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LETTER REPORT REGARDING FIRST QUARTER MONITORING REPORT FOR SOLID WASTE MANAGEMENT UNITS 6 AND 7 TREATABILITY STUDY NS MAYPORT FL
8/12/2003
TETRA TECH NUS

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Project Number N4259

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

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

Subject: First 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 First 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 first quarter natural attenuation (NA) sampling events conducted in November and December 2002 and January 2003. Fieldwork and analytical sampling results for the first quarter events are presented herein.

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 has undergone two ex situ 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. 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 location 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.

Purpose and Goals

This Treatability Study is being conducted in order to evaluate the applicability of remediation alternatives for free-product recovery, soil bioremediation, and groundwater NA. Groundwater is presently being sampled and analyzed for NA parameters to determine if NA is a viable groundwater treatment alternative. Passive free-product recovery will be tested at the site to determine if this technology will be a viable method for decreasing the free-product thickness on the groundwater surface. Ten soil samples will be collected and analyzed for TPHCWG to further characterize site soil. These samples will be used to determine if soil is deemed to be contaminated under the FDEP Chapter 62-777, Florida Administrative Code (FAC) Technical Report cleanup levels for TRPH. The analytical data from the ten soil samples will also be used to determine the location from where soil will be collected for the soil bio-treatability tests. Soil will be collected and sent to two off-site in situ bio-treatability vendors for bench scale bioremediation tests to determine if nutrient injection will decrease soil contamination below FDEP Soil Cleanup Target Levels (SCTLs) and aid in the elimination of free product at the soil-water interface.

TtNUS Field Activities

Field events for the first quarter began on November 13, 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 monitoring well MPT-8-MW19S, just south of SWMUs 6 and 7 (see Figure 3).

The first quarter of groundwater monitoring consisted of three monthly sampling events. The first monthly sampling event was the baseline sampling event where ten wells were sampled for volatile organic compound (VOC), polynuclear aromatic hydrocarbon (PAH), TRPH, and NA parameters and four additional wells were sampled during the baseline event for PAHs and VOCs only. During monthly events two and three of the first quarter, ten wells were sampled for NA parameters only.

Groundwater samples were collected from all wells in accordance with the current FDEP Standard Operating Procedures (SOPs). Depth-to-water was measured, and the wells were purged prior to sample collection. Purging was accomplished with a peristaltic pump using low flow purge technique. During purging, field parameters [pH, conductivity, temperature, dissolved oxygen (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 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 at an off-site lab for alkalinity by United States Environmental Protection Agency (USEPA) Method E310.1, cations and anions by USEPA 300 series, Total Organic Carbon (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. The baseline event also included groundwater analysis of VOCs by USEPA Method SW-846 8260B, PAHs by USEPA Method SW-846 8310, and TRPH by Florida Petroleum Range Organics (FL-PRO). Groundwater samples were shipped on ice via Federal Express to GPL Laboratories in Gaithersburg, Maryland. In addition, biogenic gas samples were collected and shipped to Microseeps Inc., in Pittsburgh, Pennsylvania for analysis AMG20GAX. The validated groundwater analytical reports are included in Attachment B.

Event 1 - Baseline Event (First Quarter)

Between November 19 and 22, 2002, TtNUS conducted the initial Baseline Groundwater Monitoring event for quarter one. During this event, depth to groundwater, free-product measurements, and groundwater samples were collected from the selected site monitoring wells. The purpose of the sampling was to monitor groundwater constituent concentrations for both contaminant concentrations and NA conditions. Groundwater samples were collected from monitoring wells MPT-8-MW01S, -MW06S, -MW09S, -MW15SR, -MW16S, -MS17S, -MW18S, and -MW19S and MPT-S-MW02S and MPT-S-MW03S and analyzed for PAHs, VOCs, TRPH, and NA parameters. Groundwater samples collected from MPT-8-MW08S, -MW12S, -MW13S, and, -MW13I were only analyzed for PAHs and VOCs.

Event 2 (First Quarter)

Between December 17 and 19, 2002, TtNUS conducted the second groundwater monitoring event for quarter one. During this event, depth to groundwater, free-product measurements, and groundwater samples were collected from the selected site monitoring wells. The purpose of the sampling was to monitor groundwater NA conditions. Groundwater samples were collected from ten monitoring wells (MPT-8-MW01S, -MW03S, -MW04S, -MW06S, -MW09S, -MW16S, -MS17S, -MW18S, and -MW19S and MPT-S-MW02S).

Event 3 (First Quarter)

Between January 13 and 15, 2003, TtNUS conducted the third groundwater monitoring event for quarter one. During this event, depth to groundwater, free-product measurements, and groundwater samples were collected from the selected site monitoring wells. The purpose of the sampling was to monitor groundwater NA conditions. Groundwater samples were collected from ten monitoring wells (MPT-8-MW01S, -MW03S, -MW04S, -MW06S, -MW09S, -MW16S, -MS17S, -MW18S, and -MW19S and MPT-S-MW02S).

Discussion of Groundwater Results

Table 1 provides a summary of depth-to-water measurements from top of casing. Figure 4 provides a graphical representation of groundwater flow. Groundwater flow is generally north toward the St. Johns River. Table 2 summarizes the baseline laboratory analysis for VOCs, PAHs, and TRPH. Table 3 is a summary of the groundwater inorganic parameters that were analyzed during each of the first quarter sampling events. Groundwater parameters that were collected in the field during each event are summarized in Table 4. The monitoring well locations are presented on Figure 3.

Baseline Event

No PAH, VOC, or TRPH detections were reported to exceed FDEP GCTLs during the baseline sampling. Iron was detected in exceedance of FDEP GCTLs in MPT-S-MW03S, MPT-8-MW01S, -MW15SR, -MW17S, and -MW18S. Exceedance concentrations of iron ranged between 815 micrograms per liter (µg/L) and 14,000 µg/L, which exceed the iron GCTL of 300 µg/L. Manganese exceeded FDEP GCTLs in MPT-S-MW03S, MPT-8-MW15SR, -MW17S, and -MW18S. Manganese exceedance concentrations ranged from 59 µg/L to 556 µg/L, which exceeds its GCTL of 50 µg/L. Chloride was detected in exceedance of the FDEP GCTL of 250 mg/L in monitoring wells MPT-S-MW02S [420 milligrams per liter (mg/L)] and MPT-8-MW15SR (370 mg/L).

Free-product measurements of 0.54 feet and 0.01 feet were measured in monitoring wells MPT-8-MW02S and -MW03S, respectively.

Event 2 – First Quarter

Iron, manganese, chloride, and ammonia were detected above FDEP GCTLs in groundwater samples collected during the second sampling event. Iron exceedances were detected in MPT-8-MW01S, -MW03S, -MW04S, -MW09S, -MW16S, -MW17S, and -MW18S at concentrations ranging between 486 µg/L and 12900 µg/L. Manganese exceedances were reported in MPT-8-MW03S, -MW04S, -MW09S, and -MW17S. Concentrations of manganese in exceedance of GCTLs ranged between 77.4 µg/L and 212 µg/L. A chloride exceedance of 420 mg/L was detected in monitoring well MPT-S-MW02S. Ammonia was detected at 5.3 mg/L in MPT-8-MW04S, which exceeds its FDEP GCTL of 2.8 mg/L.

Free product was measured at 0.40 feet in monitoring well MPT-8-MW02S.

Event 3 – First Quarter

Iron, manganese, chloride, and ammonia were detected above FDEP GCTLs in groundwater samples collected during the third sampling event. Iron exceedances were detected in MPT-8-MW04S, MW09S, MW15SR, MW16S, MW17S, and MW18S at concentrations ranging between 1,410 µg/L and 13,600 µg/L. Manganese exceedances were reported in MPT-8-MW04S, -MW09S, -MW15SR, -MW16S, -MW17S and -MW18S. Concentrations of manganese in exceedance of GCTLs ranged between 58.0 µg/L and 233 µg/L. A chloride exceedance of 400 mg/L was detected in monitoring well MPT-8-MW15SR. Ammonia was detected at 4.2 mg/L in MPT-8-MW04S, which exceeds its FDEP GCTL of 2.8 mg/L.

Free-product measurements of 0.45 feet and 0.02 feet were encountered in monitoring wells MPT-8-MW02S and MW03S, respectively.

NA Results

Results of sampling and testing for NA parameters were included in Table 3 and Table 4. These parameters will be evaluated in an addendum to this letter report. The NA evaluation will be used to provide an initial scoring of NA parameters to indicate whether this site is conducive to remediation through natural biological processes. Subsequent sampling events will be used to verify that site conditions remain conducive to NA.

Conclusion

Iron and manganese were consistently reported above FDEP GCTLs in the sites monitoring wells. Chloride was detected above FDEP GCTLs in two monitoring wells that are closest to the St. Johns River, which is salt-water and tidally influenced. Ammonia was consistently detected in monitoring well MPT-8-MW04S, which is also next to the St. Johns River. The current maximum background screening values for inorganic constituents at NAVSTA Mayport are included in Table 3 because they eliminate several of the inorganic exceedances.

The baseline event analytical results indicated that no sampled monitoring wells contained PAHs, VOCs, or TRPH in excess of FDEP GCTLs. Historical PAH, VOC, and TRPH groundwater exceedances were not verified by the baseline sampling. While free product is still present in several monitoring wells, it appears that some type of NA has reduced previous groundwater contaminants values to less than FDEP GCTLs.

An addendum to this letter report providing an initial NA score for this site will be issued following submission of this First Quarter Monitoring Letter Report. A complete evaluation of the site NA parameters and all other relevant geochemical parameters will be included in the addendum. The initial scoring will conclude if NA may or could be occurring at SWMUs 6 and 7.

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

Sincerely,

Charles M for TH

Terry Hansen P.G.
Task Order Manager

TH/cm

Attachments (5)

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

TABLES

TABLE 1
GROUNDWATER ELEVATION SUMMARY

FIRST QUARTER GROUNDWATER MONITORING LETTER REPORT
SOLID WASTE MANAGEMENT UNITS 6 & 7
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	11/19/02	12/17/02	01/13/03
MPT-8-MW01S	16.30	19.75	8.51	9.10	8.81	11.24	10.65	10.94
MPT-8-MW02S	15.22	NM	11.54	11.94	11.85	NA	NA	NA
MPT-8-MW03S	15.40	NM	11.58	11.48	10.92	NA	NA	NA
MPT-8-MW04S	15.50	11.90	10.04	10.33	10.14	1.86	1.57	1.76
MPT-8-MW06S	15.20	NM	7.06	7.53	7.42	NA	NA	NA
MPT-8-MW08S	14.60	NM	9.02	9.64	NM	NA	NA	NA
MPT-8-MW09S	14.85	12.55	8.96	9.09	9.03	3.59	3.46	3.52
MPT-8-MW12S	18.10	NM	10.97	11.33	11.25	NA	NA	NA
MPT-8-MW13S	15.25	NM	10.45	10.70	10.55	NA	NA	NA
MPT-8-MW13I	39.45	NM	10.65	10.83	10.55	NA	NA	NA
MPT-8-MW15SR	35.50	NM	10.15	10.61	10.47	NA	NA	NA
MPT-8-MW16S	15.00	NM	8.55	8.77	8.67	NA	NA	NA
MPT-8-MW17S	14.89	NM	9.22	9.46	9.26	NA	NA	NA
MPT-8-MW18S	15.02	8.80	5.61	6.92	6.86	3.19	1.88	1.94
MPT-8-MW19S	16.30	NM	5.82	5.47	5.26	NA	NA	NA
MPT-S-MW02S	15.22	NM	7.85	8.58	8.83	NA	NA	NA
MPT-S-MW03S	15.40	11.90	10.20	10.57	10.43	1.70	1.33	1.47

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 2
VOCs, PAHs, AND TRPH GROUNDWATER DETECTIONS- SWMU 6 & 7
NOVEMBER 2002 SAMPLING EVENT

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

Sample No.		MPT-S-MW02S	MPT-S-MW03S	MPT-8-MW01S	MPT-8-MW06S	MPT-8-MW08S	MPT-8-MW09S	MPT-8-MW12S	MPT-8-MW13S
Sample Location		MW-02S	MW-03S	MW-01S	MW-06S	MW-08S	MW-09S	MW-12S	MW-13S
Collect Date		11/20/02	11/21/02	11/19/02	11/21/02	11/20/02	11/19/02	11/20/02	11/20/02
	GCTL[1]								
Volatiles[2] (µg/L)									
2-Butanone	4200	--	--	--	--	--	--	--	--
Acetone	700	--	--	--	--	--	--	--	--
Carbon Disulfide	700	--	--	2 J	--	6.4	1.9 J	1.7 J	2.2 J
Methylene Chloride	5	--	--	--	--	--	--	--	--
Toluene	40	--	--	--	--	--	--	--	--
Trichloroethene	3	--	--	--	--	--	--	--	--
Semivolatiles[3] (µg/L)									
2-Methlnaphthalene	20	--	--	--	--	--	--	--	--
Total Petroleum Hydrocarbons[4] (mg/L)	5	0.15 J	--	--	--	NA	--	NA	NA

See notes at end of table.

TABLE 2 (CONTINUED)
VOC, PAH, AND TRPH GROUNDWATER DETECTIONS- SWMU 6 & 7
NOVEMBER 2002 SAMPLING EVENT

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

Sample No.		MPT-8-MW-13I	MPT-8-MW15SR	MPT-8-MW-17S	MPT-8-MW18S	MPT-8-MW19S	
Sample Location		MW-13I	MW-15S	MW-17S	MW-18S	MW-19S	
Collect Date		11/20/02	11/21/02	11/21/02	11/20/02	11/20/02	
	GCTL[1]						
Volatiles[2] (µg/L)							
2-Butanone	4200	6.4 J	--	--	--	--	
Acetone	700	--	--	--	--	--	
Carbon Disulfide	700	16	--	--	--	--	
Methylene Chloride	5	--	--	--	--	--	
Toluene	40	--	--	--	--	--	
Trichloroethene	3	--	--	--	--	--	
Semivolatiles[3] (µg/L)							
2-Methylnaphthalene	20	--	--	1.3 J	--	--	
Total Petroleum Hydrocarbons[4] (mg/L)	5	NA	1.8 J	0.12 J	--	--	

[1] Groundwater Cleanup Taget Levels from Chapter 62-777, FAC.
[2] SW-846 8260B (Volatiles)
[3] SW-846 8270C (Polynuclear Aromatic Hydrocarbons, Semivolatiles)
[4] FDEP FL-PRO (Total Petroleum Hydrocarbons)

Notes: **Bold** indicates an exceedance of limits. **Bold** indicate which regulatory limit was exceeded.
µg/L = micrograms per liter
-- = Compound not detected
J = Compound detected at an estimated concentration
mg/L = milligrams per liter
NA = Not analyzed

TABLE 3
SUMMARY OF ANALYTES DETECTED IN GROUNDWATER - SWMU 6 & 7
NOVEMBER 2002 SAMPLING EVENT

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

Sample ID		MPT-S-MW02S			MPT-S-MW03S			MPT-8-MW01S		
Collect Date		11/20/02	12/17/02	01/15/03	11/21/02	December	January	11/19/02	12/19/02	01/13/03
	GCTL[1]									
Metals[2] (µg/L)										
Iron	300	85.7	62.3	--	**8280**	NS	NS	**815**	**826**	183
Manganese	50	14.2	10.7	23.3	**556**	NS	NS	34.5	26.6	22.4
Miscellaneous[3] (mg/L)										
Alkalinity	NC	370	380	380	410	NS	NS	180	170	160 J
Ammonia	2.8	0.91	0.6	1.2 J	1.2	NS	NS	0.17	NA	0.38
Chloride	250	**420**	**420**	110 J	15 J	NS	NS	17	16	18
Dissolved Organic Carbon	NC	12	NA	NA	NA	NS	NS	4.8	NA	2.7
Fractional Organic Carbon	NC	77	NA	NA	NA	NS	NS	34	NA	46
Nitrate	10	0.36 J	0.18	0.25 J	--	NS	NS	--	--	0.14 J
Orthophosphate	NC	--	--	--	--	NS	NS	--	--	--
Sulfate	250	46 J	32	20	50 J	NS	NS	39 J	29	31
Total Organic Carbon	NC	13	13	11	28	NS	NS	5.8	NA	2.4
Biogenic Gases[4] (mg/L)										
Carbon Dioxide	NC	--	51 J	47	--	NS	NS	11	11 J	8.9
Ethane (ng/L)	NC	--	0.00025 J	0.000220	--	NS	NS	0.000008	0.00002 J	0.000015
Ethene (ng/L)	NC	--	--	--	--	NS	NS	0.000009	--	0.000006
Hydrogen (nM)	NC	--	1.1 J	0.71	--	NS	NS	2	1.1 J	2.1
Methane	NC	--	2.1 J	2.5	--	NS	NS	0.045	0.12 J	0.087
Nitrogen	NC	--	15 J	14	--	NS	NS	16	18 J	18
Oxygen	NC	--	2.4 J	4.1	--	NS	NS	3.8	1.2 J	1.1

See notes at end of table

TABLE 3 (CONTINUED)
SUMMARY OF ANALYTES DETECTED IN GROUNDWATER - SWMU 6 & 7
NOVEMBER 2002 SAMPLING EVENT

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

Sample ID		MPT-8-MW03S			MPT-8-MW04S			MPT-8-MW-06S		
Collect Date		November	12/19/03	January	November	12/17/02	01/15/03	11/21/02	12/18/02	01/14/03
	GCTL[1]									
Metals[2] (µg/L)										
Iron	300	NS	**486**	NS	NS	**12900**	**13600**	60.1	--	--
Manganese	50	NS	**132**	NS	NS	**212**	**233**	6.7	8.0	4.3
Miscellaneous[3] (mg/L)										
Alkalinity	NC	NS	510	NS	NS	280	280	180	190	170 J
Ammonia	2.8	NS	NA	NS	NS	**5.3**	**4.2** J	0.37	--	--
Chloride	250	NS	17	NS	NS	16	16 J	7.4 J	7.7	6.3
Dissolved Organic Carbon	NC	NS	NA	NS	NS	NA	NA	NA	NA	NA
Fractional Organic Carbon	NC	NS	NA	NS	NS	NA	NA	NA	NA	NA
Nitrate	10	NS	--	NS	NS	--	--	0.98 J	0.44	0.33 J
Orthophosphate	NC	NS	--	NS	NS	--	--	--	--	--
Sulfate	250	NS	18	NS	NS	3	4	16 J	15	17
Total Organic Carbon	NC	NS	NA	NS	NS	30	38	2.1	1.1	1.8
Biogenic Gases[4] (mg/L)										
Carbon Dioxide	NC	NS	160 J	NS	NS	150 J	160	12	9.9 J	8.6
Ethane (ng/L)	NC	NS	0.000053 J	NS	NS	0.00013 J	0.000022	--	--	0.000001 J
Ethene (ng/L)	NC	NS	--	NS	NS	0.00001 J	--	0.000012	--	0.000003 J
Hydrogen (nM)	NC	NS	3.6 J	NS	NS	2.2 J	1.8	1.7	1.2 J	1.4
Methane	NC	NS	5.2 J	NS	NS	7.5 J	6.7	0.00014	0.00008 J	0.00003
Nitrogen	NC	NS	11 J	NS	NS	10 J	9.5	14	17 J	15
Oxygen	NC	NS	3.2 J	NS	NS	2.1 J	3.5	7	5.4 J	6.6

See notes at end of table.

