-MW19S-05 is an aqueous sample, and was not analyzed for fractional organic carbon because fractional organic carbon analyses are used to determine the percent of organic matter within soil and sediment.

The initial calibration verification percent recovery (%R) for nitrite was >110% quality control limit. No qualification action was taken because all of the results reported for nitrite were non-detects.

Metals samples collected by Tetra Tech NUS were not filtered in the field. The metals samples were preserved with nitric acid and shipped to the laboratory unfiltered. However, because the samples were preserved, the lab could not filter the samples. Mike Akers of Tetra Tech NUS was contacted on 9/15/03 regarding this discrepancy. The corrective action taken by Laucks Testing Laboratories was to filter 500 mL of sample that was submitted in the 1-liter unpreserved plastic bottles and then preserve that filtered sample with nitric acid for metals analysis.

One of the 1-liter plastic bottles preserved with H2SO4 was received without sample identification. The laboratory determined it to be sample MPT-8-MW17S-05 by process of elimination.

Executive Summary

Laboratory Performance: Iron and manganese were 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 Data 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
Jacqueline J. Raspanti
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 Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery 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 - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery 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; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
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: 4259

SDG: 25301 MEDIA: WATER DATA FRACTION: M

nsample	MPT-5-MW02S-05	nsample	MPT-5-MW03S-05	nsample	MPT-8-DU01-05
samp_date	9/11/2003	samp_date	9/11/2003	samp_date	9/11/2003
lab_id	0309176-02	lab_id	0309176-04	lab_id	0309176-01
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	MPT-8-MW16S-05

Parameter	Result	Val Qual	Qual Code
IRON	1070		
MANGANESE	47.0		

Parameter	Result	Val Qual	Qual Code
IRON	1900		
MANGANESE	121		

Parameter	Result	Val Qual	Qual Code
IRON	7010		
MANGANESE	246		

PROJ_NO: 4259

SDG: 25301 MEDIA: WATER DATA FRACTION: M

nsample	MPT-8-MW01S-05	nsample	MPT-8-MW04S-05	nsample	MPT-8-MW06S-05
samp_date	9/11/2003	samp_date	9/11/2003	samp_date	9/11/2003
lab_id	0309176-08	lab_id	0309176-05	lab_id	0309176-09
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	107	U	A
MANGANESE	14.7		

Parameter	Result	Val Qual	Qual Code
IRON	8060		
MANGANESE	202		

Parameter	Result	Val Qual	Qual Code
IRON	53.4	U	A
MANGANESE	21.1		

PROJ_NO: 4259

SDG: 25301 MEDIA: WATER DATA FRACTION: M

nsample	MPT-8-MW09S-05	nsample	MPT-8-MW16S-05	nsample	MPT-8-MW17S-05
samp_date	9/11/2003	samp_date	9/11/2003	samp_date	9/11/2003
lab_id	0309176-07	lab_id	0309176-03	lab_id	0309176-06
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	19.6	U	
MANGANESE	0.30	U	

Parameter	Result	Val Qual	Qual Code
IRON	8760		
MANGANESE	241		

Parameter	Result	Val Qual	Qual Code
IRON	3290		
MANGANESE	117		

PROJ_NO: 4259

SDG: 25301 MEDIA: WATER DATA FRACTION: M

nsample	MPT-8-MW18S-05	nsample	MPT-8-MW19S-05
samp_date	9/11/2003	samp_date	9/11/2003
lab_id	0309176-10	lab_id	0309176-11
qc_type	NM	qc_type	NM
units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	2000		
MANGANESE	126		

Parameter	Result	Val Qual	Qual Code
IRON	64.5	U	A
MANGANESE	0.30	U	

PROJ_NO: 4259

SDG: 25301 MEDIA: WATER DATA FRACTION: MISC

nsample	MPT-5-MW02S-05	nsample	MPT-5-MW03S-05	nsample	MPT-8-DU01-05
samp_date	9/11/2003	samp_date	9/11/2003	samp_date	9/11/2003
lab_id	0309176-02	lab_id	0309176-04	lab_id	0309176-01
qc_type	NM	qc_type	NM	qc_type	NM
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	MPT-8-MW16S-05

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	390		
AMMONIA-N	MG/L	1.2		
CHLORIDE	MG/L	340		
NITRATE-N	MG/L	0.6		
NITRITE-N	MG/L	0.1	U	
ORTHOPHOSPHATE-P	MG/L	1	U	
SULFATE	MG/L	42		
TOTAL ORGANIC CARBON	MG/L	26		

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	280		
AMMONIA-N	MG/L	0.33		
CHLORIDE	MG/L	8		
NITRATE-N	MG/L	0.2	U	
NITRITE-N	MG/L	0.1	U	
ORTHOPHOSPHATE-P	MG/L	1	U	
SULFATE	MG/L	12		
TOTAL ORGANIC CARBON	MG/L	3.7		

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	540		
AMMONIA-N	MG/L	5.3		
CHLORIDE	MG/L	14		
NITRATE-N	MG/L	0.2	U	
NITRITE-N	MG/L	0.1	U	
ORTHOPHOSPHATE-P	MG/L	1	U	
SULFATE	MG/L	2		
TOTAL ORGANIC CARBON	MG/L	23		

PROJ_NO: 4259

SDG: 25301 MEDIA: WATER DATA FRACTION: MISC

nsample	MPT-8-MW01S-05	nsample	MPT-8-MW04S-05	nsample	MPT-8-MW06S-05
samp_date	9/11/2003	samp_date	9/11/2003	samp_date	9/11/2003
lab_id	0309176-08	lab_id	0309176-05	lab_id	0309176-09
qc_type	NM	qc_type	NM	qc_type	NM
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	160		
AMMONIA-N	MG/L	0.18		
CHLORIDE	MG/L	9		
NITRATE-N	MG/L	0.2	U	
NITRITE-N	MG/L	0.1	U	
ORTHOPHOSPHATE-P	MG/L	1	U	
SULFATE	MG/L	37		
TOTAL ORGANIC CARBON	MG/L	3.6		

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	490		
AMMONIA-N	MG/L	3.9		
CHLORIDE	MG/L	15		
NITRATE-N	MG/L	0.2	U	
NITRITE-N	MG/L	0.1	U	
ORTHOPHOSPHATE-P	MG/L	1	U	
SULFATE	MG/L	1	U	
TOTAL ORGANIC CARBON	MG/L	20		

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	180		
AMMONIA-N	MG/L	0.02	U	
CHLORIDE	MG/L	5		
NITRATE-N	MG/L	0.4		
NITRITE-N	MG/L	0.1	U	
ORTHOPHOSPHATE-P	MG/L	1	U	
SULFATE	MG/L	17		
TOTAL ORGANIC CARBON	MG/L	2.6		

PROJ_NO: 4259

SDG: 25301 MEDIA: WATER DATA FRACTION: MISC

nsample	MPT-8-MW09S-05	nsample	MPT-8-MW16S-05	nsample	MPT-8-MW17S-05
samp_date	9/11/2003	samp_date	9/11/2003	samp_date	9/11/2003
lab_id	0309176-07	lab_id	0309176-03	lab_id	0309176-06
qc_type	NM	qc_type	NM	qc_type	NM
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	170		
AMMONIA-N	MG/L	0.02	U	
CHLORIDE	MG/L	25		
NITRATE-N	MG/L	0.5		
NITRITE-N	MG/L	0.1	U	
ORTHOPHOSPHATE-P	MG/L	1	U	
SULFATE	MG/L	73		
TOTAL ORGANIC CARBON	MG/L	2.9		