TABLE 3 (CONTINUED)
SUMMARY OF ANALYTES DETECTED IN GROUNDWATER - SWMU 6 & 7
NOVEMBER 2002 SAMPLING EVENT

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

Sample ID		MPT-8-MW09S			MPT-8-MW15SR			MPT-8-MW16S		
Collect Date		11/19/02	12/18/02	01/14/03	11/21/02	December	01/15/03	November	12/18/02	01/15/03
	GCTL[1]									
Metals[2] (µg/L)										
Iron	300	--	**1200**	**1580**	**14000**	NS	**4330**	NS	**5120**	**10500**
Manganese	50	44.0	**211**	**214**	**118**	NS	**58.0**	NS	**141**	**206**
Miscellaneous[3] (mg/L)										
Alkalinity	NC	310	370	390 J	610	NS	640	NS	510	140
Ammonia	2.8	0.22	0.24	0.41	**4**	NS	--	NS	2.4	1.4 J
Chloride	250	140	190	83 J	**370 J**	NS	**400 J**	NS	20	23 J
Dissolved Organic Carbon	NC	5.6	NA	NA	NA	NS	NA	NS	NA	NA
Fractional Organic Carbon	NC	68	NA	NA	NA	NS	NA	NS	NA	NA
Nitrate	10	0.42 J	0.16	0.15 J	--	NS	--	NS	0.12	0.22 J
Orthophosphate	NC	--	--	--	2.5	NS	4.6 J	NS	--	--
Sulfate	250	33 J	20	11	46 J	NS	150	NS	14	11
Total Organic Carbon	NC	5.5	15	16	160	NS	44	NS	22	37
Biogenic Gases[4] (mg/L)										
Carbon Dioxide	NC	54	72 J	68	60	NS	44	NS	180 J	180
Ethane (ng/L)	NC	0.000002 J	0.000011 J	--	0.00068	NS	0.00055	NS	0.00013 J	0.000027
Ethene (ng/L)	NC	0.000010	--	--	0.000022	NS	0.000010	NS	--	--
Hydrogen (nM)	NC	2	1.6 J	3.4	2.8	NS	1.8	NS	3.5 J	1.2
Methane	NC	0.005	0.340 J	1.1	2.7	NS	2.4	NS	7.4 J	5.8
Nitrogen	NC	14	17 J	16	13	NS	14	NS	10 J	10
Oxygen	NC	6.2	2 J	2.2	3.4	NS	4.3	NS	0.98 J	3.4

See notes at end of table.

TABLE 3 (CONTINUED)
SUMMARY OF ANALYTES DETECTED IN GROUNDWATER - SWMU 6 & 7
NOVEMBER 2002 SAMPLING EVENT

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

Sample ID		MPT-8-MW17S			MPT-8-MW18S			MPT-8-MW19S		
Collect Date		11/21/02	12/17/02	01/13/03	11/20/02	12/19/02	01/14/03	11/20/02		
	GCTL[1]									
Metals[2] (µg/L)										
Iron	**300**	**6690**	**3340**	**3100**	**1230**	**1280**	**1410**	84.2	--	--
Manganese	**50**	**133**	**83.1**	**99.1**	**59.0**	**77.4**	**67.5**	3.7	2.9	2.4
Miscellaneous[3] (mg/L)										
Alkalinity	NC	380	350	320 J	240	230	230 J	160	170	130 J
Ammonia	**2.8**	0.91	0.23	0.4	0.22	NA	0.15	0.21	--	0.14
Chloride	**250**	20 J	13	11	9.9	9.1	7.2 J	28	24	21
Dissolved Organic Carbon	NC	NA	NA	NA	NA	NA	NA	4.8	5.6	5.7
Fractional Organic Carbon	NC	NA	NA	NA	45	NA	NA	32	31	27
Nitrate	10	--	--	--	0.11 J	--	--	1.1 J	1.5	1.3 J
Orthophosphate	NC	--	--	--	--	--	--	--	--	--
Sulfate	250	11 J	13	15	17 J	15	18	33 J	33	34
Total Organic Carbon	NC	10	6.3	2.9	7.4	NA	3.5	5	4.8	6.1
Biogenic Gases[4] (mg/L)										
Carbon Dioxide	NC	100	68 J	61	34	13 J	17	7.3	4 J	3.3
Ethane	NC	0.000009	--	--	0.000007	--	0.000002	--	--	0.000001 J
Ethane (ng/L)	NC	0.000006 J	--	0.000004	0.000011	--	--	0.00001	--	0.000001 J
Ethene (ng/L)	NC	2.1 J	1.3 J	2.8	1.9	1.4 J	1.6 J	2.5	1 J	1.5
Hydrogen (nM)	NC	2	0.610 J	0.310	0.097	0.068 J	0.100	0.00009	0.0002 J	0.00014
Nitrogen	NC	14	17 J	17	16	18 J	17	13	16 J	16
Oxygen	NC	2.5	1.4 J	2.5	2.1	1.5 J	2.5	10	5.8 J	5.7

Notes: **Bold** indicates an exceedance of limits. **Bold** indicate which regulatory limit was exceeded.
[1] 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)
µg/L = micrograms per liter
J = Compound detected at an estimated concentration
-- Compound not detected

mg/L = milligrams per liter
NA = Not analyzed
NS = Not Sampled
NC = No criteria
nM = nana molar
ng/L = nanagrams per liter

TABLE 4
GROUNDWATER FIELD SAMPLING RESULTS SUMMARY
SOLID WASTE MANAGEMENT UNIT 7

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

Sample ID	MPT-8-MW01S			MPT-8-MW04S			MPT-8-MW06S			MPT-8-MW09S		
Collect Date	**11/19/02**	**12/19/02**	**01/13/03**	**11/22/02**	**12/19/02**	**01/15/03**	**11/21/02**	**12/18/02**	**01/14/03**	**11/19/02**	**12/18/02**	**01/14/03**
Temperature (°C)	26.31	22.97	21.21	NM	24.99	22.88	25.11	22.42	19.86	25.15	23.45	21.45
pH (Standard Units)	7.51	11.13	7.54	NM	10.12	6.70	7.54	8.49	7.32	7.22	10.34	6.85
Conductivity (mS/cm)	0.495	0.349	0.342	NM	0.832	0.78	0.423	0.33	0.294	1.1	1.62	0.768
Turbidity (NTU)	2.8	2.6	0	NM	8.2	0	0	0	0	0	0	0
Redox Potential (Millivolts)	-149	-162	-227	NM	-175	-181	-47	87	74	-97	-97	-59
Dissolved Oxygen (mg/L)	0.4	0.8	0.6	NM	0.2	0.6	4.0	5.0	6.00	2.0	1.0	1.00
Carbon Dioxide (mg/L)	13	10	<10	NM	90	145	<10	<10	10	25	45	50
Sulfice (mg/L)	0.06	0.05	0.03	NM	0.23	0.32	0.03	0	0	0.01	0.01	0
Ferrous Iron (mg/L)	0.05	0.13	0.23	NM	4.3	6.40	0.01	0.01	0.01	0	0.98	1.27
Hydrogen Sulfide (mg/L)	0.1	0.1	0	NM	2	2.0	0	0	0	0.0	0.0	0.3

See notes at end of table.

TABLE 4
GROUNDWATER FIELD SAMPLING RESULTS SUMMARY
SOLID WASTE MANAGEMENT UNIT 7

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

Sample ID	MPT-8-MW015SR			MPT-8-MW016S			MPT-8-MW017S			MPT-8-MW018S		
Collect Date	11/21/02	Dec.	1/15/03	11/21/02	12/18/02	1/15/03	11/21/03	12/17/02	1/13/03	11/21/02	12/19/02	1/14/03
Temperature (°C)	24.48	NS	22.23	25.90	24.41	22.45	25.90	24.09	21.81	26.12	24.10	22.47
pH (Standard Units)	7.4	NS	7.41	6.84	10.39	6.70	6.84	10.41	6.99	7.16	11.26	7.05
Conductivity (mS/cm)	2.58	NS	2.67	0.908	0.863	1.2	0.908	0.608	0.512	0.551	0.404	0.384
Turbidity (NTU)	>999	NS	277	0	8.4	0	0	0	0	0	0	0
Redox Potential (Millivolts)	-394	NS	-368	-169	-120	-215	-169	-182	-132	-157	-206	-133
Dissolved Oxygen (mg/L)	0.3	NS	0.40	0.20	0.8	0.4	0.0	0.4	0.4	0.3	1.0	1.0
Carbon Dioxide (mg/L)	35	NS	50	50	160	70	50	30	25	20.00	28	17
Sulfide (mg/L)	>0.8	NS	>0.80	0.09	0.06	0.09	0.09	0.09	0.04	0.01	0.01	0.03
Ferrous Iron (mg/L)	1.60	NS	0.1	4.80	4	6	4.80	2.61	2.25	0.86	1.17	0.97
Hydrogen Sulfide (mg/L)	>5	NS	>5.0	0.5	0.1	0.5	0.5	0.5	0.0	0.00	NM	0

See notes at end of table.

TABLE 4
GROUNDWATER FIELD SAMPLING RESULTS SUMMARY
SOLID WASTE MANAGEMENT UNIT 7

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

Sample ID	MPT-8-MW019S			MPT-S-MW02S			MPT-S-MW03S		
Collect Date	11/20/02	12/18/03	1/14/03	11/20/02	12/17/03	1/15/03	11/21/03	12/19/02	1/14/03
Temperature (°C)	23.63	18.40	16.80	23.52	23.14	21.14	25.82	NS	NS
pH (Standard Units)	7.54	8.11	7.54	7.47	10.36	7.29	6.93	NS	NS
Conductivity (mS/cm)	0.491	0.345	0.334	2.78	2.78	1.390	0.928	NS	NS
Turbidity (NTU)	0	0	0	0	0	0	2.5	NS	NS
Redox Potential (Millivolts)	51	98	75	-73	-160	-150	-253	NS	NS
Dissolved Oxygen (mg/L)	3.0	4.0	6.0	1.0	1.0	2.0	0.3	NS	NS
Carbon Dioxide (mg/L)	<10	<10	<10	25	25	18	34	NS	NS
Sulfide (mg/L)	0.00	0.01	0	0.03	0.04	0.01	0.25	NS	NS
Ferrous Iron (mg/L)	0.00	0.03	0.03	0.03	0.06	0	4.6	NS	NS
Hydrogen Sulfide (mg/L)	0	0	0	0	0	0	5	NS	NS

Notes:

ft = Feet

°C = Degrees Celsius

mS/cm = Microsiemens per Centimeter

NTU = Nephelometric Turbidity Unit

Redox = Oxidation - Reduction

mg/L = Milligrams per Liter

NS = Not sampled

FIGURES

ATTACHMENT A

FIELD DATA FORMS

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: SWMU 7
Project No.: N4259
Location: Mayport
Personnel: C.Metz, P. Leverette
Weather Conditions:
Measuring Device: Water interface probe
Tidally Influenced: Yes X 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)*	PID Comments
✓ MPT-8-MW01S	11/19/2002		19.75	16.3	8.51	P		Sheen
~~MPT-8-MW02S~~	11/19/2002			15.22	11.54	12.08 (0.54)		15.9
~~MPT-8-MW03S~~	11/19/2002			15.4	~~10.20~~ 11.58	0.01		
✓ MPT-8-MW04S	11/19/2002		11.9	15.5	10.04			
✓ MPT-8-MW06S	11/19/2002				7.06			
✓ MPT-8-MW08S	11/19/2002			14.6	9.02			
✓ MPT-8-MW09S	11/19/2002		12.55	14.85	8.96			
✓ MPT-8-MW12S	11/19/2002		12.93	18.1	10.97			Slight Sheen
✓ MPT-8-MW13S	11/19/2002		11.33	15.25	10.45			
✓ MPT-8-MW13I	11/19/2002			39.45	10.65			
✓ MPT-8-MW15SR	11/19/2002				10.15			
✓ MPT-8-MW16S	11/19/2002			15	8.55			
✓ MPT-8-MW17S	11/19/2002			14.89	9.22			
✓ MPT-8-MW18S	11/19/2002		8.8	15.02	5.61			
MPT-8-MW19S	11/19/2002				5.82			
MPT-S-MW02S	11/19/2002		10.08	15.22	7.85			
MPT-S-MW03S	11/19/2002		11.9	15.4	10.20			

* All measurements to the nearest 0.01 foot

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : _____

MANUFACTURER : _____

PROJECT NAME : CTO 253 ~~CTO 247~~

PROJECT NUMBER : ~~N4240~~ N4259

CALIBRATION DATE	INSTRUMENT/ SERIAL #	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
11-19-02	9292055	3.87	4.0 pH } Lot #3128			3.98	crm	Horiba U-22
11-19-02	T0062022	4.09	4.0 pH }	exp 5-14-04		3.99	crm	Horiba U-22
11-19-02	ED-MF-354	91.8	100ppm ±SOB.	—	~~99ppm~~	99ppm	crm	Perkin Elmer PhoTovac PID
11-20-02	T0062022	3.97	4.0 pH	LOT #3128 (exp 5-14-04)		4.00	crm	U-22
11-21-02	T0062022	3.94	4.0 pH	LOT #3128 (exp 5-14-04)		4.0	crm	U-22
11-21-02	ED-MF-354	Didn't work	~~100ppm ±sob.~~				~~crm~~	
11-22-02	9292055	4.22	4.0 pH	LOT #3128	exp(5-14-04)	3.99	PR	Horiba U-22

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW01S
Sample Location: MW01S
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 11/19/2002	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1505	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	7.51	0.495	2.8	0.00	26.31	-149	

PURGE DATA

Date: 11/19/2002	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								
Static Water Level (WL): 8.55								
One Casing Volume(gal/L): 4.8								
Start Purge (hrs): 1355								
End Purge (hrs): 1455								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): 15.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	X
PAHs	None	2 -1L ambers	X
TRPH	none	2 - 1L ambers	X
TOC, Ammonia	H2SO4	500ml glass	X
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	X
Iron + Manganese	HNO3	1L Plastic	X

OBSERVATIONS / NOTES

HORIBA DID NOT READ DO

14.8

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-MW01S
DATE: 11-18-02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	*DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1355	8.55	250	–	–	–	–	–	–	START PURGE
1400	8.65	1.25 250	7.51	0.500	35	0.00	25.89	-48	
1405	8.67	2.50 250	7.47	0.500	9.5	0.00	26.03	-89	
1410	8.68	3.75 250	7.47	0.502	0	0.00	25.90	-109	
1415	8.68	5.0 250	7.46	0.498	0	0.00	26.10	-115	
1425	8.67	7.5 250	7.47	0.500	2.7	0.00	25.96	-134	
1435	8.68	10.0 250	7.49	0.503	2.4	0.00	26.60	-143	
1445	8.68	12.5 250	7.51	0.498	3.6	0.00	26.92	-146	
1455	8.68	15.0 250	7.51	0.495	2.8	0.00	26.31	-149	
		SAMPLE TIME 1505							*HORIBA DID NOT READ

SIGNATURE(S): [signature]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW01S
Project No.:	N4259 (CTO 253)	Sample Location:	MW01S
Sampled By:	P. Leverette	Duplicate:	☐
Field Analyst:	C. Metz	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

Date: 11-19-02	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	~~Sal.~~	pH
Time: 1505	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method: Peristaltic Pump	Clear	-149	0.495	26.31	2.8	0.0		7.51

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: ~~0-10~~ 0-1 mg/L) Analysis Time: 1518

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: 0.4 mg/L

Notes:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: 10-100 mg/L) Analysis Time: 1521

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:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

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-MW01S
Sample Location: MW01S
Sampled By: C.M/P.L

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal~~ ORP (%)	
Date: 11-19-02								
Time: 1505								
Method: Peristaltic pump	clear	7.51	0.495	26.31	2.8	0.0	-149	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time = 1515

Equipment: HACH DR-700 Colorimeter HACH DR-~~800~~ 890 Colorimeter HACH HS-C Test Kit

Wave / Program: 610nm / 61.12.1

TtNUS Serial No.: _____

Concentration: 0.06 mg/L

~~Ferrous Iron:~~

Equipment: ~~HACH DR-700 Colorimeter~~ HACH DR-800 Colorimeter ~~HACH IR-18C Test Kit~~

Wave / Program: 500nm / 50.05.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

~~Manganese:~~

Equipment: ~~HACH DR-700 Colorimeter~~ HACH DR-800 Colorimeter

Wave / Program: 525nm / 52.13.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: SWMU 7

Sample ID No.: MPT-8-MW01S

Project No.: N4259 (CTO 253)

Sample Location: MW01S

Sampled By: P. Levelette

Duplicate: ☐

Field Analyst: C. Metz

Blank: ☐

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

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-890 IR-18C Color Wheel Other: _____ Analysis Time: 1510

Program/Module: 500nm 33

Concentration: 0.05 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1508

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

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

Correct measurement units are cited in the SAMPLING DATA block: ☐

Mulitplication is correct for each *Multiplier* table: ☐

Final calulated concentration is within the appropriate *Range Used* block: ☐

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☐

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☐

Title block is initialized by person who performed the QA/QC Ckecklist: ☐

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW04S
Sample Location: MW04S
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 11/22/2002	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time:	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic								

PURGE DATA

Date: 11/ 22/2002	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): 15.25								
Static Water Level (WL): 9.53								
One Casing Volume(gal/L): 3.6								
Start Purge (hrs): 0855								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	
PAHs	None	2 -1L ambers	
TRPH	none	2 - 1L ambers	
TOC, Ammonia	H2SO4	500ml glass	
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	
Iron + Manganese	HNO3	1L Plastic	

OBSERVATIONS / NOTES

~~5.72~~

STARTED TO PURGE AND HAD PRODUCT IN THE PURGE WATER. THIS CAUSED THE WELL NOT TO BE SAMPLED

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
DATE: 11/22/02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
0855	9.53								
									STARTED TO PURGE
									AND WAS PULLING
									UP PRODUCT FROM
									THE WELL. THERE
									WAS NO SAMPLE
									COLLECT AT THIS
									WELL FOR THAT
									REASON.

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW06S
Sample Location: MW06S
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 11/21/2002	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	7.54	0.473	0	6.17	25.11	-47	

PURGE DATA

Date: 11/21/2002	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): 15								
Static Water Level (WL): 7.08								
One Casing Volume(gal/L): 5.0								
Start Purge (hrs): 1315								
End Purge (hrs): 1355								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L) 16								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	X
PAHs	None	2 -1L ambers	X
TRPH	none	2 - 1L ambers	X
TOC, Ammonia	H2SO4	500ml glass	X
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	X
Iron + Manganese	HNO3	1L Plastic	X

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Pete Lewalter, Charles Mc

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)
WELL ID: MPT-8-MW06S
DATE: 11/21/02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1315	7.08	400	–	–	–	–	–	–	START PURGE
1320	7.16	2.0 400	7.72	0.403	70.9	6.53	25.68	-81	
1325	7.17	4.0 400	7.64	0.411	26.3	6.28	25.66	-67	
1330	7.17	6.0 400	7.65	0.412	19.4	6.00	25.46	-62	
1335	7.17	8.0 400	7.66	0.412	14.1	6.06	25.94	-58	
1340	7.18	10.0 400	7.56	0.422	0	6.30	25.11	-54	
1345	7.18	12.0 400	7.55	0.424	0	6.31	25.07	-52	
1350	7.17	14.0 400	7.55	0.422	0	6.22	25.19	-50	
1355	7.17	16.0 400	7.54	0.423	0	6.17	25.11	-47	
		SAMPLE TIME		1405					

SIGNATURE(S): [signature]
Charles [signature]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW06S
Project No.:	N4259 (CTO 253)	Sample Location:	MW06S
Sampled By:	P. Levesette	Duplicate:	☐
Field Analyst:	C. Metz	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

Date: 11-21-02	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	~~Sal.~~	pH
Time: 1405	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method: Peristaltic Pump	Clear	-47	0.423	25.11	0	6.17		7.94

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 1-12 mg/L) Analysis Time: 1408

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 mg/L

Notes:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: 10-100 mg/L) Analysis Time: 1410

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: Was less than 10 mg/L

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

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-MW06S

Sample Location: MW06S

Sampled By: C.M/P.L

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	Sal. (%)
Date: 11-21-01							
Time: 1405							
Method: Peristaltic pump							

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Time = 1416

Equipment: HACH DR-700 Colorimeter HACH DR-~~800~~ 890 Colorimeter HACH HS-C Test Kit

Wave / Program: 610nm / 61.12.1

TtNUS Serial No.: _____

Concentration: 0.03 mg/L

Ferrous Iron:

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter HACH IR-18C Test Kit

Wave / Program: 500nm / 50.05.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

Manganese:

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter

Wave / Program: 525nm / 52.13.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW06S
Project No.:	N4259 (CTO 253)	Sample Location:	MW06S
Sampled By:	R. PL	Duplicate:	☐
Field Analyst:	CM	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 90 IR-18C Color Wheel Other: _____ Analysis Time: 1415

Program/Module: 500nm 33

Concentration: 0.01 mg/L Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1407

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

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

Correct measurement units are cited in the SAMPLING DATA block: ☐

Mulitplication is correct for each *Multiplier* table: ☐

Final calulated concentration is within the appropriate *Range Used* block: ☐

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☐

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☐

Title block is initialized by person who performed the QA/QC Ckecklist: ☐

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW08S
Sample Location: MW08S
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 11/19/2002 Time: 1110	Color Visual	pH Standard	S.C. mS/cm	Turbidity NTU	DO mg/l	Temp. °C	ORP mV	Other
Method: Low Flow Peristaltic	CLEAR	7.57	0.639	0	1.78	26.64	50	

PURGE DATA

Date: 11/19/2002	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): 14								
Static Water Level (WL): 8.95								
One Casing Volume(gal/L): 3.1								
Start Purge (hrs): 1030								
End Purge (hrs): 1105								
Total Purge Time (min): 35								
Total Vol. Purged (gal/L): 10.5								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	✓
PAHs	None	2 -1L ambers	✓
~~TRPH~~	~~none~~	~~2 -1L ambers~~	NO
~~TOC, Ammonia~~	~~H2SO4~~	~~500ml glass~~	NO
~~Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC~~	~~none~~	~~1L Plastic~~	NO
~~Iron + Manganese~~	~~HNO3~~	~~1L Plastic~~	NO

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): Charles Mitt

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-8-MW08S
DATE: 11-19-02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)		pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1030	8.95		300	–	–	–	–	–	–	START PURGE
1035	9.00	1.5	300	6.91	0.669	0	2.45	25.07	142	
1040	9.03	3.0	300	7.26	0.653	0	2.15	26.13	112	
1045	9.05	4.5	300	7.47	0.642	0	1.71	26.50	79	
1050	9.05	6.0	300	7.53	0.641	0	2.19	26.67	69	
1055	9.05	7.5	300	7.55	0.642	0	2.03	26.76	70	
1100	9.04	9.0	300	7.58	0.639	0	1.60	26.76	54	
1105	9.05	10.5	300	7.57	0.639	0	1.78	26.64	50	

SAMPLE TIME 1110

SIGNATURE(S): Charles Mus

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW09S
Sample Location: MW09S
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 11/ 19/2002	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1255	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	7.27	1.10	0	2.08	25.15	166	

PURGE DATA

Date: 11/ 19 /2002	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): 12.3								
Static Water Level (WL): 8.59								
One Casing Volume(gal/L): 2.5								
Start Purge (hrs): 1220								
End Purge (hrs): 1250								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 7.5								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	✓
PAHs	None	2 -1L ambers	✓
TRPH	none	2 - 1L ambers	✓
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Charles Mo

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-8-MW09S
DATE: 11-19-07

Time (Hrs.)	Water Level (Ft. below TOC)	Cum Vol / Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1220	8.59	0 / 250	—	—	—	—	—	—	START Purge
1225	8.55	1.25 / 250	7.38	0.807	78.2	5.14	25.29	211	
1230	8.65	2.5 / 250	7.31	0.863	4.1	4.04	25.45	206	
1235	8.66	3.75 / 250	7.23	1.00	0	2.31	25.22	192	
1240	8.66	5 / 250	7.22	1.04	0	2.19	25.23	182	
1245	8.66	6.25 / 250	7.21	1.06	0	2.11	25.22	178	
1250	8.66	7.5 / 250	7.22	1.10	0	2.08	25.15	166	
1255 = Sample Time									

SIGNATURE(S): Charles Mets

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW09S
Project No.:	N4259 (CTO 253)	Sample Location:	MW09S
Sampled By:	P. LevereTTe	Duplicate:	☐
Field Analyst:	C. MeTz	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal (%)~~	pH (SU)
Date: 11-19-02								
Time: 1255								
Method: Peristaltic pump	Clear	+166	1.10	25.15	0	2.08		7.22

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 1-10 mg/L) Analysis Time: 1314

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:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	= mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	= mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	= mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	= mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	= mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	= mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: 10-100 mg/L) Analysis Time: 1305

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: 25 mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

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-MW09S
Sample Location: MW09S
Sampled By: C.M/P.L

SAMPLING DATA:

Date: 11-19-02	Color	pH	S.C.	Temp.	Turbidity	DO	~~Sal.~~	
Time: 1255	(Visual)	(SU)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	~~(%)~~	
Method: Peristaltic pump	Clear	7.77	1.10	25.15	0	2.08		

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time = 1315

Equipment: HACH DR-700 Colorimeter HACH DR-~~800~~ 890 Colorimeter HACH HS-C Test Kit

Wave / Program: 610nm / 61.12.1

TtNUS Serial No.: _____

Concentration: 0.01 mg/L

~~Ferrous Iron:~~

Equipment: ~~HACH DR-700 Colorimeter~~ HACH DR-~~800~~ 890 Colorimeter HACH IR-18C Test Kit

Wave / Program: 500nm / 50.05.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

~~Manganese:~~

Equipment: ~~HACH DR-700 Colorimeter~~ HACH DR-800 Colorimeter

Wave / Program: 525nm / 52.13.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SWMU 7

Project No.: N4259 (CTO 253)

Sampled By: A. P. Leverette

Field Analyst: C. Metz

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

Sample ID No.: MPT-8-MW09S

Sample Location: MW09S

Duplicate: ☐

Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____

Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 90 IR-18C Color Wheel Other: _____ Analysis Time: 1315

Program/Module: 500nm 33

Concentration: 0.00 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1306

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

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

Correct measurement units are cited in the SAMPLING DATA block: ☐

Mulitplication is correct for each *Multiplier* table: ☐

Final calulated concentration is within the appropriate *Range Used* block: ☐

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☐

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☐

Title block is initialized by person who performed the QA/QC Ckecklist: ☐

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-S-MW12S
Sample Location: MW12S
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 11/ 19 /2002	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	7.24	0.439	0	0.30	25.75	-152	

PURGE DATA

Date: 11/ 19 /2002	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): 17.9								
Static Water Level (WL): 10.68								
One Casing Volume(gal/L): 4.3								
Start Purge (hrs): 0920								
End Purge (hrs): 0955								
Total Purge Time (min): 35								
Total Vol. Purged (gal/L): 14								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	✓
PAHs	None	2 -1L ambers	✓
~~TRPH~~	~~none~~	~~2 - 1L ambers~~	NO
~~TOC, Ammonia~~	~~H2SO4~~	~~500ml glass~~	NO
~~Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC~~	~~none~~	~~1L Plastic~~	NO
~~Iron + Manganese~~	~~HNO3~~	~~1L Plastic~~	NO

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): Charles Mott

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-S-MW12S
DATE: 11-19-02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
0920	10.68	400	—	—	—	—	—	—	START PURGE
0925	10.70	2.0 400	7.18	0.493	35.3	0.59	25.63	-70	
0930	10.70	4.0 400	7.17	0.474	11.9	0.49	25.62	-96	
0935	10.69	6.0 400	7.20	0.455	3.7	0.44	25.68	-117	
0940	10.70	8.0 400	7.22	0.447	0.4	0.35	25.71	-135	
0945	10.70	10.0 400	7.24	0.445	0	0.33	25.72	-144	
0950	10.70	12.0 400	7.24	0.440	0	0.31	25.62	-151	
0955	10.70	14.0 400	7.24	0.439	0	0.30	25.75	-152	
		COLLECT	SAMPLE	1000					

SIGNATURE(S): Charles McE

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-S-MW13S
Sample Location: MW13S
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 11/19/2002	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 0900	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	6.86	0.794	0	1.78	27.16	183	

PURGE DATA

Date: 11/19/2002	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): 15.9								
Static Water Level (WL): 9.79								
One Casing Volume(gal/L): 3.8								
Start Purge (hrs): 0825								
End Purge (hrs): 0855								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 12.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	X
PAHs	None	2 -1L ambers	X
~~TRPH~~	~~none~~	~~2 - 1L ambers~~	NO
~~TOC, Ammonia~~	~~H2SO4~~	~~500ml glass~~	NO
~~Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC~~	~~none~~	~~1L Plastic~~	NO
~~Iron + Manganese~~	~~HNO3~~	~~1L Plastic~~	NO

OBSERVATIONS / NOTES

11.2

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s): Pete Lunetta

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-S-MW13S
DATE: 11/19/02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
0825	9.79	400	-	-	-	-	-	-	START PURGE
0830	9.82	2.0 400	6.49	0.839	4.0	1.91	26.81	271	
0835	9.84	4.0 400	6.70	0.808	0	2.02	27.11	274	
0840	9.84	6.0 400	6.77	0.801	0	1.98	27.11	278	
0845	9.82	8.0 400	6.82	0.797	0	1.89	27.09	229	
0850	9.83	10.0 400	6.85	0.796	0	1.82	27.13	202	
0855	9.83	12.0 400	6.86	0.794	0	1.78	27.16	183	END PURGE

COLLECT SAMPLE - 0900

SIGNATURE(S): Pete Laverette

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-S-MW13I
Sample Location: MW13I
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 11/19/2002 Time: 0850	Color Visual	pH Standard	S.C. mS/cm	Turbidity NTU	DO mg/l	Temp. °C	ORP mV	Other
Method: Low Flow Peristaltic	Clear	12.20	1.60	12.8	7.60	25.39	-73	

PURGE DATA

Date: 11/19/2002	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): 42								
Static Water Level (WL): 9.52								
One Casing Volume(gal/L): 3.1								
Start Purge (hrs): 0820								
End Purge (hrs): 0848								
Total Purge Time (min): 28								
Total Vol. Purged (gal/L): 10								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	X
PAHs	None	2 -1L ambers	X
~~TRPH~~	~~none~~	~~2 -1L ambers~~	NO
~~TOC, Ammonia~~	~~H2SO4~~	~~500ml glass~~	NO
~~Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC~~	~~none~~	~~1L Plastic~~	NO
~~Iron + Manganese~~	~~HNO3~~	~~1L Plastic~~	NO

OBSERVATIONS / NOTES

BG = 0.0 ppm
BZ = 0.0 ppm

Circle if Applicable:

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

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-S-MW13I
DATE: ~~[illegible]~~ 11-19-02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)		pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
0820	9.53	0	—	—	—	—	—	—	—	Start Purge
0825	9.56	2.5	500	12.22	1.83	51.8	8.43	24.14	43	
0830	9.57	5	500	12.19	1.69	44.6	8.04	26.63	-7	
0835	9.57	6.5	300	12.20	1.66	26.9	7.86	26.40	-38	
0840	9.57	8	300	12.20	1.64	10.2	7.73	25.91	-57	
0843	9.57	9	300	12.20	1.62	14.3	7.57	25.58	-67	
0848	9.57	10	200	12.20	1.60	12.8	7.60	25.39	-73	End Purge
0850 = Sample Time										

Turbidity were high (>10) but only sampling for VOC, PAH.

SIGNATURE(S): Charles MOO

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW15SR
Sample Location: MW15SR
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 11/ 21 /2002	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1120	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	black	7.40	2.58	999+ (?)	0	24.48	-394	

PURGE DATA

Date: 11/ 21 /2002	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): 35.5								
Static Water Level (WL): 9.9								
One Casing Volume(gal/L): 3.1								
Start Purge (hrs): 0945								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	X
PAHs	None	2 -1L ambers	X
TRPH	none	2 - 1L ambers	X
TOC, Ammonia	H2SO4	500ml glass	X
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	X
Iron + Manganese	HNO3	1L Plastic	X

OBSERVATIONS / NOTES

9.3

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

967-5917

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-8-MW15SR
DATE: 11/21/02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
~~0945~~	~~9.9~~	~~250~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~	~~Start Purge~~
~~0950~~		~~1.25 250~~	~~CM~~						
~~0955~~		~~2.50 250~~							
~~1000~~		~~3.75 250~~							
~~1010~~		~~6.25 250~~							
~~1020~~		~~8.75 250~~							
~~1025~~		~~10.0 250~~							
			CM						
0945	9.9	150	—	—	—	—	—	—	Start Purge
0950	10.6	.75 150	7.00	1.75	200.0	0.00	23.55	-163	
1000	10.65	2.25 150	7.05	1.89	409.0	0.00	23.82	+221	
1010	10.65	3.75 150	7.39	2.39	788	0.00	23.98	-354	
1020	10.65	5.25 150	7.51	2.51	644	0.00	25.51	-365	
1030	10.64	6.75 150	7.47	2.52	515	0.00	23.08	-391	
1040	10.74	8.25 150	7.44	2.56	298	0.00	23.32	-401	
1050		9.75 150	7.42	2.56	999+	0			
1100		10.5 150	7.40	2.57	999+		24.48	-391	
1110		11.25 150	7.40	2.58	999+	0	24.48	-394	End Purge
~~1120~~		~~12 150~~							
~~1130~~		~~12.75 150~~	1120 = Sample Time						
~~1140~~		~~13.5 150~~							
~~1150~~		~~14.25 150~~							
~~1200~~		~~15 150~~							
1208		~~15.5 150~~							~~End Purge~~
~~1220 = Sample Time~~									

SIGNATURE(S): Charles Mer

Water is black. Talked to J. Ferranti and he said to go ahead and sample since this is baseline sample event.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW15SR
Project No.:	N4259 (CTO 253)	Sample Location:	MW15SR
Sampled By:	P. Levrette	Duplicate:	☐
Field Analyst:	C. Metz	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal.~~ (%)	pH (SU)
Date: 11-21-02								
Time: ~~1220~~ 1120								
Method: Peristaltic Pump	black	-394	2.58	24.48	999+(?)	0		7.40

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1.0 mg/L) Analysis Time: ~~1223~~ 1123

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: 0.3 mg/L

Notes:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: 10-100 mg/L) Analysis Time: ~~1225~~ 1125

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: 35 mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

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-MW15SR

Sample Location: MW15SR

Sampled By: C.M/P.L

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Sal.
Date: 11-21-02	(Visual)	(SU)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)
Time: 1120							
Method: Peristaltic pump							

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Equipment: HACH DR-700 Colorimeter HACH DR-~~800~~ 890 Colorimeter HACH HS-C Test Kit

Time = ~~1257~~ 1137

Wave / Program: 610nm / 61.12.1

TtNUS Serial No.: _____

Concentration: >0.8 mg/L

MAX OUT DR890

Ferrous Iron:

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter HACH IR-18C Test Kit

Wave / Program: 500nm / 50.05.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

Manganese:

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter

Wave / Program: 525nm / 52.13.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW15SR
Project No.:	N4259 (CTO 253)	Sample Location:	MW15SR
Sampled By:	CM	Duplicate:	☐
Field Analyst:	PL	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: ~~DR-700~~ DR-8 __ HACH MN-5 Other: _____ ~~Analysis Time:~~ _____

Program/Module: 525nm 41

Concentration: _____ mg/L Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ ~~Reagent Blank Correction:~~ ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8~~9~~0 IR-18C Color Wheel Other: _____ Analysis Time: ~~1235~~ 1135

Program/Module: 500nm 33

Concentration: 1.6 mg/L Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: ~~1231~~ 1131

Concentration: >5 mg/L Exceeded 5.0 mg/L range on color chart: ☑

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

Correct measurement units are cited in the SAMPLING DATA block: ☐

Mulitplication is correct for each *Multiplier* table: ☐

Final calulated concentration is within the appropriate *Range Used* block: ☐

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☐

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☐

Title block is initialized by person who performed the QA/QC Ckecklist: ☐

* Found Product, Did NOT sample !!!