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	540		
AMMONIA-N	MG/L	5.0		
CHLORIDE	MG/L	13		
NITRATE-N	MG/L	0.2	U	
NITRITE-N	MG/L	0.1	U	
ORTHOPHOSPHATE-P	MG/L	1	U	
SULFATE	MG/L	1	U	
TOTAL ORGANIC CARBON	MG/L	24		

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	350		
AMMONIA-N	MG/L	0.38		
CHLORIDE	MG/L	15		
NITRATE-N	MG/L	0.2	U	
NITRITE-N	MG/L	0.1	U	
ORTHOPHOSPHATE-P	MG/L	1	U	
SULFATE	MG/L	13		
TOTAL ORGANIC CARBON	MG/L	6.3		

PROJ_NO: 4259

SDG: 25301 MEDIA: WATER DATA FRACTION: MISC

nsample	MPT-8-MW18S-05	nsample	MPT-8-MW19S-05
samp_date	9/11/2003	samp_date	9/11/2003
lab_id	0309176-10	lab_id	0309176-11
qc_type	NM	qc_type	NM
Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	300		
AMMONIA-N	MG/L	0.08		
CHLORIDE	MG/L	10		
NITRATE-N	MG/L	0.2	U	
NITRITE-N	MG/L	0.1	U	
ORTHOPHOSPHATE-P	MG/L	1	U	
SULFATE	MG/L	5		
TOTAL ORGANIC CARBON	MG/L	7.1		

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	140		
AMMONIA-N	MG/L	0.02	U	
CHLORIDE	MG/L	9		
DISSOLVED ORGANIC CARBON	MG/L	5.0		
NITRATE-N	MG/L	4.0		
NITRITE-N	MG/L	0.1	U	
ORTHOPHOSPHATE-P	MG/L	1	U	
SULFATE	MG/L	32		
TOTAL ORGANIC CARBON	MG/L	4.8		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MPT-5-MW02S-05

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Matrix (soil/water): WATER Lab Sample ID: 0309176-02

Level (low/med): LOW Date Received: 9/12/03

% Solids: _____

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

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	1070			P
7439-96-5	Manganese	47.0			P

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Colorless Clarity After: Clear Artifacts: _____

Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MPT-5-MW03S-05

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Matrix (soil/water): WATER Lab Sample ID: 0309176-04

Level (low/med): LOW Date Received: 9/12/03

% Solids: _____

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

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	1900			P
7439-96-5	Manganese	121			P

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Colorless Clarity After: Clear Artifacts: _____

Comments: _____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MPT-8-DU01-05

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Matrix (soil/water): WATER Lab Sample ID: 0309176-01

Level (low/med): LOW Date Received: 9/12/03

% Solids: _____

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

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	7010			P
7439-96-5	Manganese	246			P

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Colorless Clarity After: Clear Artifacts: _____

Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MPT-8-MW01S-05

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: SAS No.: SDG No.: 25301

Matrix (soil/water): WATER Lab Sample ID: 0309176-08

Level (low/med): LOW Date Received: 9/12/03

% Solids:

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

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	107			P
7439-96-5	Manganese	14.7	B		P

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Colorless Clarity After: Clear Artifacts:

Comments:

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MPT-8-MW04S-05

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Matrix (soil/water): WATER Lab Sample ID: 0309176-05

Level (low/med): LOW Date Received: 9/12/03

% Solids: _____

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

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	8060			P
7439-96-5	Manganese	202			P

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Colorless Clarity After: Clear Artifacts: _____

Comments: _____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MPT-8-MW06S-05

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Matrix (soil/water): WATER Lab Sample ID: 0309176-09

Level (low/med): LOW Date Received: 9/12/03

% Solids: _____

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

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	53.4	B		P
7439-96-5	Manganese	21.1			P

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Colorless Clarity After: Clear Artifacts: _____

Comments: _____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MPT-8-MW09S-05

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Matrix (soil/water): WATER Lab Sample ID: 0309176-07

Level (low/med): LOW Date Received: 9/12/03

% Solids: _____

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

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	19.6	U		P
7439-96-5	Manganese	0.30	U		P

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Colorless Clarity After: Clear Artifacts: _____

Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MPT-8-MW16S-05

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Matrix (soil/water): WATER Lab Sample ID: 0309176-03

Level (low/med): LOW Date Received: 9/12/03

% Solids: _____

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

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	8760			P
7439-96-5	Manganese	241			P

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Colorless Clarity After: Clear Artifacts: _____

Comments: _____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MPT-8-MW17S-05

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Matrix (soil/water): WATER Lab Sample ID: 0309176-06

Level (low/med): LOW Date Received: 9/12/03

% Solids: _____

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

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	3290			P
7439-96-5	Manganese	117			P

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Colorless Clarity After: Clear Artifacts: _____

Comments: _____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MPT-8-MW18S-05

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Matrix (soil/water): WATER Lab Sample ID: 0309176-10

Level (low/med): LOW Date Received: 9/12/03

% Solids: _____

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

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	2000			P
7439-96-5	Manganese	126			P

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Colorless Clarity After: Clear Artifacts: _____

Comments: _____

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MPT-8-MW19S-05

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Matrix (soil/water): WATER Lab Sample ID: 0309176-11

Level (low/med): LOW Date Received: 9/12/03

% Solids: _____

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

CAS No.	Analyte	Concentration	C	Q	M
7439-89-6	Iron	64.5	B		P
7439-96-5	Manganese	0.30	U		P

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Colorless Clarity After: Clear Artifacts: _____

Comments: _____

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : 25301
Matrix : WATER

Sample ID : MPT-5-MW02S-05
Lab Sample ID: 0309176-02
Date Received: 09/12/03

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Alkalinity, Total as CaCO3	390		mg/L	09/22/03	09/22/03	8.	EPA 310.1mod
Chloride (EPA 300.0)	340		mg/L	09/12/03	09/12/03	100	EPA 300.0
Ammonia as N (EPA 350.1)	1.2		mg/L	09/16/03	09/16/03	0.02	EPA 350 1
Nitrite as N (EPA 300.0)	0.1	U	mg/L	09/12/03	09/12/03	0.1	EPA 300.0
Nitrate as N (EPA 300.0)	0.6		mg/L	09/12/03	09/12/03	0.2	EPA 300.0
Ortho phosphate as P	1.	U	mg/L	09/12/03	09/12/03	1.	EPA 300.0
Sulfate (SO4)	42.		mg/L	09/12/03	09/12/03	10.	EPA 300.0
Total Organic Carbon	26.		mg/L	09/29/03	09/29/03	1.0	EPA 415.1

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : 25301
Matrix : WATER

Sample ID : MPT-5-MW03S-05
Lab Sample ID: 0309176-04
Date Received: 09/12/03

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Alkalinity, Total as CaCO3	280		mg/L	09/22/03	09/22/03	4.	EPA 310.1mod
Chloride (EPA 300.0)	8.		mg/L	09/12/03	09/12/03	1.	EPA 300.0
Ammonia as N (EPA 350.1)	0.33		mg/L	09/16/03	09/16/03	0.02	EPA 350 1
Nitrite as N (EPA 300.0)	0.1	U	mg/L	09/12/03	09/12/03	0.1	EPA 300.0
Nitrate as N (EPA 300.0)	0.2	U	mg/L	09/12/03	09/12/03	0.2	EPA 300.0
Ortho phosphate as P	1.	U	mg/L	09/12/03	09/12/03	1.	EPA 300.0
Sulfate (SO4)	12.		mg/L	09/12/03	09/12/03	1.	EPA 300.0
Total Organic Carbon	3.7		mg/L	09/29/03	09/29/03	1.0	EPA 415.1

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : 25301
Matrix : WATER

Sample ID : MPT-8-DU01-05
Lab Sample ID: 0309176-01
Date Received: 09/12/03

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Alkalinity, Total as CaCO3	540		mg/L	09/22/03	09/22/03	8.	EPA 310.1mod
Chloride (EPA 300.0)	14.		mg/L	09/12/03	09/12/03	10.	EPA 300.0
Ammonia as N (EPA 350.1)	5.3		mg/L	09/16/03	09/16/03	0.1	EPA 350.1
Nitrite as N (EPA 300.0)	0.1	U	mg/L	09/12/03	09/12/03	0.1	EPA 300.0
Nitrate as N (EPA 300.0)	0.2	U	mg/L	09/12/03	09/12/03	0.2	EPA 300.0
Ortho phosphate as P	1.	U	mg/L	09/12/03	09/12/03	1.	EPA 300.0
Sulfate (SO4)	2.		mg/L	09/12/03	09/12/03	1.	EPA 300.0
Total Organic Carbon	23.		mg/L	09/29/03	09/29/03	1.0	EPA 415.1

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : 25301
Matrix : WATER

Sample ID : MPT-8-MW01S-05
Lab Sample ID: 0309176-08
Date Received: 09/12/03

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Alkalinity, Total as CaCO3	160		mg/L	09/22/03	09/22/03	4.	EPA 310.1mod
Chloride (EPA 300.0)	9.		mg/L	09/12/03	09/12/03	1.	EPA 300.0
Ammonia as N (EPA 350.1)	0.18		mg/L	09/16/03	09/16/03	0.02	EPA 350 1
Nitrite as N (EPA 300.0)	0.1	U	mg/L	09/12/03	09/12/03	0.1	EPA 300.0
Nitrate as N (EPA 300.0)	0.2	U	mg/L	09/12/03	09/12/03	0.2	EPA 300.0
Ortho phosphate as P	1.	U	mg/L	09/12/03	09/12/03	1.	EPA 300.0
Sulfate (SO4)	37.		mg/L	09/12/03	09/12/03	10.	EPA 300.0
Total Organic Carbon	3.6		mg/L	09/29/03	09/29/03	1.0	EPA 415.1

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : 25301
Matrix : WATER

Sample ID : MPT-8-MW04S-05
Lab Sample ID: 0309176-05
Date Received: 09/12/03

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Alkalinity, Total as CaCO3	490		mg/L	09/22/03	09/22/03	8.	EPA 310.1mod
Chloride (EPA 300.0)	15.		mg/L	09/12/03	09/12/03	10.	EPA 300.0
Ammonia as N (EPA 350.1)	3.9		mg/L	09/16/03	09/16/03	0.04	EPA 350.1
Nitrite as N (EPA 300.0)	0.1	U	mg/L	09/12/03	09/12/03	0.1	EPA 300.0
Nitrate as N (EPA 300.0)	0.2	U	mg/L	09/12/03	09/12/03	0.2	EPA 300.0
Ortho phosphate as P	1.	U	mg/L	09/12/03	09/12/03	1.	EPA 300.0
Sulfate (SO4)	1.	U	mg/L	09/12/03	09/12/03	1.	EPA 300.0
Total Organic Carbon	20.		mg/L	09/29/03	09/29/03	1.0	EPA 415.1

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : 25301
Matrix : WATER

Sample ID : MPT-8-MW06S-05
Lab Sample ID: 0309176-09
Date Received: 09/12/03

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Alkalinity, Total as CaCO3	180		mg/L	09/22/03	09/22/03	4.	EPA 310.1mod
Chloride (EPA 300.0)	5.		mg/L	09/12/03	09/12/03	1.	EPA 300.0
Ammonia as N (EPA 350.1)	0.02	U	mg/L	09/16/03	09/16/03	0.02	EPA 350.1
Nitrite as N (EPA 300.0)	0.1	U	mg/L	09/12/03	09/12/03	0.1	EPA 300.0
Nitrate as N (EPA 300.0)	0.4		mg/L	09/12/03	09/12/03	0.2	EPA 300.0
Ortho phosphate as P	1.	U	mg/L	09/12/03	09/12/03	1.	EPA 300.0
Sulfate (SO4)	17.		mg/L	09/12/03	09/12/03	1.	EPA 300.0
Total Organic Carbon	2.6		mg/L	09/29/03	09/29/03	1.0	EPA 415.1

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : 25301
Matrix : WATER

Sample ID : MPT-8-MW09S-05
Lab Sample ID: 0309176-07
Date Received: 09/12/03

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Alkalinity, Total as CaCO3	170		mg/L	09/22/03	09/22/03	4.	EPA 310.1mod
Chloride (EPA 300.0)	25.		mg/L	09/12/03	09/12/03	10.	EPA 300.0
Ammonia as N (EPA 350.1)	0.02	U	mg/L	09/16/03	09/16/03	0.02	EPA 350 1
Nitrite as N (EPA 300.0)	0.1	U	mg/L	09/12/03	09/12/03	0.1	EPA 300.0
Nitrate as N (EPA 300.0)	0.5		mg/L	09/12/03	09/12/03	0.2	EPA 300.0
Ortho phosphate as P	1.	U	mg/L	09/12/03	09/12/03	1.	EPA 300.0
Sulfate (SO4)	73.		mg/L	09/12/03	09/12/03	10.	EPA 300.0
Total Organic Carbon	2.9		mg/L	09/29/03	09/29/03	1.0	EPA 415.1

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : 25301
Matrix : WATER

Sample ID : MPT-8-MW16S-05
Lab Sample ID: 0309176-03
Date Received: 09/12/03

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Alkalinity, Total as CaCO3	540		mg/L	09/22/03	09/22/03	8.	EPA 310.1mod
Chloride (EPA 300.0)	13.		mg/L	09/12/03	09/12/03	10.	EPA 300.0
Ammonia as N (EPA 350.1)	5.0		mg/L	09/16/03	09/16/03	0.1	EPA 350 1
Nitrite as N (EPA 300.0)	0.1	U	mg/L	09/12/03	09/12/03	0.1	EPA 300.0
Nitrate as N (EPA 300.0)	0.2	U	mg/L	09/12/03	09/12/03	0.2	EPA 300.0
Ortho phosphate as P	1.	U	mg/L	09/12/03	09/12/03	1.	EPA 300.0
Sulfate (SO4)	1.	U	mg/L	09/12/03	09/12/03	1.	EPA 300.0
Total Organic Carbon	24.		mg/L	09/29/03	09/29/03	1.0	EPA 415.1

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : 25301
Matrix : WATER

Sample ID : MPT-8-MW17S-05
Lab Sample ID: 0309176-06
Date Received: 09/12/03

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Alkalinity, Total as CaCO3	350		mg/L	09/22/03	09/22/03	8.	EPA 310.1mod
Chloride (EPA 300.0)	15.		mg/L	09/12/03	09/12/03	10.	EPA 300.0
Ammonia as N (EPA 350.1)	0.38		mg/L	09/16/03	09/16/03	0.02	EPA 350 1
Nitrite as N (EPA 300.0)	0.1	U	mg/L	09/12/03	09/12/03	0.1	EPA 300.0
Nitrate as N (EPA 300.0)	0.2	U	mg/L	09/12/03	09/12/03	0.2	EPA 300.0
Ortho phosphate as P	1.	U	mg/L	09/12/03	09/12/03	1.	EPA 300.0
Sulfate (SO4)	13.		mg/L	09/12/03	09/12/03	1.	EPA 300.0
Total Organic Carbon	6.3		mg/L	09/29/03	09/29/03	1.0	EPA 415.1