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW16S
Sample Location: MW16S
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: ~~11/20/2002~~	~~Color~~	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1130	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	6.69						

PURGE DATA

Date: 11/20 /2002	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): 14.9								
Static Water Level (WL): 7.85								
One Casing Volume(gal/L): 4.4								
Start Purge (hrs): 1045								
End Purge (hrs): 1120								
Total Purge Time (min): 35								
Total Vol. Purged (gal): 14								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	X
PAHs	None	2 -1L ambers	X
TRPH	none	2 - 1L ambers	X
TOC, Ammonia	H2SO4	500ml glass	X
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	X
Iron + Manganese	HNO3	1L Plastic	X

OBSERVATIONS / NOTES

* HORIBA DID NOT READ DO

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-MW16S
DATE: 11-20-02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	*DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1045	7.85	400	—	—	—	—	—	—	START PURGE
1050	7.94	2.0 400	6.56	0.96	53.2	0.00	25.24	-150	
1055	7.95	4.0 400	6.65	0.95	45.3	0.00	26.07	-155	
1100	7.96	6.0 400	6.68	0.93	35.5	0.00	26.17	-152	
1105	7.95	8.0 400	6.69	0.93	28.5	0.00	26.22	-150	
1110	7.95	10.0 400	6.69	0.93	21.6	0.00	26.25	-154	
1115	7.96	12.0 400	6.71	0.94	11.1	0.00	25.87	-140	
1120	7.96	14.0 400	6.69	0.94	4.5	0.00	26.17	-146	
									HORIBA DID NOT READ DO
		SAMPLE TIME 1130							

SIGNATURE(S):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW17S
Sample Location: MW17S
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 11/21/2002	Color Visual	pH Standard	S.C. mS/cm	Turbidity NTU	*DO mg/l	Temp. °C	ORP mV	Other
Time: 1515								
Method: Low Flow Peristaltic	Clear	6.84	0.908	0	000	25.9	-169	

PURGE DATA

Date: 11/21/2002	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): 15								
Static Water Level (WL): 8.9								
One Casing Volume(gal): 3.8								
Start Purge (hrs): 1435								
End Purge (hrs): 1505								
Total Purge Time (min): 30								
Total Vol. Purged (gal): 12								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	X
PAHs	None	2 -1L ambers	X
TRPH	none	2 - 1L ambers	X
TOC, Ammonia	H2SO4	500ml glass	X
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	X
Iron + Manganese	HNO3	1L Plastic	X

OBSERVATIONS / NOTES

* HORIBA DID NOT READ DO

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

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)
WELL ID: MPT-8-MW17S
DATE: 11/21/02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1435	8.90	400	—	—	—	—	—	—	START PURGE
1440	8.97	2.0 400	6.85	0.898	0	0.00	26.05	-158	
1445	9.00	4.0 400	6.83	0.905	0	0.00	26.00	-162	
1450	8.99	6.0 400	6.83	0.912	0	0.00	25.95	-166	
1455	8.99	8.0 400	6.83	0.912	0	0.00	25.97	-167	
1500	8.99	10.0 400	6.84	0.911	0	0.00	25.94	-168	
1505	8.99	12.0 400	6.84	0.908	0	0.00	25.90	-169	
									→ HORIBA U-22 NOT READ DO
	SAMPLE TIME 1515								

SIGNATURE(S): Peter Lenth
Charles Moss

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SWMU 7

Project No.: N4259 (CTO 253)

Sampled By: P. Leveletto

Field Analyst: C. Metz

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

Sample ID No.: MPT-8-MW17S

Sample Location: MW17S

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal. (%)~~	pH (SU)
Date: 11-21-02								
Time: 1515								
Method: Peristaltic Pump	Clear	-169	0.908	25.9	0	0.00		6.84

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1.0 mg/L) Analysis Time: 1518

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:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1 =	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4 =	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0 =	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0 =	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0 =	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0 =	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: 10-100mg/L) Analysis Time: 1520

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: 50 mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

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

Sample Location: MW17S

Sampled By: C.M/P.L

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal. (%)~~	
Date: 11-21-02								
Time: 1515								
Method: Peristaltic pump								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time = 1527

Equipment: HACH DR-700 Colorimeter HACH DR-~~800~~ 890 Colorimeter HACH HS-C Test Kit

Wave / Program: 610nm / 61.12.1

TtNUS Serial No.: _____

Concentration: 0.09 mg/L

Ferrous Iron:

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter HACH IR-18C Test Kit

Wave / Program: 500nm / 50.05.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

Manganese:

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter

Wave / Program: 525nm / 52.13.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SWMU 7

Sample ID No.: MPT-8-MW17S

Project No.: N4259 (CTO 253)

Sample Location: MW17S

Sampled By: PL

Duplicate: ☐

Field Analyst: CM

Blank: ☐

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

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-840 IR-18C Color Wheel Other: _____ Analysis Time: 1525

Program/Module: 500nm 33

Concentration: 4.8 mg/L

Filtered: ☐

Notes: Exceeded range of DR890 (3.30 mg/L)

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1517

Concentration: 0.5 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

Correct measurement units are cited in the SAMPLING DATA block: ☐

Mulitplication is correct for each *Multiplier* table: ☐

Final calulated concentration is within the appropriate *Range Used* block: ☐

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☐

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☐

Title block is initialized by person who performed the QA/QC Ckecklist: ☐

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW18S
Sample Location: MW18S
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 11/20/2002 Time: 1350	Color Visual	pH Standard	S.C. mS/cm	Turbidity NTU	* DO mg/l	Temp. °C	ORP mV	Other
Method: Low Flow Peristaltic	CLEAR	7.16	0.551	0	0.00	26.12	-157	

PURGE DATA

Date: 11/20/2002	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): 14.5	~~14.5~~							
Static Water Level (WL): 6.32	~~6.32~~							
One Casing Volume(gal/L): 5.00	~~5.00~~							
Start Purge (hrs): 1300	~~1300~~							
End Purge (hrs): 1340								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): 16.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	X
PAHs	None	2 -1L ambers	X
TRPH	none	2 - 1L ambers	X
TOC, Ammonia	H2SO4	500ml glass	X
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	X
Iron + Manganese	HNO3	1L Plastic	X

OBSERVATIONS / NOTES

* HORIBA DID NOT READ DO

Circle if Applicable:

MS/MSD	Duplicate ID No.:

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-MW18S
DATE: 11/20/02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1300	6.32	400	—	—	—	—	—	—	START PURGE
1305	6.34	2.0 400	7.12	0.611	0	0.00	26.56	-145	
1310	6.33	4.0 400	7.14	0.588	0	0.00	26.15	-148	
1315	6.33	6.0 400	7.15	0.570	0	0.00	26.16	-150	
1320	6.34	8.0 400	7.15	0.563	0	0.00	26.17	-152	
1325	6.33	10.0 400	7.16	0.558	0	0.00	26.10	-153	
1330	6.33	12.0 400	7.15	0.555	0	0.00	26.10	-155	
1335	6.33	14.0 400	7.15	0.553	0	0.00	26.12	-154	
1340	6.33	16.0 400	7.16	0.551	0	0.00	26.12	-157	
									HORIBA DID NOT READ DO
		SAMPLE	TIME	1350					

SIGNATURE(S):

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW18S
Project No.:	N4259 (CTO 253)	Sample Location:	MW18S
Sampled By:	P. Leveleth	Duplicate:	☐
Field Analyst:	P. Leveleth	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	Sal. (%)	pH (SU)
Date: 11-20-03								
Time: 1350								
Method: Peristaltic Pump								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1.0 mg/L) Analysis Time: 1355

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: 0.3 mg/L

Notes:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: 10-100 mg/L) Analysis Time: 1358

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:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

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

Sample Location: MW18S

Sampled By: C.M/P.L

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	Sal. (%)	
Date: 11-20-03								
Time: 1350								
Method: Peristaltic pump								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Time = 1404

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter HACH HS-C Test Kit

Wave / Program: 610nm / 61.12.1

TtNUS Serial No.: _____

Concentration: 0.01 mg/L

Ferrous Iron:

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter HACH IR-18C Test Kit

Wave / Program: 500nm / 50.05.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

Manganese:

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter

Wave / Program: 525nm / 52.13.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW18S
Project No.:	N4259 (CTO 253)	Sample Location:	MW18S
Sampled By:	P. L	Duplicate:	☐
Field Analyst:	P. L	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-890 IR-18C Color Wheel Other: _____ Analysis Time: 1401

Program/Module: 500nm 33

Concentration: 0.86 mg/L Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1355

Concentration: 0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

Correct measurement units are cited in the SAMPLING DATA block: ☐

Mulitplication is correct for each *Multiplier* table: ☐

Final calulated concentration is within the appropriate *Range Used* block: ☐

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☐

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☐

Title block is initialized by person who performed the QA/QC Ckecklist: ☐

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW19S
Sample Location: MW19S
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 11/20/2002	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1535	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	7.54	0.491	0	3.41	23.63	51	

PURGE DATA

Date: 11/20/2002	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): 13.0								
Static Water Level (WL): 4.86								
One Casing Volume(gal/L): 5.0								
Start Purge (hrs): 1445								
End Purge (hrs): 1525								
Total Purge Time (min): 40								
Total Vol. Purged (gal): 16.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	X
PAHs	None	2 -1L ambers	X
TRPH	none	2 - 1L ambers	X
TOC, Ammonia	H2SO4	500ml glass	X
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	X
Iron + Manganese	HNO3	1L Plastic	X

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD

Duplicate ID No.:

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-MW19S
DATE: 11/20/02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1445	4.86	400	–	–	–	–	–	–	START PURGE
1450	4.95	2.0 400	7.55	0.479	52.1	3.85	25.08	45	
1455	4.96	4.0 400	7.51	0.481	34.1	3.15	24.76	39	
1500	4.96	6.0 400	7.52	0.488	0	3.40	24.13	41	
1505	4.96	8.0 400	7.52	0.490	0	3.38	23.76	44	
1510	4.96	10.0 400	7.53	0.490	0	3.38	23.70	46	
1515	4.96	12.0 400	7.53	0.490	0	3.37	23.67	49	
1520	4.96	14.0 400	7.54	0.491	0	3.36	23.66	51	
1525	4.96	16.0 400	7.54	0.491	0	3.41	23.63	51	
		SAMPLE TIME 1535							

SIGNATURE(S): [illegible]
Charles Meo

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW19S
Project No.:	N4259 (CTO 253)	Sample Location:	MW19S
Sampled By:	PL/CM	Duplicate:	☐
Field Analyst:	PL	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal. (%)~~	pH (SU)
Date: 11-20-02								
Time: 1535								
Method: Peristaltic Pump	Clear	51	0.491	23.63	0	3.41		7.54

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 1-10 mg/L) Analysis Time: 1539

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:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	= mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	= mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	= mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	= mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	= mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	= mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: 10-100 mg/L) Analysis Time: 1542

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:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

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-MW19S

Sample Location: MW19S

Sampled By: C.M/P.L

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Sal.
Date: 11-20-02							
Time: 1535	(Visual)	(SU)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)
Method: Peristaltic pump							

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: 1549

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter HACH HS-C Test Kit

Wave / Program: 610nm / 61.12.1

TtNUS Serial No.: _____

Concentration: 0.0 mg/L

Ferrous Iron:

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter HACH IR-18C Test Kit

Wave / Program: 500nm / 50.05.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

Manganese:

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter

Wave / Program: 525nm / 52.13.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW19S
Project No.:	N4259 (CTO 253)	Sample Location:	MW19S
Sampled By:	CM/PL	Duplicate:	☐
Field Analyst:	PL	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-890 IR-18C Color Wheel Other: _____ Analysis Time: 1545

Program/Module: 500nm 33

Concentration: 0.0 mg/L Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1537

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

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

Correct measurement units are cited in the SAMPLING DATA block: ☐

Mulitplication is correct for each *Multiplier* table: ☐

Final calulated concentration is within the appropriate *Range Used* block: ☐

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☐

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☐

Title block is initialized by person who performed the QA/QC Ckecklist: ☐

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-S-MW02S
Sample Location: MPT-S-MW02S
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 11/20/2002 Time: 0940	Color Visual	pH Standard	S.C. mS/cm	Turbidity NTU	* DO mg/l	Temp. °C	ORP mV	Other
Method: Low Flow Peristaltic	CLEAR	7.47	2.78	0	0.00	23.52	-73	

PURGE DATA

Date: 11/20/2002	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): 15.0								
Static Water Level (WL): 7.85								
One Casing Volume(gal/L): 4.4								
Start Purge (hrs): 0820								
End Purge (hrs): 0930								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): 14.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	X
PAHs	None	2 -1L ambers	X
TRPH	none	2 - 1L ambers	X
TOC, Ammonia	H2SO4	500ml glass	X
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	X
Iron + Manganese	HNO3	1L Plastic	X

OBSERVATIONS / NOTES

* HORIBA DID NOT READ DO

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

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-S-MW02S
DATE: 11/20/02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	* Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
0820	7.85	200	—	—	—	0.00	—	—	START PURGE
0825	8.14	1.0 200	8.21	3.76	0	~~2.64~~	21.64	208	
0830	8.15	2.0 200	8.18	3.76	0	0.00	21.70	200	
0840	8.14	4.0 200	8.09	3.72	0	0.00	22.23	139	
0850	8.15	6.0 200	7.92	3.60	0	0.00	22.84	-29	
0900	8.15	8.0 200	7.71	3.36	0	0.00	23.20	-68	
0910	8.15	10.0 200	7.63	3.20	0	0.00	23.35	-73	
0920	8.15	12.0 200	7.53	2.97	0	0.00	23.50	-74	
0930	8.15	14.0 200	7.47	2.78	0	0.00	23.52	-23	
									→ HORIBA DID NOT READ
		SAMPLE TIME 0940							

SIGNATURE(S): [signature]
Charles Mez

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-S-MW02S
Project No.:	N4259 (CTO 253)	Sample Location:	MPT-S-MW02S
Sampled By:	C. Metz	Duplicate:	☐
Field Analyst:	P. Levesque	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Date: 11-20-03								
Time: 0940	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method: Peristaltic Pump	Clear	-73	2.78	23.52	0	0*		7.47

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 1-10 mg/L) Analysis Time: 0945

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: 1.0 mg/L

Notes:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: 10-100 mg/L) Analysis Time: 0948

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: 25 mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

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-S-MW02S

Sample Location: MPT-S-MW02S

Sampled By: C.M/P.L

SAMPLING DATA:

Date: 11-20-02	Color	pH	S.C.	Temp.	Turbidity	DO	Sal.	
Time: 0940	(Visual)	(SU)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	
Method: Peristaltic pump								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time = 0950

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter HACH HS-C Test Kit

Wave / Program: 610nm / 61.12.1

TtNUS Serial No.: _____

Concentration: 0.03 mg/L

Ferrous Iron:

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter HACH IR-18C Test Kit

Wave / Program: 500nm / 50.05.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

Manganese:

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter

Wave / Program: 525nm / 52.13.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-S-MW02S
Project No.:	N4259 (CTO 253)	Sample Location:	MPT-S-MW02S
Sampled By:	C. Metz	Duplicate:	☐
Field Analyst:	P. Leverette	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 90 IR-18C Color Wheel Other: _____ Analysis Time: 0944

Program/Module: 500nm 33

Concentration: 0.03 mg/L Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 0942

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

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

Correct measurement units are cited in the SAMPLING DATA block: ☐

Mulitplication is correct for each *Multiplier* table: ☐

Final calulated concentration is within the appropriate *Range Used* block: ☐

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☐

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☐

Title block is initialized by person who performed the QA/QC Ckecklist: ☐

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-S-MW03S
Sample Location: MPT-S-MW03S
Sampled By: C.M/P.L
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 11/ 21 /2002	Color	pH	S.C.	Turbidity	* DO	Temp.	ORP	Other
Time: 0850	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	6.93	0.928	2.5	0.00	25.82	-253	

PURGE DATA

Date: 11/ 21 /2002	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): 15.2								
Static Water Level (WL): 9.9								
One Casing Volume(gal/L): 3.3								
Start Purge (hrs): 0805								
End Purge (hrs): 0840								
Total Purge Time (min): 35								
Total Vol. Purged (gal/L) 10.5								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3x40ml glass	X
PAHs	None	2 -1L ambers	X
TRPH	none	2 - 1L ambers	X
TOC, Ammonia	H2SO4	500ml glass	X
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	X
Iron + Manganese	HNO3	1L Plastic	X

OBSERVATIONS / NOTES

9.9

* HORIBA DID NOT READ DO

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Pete Lundt

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-S-MW03S
DATE: 11/21/02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	* DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
0805	9.9	300	–	–	–	–	–	–	START PURGE
0810	10.0	1.5 300	6.87	0.968	13.1	0.00	24.20	-232	
0815	10.2	3.0 300	6.91	0.941	7.2	0.00	25.26	-256	
0820	10.1	4.5 300	6.93	0.928	0.3	0.00	25.57	-262	
0825	10.1	6.0 300	6.94	0.924	2.0	0.00	25.79	-260	
0830	10.1	7.5 300	6.94	0.925	1.9	0.00	25.82	-258	
0835	10.1	9.0 300	6.94	0.927	2.0	0.00	25.81	-256	
0840	10.1	10.5 300	6.93	0.928	2.5	0.00	25.82	-253	
									HORIBA DID NOT READ DO
	SAMPLE TIME 0850								

SIGNATURE(S): [signature]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-S-MW03S
Project No.:	N4259 (CTO 253)	Sample Location:	MPT-S-MW03S
Sampled By:	P. Leverette	Duplicate:	☐
Field Analyst:	C. Metz	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal. (%)~~	pH (SU)
Date: 11-21-02								
Time: 0850								
Method: Peristaltic Pump	black	-253	0.928	25.82	2.5	—	~~X~~	6.93

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1.0 mg/L) Analysis Time: 0902

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: 0.3 mg/L

Notes:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	= mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	= mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	= mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	= mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	= mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	= mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: 10-100 mg/L) Analysis Time: 0900

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: 34.0 mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

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-S-MW03S

Sample Location: MPT-S-MW03S

Sampled By: C.M/P.L

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	Sal. (%)
Date: 11-21-02							
Time: 0850							
Method: Peristaltic pump							

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time = 0856

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter HACH HS-C Test Kit

Wave / Program: 610nm / 61.12.1

TtNUS Serial No.: _____

Concentration: 0.25 mg/L

Ferrous Iron:

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter HACH IR-18C Test Kit

Wave / Program: 500nm / 50.05.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

Manganese:

Equipment: HACH DR-700 Colorimeter HACH DR-800 Colorimeter

Wave / Program: 525nm / 52.13.1

TtNUS Serial No.: _____

Concentration: _____ mg/L

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-S-MW03S
Project No.:	N4259 (CTO 253)	Sample Location:	MPT-S-MW03S
Sampled By:	P.L	Duplicate:	☐
Field Analyst:	C.M	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8__ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-890 IR-18C Color Wheel Other: _____ Analysis Time: 0858

Program/Module: 500nm 33

Concentration: 4.6 mg/L Filtered: ☐

Notes: exceeded 3.3 limit on DR-890

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 0852

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

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

Correct measurement units are cited in the SAMPLING DATA block: ☐

Mulitplication is correct for each *Multiplier* table: ☐

Final calulated concentration is within the appropriate *Range Used* block: ☐

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☐

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☐

Title block is initialized by person who performed the QA/QC Ckecklist: ☐

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: SWMU 7 **Project No.:** N4259
Location: Mayport **Personnel:** C.Metz, L. Knight
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)*	PID Comments
MPT-8-MW01S	12/17/2002	0820	19.75	16.3	9.10	—		0
MPT-8-MW02S	12/17/2002			15.22	12.34	11.94 (OIL)		11.1
MPT-8-MW03S	12/17/2002			15.4	11.48			0
MPT-8-MW04S	12/17/2002		11.9	15.5	10.33			0
MPT-8-MW06S	12/17/2002				7.53			0
MPT-8-MW08S	12/17/2002			14.6	9.64	—		0
MPT-8-MW09S	12/17/2002		12.55	14.85	9.09	—		0
MPT-8-MW12S	12/17/2002		12.93	18.1	11.33	—		0
MPT-8-MW13S	12/17/2002		11.33	15.25	10.70	—		0
MPT-8-MW13I	12/17/2002			42 39.45	10.83	—		0
MPT-8-MW15SR	12/17/2002		~~10.61~~	35.5	10.61	after 16'		0
MPT-8-MW16S	12/17/2002			15	8.77			0
MPT-8-MW17S	12/17/2002			14.89	9.46			0
MPT-8-MW18S	12/17/2002		8.8	15.02	6.92	—		0
MPT-8-MW19S	12/17/2002				5.47	—		0
MPT-S-MW02S	12/17/2002		10.08	15.22	8.58	—		0
MPT-S-MW03S	12/17/2002	0840	11.9	15.4	10.57	—		0

* All measurements to the nearest 0.01 foot

EQUIPMENT CALIBRATION LOG

PROJECT NAME : SWMU 7

PROJECT NUMBER : N4259

DATE	INSTRUMENT NAME/MODEL	SERIAL #	STANDARDS USED	INITIAL SETTINGS	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
12-17-02	Horiba/U22	0082121	4.0 pH	3.45	Calibrat.	3.99	crm	LOT #3303 (exp 9-11-04)
12-17-02	Photovac/2020	01239	100ppm Iso	91.6	Cal	99.8	crm	~~LOT #3303 (exp 9-11-04)~~ exp Sept 2003
12-18-02	Horiba/U-22	0082121	4.0 pH	3.38	—	4.0	crm	Same
12-18-02	Photovac/2020	01239	100ppm Iso	95.8	—	99.6	crm	
12-19-02	Horiba/U-22	0082121	4.0 pH	4.4	—	3.99	crm	
12-19-02	Photovac/2020	01239	100ppm Iso	96.6	—	100	crm	
12-19-02	Horiba/U22	0082121	4.0 pH	3.91		4.46	crm	
12-19-02	Photovac	01239	100ppm Iso	99.1		99.5	crm	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW01S-01
Sample Location: MW01S
Sampled By: CM/LK
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 12/19/2002	Color Visual	pH Standard	S.C. mS/cm	Turbidity NTU	DO mg/l	Temp. °C	ORP mV	Other
Time: 0855								
Method: Low Flow Peristaltic	Clear	11.13	0.349	2.6	0.47	22.97	-162	

PURGE DATA

Date: 12/19/2002	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): ~~15.5~~ 16.4								
Static Water Level (WL): 9.12								
One Casing Volume(gal/L): 4.4								
Start Purge (hrs): 0800								
End Purge (hrs): 0847								
Total Purge Time (min): 47								
Total Vol. Purged (gal/L): 13.5								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): [illegible]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)
WELL ID: MPT-8-MW01S-01
DATE: 12-19-02

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)	Comments	ORP
0800	9.12	0		—	—	—	—	—	Start Purge	
0805	9.28	1.25	250	9.78	0.338	17.8	6.17	21.65		-67
0810	9.31	2.5	250	10.18	0.341	11.0	2.82	21.49		-77
0820	9.33	5.5	300	~~10.18~~ 10.63	~~0.347~~ 0.347	8.2	1.46	22.15		-116
0830	9.33	8.5	300	11.02	0.349	0	0.33	22.87		-151
0840	9.33	11.5	300	11.11	0.350	2.8	0.30	22.83		-159
0843	9.33	12.5	300	11.13	0.349	3.3	0.39	22.95		-162
0845	9.33	13	300	11.13	0.349	3.7	0.42	22.95		-161
0847	9.33	13.5	300	11.13	0.349	2.6	0.47	22.97		-162
0855 = Sample Time										

SIGNATURE(S): Charles [illegible]
[illegible]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **SWMU 7**

Sample ID No.: MPT-8-MW01S-01

Project No.: N4259 (CTO 253)

Sample Location: MW01S

Sampled By: CM/LK

Duplicate: ☐

Field Analyst: CM

Blank: ☐

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

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal.~~ (%)	pH (SU)
Date: 12-19-03								
Time: 0855								
Method: Peristaltic	Clear	-167	0.349	22.97	2.6	0.49		11.13

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 0-1.0 mg/L)

Analysis Time: 0858

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: 0.8 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 0857

Concentration: 0.1 mg/L

Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

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

Analysis Time: 0900

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: Was right at lowest detection limit of 10mg/L

☐

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-MW01S-01

Sample Location: MW01S

Sampled By: CM/LK

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time 0905

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.05 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 0902

Program/Module: 33 / 500nm

Concentration: 0.13 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW03S-01
Sample Location: MW03S
Sampled By: CM/LK
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 12/ 19 /2002	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1035	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	pale brown gray	12.05	1.16	3.4	0.25	24.12	-313	Petroleum odor

PURGE DATA

Date: 12/ 19 /2002	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'~~ 17.1								
Static Water Level (WL): 11.48								
One Casing Volume(gal/L): 0.38								
Start Purge (hrs): 0930								
End Purge (hrs): 1630								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): 12								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
TOC, Ammonia	H2SO4	500ml glass	[illegible]
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	[illegible]
Iron + Manganese	HNO3	1L Plastic	[illegible]

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): Louis Knight, Charles Mek

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-8-MW03S-01
DATE: 12·19·02

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)	Comments	ORP
0930	11.48		200							
0935	11.69		200	11.04	1.12	14.8	1.70	23.40		-221
0940	11.69	2	200	11.27	1.14	8.7	0.38	23.63		-230
0945	11.69		200	11.39	1.14	8.0	0.40	23.93		-245
0950	11.68	4	200	11.54	1.15	5.7	0.33	24.05		-261
0955	11.69		200	11.65	1.15	3.2	0.41	24.08		-272
1000	11.68	6	200	11.79	1.15	3.0	0.44	24.20		-285
1005	11.68		200	11.82	1.15	2.8	0.29	24.26		-290
1010	11.69	8	200	11.90	1.16	3.2	0.33	24.09		-295
1015	11.69		200	11.95	1.16	3.1	0.37	24.03		-298
1020	11.69	10	200	11.95	1.16	2.8	0.28	24.18		-303
1025	11.69		200	12.05	1.16	3.1	0.36	24.14		-308
1030	11.69	12	200	12.05	1.16	3.4	0.25	24.12	END PURGE	-313
1035	COLLECT	SAMPLE								

SIGNATURE(S): Louis Knight

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW03S-01
Project No.:	N4259 (CTO 253)	Sample Location:	MW03S
Sampled By: CM/LK		Duplicate:	☐
Field Analyst: CM		Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

Date: 12-19-03	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal (%)~~	pH (SU)
Time: 1035								
Method: Peristaltic	Pale Brn gray	-313	1.16	29.12	3.4	0.25		12.05

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: ~~0.6~~ 0-1.0 mg/L) Analysis Time: 1037

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: 0.6 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 1038

Concentration: 5.0+ mg/L Exceeded 5.0 mg/L range on color chart: ☒

Notes: Entire paper dark brown

Carbon Dioxide:

Equipment: CHEMetrics (Range: 10-100 mg/L) Analysis Time: 1040

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: 80 mg/L

Notes:

☐

GROUNDWATER SAMPLE LOG SHEET
NATURAL ATTENUATION PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW03S-01
Project No.:	N4259 (CTO 253)	Sample Location:	MW03S
		Sampled By:	CM/LK

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time 1044

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.80 + mg/L *

Exceeded Max ~~detect~~ detection range

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter Other: _____ Analysis Time: 1042

Program/Module: 33 / 500nm

Concentration: 0.40 mg/L Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW04S-01
Project No.:	N4259 (CTO 253)	Sample Location:	MW04S
		Sampled By:	CM/LK
[ ] 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: 12/17/2002	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1505	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	10.12	0.832	8.2	0.34	24.99	-175	P

PURGE DATA

Date: 12/17/2002	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'								
Static Water Level (WL): 10.40								
One Casing Volume(gal/L): 4								
Start Purge (hrs): ~~1320~~ 1430								
End Purge (hrs): 1500								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 12								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

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-MW~~173~~ 045-01
DATE: 12.17.02

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)	Comments	ORP
1430	10.40	—	—	—	—	—	—	—		—
1435	10.48	2	400	10.11	0.772	20.5	0.43	24.98		-179
1440	10.46	4	400	10.07	0.813	9.2	0.50	25.17		-173
1445	10.46	6	400	10.19	0.824	8.7	0.16	25.18		-182
1450	10.46	8	400	10.21	0.826	7.1	0.18	25.13		-185
1455	10.46	10	400	10.27	0.835	7.9	0.16	25.10		-189
1500	10.46	12	400	10.12	0.832	8.2	0.34	24.99	END PURGE	-175
1505	COLLECT	SAMPLE								

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: CM/LK

Field Analyst: CM/LK

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

Sample ID No.: MPT-8-MW04S-01

Sample Location: MW04S

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal. (%)~~	pH (SU)
Date: 12-17-02								
Time: 1505								
Method: Peristaltic	Clear	-175	0.832	24.99	8.2	0.34		10.12

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

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

Analysis Time: 1508

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: 1507

Concentration: 2.0 mg/L

Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

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

Analysis Time: 1510

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: 90 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-MW04S-01

Sample Location: MW04S

Sampled By: CM/LK

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Time: 1516

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.23 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1513

Program/Module: 33 / 500nm

Concentration: 4.3 mg/L *

Filtered: ☐

Notes: * 3.30 Limit Exceeded on DR890

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW06S-01
Sample Location: MW06S
Sampled By: CM/LK
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 12/18/2002	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1015	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	8.49	0.330	0	5.33	22.42	87	

PURGE DATA

Date: 12/18/2002	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~~ 15.2								
Static Water Level (WL): 7.49								
One Casing Volume(gal/L): 4.7								
Start Purge (hrs): 0930								
End Purge (hrs): 1010								
Total Purge Time (min): 40								
Total Vol. Purged (gal/~~L~~): 14.6L								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
TOC, Ammonia	H2SO4	500ml glass	[illegible]
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	[illegible]
Iron + Manganese	HNO3	1L Plastic	[illegible]

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD

Duplicate ID No.: MPT-8-DU01-01

Signature(s): Louis Knight
Charles Mo

15.2
7.5
2.7

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-8-MW06S-01
DATE: 12.18.02

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)	Comments	ORP
0930	7.49		320							
0932	7.86		320							
0935	7.73	1.6	320	8.44	0.318	13.7	7.14	21.86		88
0940	7.72	3.2	320	8.43	0.327	0	6.27	22.16		88
0945	7.75	5.1	380	8.45	0.328	0	5.62	22.28		88
0950	7.74	7.0	380	8.45	0.328	0	5.35	22.40		87
0955	7.75	8.9	380	8.46	0.329	0	5.56	22.48		87
1000	7.74	10.8	380	8.46	0.330	0	5.52	22.44		87
1005	7.75	12.7	380	8.45	0.330	0	5.37	22.43		87
1010	7.75	14.6	380	8.49	0.330	0	5.33	22.42	END PURGE	87
1015	COLLECT	SAMPLE	~~380~~							

COLLECT DUPLICATE
"MPT-8-DU01-01"

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: CM/LK

Field Analyst: CM

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

Sample ID No.: MPT-8-MW06S-01

Sample Location: MW06S

Duplicate: ☒

Blank: ☐

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal. (%)~~	pH (SU)
Date: 12-18-07								
Time: 1015								
Method: Peristaltic	Clear	87	0.330	27.42	0	5.33		8.45

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

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

Analysis Time: 1016

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: 5 mg/L

Notes: * exceeded 0-1 range

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 1017

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: 1020

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: * below detection range

☐

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-MW06S-01

Sample Location: MW06S

Sampled By: CM/LK

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time 1026

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.00 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1023

Program/Module: 33 / 500nm

Concentration: 0.01 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW09S-01
Sample Location: MW09S
Sampled By: CM/LK
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 12/ 18 /2002	Color Visual	pH Standard	S.C. mS/cm	Turbidity NTU	DO mg/l	Temp. °C	ORP mV	Other
Time: 1250								
Method: Low Flow Peristaltic	Clear	10.34	1.62	0	1.22	23.45	-97	

PURGE DATA

Date: 12/ 18 /2002	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): ~~16.3~~ 12.40								
Static Water Level (WL): 9.10								
One Casing Volume(gal/L):								
Start Purge (hrs): 12.20								
End Purge (hrs): 1245								
Total Purge Time (min): 25								
Total Vol. Purged (gal/~~L~~): 8.75(L)								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD

Duplicate ID No.:

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-MW09S-01
DATE: 12.18.02

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)	Comments	ORP
1220	9.10		350							
1223	9.22		350							
1225	9.27		350	10.10	1.51	0	2.56	23.38		-80
1230	9.28	3.50	350	10.17	1.54	0	1.34	23.39		-82
1235	9.28		350	10.26	1.60	0	1.25	23.45		-89
1240	9.28	7.00	350	10.31	1.62	0	0.97	23.48		-95
1245		8.75	350	10.34	1.62	0	1.22	23.45	END PURGE	-97
1250	COLLECT	SAMPLE								

SIGNATURE(S): [illegible] Charles [illegible]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW09S-01
Project No.:	N4259 (CTO 253)	Sample Location:	MW09S
Sampled By: CM/LK		Duplicate:	☐
Field Analyst: CM		Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal.~~ (%)	pH (SU)
Date: 12-18-02								
Time: 1250								
Method: Peristaltic	Clear	-97	1.62	23.45	0	1.17	X	10.34

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

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

Analysis Time: 1254

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: * Was 1 mg/L on both ranges

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 1252

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: 1255

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: HS 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-MW09S-01

Sample Location: MW09S

Sampled By: CM/LK

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time 1300

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.01 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1258

Program/Module: 33 / 500nm

Concentration: 0.98 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW16S-01
Sample Location: MW16S
Sampled By: CM/LK
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 12/18/2002	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	10.39	0.863	8.4	0.40	24.41	-120	Foamy H_2O

PURGE DATA

Date: 12/18/2002	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'~~ 15.1								
Static Water Level (WL): 8.72								
One Casing Volume(gal/L): 0.4								
Start Purge (hrs): 1325								
End Purge (hrs): 1400								
Total Purge Time (min): 35								
Total Vol. Purged (gal/L): ~13L								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
TOC, Ammonia	H2SO4	500ml glass	[illegible]
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	[illegible]
Iron + Manganese	HNO3	1L Plastic	

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Lucas Knight
Charles Mato

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)
WELL ID: MPT-8-MW16S-01
DATE: 12.18.02

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)	Comments	ORP
1325	8.72		300							
1330	8.82		300	10.06	0.813	47.0	0.67	24.35		-86
1335	8.82	3.0	300	10.12	0.823	42.0	0.33	24.33		-92
1340	8.84	5.0	400	10.23	0.840	20.2	0.43	24.38		-102
1345	8.84	7.0	400	10.31	0.850	18.6	0.35	24.45		-111
1350	8.84	9.0	400	10.37	0.856	12.1	0.40	24.37		-116
1355	8.84	11.0	400	10.38	0.860	9.8	0.37	24.44		-118
1400	8.84	13.0	400	10.39	0.863	8.4	0.40	24.41	END PURGE	-120
1405	COLLECT	SAMPLE								

SIGNATURE(S): [illegible]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW16S-01
Project No.:	N4259 (CTO 253)	Sample Location:	MW16S
Sampled By: CM/LK		Duplicate:	☐
Field Analyst: CM		Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal. (‰)~~	pH (SU)
Date: 12-18-02								
Time: 1405								
Method: Peristaltic	Clear	-120	0.863	24.41	8.4	0.40		10.39

* foam

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 0-10 mg/L) Analysis Time: 1408

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: 0.8 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 1407

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

Notes:

Carbon Dioxide:

Equipment: CHEMetrics (Range: ~~10-100~~ 100-1000 mg/L)* Analysis Time: 1410

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: exceeded 10-100 mg/L range

☐

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-MW16S-01

Sample Location: MW16S

Sampled By: CM/LK

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time: 1415

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.06 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1413

Program/Module: 33 / 500nm

Concentration: 4.0 mg/L

Filtered: ☐

Notes: exceeded DR890's range

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW17S-01
Sample Location: MW17S
Sampled By: CM/LK
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 12/ /2002	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time:	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic								

PURGE DATA

Date: 12/ /2002	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'								
Static Water Level (WL): 9.46								
One Casing Volume(gal/L): 3.7								
Start Purge (hrs): 1320								
End Purge (hrs): 1350								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 11.4								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

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-MW~~043~~ 17S-01
DATE: 12-17-02

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)	Comments	ORP
1320	9.46									
1322	9.55		380							
1325	9.55	1.9	380	10.34	0.619	3.3	0.46	24.07		-174
1330	9.55	3.8	380	10.32	0.630	0.9	0.40	24.09		-176
1335	9.56	5.7	380	10.40	0.609	0	0.36	24.09		-180
1340	9.56	7.6	380	10.41	0.605	0	0.34	24.08		-181
1345	9.56	9.5	380	10.43	0.605	0	0.32	24.07		-183
1350	9.56	11.4	380	10.41	0.608	0	0.30	24.09		-182
1355	COLLECT	SAMPLE								