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : 25301
Matrix : WATER

Sample ID : MPT-8-MW18S-05
Lab Sample ID: 0309176-10
Date Received: 09/12/03

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Alkalinity, Total as CaCO3	300		mg/L	09/22/03	09/22/03	4.	EPA 310.1mod
Chloride (EPA 300.0)	10.		mg/L	09/16/03	09/16/03	2.	EPA 300.0
Ammonia as N (EPA 350.1)	0.08		mg/L	09/16/03	09/16/03	0.02	EPA 350.1
Nitrite as N (EPA 300.0)	0.1	U	mg/L	09/12/03	09/12/03	0.1	EPA 300.0
Nitrate as N (EPA 300.0)	0.2	U	mg/L	09/12/03	09/12/03	0.2	EPA 300.0
Ortho phosphate as P	1.	U	mg/L	09/12/03	09/12/03	1.	EPA 300.0
Sulfate (SO4)	5.		mg/L	09/12/03	09/12/03	1.	EPA 300.0
Total Organic Carbon	7.1		mg/L	09/29/03	09/29/03	1.0	EPA 415.1

APPENDIX C

SUPPORT DOCUMENTATION

US04-116 C3 SPI

TETRA TECH NUS, INC. — **CHAIN OF CUSTODY** — NUMBER 091103 — PAGE 1 OF 1

PROJECT NO: N4259	FACILITY: NS	PROJECT MANAGER: Terry Hansen	PHONE NUMBER: 850-385-9899	LABORATORY NAME AND CONTACT: Lauks Lab / Ann
SAMPLERS (SIGNATURE): Charles Metz		FIELD OPERATIONS LEADER: Chuck Metz	PHONE NUMBER: 904-636-6125	ADDRESS: 940 South Harney St
		CARRIER/WAYBILL NUMBER: 8427-1834-4990, 8427-1834-5003		CITY, STATE: Seattle Washington

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

	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: Alk + Anions	Fe + MN *	Amonnia	TOC	DOC + FOC				COMMENTS
			CONTAINER TYPE PLASTIC (P) or GLASS (G)							P	P	P	G	G				
			PRESERVATIVE USED							None	HNO_3	H_2SO_4	H_3PO_4	None				
1	9-11	0000	MPT-8-DU01-05				GW	G	5	1	1	1	2	—				2 Coolers
2		0920	MPT-S-MW02S-05						5	1	1	1	2	—				
3		1000	MPT-8-MW16S-05						5	1	1	1	2	—				
4		1010	MPT-S-MW03S-05						5	1	1	1	2	—				
5		1050	MPT-8-MW04S-05						5	1	1	1	2	—				
6		1040	MPT-8-MW17S-05						5	1	1	1	2	—				
7		1326	MPT-8-MW09S-05						5	1	1	1	2	—				
8		1330	MPT-8-MW01S-05						5	1	1	1	2	—				
9		1405	MPT-8-MW06S-05						5	1	1	1	2	—				
10		1420	MPT-8-MW18S-05						5	1	1	1	2	—				
11		1440	MPT-8-MW19S-05						6	1	1	1	2	1				

* Fe+Mn is unfiltered

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY: Charles Metz	9-11-03	1630	1. RECEIVED BY: Hugh Prentice	7/12/03	9:00 AM
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. TtNUS-001

Cooler 2 of 2

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? YES NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>>> YES NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>>> YES NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>>> YES NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>>> YES NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>> YES ~~NO~~ NA
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>>> YES NO

    If YES, give details below

21. Who was called / faxed? _____

    By whom?_____(date)_____

DISCREPANCIES:

Metals should be filtered in laboratory, however, the samples were submitted in preserved bottles. Called Mike Akers 9/15/03 and explained discrepancy. Corrective action - ~~the~~ Laucks will ~~use~~ filter 500 mL of the ALK + Anions bottle and preserve for metals analysis. ~~However, may not have sufficient sample volume for QC~~. ANH 9/15/03

25301

HOLDING TIME
10/20/03

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
%	LABQC	R092203_ALKW02	P_BLANK	25301	ALK	09/22/03	09/22/03	09/22/03	0	0	0
MG/L	MPT-5-MW02S-05	0309176-02	NORMAL	25301	ALK	09/11/03	09/22/03	09/22/03	11	0	11
MG/L	MPT-5-MW03S-05	0309176-04	NORMAL	25301	ALK	09/11/03	09/22/03	09/22/03	11	0	11
MG/L	MPT-5-MW03S-05DU	0309176-04DU	DUPLICATE	25301	ALK	09/11/03	09/22/03	09/22/03	11	0	11
MG/L	MPT-8-DU01-05	0309176-01	NORMAL	25301	ALK	09/11/03	09/22/03	09/22/03	11	0	11
MG/L	MPT-8-MW01S-05	0309176-08	NORMAL	25301	ALK	09/11/03	09/22/03	09/22/03	11	0	11
MG/L	MPT-8-MW04S-05	0309176-05	NORMAL	25301	ALK	09/11/03	09/22/03	09/22/03	11	0	11
MG/L	MPT-8-MW06S-05	0309176-09	NORMAL	25301	ALK	09/11/03	09/22/03	09/22/03	11	0	11
MG/L	MPT-8-MW09S-05	0309176-07	NORMAL	25301	ALK	09/11/03	09/22/03	09/22/03	11	0	11
MG/L	MPT-8-MW16S-05	0309176-03	NORMAL	25301	ALK	09/11/03	09/22/03	09/22/03	11	0	11
MG/L	MPT-8-MW17S-05	0309176-06	NORMAL	25301	ALK	09/11/03	09/22/03	09/22/03	11	0	11
MG/L	MPT-8-MW18S-05	0309176-10	NORMAL	25301	ALK	09/11/03	09/22/03	09/22/03	11	0	11
MG/L	MPT-8-MW19S-05	0309176-11	NORMAL	25301	ALK	09/11/03	09/22/03	09/22/03	11	0	11
%	LABQC	R091603_IAIW01	P_BLANK	25301	CL	09/29/03	09/16/03	09/16/03	-13	0	-13
MG/L	MPT-5-MW02S-05	0309176-02	NORMAL	25301	CL	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-5-MW03S-05	0309176-04	NORMAL	25301	CL	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-DU01-05	0309176-01	NORMAL	25301	CL	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW01S-05	0309176-08	NORMAL	25301	CL	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW04S-05	0309176-05	NORMAL	25301	CL	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW06S-05	0309176-09	NORMAL	25301	CL	09/11/03	09/16/03	09/12/03	5	-4	1
MG/L	MPT-8-MW09S-05	0309176-07	NORMAL	25301	CL	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW16S-05	0309176-03	NORMAL	25301	CL	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW17S-05	0309176-06	NORMAL	25301	CL	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW18S-05	0309176-10	NORMAL	25301	CL	09/11/03	09/12/03	09/16/03	1	4	5

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
MG/L	MPT-8-MW19S-05	0309176-11	NORMAL	25301	CL	09/11/03	09/12/03	09/12/03	1	0	1
%	MPT-8-MW19S-05MS	0309176-11MS	MS	25301	CL	09/11/03	09/12/03	09/12/03	1	0	1
%	MPT-8-MW19S-05MSD	0309176-11MSD	MSD	25301	CL	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW19S-05	0309176-11	NORMAL	25301	DOC	09/11/03	10/01/03	10/01/03	20	0	20
%	LABQC	S091603ICPW01	P_BLANK	25301	M	09/22/03	09/16/03	09/26/03	-6	10	4
UG/L	MPT-5-MW02S-05	0309176-02	NORMAL	25301	M	09/11/03	09/16/03	09/26/03	5	10	15
UG/L	MPT-5-MW03S-05	0309176-04	NORMAL	25301	M	09/11/03	09/16/03	09/26/03	5	10	15
UG/L	MPT-8-DU01-05	0309176-01	NORMAL	25301	M	09/11/03	09/16/03	09/26/03	5	10	15
UG/L	MPT-8-DU01-05D	0309176-01D	DUPLICATE	25301	M	09/11/03	09/16/03	09/26/03	5	10	15
%	MPT-8-DU01-05S	0309176-01S	MS	25301	M	09/11/03	09/16/03	09/26/03	5	10	15
UG/L	MPT-8-MW01S-05	0309176-08	NORMAL	25301	M	09/11/03	09/16/03	09/26/03	5	10	15
UG/L	MPT-8-MW04S-05	0309176-05	NORMAL	25301	M	09/11/03	09/16/03	09/26/03	5	10	15
UG/L	MPT-8-MW06S-05	0309176-09	NORMAL	25301	M	09/11/03	09/16/03	09/26/03	5	10	15
UG/L	MPT-8-MW09S-05	0309176-07	NORMAL	25301	M	09/11/03	09/16/03	09/26/03	5	10	15
UG/L	MPT-8-MW16S-05	0309176-03	NORMAL	25301	M	09/11/03	09/16/03	09/26/03	5	10	15
UG/L	MPT-8-MW17S-05	0309176-06	NORMAL	25301	M	09/11/03	09/16/03	09/26/03	5	10	15
UG/L	MPT-8-MW18S-05	0309176-10	NORMAL	25301	M	09/11/03	09/16/03	09/26/03	5	10	15
UG/L	MPT-8-MW19S-05	0309176-11	NORMAL	25301	M	09/11/03	09/16/03	09/26/03	5	10	15
%	LABQC	R091603_NH3W01	LCS	25301	NH3	09/29/03	09/16/03	09/16/03	-13	0	-13
MG/L	MPT-5-MW02S-05	0309176-02	NORMAL	25301	NH3	09/11/03	09/16/03	09/16/03	5	0	5
MG/L	MPT-5-MW03S-05	0309176-04	NORMAL	25301	NH3	09/11/03	09/16/03	09/16/03	5	0	5
%	MPT-5-MW03S-05MS	0309176-04MS	MS	25301	NH3	09/11/03	09/16/03	09/16/03	5	0	5
%	MPT-5-MW03S-05MSD	0309176-04MSD	MSD	25301	NH3	09/11/03	09/16/03	09/16/03	5	0	5
MG/L	MPT-8-DU01-05	0309176-01	NORMAL	25301	NH3	09/11/03	09/16/03	09/16/03	5	0	5
MG/L	MPT-8-MW01S-05	0309176-08	NORMAL	25301	NH3	09/11/03	09/16/03	09/16/03	5	0	5
MG/L	MPT-8-MW04S-05	0309176-05	NORMAL	25301	NH3	09/11/03	09/16/03	09/16/03	5	0	5
MG/L	MPT-8-MW06S-05	0309176-09	NORMAL	25301	NH3	09/11/03	09/16/03	09/16/03	5	0	5

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
MG/L	MPT-8-MW09S-05	0309176-07	NORMAL	25301	NH3	09/11/03	09/16/03	09/16/03	5	0	5
MG/L	MPT-8-MW16S-05	0309176-03	NORMAL	25301	NH3	09/11/03	09/16/03	09/16/03	5	0	5
MG/L	MPT-8-MW17S-05	0309176-06	NORMAL	25301	NH3	09/11/03	09/16/03	09/16/03	5	0	5
MG/L	MPT-8-MW18S-05	0309176-10	NORMAL	25301	NH3	09/11/03	09/16/03	09/16/03	5	0	5
MG/L	MPT-8-MW19S-05	0309176-11	NORMAL	25301	NH3	09/11/03	09/16/03	09/16/03	5	0	5
%	LABQC	R091603_IAIW01	LCS	25301	NTA	10/01/03	09/16/03	09/16/03	-15	0	-15
MG/L	MPT-5-MW02S-05	0309176-02	NORMAL	25301	NTA	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-5-MW03S-05	0309176-04	NORMAL	25301	NTA	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-DU01-05	0309176-01	NORMAL	25301	NTA	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW01S-05	0309176-08	NORMAL	25301	NTA	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW04S-05	0309176-05	NORMAL	25301	NTA	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW06S-05	0309176-09	NORMAL	25301	NTA	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW09S-05	0309176-07	NORMAL	25301	NTA	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW16S-05	0309176-03	NORMAL	25301	NTA	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW17S-05	0309176-06	NORMAL	25301	NTA	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW18S-05	0309176-10	NORMAL	25301	NTA	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW19S-05	0309176-11	NORMAL	25301	NTA	09/11/03	09/12/03	09/12/03	1	0	1
%	MPT-8-MW19S-05MS	0309176-11MS	MS	25301	NTA	09/11/03	09/12/03	09/12/03	1	0	1
%	MPT-8-MW19S-05MSD	0309176-11MSD	MSD	25301	NTA	09/11/03	09/12/03	09/12/03	1	0	1
%	LABQC	R091603_IAIW01	P_BLANK	25301	NTI	09/16/03	09/16/03	09/16/03	0	0	0
MG/L	MPT-5-MW02S-05	0309176-02	NORMAL	25301	NTI	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-5-MW03S-05	0309176-04	NORMAL	25301	NTI	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-DU01-05	0309176-01	NORMAL	25301	NTI	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW01S-05	0309176-08	NORMAL	25301	NTI	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW04S-05	0309176-05	NORMAL	25301	NTI	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW06S-05	0309176-09	NORMAL	25301	NTI	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW09S-05	0309176-07	NORMAL	25301	NTI	09/11/03	09/12/03	09/12/03	1	0	1