SIGNATURE(S): Louis Knydl
Charles [illegible]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW17S-01
Project No.:	N4259 (CTO 253)	Sample Location:	MW17S
Sampled By: CM/LK		Duplicate:	☐
Field Analyst: CM/LK		Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal.~~ (%)	pH (SU)
Date: 12-17-02								
Time: 1355								
Method: Peristaltic	Clear	-182	0.608	24.09	0	0.30		

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 0-1 mg/L) Analysis Time: 1358

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: 0.4 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 1357

Concentration: 0.5 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

Equipment: CHEMetrics (Range: 10-100 mg/L) Analysis Time: 1406

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: 30 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-01

Sample Location: MW17S

Sampled By: CM/LK

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time 1405

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.09 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1403

Program/Module: 33 / 500nm

Concentration: 2.61 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW18S-01
Sample Location: MW18S
Sampled By: CM/LK
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 12/ 19 /2002 Time: 1200	Color Visual	pH Standard	S.C. mS/cm	Turbidity NTU	DO mg/l	Temp. °C	ORP mV	Other
Method: Low Flow Peristaltic	CLEAR	11.26	0.404	0	0.18	24.10	-206	

PURGE DATA

Date: 12/ 19 /2002	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~~ 14.7								
Static Water Level (WL): 6.52								
One Casing Volume(gal/L): 5								
Start Purge (hrs): 1110								
End Purge (hrs): 1155								
Total Purge Time (min): 45								
Total Vol. Purged (gal/L): 15.75 L								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): Lucas Knight

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-8-MW18S-01
DATE: 12-19-02

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)	Comments	ORP
1110	6.52									
1115	6.58			11.05	0.420	0	0.63	24.12		-193
1120	6.56	3.50		11.15	0.422	0	0.32	24.12		-195
1125	6.56			11.20	0.419	0	0.27	24.05		-197
1130	6.56	7.00		11.20	0.416	0	0.23	24.09		-200
1135	6.56			11.23	0.412	0	0.22	24.08		-202
1140	6.56	10.50		11.28	0.412	0	0.19	24.09		-204
1145	6.56			11.31	0.411	0	0.17	24.06		-207
1150	6.56	14.00		11.27	0.405	0	0.19	24.08		-206
1155	6.56	15.75		11.26	0.404	0	0.18	24.10	END PURGE	-206
1200	COLLECT	SAMPLE								

SIGNATURE(S): [illegible]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW18S-01
Project No.:	N4259 (CTO 253)	Sample Location:	MW18S
Sampled By: CM/LK		Duplicate:	☐
Field Analyst: CM		Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

Date: 12-19-02	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time: 1200	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(‰)	(SU)
Method: Peristaltic	Clear	-206	0.404	24.10	0	0.18		

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 1-12 mg/L) Analysis Time: 1203

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 mg/L range

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 1202

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

Notes:

Carbon Dioxide:

Equipment: CHEMetrics (Range: 10-100 mg/L) Analysis Time: 1205

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: 28 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-01

Sample Location: MW18S

Sampled By: CM/LK

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time: 1210

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.01 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1207

Program/Module: 33 / 500nm

Concentration: 1.17 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW19S-01
Sample Location: MW19S
Sampled By: CM/LK
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 12/ 18 /2002	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 0850	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	8.11	0.345	0	8.44	18.40	98	

PURGE DATA

Date: 12/ 18 /2002	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'								
Static Water Level (WL): 5.53								
One Casing Volume(gal/L):								
Start Purge (hrs): 0805								
End Purge (hrs): 0845								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): ~18.5 L								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
TOC, Ammonia	H2SO4	500ml glass	[illegible]
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	[illegible]
Iron + Manganese	HNO3	1L Plastic	[illegible]

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): [illegible]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-8-MW19S-01
DATE: 12·18·02

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)	Comments	ORP
0805	5.53		400							
0807	5.67		400							
0810	5.70	2.0	400	6.59	0.351	0	6.65	17.97		162
0815	5.70	4.0	400	7.06	0.344	0	5.88	18.20		155
0820	5.75	6.0	400	7.62	0.342	1.4	6.70	18.35		128
0825	5.75	8.5	500	7.78	0.353	4.6	7.47	18.35		119
0830	5.75	11.0	500	7.93	0.341	0	8.56	18.35		110
0835	5.75	13.5	500	8.01	0.343	0	8.76	18.39		105
0840	5.75	16.0	500	8.09	0.349	0	8.03	18.41		101
0845	5.75	18.5	500	8.11	0.345	0	8.44	18.40	END PURGE	98
0850	COLLECT	SAMPLE								

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: CM/LK

Field Analyst: CM

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

Sample ID No.: MPT-8-MW19S-01

Sample Location: MW19S

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal (%)~~	pH (SU)
Date: 12-18-07								
Time: 0850								
Method: Peristaltic	clear	+98	0.345	18.40	0	8.44	X	8.11

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

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

Analysis Time: 0853

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 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 0852

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: 0855

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: Was below our detection range

☐

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-MW19S-01

Sample Location: MW19S

Sampled By: CM/LK

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: 0900

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.01 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 0859

Program/Module: 33 / 500nm

Concentration: 0.03 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-S-MW02S-01
Sample Location: S-MW02S
Sampled By: CM/LK
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 12/17/2002	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1030	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	10.36	2.78	0	0.51	23.14	-160	

PURGE DATA

Date: 12/ /2002	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): 15.3'								
Static Water Level (WL): ~~250~~ 8.58 cm								
One Casing Volume(gal/L): 4.8 m								
Start Purge (hrs): 0925								
End Purge (hrs): 1025								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): 12								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4,DOC,FOC	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): [illegible]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7 **WELL ID:** MPT-S-MW02S-01
PROJECT NUMBER: N4259 (CTO 253) **DATE:**

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)	Comments	ORP
0925	8.58	0	200	—	—	—	—	—	START Purge	
	9.25	2.2	200	~~9.37~~	~~3.54~~	~~0~~	~~0.88~~	~~23.02~~	TAK (put in WRONG ROW)	-72
0935	9.28	2.2	200	9.37	3.54	0	0.88	23.02	NOTE: pH values	-72
0945	9.31	4.0	200	10.12	3.54	9.8	0.59	22.94	suspect... COUNTING	-135
0955	9.27	6.0	200	10.49	3.28	9.6	0.54	22.99	UPWARD SINCE READINGS	-156
1005	9.36	8.0	200	10.50	2.80	0	0.51	23.10	BEGAN.. INCREASED	-162
1015	9.33	10.0	200	10.41	2.92	0	0.56	22.98	FROM 7.8 to 9.7 IN	-158
1025	9.31	12.0	200	10.36	2.78	0	0.51	23.14	~15 MINUTES	-160

SIGNATURE(S): Charles [illegible]
Joseph Kyhl

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-S-MW02S-01
Project No.:	N4259 (CTO 253)	Sample Location:	S-MW02S
Sampled By: CM/LK		Duplicate:	☐
Field Analyst: CM/LK		Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

Date: 12-17-02	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	~~Sat~~ ORP	pH
Time: 1030	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method:	Clear	-160	2.78	23.14	0	0.51	-160	10.36

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 1-12 mg/L) Analysis Time: 1028

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: 1.0 mg/L

Notes: exceeded 0-1 range

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 1035

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: 1033

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: 25 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-S-MW02S-01

Sample Location: S-MW02S

Sampled By: CM/LK

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time 1032

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: NONE, 990190005044

Concentration: 0.04 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1030

Program/Module: 33 / 500nm

Concentration: 0.06 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: SWMU 7 **Project No.:** N4259
Location: Mayport **Personnel:** C.Metz, L. Knight
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
6	MPT-8-MW01S	1/13/2003		19.75	16.3	8.81	—		
	~~MPT-8-MW02S~~	1/13/2003			15.22	11.85 12.30	0.45		
*	MPT-8-MW03S	1/13/2003			15.4	10.92 10.94	0.02		
8	MPT-8-MW04S	1/13/2003		11.9	15.5	10.14			
7	MPT-8-MW06S	1/13/2003			15.2	7.42			
	MPT-8-MW08S	1/13/2003			14.6				
10	MPT-8-MW09S	1/13/2003		12.55	14.85	9.03			
	MPT-8-MW12S	1/13/2003		12.93	18.1	11.25			
	MPT-8-MW13S	1/13/2003		11.33	15.25	10.55			
	MPT-8-MW13I	1/13/2003			39.45	10.65			
*	MPT-8-MW15SR	1/13/2003			35.5	10.47			
5	MPT-8-MW16S	1/13/2003			15	8.67			
4	MPT-8-MW17S	1/13/2003			14.89	9.26			
9	MPT-8-MW18S	1/13/2003		8.8	15.02	6.86			
3	MPT-8-MW19S	1/13/2003			16.3	5.26			
2	MPT-S-MW02S	1/13/2003		10.08	15.22	8.83			
1	MPT-S-MW03S	1/13/2003		11.9	15.4	10.43			

* All measurements to the nearest 0.01 foot

EQUIPMENT CALIBRATION LOG

PROJECT NAME : SWMU 7

PROJECT NUMBER : N4259

DATE	INSTRUMENT NAME/MODEL	SERIAL #	STANDARDS	INITIAL SETTINGS	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
1-13-03	Mini Rae / PID	1806	4.0 pH	4.03		3.98	crm	Lot# 3303, exp 9-11-
1-13-03	Horiba U-22	0082129	100ppm (Iso)	82.6		100 ppm	crm	Lot # 71850
1-14-03	PID	1806	~~4.0 pH~~ 100ppm (Iso)	94.6		100 ppm	crm	
1-14-03	U-22	0082129	4.0 pH	3.98		3.99	crm	
1-15-03	PID	1806	100ppm (Iso)	92.8		100ppm	crm	
1-15-03	U-22	0082129	4.0 pH	4.02		3.98	crm	
1-15-03	U-22	0082129	4.0 pH	3.97		3.98	crm	
Other	Equipment							
	Heron Dipper-T H_2S Fydet	01725						
	Geo Pump (Peristaltic)	01092						

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW01S-02
Project No.:	N4259 (CTO 253)	Sample Location:	MW01S
		Sampled By:	CM/PL
[ ] 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: 1/13/2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1245	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	7.54	0.342	0	0.82	21.21	-227	

PURGE DATA

Date: 1/13/2003	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'								
WTL = 8.81								
One Casing Volume(gal/L): 4.6								
Start Purge (hrs): 1205								
End Purge (hrs): 1245								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): 14								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 x 40ml glass vials	✓
TRPH	None	2 X 1L Amber	✓
PAHs	none	2X 1L Amber	✓
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4, DOC, FOC	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s): Charles Mc
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-MW01S-02
DATE: 1/13/03

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
1205		-	400	-	-	-	-	-	-	Start Purge
1210		2.0	400	7.48	0.345	1.5	1.27	21.34	-221	
1215		4	400	7.52	0.344	0	1.07	21.26	-227	
1220		6	400	7.53	0.343	0	1.01	21.25	-229	
1225		8	400	7.53	0.342	0	0.94	21.15	-227	
1230		10	400	7.53	0.342	0	0.89	21.00	-227	
1235		12	400	7.53	0.342	0	0.88	21.[illegible]	-227	
1240		14	400	7.54	0.342	0	0.82	21.21	-227	End Purge
1245 = Sample Time										

SIGNATURE(S): Charles R. Mc[illegible]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SWMU 7

Project No.: N4259 (CTO 253)

Sampled By: CM/PL

Field Analyst: CM

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

Sample ID No.: MPT-8-MW01S-02

Sample Location: MW01S

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal (%)~~	pH (SU)
Date: 1-13-02 Time: 1245 Method: Peristaltic	Clear	-227	0.342	21.21	0	0.82	X	7.54

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

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

Analysis Time: 1250

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: 0.6 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 1247

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: 1249

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: Still slightly pink @ 10 mg/L mark, was actually lower

☐

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-MW01S-02

Sample Location: MW01S

Sampled By: CM/PL

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: 1255

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.03 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1252

Program/Module: 33 / 500nm

Concentration: 0.23 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW04S-02
Sample Location: MW04S
Sampled By: CM/PL
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 1/15/2003 Time: 1445	Color Visual	pH Standard	S.C. mS/cm	Turbidity NTU	DO mg/l	Temp. °C	ORP mV	Other
Method: Low Flow Peristaltic	CLEAR	6.70	0.780	0	0.50	22.88	-181	

PURGE DATA

Date: 1/15/2003	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): 15.5'								
WTH : 10.24'								
One Casing Volume(gal/L): 3.3								
Start Purge (hrs): 1415								
End Purge (hrs): 1440								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 10								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 x 40ml glass vials	✓
TRPH	None	1 L Amber	✓
PAHs	none	1L Amber	✓
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4,	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Peter [illegible] Charles Mes

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-8-MW04S-02
DATE: 1/15/03

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
1415	10.24	—	400	—	—	—	—	—	—	START PURGE
1425	10.37	4.0	400	6.70	0.779	0	0.58	22.76	-180	
1430	10.38	6.0	400	6.69	0.779	0	0.53	22.81	-179	
1435	10.38	8.0	400	6.69	0.781	0	0.51	22.80	-180	
1440	10.38	10.0	400	6.70	0.780	0	0.50	22.88	-181	
	SAMPLE	TIME	1445							

SIGNATURE(S): [illegible] Charles Metz

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SWMU 7

Project No.: N4259 (CTO 253)

Sampled By: CM/PL

Field Analyst: CM

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

Sample ID No.: MPT-8-MW04S-02

Sample Location: MW04S

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal. (%)~~	pH (SU)
Date: 1-15								
Time: 1495								
Method: Peristaltic	clear	-181	0.780	22.88	0	0.50		6.70

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

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

Analysis Time: 1448

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: 0.6 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 1446

Concentration: 2.0 mg/L

Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

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

Analysis Time: 1450

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: 145 mg/L

Notes: exceeded 10-100 mg/L range

☐

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-MW04S-02

Sample Location: MW04S

Sampled By: CM/PL

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Time: 1455

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.32 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1453

Program/Module: 33 / 500nm

Concentration: 6.4 mg/L

Filtered: ☐

Notes: exceed DR-890's range of 3.30mg/L

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW15SR-02
Sample Location: ~~MW15S~~ 15SR
Sampled By: CM/PL
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 1/15/2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 0945	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	GREY	7.41	2.67	277	0.44	22.23	-368	

PURGE DATA

Date: 1/15/2003	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): 35.5'								
WTH - 10.83								
One Casing Volume(gal/L): 3.1	5' screen							
Start Purge (hrs): 0815								
End Purge (hrs): 0940								
Total Purge Time (min): 85								
Total Vol. Purged (gal/L): 15.5								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 x 40ml glass vials	✓
TRPH	None	1 L Amber	✓
PAHs	none	1L Amber	✓
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4,	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): [illegible] Charles Mo[illegible]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-8-MW15SR-02
DATE: 1/15/03

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
0815	10.83'	–	400	–	–	–	–	–	–	START PURGE
0820	10.94	2.0	400	6.79	2.06	17.7	0.88	22.19	-288	
0830	11.06	6.0	400	7.35	2.64	>999	0.54	22.51	-360	
0835	11.07	7.5	300	7.37	2.65	>999	0.56	22.54	-368	
0840	11.06	8.5	200	7.38	2.65	911	0.49	22.53	-369	
0850	11.06	10.5	200	7.38	2.66	656	0.48	22.56	-367	
0900	11.04	11.5	100	7.40	2.67	599	0.49	22.16	-367	
0910	11.04	12.5	100	7.40	2.67	301	0.47	22.30	-368	
0920	11.04	13.5	100	7.40	2.67	309	0.46	22.34	-368	
0930	11.04	14.5	100	7.41	2.67	306	0.45	22.32	-368	
0940	11.04	15.5	100	7.41	2.67	277	0.44	22.23	-368	
	SAMPLE TIME 0945									

SIGNATURE(S): Vito Lanzetta
Charles Mero

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SWMU 7

Project No.: N4259 (CTO 253)

Sampled By: CM/PL

Field Analyst: CM

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

Sample ID No.: MPT-8-MW15SR-02

Sample Location: MW~~15~~ 15SR

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal.~~ (%)	pH (SU)
Date: 1-15-03								
Time: ~~Peristaltic~~ 0945								
Method: Peristaltic	gray	-368	2.67	22.23	277	0.44		7.41

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

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

Analysis Time: 0947

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: 0.4 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 0946

Concentration: 5.0+ mg/L

Exceeded 5.0 mg/L range on color chart: ☒

Notes: extremely black

Carbon Dioxide:

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

Analysis Time: 0949

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: 50 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-MW15SR-02

Sample Location: MW~~15S~~ 15SR

Sampled By: CM/PL

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time: 0955

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: > 0.80 mg/L

exceeded maximum detection range

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 0952

Program/Module: 33 / 500nm

Concentration: 0.10 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW16S-02
Sample Location: MW16S
Sampled By: CM/PL
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 1/15/2003	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	6.70	1.20	0	0.55	22.45	-215	

PURGE DATA

Date: 1/15/2003	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): 15'								
WTH 8.65								
One Casing Volume(gal/L): 4.1								
Start Purge (hrs): 1035								
End Purge (hrs): 1108								
Total Purge Time (min): 33								
Total Vol. Purged (gal/L): 13.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 x 40ml glass vials	✓
TRPH	None	1 L Amber	✓
PAHs	none	1L Amber	✓
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4,	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): [illegible] Charles Mc[illegible]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-8-MW16S-02
DATE: 1/15/03

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	8.65	–	400	–	–	–	–	–	–	START PURGE
1045	8.76	4.0	400	6.75	1.19	0	0.86	22.37	-216	
1055	8.78	8.0	400	6.71	1.20	0	0.60	22.50	-216	
1100	8.78	10.0	400	6.70	1.20	0	0.60	22.54	-216	
1105	8.78	12.0	400	6.70	1.20	0	0.54	22.53	-215	
1108	8.78	13.0	400	6.70	1.20	0	0.55	22.45	-215	

SAMPLE TIME 1115

SIGNATURE(S): [illegible]
Charles Mott

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW16S-02
Project No.:	N4259 (CTO 253)	Sample Location:	MW16S
Sampled By: CM/PL		Duplicate:	☐
Field Analyst: CM		Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

Date: 1-15-03	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	~~Sal~~	pH
Time: 1115	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method: Peristaltic	Clear	-215	1.20	22.45	0	0.55		6.70

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

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

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: 0.4 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: _____

Concentration: 0.5 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

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

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: 70 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-02
Project No.:	N4259 (CTO 253)	Sample Location:	MW16S
		Sampled By:	CM/PL

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.09 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter Other: _____ Analysis Time: _____