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
MG/L	MPT-8-MW16S-05	0309176-03	NORMAL	25301	NTI	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW17S-05	0309176-06	NORMAL	25301	NTI	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW18S-05	0309176-10	NORMAL	25301	NTI	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW19S-05	0309176-11	NORMAL	25301	NTI	09/11/03	09/12/03	09/12/03	1	0	1
%	MPT-8-MW19S-05MS	0309176-11MS	MS	25301	NTI	09/11/03	09/12/03	09/12/03	1	0	1
%	MPT-8-MW19S-05MSD	0309176-11MSD	MSD	25301	NTI	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	LABQC	B091203_IAI_W01	DUPLICATE	25301	OPO4	09/16/03	09/12/03	09/12/03	-4	0	-4
MG/L	MPT-5-MW02S-05	0309176-02	NORMAL	25301	OPO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-5-MW03S-05	0309176-04	NORMAL	25301	OPO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-DU01-05	0309176-01	NORMAL	25301	OPO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW01S-05	0309176-08	NORMAL	25301	OPO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW04S-05	0309176-05	NORMAL	25301	OPO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW06S-05	0309176-09	NORMAL	25301	OPO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW09S-05	0309176-07	NORMAL	25301	OPO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW16S-05	0309176-03	NORMAL	25301	OPO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW17S-05	0309176-06	NORMAL	25301	OPO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW18S-05	0309176-10	NORMAL	25301	OPO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW19S-05	0309176-11	NORMAL	25301	OPO4	09/11/03	09/12/03	09/12/03	1	0	1
%	MPT-8-MW19S-05MS	0309176-11MS	MS	25301	OPO4	09/11/03	09/12/03	09/12/03	1	0	1
%	MPT-8-MW19S-05MSD	0309176-11MSD	MSD	25301	OPO4	09/11/03	09/12/03	09/12/03	1	0	1
%	LABQC	R091603_IAIW01	LCS	25301	SO4	09/16/03	09/16/03	09/16/03	0	0	0
MG/L	MPT-5-MW02S-05	0309176-02	NORMAL	25301	SO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-5-MW03S-05	0309176-04	NORMAL	25301	SO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-DU01-05	0309176-01	NORMAL	25301	SO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW01S-05	0309176-08	NORMAL	25301	SO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW04S-05	0309176-05	NORMAL	25301	SO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW06S-05	0309176-09	NORMAL	25301	SO4	09/11/03	09/12/03	09/12/03	1	0	1

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
MG/L	MPT-8-MW09S-05	0309176-07	NORMAL	25301	SO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW16S-05	0309176-03	NORMAL	25301	SO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW17S-05	0309176-06	NORMAL	25301	SO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW18S-05	0309176-10	NORMAL	25301	SO4	09/11/03	09/12/03	09/12/03	1	0	1
MG/L	MPT-8-MW19S-05	0309176-11	NORMAL	25301	SO4	09/11/03	09/12/03	09/12/03	1	0	1
%	MPT-8-MW19S-05MS	0309176-11MS	MS	25301	SO4	09/11/03	09/12/03	09/12/03	1	0	1
%	MPT-8-MW19S-05MSD	0309176-11MSD	MSD	25301	SO4	09/11/03	09/12/03	09/12/03	1	0	1
%	LABQC	R100103_TOCW01	P_BLANK	25301	TOC	09/16/03	10/01/03	10/01/03	15	0	15
MG/L	MPT-5-MW02S-05	0309176-02	NORMAL	25301	TOC	09/11/03	09/29/03	09/29/03	18	0	18
MG/L	MPT-5-MW03S-05	0309176-04	NORMAL	25301	TOC	09/11/03	09/29/03	09/29/03	18	0	18
MG/L	MPT-8-DU01-05	0309176-01	NORMAL	25301	TOC	09/11/03	09/29/03	09/29/03	18	0	18
MG/L	MPT-8-MW01S-05	0309176-08	NORMAL	25301	TOC	09/11/03	09/29/03	09/29/03	18	0	18
MG/L	MPT-8-MW04S-05	0309176-05	NORMAL	25301	TOC	09/11/03	09/29/03	09/29/03	18	0	18
MG/L	MPT-8-MW06S-05	0309176-09	NORMAL	25301	TOC	09/11/03	09/29/03	09/29/03	18	0	18
MG/L	MPT-8-MW09S-05	0309176-07	NORMAL	25301	TOC	09/11/03	09/29/03	09/29/03	18	0	18
MG/L	MPT-8-MW16S-05	0309176-03	NORMAL	25301	TOC	09/11/03	09/29/03	09/29/03	18	0	18
MG/L	MPT-8-MW17S-05	0309176-06	NORMAL	25301	TOC	09/11/03	09/29/03	09/29/03	18	0	18
%	MPT-8-MW17S-05MS	0309176-06MS	MS	25301	TOC	09/11/03	09/29/03	09/29/03	18	0	18
%	MPT-8-MW17S-05MSD	0309176-06MSD	MSD	25301	TOC	09/11/03	09/29/03	09/29/03	18	0	18
MG/L	MPT-8-MW18S-05	0309176-10	NORMAL	25301	TOC	09/11/03	09/29/03	09/29/03	18	0	18
MG/L	MPT-8-MW19S-05	0309176-11	NORMAL	25301	TOC	09/11/03	10/01/03	10/01/03	20	0	20
MG/L	MPT-8-MW19S-05DU	0309176-11DU	DUPLICATE	25301	TOC	09/11/03	10/01/03	10/01/03	20	0	20

LAUCKS TESTING LABORATORIES
940 S. Harney
Seattle, WA 98108

To: Tetra Tech NUS, Inc.
Site Name: NAVSTA Mayport, FL CTO 253
Project No.: N4259
Project Manager: Terry Hansen
Laboratory No.: 0309176
SDG No.: 25301
Date of Report: October 3, 2003

SAMPLE RECEIPT, IDENTIFICATION, AND GENERAL COMMENTS:

Sample Receipt and Identification:

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

Client Sample Identification	Laucks Sample Identification	Testing Analytical Request
MPT-8-DU01-05	0309176-01	MET/ALK/CL/N02/N03/OP/S04/TOC/NH3
MPT-5-MW02S-05	0309176-02	MET/ALK/CL/N02/N03/OP/S04/TOC/NH3
MPT-8-MW16S-05	0309176-03	MET/ALK/CL/N02/N03/OP/S04/TOC/NH3
MPT-5-MW03S-05	0309176-04	MET/ALK/CL/N02/N03/OP/S04/TOC/NH3
MPT-8-MW04S-05	0309176-05	MET/ALK/CL/N02/N03/OP/S04/TOC/NH3
MPT-8-MW17S-05	0309176-06	MET/ALK/CL/N02/N03/OP/S04/TOC/NH3
MPT-8-MW09S-05	0309176-07	MET/ALK/CL/N02/N03/OP/S04/TOC/NH3
MPT-8-MW01S-05	0309176-08	MET/ALK/CL/N02/N03/OP/S04/TOC/NH3
MPT-8-MW06S-05	0309176-09	MET/ALK/CL/N02/N03/OP/S04/TOC/NH3
MPT-8-MW18S-05	0309176-10	MET/ALK/CL/N02/N03/OP/S04/TOC/NH3
MPT-8-MW19S-05	0309176-11	MET/ALK/CL/N02/N03/OP/S04/TOC/NH3/DOC

Analytical Request Key:

MET =	Fe, Mn by SW6010B
ALK =	Total Alkalinity by Method 310.1
CL =	Chloride by Method 300.0
N03 =	Nitrate by Method 300.0
N02 =	Nitrite by Method 300.0
S04 =	Sulfate by Method 300.0
OP =	Ortho Phosphate by Method 300.0
NH3 =	Ammonia by Method 350.1
TOC* =	Total Organic Carbon by Method 415.1M
DOC =	Dissolved Organic Carbon by Method 415.1M

TOC*:
Singleton analysis was performed for this project as approved by the client. This modification is less expensive and meets project DQOs but does not meet NELAC guidelines.

Sample Receipt Comments:

Metals samples should have been filtered in the laboratory; however, the metals samples were submitted in HNO3 preserved bottles. Mike Akers of Tetra Tech NUS was contacted regarding this discrepancy on 9/15/03. The corrective action taken by Laucks was to filter 500 mL of sample that was submitted in the 1-liter unpreserved plastic bottles and preserve that filtered sample with HNO3 for metals analysis.

One of the two temperature blanks was measured at a temperature below the control limits of 4°C ± 2°C.

One 1-liter plastic bottle preserved with H2SO4 was received without sample identification. By the process of elimination, it was determined to be sample MPT-8-MW17S-05.

Sample Identification on Forms:

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

GENERAL REMARKS ON INORGANIC ANALYSES:

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

ICP Metals:

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

SPECIFIC REMARKS ON INORGANIC ANALYSES:

Holding Time Compliance:

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

Metals:

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

Miscellaneous:

The following analytes do not have a Contract Laboratory Program holding time. The holding times tabulated below derive from the relevant EPA methods and are applicable when the sample was appropriately preserved and/or cooled. All samples submitted followed the preservation guidelines unless explicitly noted otherwise.

Analyte	Holding Time	Violations
Alkalinity	14 days	None
Chloride	28 days	None
Nitrate	48 hours	None
Nitrite	48 hours	None
Ortho Phosphate	48 hours	None
Sulfate	28 days	None
Ammonia	28 days	None
Total Organic Carbons	28 days	None
Dissolved Organic Carbons	28 days	None

ICP Metals:

At 75%, the recovery of manganese in the CRDL was below Laucks' internal limits of 80-120%. However per the DoD Quality Systems Manual, version 2 final, table B-4, the acceptance criteria for the low level calibration check standard is 70-130%. Because the recovery was within these limits, no further corrective action was required. Data have not been flagged for this event.

Conventionals:

On 09/12/03 and 09/16/03, the ICV / SRM exceeded the upper control limit for nitrite, which indicates an increase in sensitivity to this analyte. No nitrite was detected in any associated samples. All other quality control results were within limits. No further corrective action was required.

LAUCKS TESTING LABORATORIES
940 S. Harney
Seattle, WA 98108

RELEASE OF DATA

Laucks certifies that these results meet all requirements of the NELAC standards, except where otherwise noted.

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

Respectfully submitted,

Hugh Prentice for Anh Ho
Project Manager

10-6-03
(DATE)

Harry Romberg
Harry Romberg
Quality Assurance Officer

10-6-03
(DATE)

HOW TO CONTACT US:

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

REQUESTS FOR DUPLICATE COPIES:

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

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

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

SOW No.: SW-846

EPA Sample No.	Lab Sample ID.
MPT-8-DU01-05	0309176-01
MPT-8-DU01-05D	0309176-01D
MPT-8-DU01-05S	0309176-01S
MPT-5-MW02S-05	0309176-02
MPT-8-MW16S-05	0309176-03
MPT-5-MW03S-05	0309176-04
MPT-8-MW04S-05	0309176-05
MPT-8-MW17S-05	0309176-06
MPT-8-MW09S-05	0309176-07
MPT-8-MW01S-05	0309176-08
MPT-8-MW06S-05	0309176-09
MPT-8-MW18S-05	0309176-10
MPT-8-MW19S-05	0309176-11

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No NO

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

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

Signature: Jennifer R. Ancona Name: Jennifer Ancona

Date: 9/30/03 Title: Chemist

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: LAUCKS TESTING LABS, INC.

Lab Code: LAUCKS SDG No: 25301

Client Sample Identification	Lab Sample Identification
MPT-8-DU01-05	0309176-01
MPT-5-MW02S-05	0309176-02
MPT-8-MW16S-05	0309176-03
MPT-5-MW03S-05	0309176-04
MPT-8-MW04S-05	0309176-05
MPT-8-MW17S-05	0309176-06
MPT-8-MW09S-05	0309176-07
MPT-8-MW01S-05	0309176-08
MPT-8-MW06S-05	0309176-09
MPT-8-MW18S-05	0309176-10
MPT-8-MW19S-05	0309176-11

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

Signature: Jennifer Ancona Name: Jennifer Ancona

Date: 10/3/03 Title: Chemist

SW-846

3

BLANKS

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Preparation Blank Matrix (soil/water): WATER

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Iron	19.6	U	19.6	U	23.8	B	20.2	B	19.600	U	P
Manganese									2.160	B	P

3

BLANKS

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Preparation Blank Matrix (soil/water): WATER

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Iron			19.6	U							P

3
BLANKS

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Preparation Blank Matrix (soil/water): WATER

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Manganese	0.4	B	0.3	U	0.6	B	0.6	B			P

3

BLANKS

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Preparation Blank Matrix (soil/water): WATER

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Manganese			0.8	B							P

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

ICP ID Number: TJA61E Date: 9/5/03

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Iron	271.44		100	19.6	P
Manganese	257.61		15	0.3	P

Comments:

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PREPARATION LOG

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Method: P

EPA Sample No.	Preparation Date	Initial Volume mL	Volume (mL)
B091603ICPW01	9/16/03	100	100
S091603ICPW01	9/16/03	100	100
MPT-8-DU01-05	9/16/03	100	100
MPT-8-DU01-05D	9/16/03	100	100
MPT-8-DU01-05S	9/16/03	100	100
MPT-5-MW02S-05	9/16/03	100	100
MPT-8-MW16S-05	9/16/03	100	100
MPT-5-MW03S-05	9/16/03	100	100
MPT-8-MW04S-05	9/16/03	100	100
MPT-8-MW17S-05	9/16/03	100	100
MPT-8-MW09S-05	9/16/03	100	100
MPT-8-MW01S-05	9/16/03	100	100
MPT-8-MW06S-05	9/16/03	100	100
MPT-8-MW18S-05	9/16/03	100	100
MPT-8-MW19S-05	9/16/03	100	100

ANALYSIS RUN LOG

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Instrument ID Number: TJA61E Method: P

Start Date: 9/25/03 End Date: 9/25/03

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
STD1-Blank	1.00	0824												X													
s	1.00	0828												X													
s1	1.00	0831												X													
s2	1.00	0834												X													
s3	1.00	0839												X													
s4	1.00	0843																									
ICV1	1.00	0849												X													
ICB1	1.00	0855												X													
ZZZZZZ	1.00	0914																									
CRDL	1.00	0921												X													
ICSA1	1.00	0930												X													
ICSAB1	1.00	0935												X													
CCV1	1.00	0941												X													
CCB1	1.00	0947												X													
ZZZZZZ	1.00	0953																									
ZZZZZZ	1.00	0958																									
ZZZZZZ	1.00	1003																									
ZZZZZZ	1.00	1008																									
ZZZZZZ	1.00	1013																									
ZZZZZZ	5.00	1018																									
ZZZZZZ	1.00	1022																									
ZZZZZZ	1.00	1027																									
ZZZZZZ	1.00	1033																									
ZZZZZZ	1.00	1038																									
CCV2	1.00	1044												X													
CCB2	1.00	1050												X													
B091603ICPW01	1.00	1056												X													
S091603ICPW01	1.00	1101												X													
MPT-8-DU01-05	1.00	1106												X													
MPT-8-DU01-05D	1.00	1111												X													
MPT-8-DU01-05S	1.00	1116												X													
MPT-8-DU01-05L	5.00	1121												X													
ZZZZZZ	1.00	1126																									
MPT-5-MW02S-05	1.00	1131												X													
MPT-8-MW16S-05	1.00	1141												X													
MPT-5-MW03S-05	1.00	1145												X													
CCV3	1.00	1151												X													
CCB3	1.00	1158												X													

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ANALYSIS RUN LOG

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Instrument ID Number: TJA61E Method: P