Program/Module: 33 / 500nm

Concentration: 6 mg/L Filtered: ☐

Notes: exceeded DR890's range of 3.3 mg/L

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW17S-02
Sample Location: MW17S
Sampled By: CM/PL
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 1/ 13 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1430	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	Clear	6.99	0.512	0	0.57	21.81	-132	

PURGE DATA

Date: 1/ 13/2003	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): 14.89'								
WTH 9.26'								
One Casing Volume(gal/L): 0.33								
Start Purge (hrs): 1350								
End Purge (hrs): 1430								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): 10								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 x 40ml glass vials	✓
TRPH	None	1 L Amber	✓
PAHs	none	1L Amber	✓
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4,	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Charles Mc[illegible]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-8-MW17S-02
DATE: 1/13/03

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
1350	9.26	–	300	—	—	—	—	—	—	START PURGE
1355		1.5	300	6.88	0.546	0	0.76	21.66	-102	
1400		3	300	6.98	0.524	0	0.62	21.71	-114	
1405		4.5	300	6.97	0.519	0	0.61	21.78	-116	
1410		6	300	7.00	0.513	0	0.60	21.75	-120	
1415		7.5	300	7.00	0.512	0	0.58	21.78	-124	
1420		9	300	6.99	0.512	0	0.57	21.77	-128	
1424		10	300	6.99	0.512	0	0.57	21.81	-132	
1430 = Sample Time										

SIGNATURE(S): Charles R. Mc[illegible]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SWMU 7

Project No.: N4259 (CTO 253)

Sampled By: CM/PL

Field Analyst: CM

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

Sample ID No.: MPT-8-MW17S-02

Sample Location: MW17S

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal.~~ (%)	pH (SU)
Date: 1-13-02								
Time: 1430								
Method: Peristaltic	Clear	-132	0.512	21.81	0	0.57		6.99

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

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

Analysis Time: 1433

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: 0.4 mg/L

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 1432

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: 1435

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: 25 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-02

Sample Location: MW17S

Sampled By: CM/PL

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time: 1440

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.04 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1437

Program/Module: 33 / 500nm

Concentration: 2.25 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW18S-02
Sample Location: MW18S
Sampled By: CM/PL
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 1/14/2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1520	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	7.05	0.384	0	0.73	22.47	-133	

PURGE DATA

Date: 1/14/2003	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): 15.02'								
WTH 6.86'								
One Casing Volume(gal/L): 4.8								
Start Purge (hrs): 1435								
End Purge (hrs): 1513								
Total Purge Time (min): 38								
Total Vol. Purged (gal/L): 15.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 x 40ml glass vials	✓
TRPH	None	1 L Amber	✓
PAHs	none	1L Amber	✓
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4, DOC, FOC	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD

Duplicate ID No.:

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-MW18S-02
DATE: 1/14/03

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
1435	6.86	—	400	—	—	—	—	—	—	START PURGE
1440	6.89	2.0	400	6.98	0.397	2.6	2.56	22.22	-74	
1450	6.91	6.0	400	6.82	0.388	0	0.98	22.37	-105	
1500	6.92	10.0	400	6.97	0.385	0	0.84	22.47	-119	
1505	6.92	12.0	400	7.04	0.384	0	0.76	22.43	-127	
1510	6.92	14.0	400	7.05	0.384	0	0.74	22.44	-133	
1513	6.92	15.0	400	7.05	0.384	0	0.73	22.47	-133	
	SAMPLE TIME 1520									

SIGNATURE(S): [signature]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW18S-02
Project No.:	N4259 (CTO 253)	Sample Location:	MW18S
Sampled By: CM/PL		Duplicate:	☐
Field Analyst: CM		Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal.~~ (%)	pH (SU)
Date: 1-14-03								
Time: 1520								
Method: Peristaltic	Clear	-133	0.384	~~0~~ CM	0	0.73		7.05

SAMPLE COLLECTION/ANALYSIS INFORMATION: 22/17

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 0-1 mg/L) Analysis Time: 1523

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: 1.0 mg/L

Notes: was between 0.8 and 1.0 mg/L

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 1521

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: 1525

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: 17 mg/L

Notes:

☐

GROUNDWATER SAMPLE LOG SHEET
NATURAL ATTENUATION PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW18S-02
Project No.:	N4259 (CTO 253)	Sample Location:	MW18S
		Sampled By:	CM/PL

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time: 1528

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.03 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter Other: _____ Analysis Time: 1526

Program/Module: 33 / 500nm

Concentration: 0.97 mg/L Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW19S-02
Sample Location: MW19S
Sampled By: CM/PL
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 1/14/2003	Color Visual	pH Standard	S.C. mS/cm	Turbidity NTU	DO mg/l	Temp. °C	ORP mV	Other
Time: 0945								
Method: Low Flow Peristaltic	Clear	7.54	0.334	0	8.19	16.80	75	

PURGE DATA

Date: 1/14/2003	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'								
5.26'								
One Casing Volume(gal): 6.2								
Start Purge (hrs): 0850								
End Purge (hrs): 0940								
Total Purge Time (min): 50								
Total Vol. Purged (gal): 20.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 x 40ml glass vials	✓
TRPH	None	1 L Amber	✓
PAHs	none	1L Amber	✓
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4, DOC, FOC	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

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-MW19S-02
DATE: 1/14/03

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
0850	5.26	–	400	–	–	–	–	–	–	START PURGE
0855	5.42	2.0	400	7.42	0.345	0	7.15	16.37	122	
0900	5.43	4.0	400	7.54	0.338	0	6.95	16.53	103	
0910	5.43	8.0	400	7.52	0.342	0	7.34	16.65	91	
0920	5.43	12.0	400	7.52	0.337	0	8.25	16.68	83	
0925	5.43	14.0	400	7.53	0.337	0	8.13	16.73	80	
0930	5.43	16.0	400	7.54	0.336	0	8.04	16.78	78	
0935	5.43	18.0	400	7.54	0.336	0	8.18	16.80	76	
0940	5.43	20.0	400	7.54	0.334	0	8.19	16.80	75	
	SAMPLE TIME 0945									

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: CM/PL

Field Analyst:

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

Sample ID No.: MPT-8-MW19S-02

Sample Location: MW19S

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal~~ (%)	pH (SU)
Date: 1-14-03								
Time: 0945								
Method: Peristaltic	Clear	75	0.334	16.80	0	8.19		7.54

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 1-10 mg/L)

Analysis Time: 0948

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 mg/L

Notes: Used 0-1 mg/L range, but exceeded it

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 0947

Concentration: 0 mg/L

Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

Equipment: CHEMetrics (Range: ~~[illegible]~~ 10-100 mg/L)

Analysis Time: 0949

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: Was less than 10 mg/L

☐

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-MW19S-02

Sample Location: MW19S

Sampled By: CM/PL

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: Time 0954

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.0 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 0951

Program/Module: 33 / 500nm

Concentration: 0.03 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-8-MW06S-02
Sample Location: MW06S
Sampled By: CM/PL
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 1/ 14 /2003	Color	pH	S.C.	Turbidity	DO	Temp.	ORP	Other
Time: 1110	Visual	Standard	mS/cm	NTU	mg/l	°C	mV	
Method: Low Flow Peristaltic	CLEAR	7.32	0.294	0	8.96	19.86	74	

PURGE DATA

Date: 1/ 14 /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): 15.2'								
WTH 7.42'								
One Casing Volume(gal/L): 4.8								
Start Purge (hrs): 1025								
End Purge (hrs): 1102								
Total Purge Time (min): 37								
Total Vol. Purged (gal/L): 0.15								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 x 40ml glass vials	✓
TRPH	None	2x 1 L Amber	✓
PAHs	none	2 x 1L Amber	✓
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4,	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

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

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 7
PROJECT NUMBER: N4259 (CTO 253)
WELL ID: MPT-8-MW06S-02
DATE: 1/14/03

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
1025	7.42	—	400	—	—	—	—	—	—	START PURGE
1030	7.60	2.0	400	7.32	0.287	0	8.72	19.55	85	
1040	7.61	6.0	400	7.14	0.290	0	8.91	19.78	88	
1050	7.61	10.0	400	7.26	0.292	0	9.22	19.85	80	
1055	7.61	12.0	400	7.31	0.294	0	9.13	19.86	76	
1100	7.61	14.0	400	7.32	0.295	0	8.97	19.85	75	
1102	7.61	15.0	400	7.32	0.294	0	8.96	19.86	74	

SAMPLE TIME 1110

SIGNATURE(S): [illegible]
Charles Meo

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW06S-02
Project No.:	N4259 (CTO 253)	Sample Location:	MW06S
Sampled By: CM/PL		Duplicate:	☐
Field Analyst:		Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

Date: 1-14-02	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time: 1110	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(‰)	(SU)
Method: Peristaltic	Clear	74	0.294	19.86	0	8.96	X	7.32

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 0-10 mg/L) Analysis Time: 1113

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 mg/L

Notes: Exceeded 0-1 mg/L range

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 1111

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: 1115

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

Project No.: N4259 (CTO 253)

Sample ID No.: MPT-8-MW06S-02

Sample Location: MW06S

Sampled By: CM/PL

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: 1120

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1118

Program/Module: 33 / 500nm

Concentration: 0.01 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 7	Sample ID No.:	MPT-8-MW09S-02
Project No.:	N4259 (CTO 253)	Sample Location:	MW09S
		Sampled By:	CM/PL
[ ] 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: 1/ 14 /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	6.85	0.768	0	1.47	21.45	-59	

PURGE DATA

Date: 1/ 14 /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): 14.85'								
WTH 9.03'								
One Casing Volume(gal/L): 3.6								
Start Purge (hrs): 1305								
End Purge (hrs): 1333								
Total Purge Time (min): 28								
Total Vol. Purged (gal/L): 11.0								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 x 40ml glass vials	✓
TRPH	None	1 L Amber	✓
PAHs	none	1L Amber	✓
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4,	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

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-MW09S-02
DATE: 1/14/03

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
1305	9.03	—	400	-	—	—	—	—	—	START PURGE
1310	9.21	2.0	400	6.91	0.656	0	4.85	21.25	6	
1320	9.23	6.0	400	6.86	0.754	0	1.62	21.44	-36	
1325	9.23	8.0	400	6.85	0.763	0	1.50	21.41	-49	
1330	9.23	10.0	400	6.85	0.766	0	1.42	21.42	-56	
1333	9.23	11.0	400	6.85	0.768	0	1.47	21.45	-59	
		SAMPLE TIME 1340								

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: CM/PL

Field Analyst: CM

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

Sample ID No.: MPT-8-MW09S-02

Sample Location: MW09S

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	Sal. (%)	pH (SU)
Date: 1-14-02								
Time: 1340								
Method: Peristaltic	Clear	-59	0.768	21.45	0	1.47		6.85

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 1-10 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: exceeded 0-1 mg/L range

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: CM 1342

Concentration: 0.3 mg/L

Exceeded 5.0 mg/L range on color chart: ☐

Notes:

Carbon Dioxide:

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

Analysis Time: CM 1344

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: 50 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-MW09S-02

Sample Location: MW09S

Sampled By: CM/PL

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide: 1355

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1351

Program/Module: 33 / 500nm

Concentration: 1.27 mg/L

Filtered: ☐

Notes:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: MPT-S-MW02S-0
Sample Location: S-MW02S
Sampled By: CM/PL
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 1/15/2003	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	7.29	1.39	0	2.36	21.14	-150	

PURGE DATA

Date: 1/15/2003	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): 15.22'								
WTH 9.78'								
One Casing Volume(gal/L): 3.7								
Start Purge (hrs): 1255								
End Purge (hrs): 1325								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 12								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 x 40ml glass vials	✓
TRPH	None	1 L Amber	✓
PAHs	none	1L Amber	✓
TOC, Ammonia	H2SO4	500ml glass	✓
Alk,N,NO2, NO3, SO4, Cl, PO4	none	1L Plastic	✓
Iron + Manganese	HNO3	1L Plastic	✓

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): [illegible] Charlie Mott

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

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

WELL ID: MPT-S-MW02S-012
DATE: 1/15/03

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
1255	9.78	–	400	–	–	–	–	–	–	START PURGE
1305	9.99	4.0	400	7.59	1.53	0	1.34	21.16	-113	
1315	10.04	8.0	400	7.39	1.47	0	1.86	21.30	-142	
1320	10.04	10.0	400	7.33	1.39	0	2.16	21.17	-148	
1325	10.04	12.0	400	7.29	1.39	0	2.36	21.14	456	
	SAMPLE TIME 1330									

SIGNATURE(S): Rob Quattro
Charles Mott

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SWMU 7

Project No.: N4259 (CTO 253)

Sampled By: CM/PL

Field Analyst: CM

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

Sample ID No.: MPT-S-MW02S-0

Sample Location: S-MW02S

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	~~Sal. (%)~~	pH (SU)
Date: 1-15-03								
Time: 1336								
Method: Low Flow Peristaltic	Clear	-150	1.39	21.14	0	2.36		7.29

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: CHEMetrics (Range: 1-10 mg/L)

Analysis Time: 1335

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: exceed 0-1 mg/L range

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Analysis Time: 1333

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: 1340

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: 18 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-S-MW02S-02

Sample Location: S-MW02S

Sampled By: CM/PL

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Sulfide:

Time: 1343

Equipment: HACH DR-890 Colorimeter

Wave / Program: 93 / 610nm

TtNUS Serial No.: _____

Concentration: 0.01 mg/L

Ferrous Iron (Fe^{2+}):

Equipment: HACH DR-890 Colorimeter

Other: _____

Analysis Time: 1341

Program/Module: 33 / 500nm

Concentration: 0 mg/L

Filtered: ☐

Notes:

ATTACHMENT B

GROUNDWATER ANALYTICAL REPORTS

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**T. HANSEN**	**DATE:**	**MARCH 25, 2003**
FROM:	**BERNARD F SPADA III**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION- OVG/MISC**
CTO 253, NS MAYPORT
SDG P0302240

SAMPLES: 11/Aqueous

MPT-5-MW02S-03	MPT-5-MW03S-03	MPT-8-DU01-03
MPT-8-MW01S-03	MPT-8-MW04S-03	MPT-8-MW06S-03
MPT-8-MW09S-03	MPT-8-MW16S-03	MPT-8-MW17S-03
MPT-8-MW18S-03	MPT-S-MW19S-03	

OVERVIEW

The sample set for CTO 253, NS Mayport, SDG P0302240 consists of ten (10) environmental aqueous samples and one (1) field duplicate. The samples were analyzed for methane, ethane, and ethene organic volatile gases (OVG), carbon dioxide, hydrogen, nitrogen, and oxygen. The field duplicate pair included in this SDG is MPT-8-DU01-03 and MPT-8-MW16S-03.

The samples were collected by Tetra Tech NUS on February 10, 11, 13, and 14, 2003 and analyzed by Microseeps. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using Method AM20GAX analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
- Holding times
- * Initial and continuing calibration
- * Blank results
- * Surrogate spike recoveries
- * Blank Spike/Blank Spike Duplicate Results
- * Compound Quantitation
- * Compound Identification
- Field Duplicate Precision
- 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.

Organic Volatile Gases

The results for ethane in the field duplicate pair MPT-8-DU01-03 and MPT-8-MW16S-03 exceeded the 50% relative percent difference quality control criteria. The results for ethane were qualified as estimated (J) in the aforementioned samples.

Samples MPT-5-MW02S-03, MPT-5-MW03S-03, MPT-8-DU01-03, MPT-8-MW01S-03, MPT-8-MW09S-03, MPT-8-MW16S-03, and MPT-S-MW19S-03 were analyzed outside of the 14 day holding time quality control criteria. All positive and non-detected results were qualified as estimated (J, UJ).

MISC

Samples MPT-5-MW02S-03, MPT-5-MW03S-03, MPT-8-DU01-03, MPT-8-MW01S-03, MPT-8-MW09S-03, MPT-8-MW16S-03, and MPT-S-MW19S-03 were analyzed outside of the 14 day holding time quality control criteria. All positive and non-detected results were qualified as estimated (J, UJ).

Additional Comments

The electronic data deliverable (EDD) did not match the Form Is for several samples. The positive results from the Form I's were used for validation. All results reported as "0" were changed to the appropriate detection limit for the compound.

Sample MPT-8-MW18S-03 had a positive result of 3ug/L for ethane listed in the EDD. The Form I had <5ug/L listed. The reporting limit of 5ug/L was used for validation of the aforementioned sample.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Qualifications were made based on holding time exceedances. Several errors were present in the EDD.

Other Factors Affecting Data Quality: Qualifications were made based on field duplicate imprecision.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the NFESC guidelines. 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)."