Start Date: 9/25/03 End Date: 9/25/03

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MPT-8-MW04S-05	1.00	1204												X													
MPT-8-MW17S-05	1.00	1208												X													
MPT-8-MW09S-05	1.00	1213												X													
MPT-8-MW01S-05	1.00	1218												X													
MPT-8-MW06S-05	1.00	1223												X													
MPT-8-MW18S-05	1.00	1228												X													
MPT-8-MW19S-05	1.00	1233												X													
CCV4	1.00	1239												X													
CCB4	1.00	1245												X													

ANALYSIS RUN LOG

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Instrument ID Number: TJA61E Method: P

Start Date: 9/26/03 End Date: 9/26/03

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
STD1-Blank	1.00	1038															X										
s	1.00	1042															X										
s1	1.00	1046																									
s2	1.00	1049																									
s3	1.00	1053																									
s4	1.00	1056																									
ICV2	1.00	1102															X										
ICB2	1.00	1108															X										
CRDL	1.00	1129															X										
ICSA1	1.00	1135															X										
ICSAB1	1.00	1140															X										
CCV1	1.00	1146															X										
CCB1	1.00	1202															X										
ZZZZZZ	1.00	1209																									
ZZZZZZ	1.00	1213																									
ZZZZZZ	1.00	1218																									
ZZZZZZ	1.00	1223																									
ZZZZZZ	1.00	1228																									
ZZZZZZ	5.00	1233																									
ZZZZZZ	1.00	1238																									
ZZZZZZ	1.00	1243																									
ZZZZZZ	1.00	1249																									
ZZZZZZ	1.00	1254																									
CCV2	1.00	1300															X										
CCB2	1.00	1306															X										
B091603ICPW01	1.00	1312															X										
S091603ICPW01	1.00	1317															X										
MPT-8-DU01-05	1.00	1322															X										
MPT-8-DU01-05D	1.00	1326															X										
MPT-8-DU01-05S	1.00	1331															X										
MPT-8-DU01-05L	5.00	1336															X										
ZZZZZZ	1.00	1341																									
MPT-5-MW02S-05	1.00	1346															X										
MPT-8-MW16S-05	1.00	1351															X										
MPT-5-MW03S-05	1.00	1356															X										
CCV3	1.00	1402															X										
CCB3	1.00	1408															X										
MPT-8-MW04S-05	1.00	1414															X										

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ANALYSIS RUN LOG

Lab Name: Laucks Laboratories Contract: N4259

Lab Code: LAUCKS Case No.: _____ SAS No.: _____ SDG No.: 25301

Instrument ID Number: TJA61E Method: P

Start Date: 9/26/03 End Date: 9/26/03

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MPT-8-MW17S-05	1.00	1419															X										
MPT-8-MW09S-05	1.00	1424															X										
MPT-8-MW01S-05	1.00	1429															X										
MPT-8-MW06S-05	1.00	1434															X										
MPT-8-MW18S-05	1.00	1438															X										
MPT-8-MW19S-05	1.00	1443															X										
CCV4	1.00	1449															X										
CCB4	1.00	1455															X										

FORM 2-A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: LAUCKS TESTING LABORATORIES, INC.

SDG No: 25301 Concentration Units: mg/L (unless otherwise noted)

ANALYTE	INITIAL CALIBRATION			CONTINUING CALIBRATION					
	TRUE	FOUND	%R	TRUE	FOUND	%R	TRUE	FOUND	%R
Ammonia 09/16/03	4.07	4.46	110	0.500	0.503	101	0.500	0.511	102
				0.500	0.531	106			
Chloride 09/12/03	29.9	29.4	98	5.00	4.86	97	5.00	4.86	97
				5.00	4.91	98	5.00	4.95	99
Nitrite 09/12/03	30.4	34.6	114	1.00	0.938	94	1.00	0.948	95
				1.00	0.956	96	1.00	0.946	95
Nitrate 09/12/03	22.6	22.6	100	2.00	1.94	97	2.00	2.01	100
				2.00	2.00	100	2.00	2.03	102
Ortho-Phosphate 09/12/03	48.9	47.6	97	5.00	4.77	95	5.00	4.78	96
				5.00	4.69	94	5.00	4.72	94
Sulfate 09/12/03	150	147	98	10.0	9.88	99	10.0	10.1	101
				10.0	9.96	100	10.0	10.3	103
Chloride 09/16/03	29.9	29.5	99	5.00	4.78	96	5.00	4.82	96
TOC 09/29/03	50.0	50.6	101	40.0	40.0	100	40.0	39.7	99
				40.0	40.3	101			
TOC 10/01/03	50.0	48.4	97	40.0	42.5	106			

FORM 3-A

BLANKS

Lab Name: LAUCKS TESTING LABORATORIES, INC.

SDG No. 25301

Preparation Blank Concentration Units: mg/L (unless otherwise noted)

ANALYTE	INITIAL CALIB. (mg/L)		CONTINUING CALIBRATION (mg/L)						PREPARATION BLANK	
	Value	C		C		C		C	Value	C
Ammonia 09/16/03	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Chloride 09/12/03	1.	U	1.	U	1.	U	1.	U	1.	U
			1.	U						
Nitrite 09/12/03	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
			0.1	U						
Nitrate 09/12/03	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
			0.2	U						
Ortho-Phosphate 09/12/03	1.	U	1.	U	1.	U	1.	U	1.	U
			1.	U						
Sulfate 09/12/03	1.	U	1.	U	1.	U	1.	U	1.	U
			1.	U						
Chloride 09/16/03	1.	U	1.	U	1.	U			1.	U
TOC 09/29/03	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
TOC 10/01/03	1.0	U	1.0	U					1.0	U

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B092203_ALK_W01 Preparation Date : 09/22/03

Analyte	Reported		Units	Limit
ALK	2.0	U	mg/L	4.0

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B092203_ALK_W02 Preparation Date : 09/22/03

Analyte	Reported		Units	Limit
ALK	2.0	U	mg/L	4.0

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B091603_NH3_W01 Preparation Date : 09/16/03

Analyte	Reported	Units	Limit
NH3_SPEC	0.010 U	mg/L	0.020

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B091603_IAI_W01 Preparation Date : 09/16/03

Analyte	Reported		Units	Limit
CL_IC	1.0	U	mg/L	0.50
F_IC	0.20	U	mg/L	0.10
SO4_IC	1.0	U	mg/L	0.50
NO2_IC	0.10	U	mg/L	0.050
NO3_IC	0.20	U	mg/L	0.10

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B092903_TOC_W01 Preparation Date : 09/29/03

Analyte	Reported		Units	Limit
TOC	1.0	U	mg/L	1.0

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B100103_TOC_W01 Preparation Date : 10/01/03

Analyte	Reported		Units	Limit
TOC	1.0	U	mg/L	1.0

NS Mayport
SDG 25301

FIELD DUPLICATE PRECISION

ANALYTE	MPT-8-DU01-05	MPT-8-MW16S-05	RPD	DIFFERENCE
Iron	7010	8760	22.19	1750
Manganese	246	241	2.05	5
Alkalinity	540	540	0.00	0
Ammonia-N	5.3	5.0	5.83	0.3
Chloride	14.0	13	7.41	1
Nitrate-N	0.2U	0.2U	#VALUE!	#VALUE!
Nitrite-N	0.1U	0.1U	#VALUE!	#VALUE!
Orthophosphate-P	1U	1U	#VALUE!	#VALUE!
Sulfate	2	1U	#VALUE!	#VALUE!
Total Organic Carbon	23	24	4.26	1