Bernard F. Spada III

Tetra Tech NUS
Bernard F. Spada III
Chemist/Data Validator

Tetra Tech NUS
Joseph A. Samchuck
Data Validation 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

PROJ_NO: 4259

SDG: P0302240 MEDIA: AIR DATA FRACTION: OVG

nsample	MPT-8-DU01-03
samp_date	2/11/2003
lab_id	P0302240-11
qc_type	NM
units	UGL
Pct_Solids	0.0
DUP_OF:	MPT-8-MW16S-03

Parameter	Result	Val Qual	Qual Code
ETHANE	0.031	J	GH
ETHENE	0.005	UJ	H
METHANE	5000	J	H

nsample	MPT-8-MW01S-03
samp_date	2/10/2003
lab_id	P0302240-02
qc_type	NM
units	UGL
Pct_Solids	0.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ETHANE	0.012	J	H
ETHENE	0.005	UJ	H
METHANE	110	J	H

nsample	MPT-8-MW04S-03
samp_date	2/14/2003
lab_id	P0302240-09
qc_type	NM
units	UGL
Pct_Solids	0.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ETHANE	0.010		
ETHENE	0.005	U	
METHANE	9400		

PROJ_NO: 4259

SDG: P0302240 MEDIA: AIR DATA FRACTION: O

nsample	MPT-8-MW06S-03	nsample	MPT-8-MW09S-03	nsample	MPT-8-MW16S-03
samp_date	2/14/2003	samp_date	2/10/2003	samp_date	2/11/2003
lab_id	P0302240-07	lab_id	P0302240-01	lab_id	P0302240-04
qc_type	NM	qc_type	NM	qc_type	NM
units	UGL	units	UGL	units	UGL
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	0.06		

Parameter	Result	Val Qual	Qual Code
ETHANE	0.005	UJ	H
ETHENE	0.005	UJ	H
METHANE	870	J	H

Parameter	Result	Val Qual	Qual Code
ETHANE	0.056	J	GH
ETHENE	0.005	UJ	H
METHANE	8000	J	H

PROJ_NO: 4259

SDG: P0302240 MEDIA: AIR DATA FRACTION: O

nsample	MPT-8-MW17S-03
samp_date	2/14/2003
lab_id	P0302240-10
qc_type	NM
units	UGL
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ETHANE	0.005	U	
ETHENE	0.005	U	
METHANE	510		

nsample	MPT-8-MW18S-03
samp_date	2/13/2003
lab_id	P0302240-08
qc_type	NM
units	UGL
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ETHANE	0.005	U	
ETHENE	0.005	U	
METHANE	180		

nsample	MPT-8-MW19S-03
samp_date	2/11/2003
lab_id	P0302240-06
qc_type	NM
units	UGL
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ETHANE	0.005	UJ	H
ETHENE	0.005	UJ	H
METHANE	0.40	J	H

PROJ_NO: 4259

SDG: P0302240 MEDIA: AIR DATA FRACTION: O

nsample	MPT-S-MW02S-03	nsample	MPT-S-MW03S-03
samp_date	2/11/2003	samp_date	2/11/2003
lab_id	P0302240-05	lab_id	P0302240-03
qc_type	NM	qc_type	NM
units	UGL	units	UGL
Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ETHANE	0.240	J	H
ETHENE	0.005	UJ	H
METHANE	2800	J	H

Parameter	Result	Val Qual	Qual Code
ETHANE	0.480	J	H
ETHENE	0.005	UJ	H
METHANE	180	J	H

PROJ_NO: 4259

SDG: P0302240 MEDIA: AIR DATA FRACTION: MI

nsample	MPT-8-DU01-03
samp_date	2/11/2003
lab_id	P0302240-11
qc_type	NM
Pct_Solids	0
DUP_OF:	MPT-8-MW16S-03

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MGL	120	J	H
HYDROGEN	NM	1.7	J	H
NITROGEN	MGL	9.9	J	H
OXYGEN	MGL	4.4	J	H

nsample	MPT-8-MW01S-03
samp_date	2/10/2003
lab_id	P0302240-02
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MGL	6.6	J	H
HYDROGEN	NM	2	J	H
NITROGEN	MGL	17	J	H
OXYGEN	MGL	3.4	J	H

nsample	MPT-8-MW04S-03
samp_date	2/14/2003
lab_id	P0302240-09
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MGL	140		
HYDROGEN	NM	3		
NITROGEN	MGL	8.2		
OXYGEN	MGL	1.5		

PROJ_NO: 4259

SDG: P0302240 MEDIA: AIR DATA FRACTION: MI

nsample	MPT-8-MW06S-03
samp_date	2/14/2003
lab_id	P0302240-07
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MGL	9.5		
HYDROGEN	NM	0.5		
NITROGEN	MGL	16		
OXYGEN	MGL	4.3		

nsample	MPT-8-MW09S-03
samp_date	2/10/2003
lab_id	P0302240-01
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MGL	55	J	H
HYDROGEN	NM	2.9	J	H
NITROGEN	MGL	16	J	H
OXYGEN	MGL	2.4	J	H

nsample	MPT-8-MW16S-03
samp_date	2/11/2003
lab_id	P0302240-04
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MGL	200	J	H
HYDROGEN	NM	1.9	J	H
NITROGEN	MGL	7.8	J	H
OXYGEN	MGL	3.1	J	H

PROJ_NO: 4259

SDG: P0302240 MEDIA: AIR DATA FRACTION: MI

nsample	MPT-8-MW17S-03
samp_date	2/14/2003
lab_id	P0302240-10
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MGL	56		
HYDROGEN	NM	1.1		
NITROGEN	MGL	16		
OXYGEN	MGL	1.1		

nsample	MPT-8-MW18S-03
samp_date	2/13/2003
lab_id	P0302240-08
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MGL	23		
HYDROGEN	NM	2		
NITROGEN	MGL	18		
OXYGEN	MGL	1.7		

nsample	MPT-8-MW19S-03
samp_date	2/11/2003
lab_id	P0302240-06
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MGL	4	J	H
HYDROGEN	NM	1.1	J	H
NITROGEN	MGL	16	J	H
OXYGEN	MGL	7	J	H

PROJ_NO: 4259

SDG: P0302240 MEDIA: AIR DATA FRACTION: MI

nsample	MPT-S-MW02S-03
samp_date	2/11/2003
lab_id	P0302240-05
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MGL	52	J	H
HYDROGEN	NM	1.3	J	H
NITROGEN	MGL	13	J	H
OXYGEN	MGL	4.6	J	H

nsample	MPT-S-MW03S-03
samp_date	2/11/2003
lab_id	P0302240-03
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	MGL	56	J	H
HYDROGEN	NM	1.8	J	H
NITROGEN	MGL	16	J	H
OXYGEN	MGL	2.8	J	H

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

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

Pittsburgh, PA 15220

Lab Project #: P0302240
Report Date: 02/28/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Lab Sample #: P0302240-05

Sample Description	Matrix	Sampled Date/Time	Received
MPT-S-MW02S-03	Vapor	11 Feb. 03 13:50	18 Feb. 03

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Carbon dioxide	52	0.60	mg/L	AM20GAX	bc	2/26/03
Ethane	240	5.0	ng/L		bc	2/26/03
Ethene	< 5.0	5.0	ng/L		bc	2/26/03
Hydrogen	1.3	0.030	nM		bc	2/26/03
Methane	2800	0.02	ug/L		bc	2/26/03
Nitrogen	13	0.40	mg/L		bc	2/26/03
Oxygen	4.6	0.15	mg/L		bc	2/26/03

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

Pittsburgh, PA 15220

Lab Project #: P0302240
Report Date: 02/28/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Lab Sample #: P0302240-03

Sample Description	Matrix	Sampled Date/Time	Received
MPT-S-MW03S-03	Vapor	11 Feb. 03 9:10	18 Feb. 03

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Carbon dioxide	56	0.60	mg/L	AM20GAX	bc	2/26/03
Ethane	480	5.0	ng/L		bc	2/26/03
Ethene	< 5.0	5.0	ng/L		bc	2/26/03
Hydrogen	1.8	0.030	nM		bc	2/26/03
Methane	180	0.02	ug/L		bc	2/26/03
Nitrogen	16	0.40	mg/L		bc	2/26/03
Oxygen	2.8	0.15	mg/L		bc	2/26/03

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

Pittsburgh, PA 15220

Lab Project #: P0302240
Report Date: 02/28/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Lab Sample #: P0302240-11

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-DU01-03	Vapor	11 Feb. 03 0:00	18 Feb. 03

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Carbon dioxide	120	0.60	mg/L	AM20GAX	bc	2/26/03
Ethane	31	5.0	ng/L		bc	2/26/03
Ethene	< 5.0	5.0	ng/L		bc	2/26/03
Hydrogen	1.7	0.030	nM		bc	2/26/03
Methane	5000	0.02	ug/L		bc	2/26/03
Nitrogen	9.9	0.40	mg/L		bc	2/26/03
Oxygen	4.4	0.15	mg/L		bc	2/26/03

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

Pittsburgh, PA 15220

Lab Project #: P0302240
Report Date: 02/28/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Lab Sample #: P0302240-02

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW01S-03	Vapor	10 Feb. 03 14:35	18 Feb. 03

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Carbon dioxide	6.6	0.60	mg/L	AM20GAX	bc	2/26/03
Ethane	12	5.0	ng/L		bc	2/26/03
Ethene	< 5.0	5.0	ng/L		bc	2/26/03
Hydrogen	2.0	0.030	nM		bc	2/26/03
Methane	110	0.02	ug/L		bc	2/26/03
Nitrogen	17	0.40	mg/L		bc	2/26/03
Oxygen	3.4	0.15	mg/L		bc	2/26/03

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

Pittsburgh, PA 15220

Lab Project #: P0302240
Report Date: 02/28/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Lab Sample #: P0302240-09

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW04S-03	Vapor	14 Feb. 03 9:40	18 Feb. 03

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Carbon dioxide	140	0.60	mg/L	AM20GAX	bc	2/26/03
Ethane	10	5.0	ng/L		bc	2/26/03
Ethene	< 5.0	5.0	ng/L		bc	2/26/03
Hydrogen	3.0	0.030	nM		bc	2/26/03
Methane	9400	0.02	ug/L		bc	2/26/03
Nitrogen	8.2	0.40	mg/L		bc	2/26/03
Oxygen	1.5	0.15	mg/L		bc	2/26/03

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

Pittsburgh, PA 15220

Lab Project #: P0302240
Report Date: 02/28/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Lab Sample #: P0302240-07

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW06S-03	Vapor	14 Feb. 03 9:00	18 Feb. 03

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Carbon dioxide	9.5	0.60	mg/L	AM20GAX	bc	2/26/03
Ethane	< 5.0	5.0	ng/L		bc	2/26/03
Ethene	< 5.0	5.0	ng/L		bc	2/26/03
Hydrogen	0.50	0.030	nM		bc	2/26/03
Methane	0.06	0.02	ug/L		bc	2/26/03
Nitrogen	16	0.40	mg/L		bc	2/26/03
Oxygen	4.3	0.15	mg/L		bc	2/26/03

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

Pittsburgh, PA 15220

Lab Project #: P0302240
Report Date: 02/28/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Lab Sample #: P0302240-01

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW09S-03	Vapor	10 Feb. 03 12:35	18 Feb. 03

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Carbon dioxide	55	0.60	mg/L	AM20GAX	bc	2/26/03
Ethane	< 5.0	5.0	ng/L		bc	2/26/03
Ethene	< 5.0	5.0	ng/L		bc	2/26/03
Hydrogen	2.9	0.030	nM		bc	2/26/03
Methane	870	0.02	ug/L		bc	2/26/03
Nitrogen	16	0.40	mg/L		bc	2/26/03
Oxygen	2.4	0.15	mg/L		bc	2/26/03

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

Pittsburgh, PA 15220

Lab Project #: P0302240
Report Date: 02/28/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Lab Sample #: P0302240-04

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW16S-03	Vapor	11 Feb. 03 10:25	18 Feb. 03

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Carbon dioxide	200	0.60	mg/L	AM20GAX	bc	2/26/03
Ethane	56	5.0	ng/L		bc	2/26/03
Ethene	< 5.0	5.0	ng/L		bc	2/26/03
Hydrogen	1.9	0.030	nM		bc	2/26/03
Methane	8000	0.02	ug/L		bc	2/26/03
Nitrogen	7.8	0.40	mg/L		bc	2/26/03
Oxygen	3.1	0.15	mg/L		bc	2/26/03

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

Pittsburgh, PA 15220

Lab Project #: P0302240
Report Date: 02/28/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Lab Sample #: P0302240-10

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW17S-03	Vapor	14 Feb. 03 9:20	18 Feb. 03

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Carbon dioxide	56	0.60	mg/L	AM20GAX	bc	2/26/03
Ethane	< 5.0	5.0	ng/L		bc	2/26/03
Ethene	< 5.0	5.0	ng/L		bc	2/26/03
Hydrogen	1.1	0.030	nM		bc	2/26/03
Methane	510	0.02	ug/L		bc	2/26/03
Nitrogen	16	0.40	mg/L		bc	2/26/03
Oxygen	1.1	0.15	mg/L		bc	2/26/03

Client Name:	TetraTech NUS, Inc.	Page:	Page 9 of 17
Contact:	Amy Thomson	Lab Project #:	P0302240
Address:	Foster Plaza 7	Report Date:	02/28/03
	661 Anderson Drive	Client Proj Name:	NAVSTA Mayport Jacksonville FL
		Client project #:	N4259 CTO 253
	Pittsburgh, PA 15220		

Lab Sample #: P0302240-08

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW18S-03	Vapor	13 Feb. 03 9:25	18 Feb. 03

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Carbon dioxide	23	0.60	mg/L	AM20GAX	bc	2/26/03
Ethane	<5.0	5.0	ng/L		bc	2/26/03
Ethene	< 5.0	5.0	ng/L		bc	2/26/03
Hydrogen	2.0	0.030	nM		bc	2/26/03
Methane	180	0.02	ug/L		bc	2/26/03
Nitrogen	18	0.40	mg/L		bc	2/26/03
Oxygen	1.7	0.15	mg/L		bc	2/26/03

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

Pittsburgh, PA 15220

Lab Project #: P0302240
Report Date: 02/28/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Lab Sample #: P0302240-06

Sample Description	Matrix	Sampled Date/Time	Received
MPT-8-MW19S-03	Vapor	11 Feb. 03 15:30	18 Feb. 03

Analyte(s)	Result	PQL	Units	Method #	Analyst	Analysis Date
RiskAnalysis						
Carbon dioxide	4.0	0.60	mg/L	AM20GAX	bc	2/26/03
Ethane	< 5.0	5.0	ng/L		bc	2/26/03
Ethene	<5.0	5.0	ng/L		bc	2/26/03
Hydrogen	1.1	0.030	nM		bc	2/26/03
Methane	0.40	0.02	ug/L		bc	2/26/03
Nitrogen	16	0.40	mg/L		bc	2/26/03
Oxygen	7.0	0.15	mg/L		bc	2/26/03

APPENDIX C

SUPPORT DOCUMENTATION

FIELD DUPLICATE PRECISION

ANALYTE	MPT-8-DU01-03	MPT-8-MW16S-03	RPD	DIFFERENCE
Methane	5000	8000	46.15	3000
Ethane	31	56	57.47	25
Carbon dioxide	120	200	50.00	80
Hydrogen	1.7	1.9	11.11	0.2
Nitrogen	9.9	7.8	23.73	2.1
Oxygen	4.4	3.1	34.67	1.3

Spada, Bernie

From: Metz, Charles
Sent: Monday, March 10, 2003 10:31 AM
To: Spada, Bernie
Subject: RE: field dup CTO-253 SDG-P0302240

The duplicate (MPT-8-DU01-03) is for MPT-8-MW16S-03. I think it was accidentally left of the chain and the lab was supposed to write it on there. If you have any more questions, just let me know.

Charles Metz
Technical Specialist I
TETRA TECH NUS, Inc.
8640 Phillips Hwy, Suite 16
Jacksonville, FL 32256
Telephone: (904) 636-6125
FAX: (904) 636-6165
metzc@ttnus.com
<http://www.ttnus.com/>
<http://www.tetratech.com>

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-----Original Message-----
From: Spada, Bernie
Sent: Monday, March 10, 2003 10:24 AM
To: Metz, Charles
Subject: RE: field dup CTO-253 SDG-P0302240

Charles,

Is the field duplicate for Mayport MPT-8-DU01-03 from the same place as last time? (MPT-8-MW06S-03) Also, the duplicate was not listed on the COC. Thank you.

Bernie

-----Original Message-----
From: Metz, Charles
Sent: Monday, January 27, 2003 12:34 PM
To: Spada, Bernie
Subject: RE: field dups

The duplicate is for MPT-8-MW06S-01

>Charles,

>What is the duplicate pair for Mayport CTO-253 SDG-P0212382 sample # MPT-8-DU01-01 sampled on Dec 18?

>Thank you.

Charles Metz
Project Engineer
TETRA TECH NUS, Inc.
8640 Phillips Hwy, Suite 16
Jacksonville, FL 32256
Telephone: (904) 636-6125
FAX: (904) 636-6165
metzc@ttnus.com
<http://www.ttnus.com/>
<http://www.tetratech.com>

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P0302240

HOLDING TIME
03/07/03

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-5-MW025-03	P0302240-05	NORMAL	P0302240	CO2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-5-MW03S-03	P0302240-03	NORMAL	P0302240	CO2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-DU01-03	P0302240-11	NORMAL	P0302240	CO2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-MW01S-03	P0302240-02	NORMAL	P0302240	CO2	02/10/03	/ /	02/26/03	0	0	16
MGL	MPT-8-MW04S-03	P0302240-09	NORMAL	P0302240	CO2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW06S-03	P0302240-07	NORMAL	P0302240	CO2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW09S-03	P0302240-01	NORMAL	P0302240	CO2	02/10/03	/ /	02/26/03	0	0	16
MGL	MPT-8-MW16S-03	P0302240-04	NORMAL	P0302240	CO2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-MW17S-03	P0302240-10	NORMAL	P0302240	CO2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW18S-03	P0302240-08	NORMAL	P0302240	CO2	02/13/03	/ /	02/26/03	0	0	13
MGL	MPT-8-MW19S-03	P0302240-06	NORMAL	P0302240	CO2	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-5-MW025-03	P0302240-05	NORMAL	P0302240	ETHA	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-5-MW03S-03	P0302240-03	NORMAL	P0302240	ETHA	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-8-DU01-03	P0302240-11	NORMAL	P0302240	ETHA	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-8-MW01S-03	P0302240-02	NORMAL	P0302240	ETHA	02/10/03	/ /	02/26/03	0	0	16
NGL	MPT-8-MW04S-03	P0302240-09	NORMAL	P0302240	ETHA	02/14/03	/ /	02/26/03	0	0	12
NGL	MPT-8-MW06S-03	P0302240-07	NORMAL	P0302240	ETHA	02/14/03	/ /	02/26/03	0	0	12
NGL	MPT-8-MW09S-03	P0302240-01	NORMAL	P0302240	ETHA	02/10/03	/ /	02/26/03	0	0	16
NGL	MPT-8-MW16S-03	P0302240-04	NORMAL	P0302240	ETHA	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-8-MW17S-03	P0302240-10	NORMAL	P0302240	ETHA	02/14/03	/ /	02/26/03	0	0	12
NGL	MPT-8-MW18S-03	P0302240-08	NORMAL	P0302240	ETHA	02/13/03	/ /	02/26/03	0	0	13
NGL	MPT-8-MW19S-03	P0302240-06	NORMAL	P0302240	ETHA	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-5-MW025-03	P0302240-05	NORMAL	P0302240	ETHE	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-5-MW03S-03	P0302240-03	NORMAL	P0302240	ETHE	02/11/03	/ /	02/26/03	0	0	15

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-DU01-03	P0302240-11	NORMAL	P0302240	ETHE	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-8-MW01S-03	P0302240-02	NORMAL	P0302240	ETHE	02/10/03	/ /	02/26/03	0	0	16
NGL	MPT-8-MW04S-03	P0302240-09	NORMAL	P0302240	ETHE	02/14/03	/ /	02/26/03	0	0	12
NGL	MPT-8-MW06S-03	P0302240-07	NORMAL	P0302240	ETHE	02/14/03	/ /	02/26/03	0	0	12
NGL	MPT-8-MW09S-03	P0302240-01	NORMAL	P0302240	ETHE	02/10/03	/ /	02/26/03	0	0	16
NGL	MPT-8-MW16S-03	P0302240-04	NORMAL	P0302240	ETHE	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-8-MW17S-03	P0302240-10	NORMAL	P0302240	ETHE	02/14/03	/ /	02/26/03	0	0	12
NGL	MPT-8-MW18S-03	P0302240-08	NORMAL	P0302240	ETHE	02/13/03	/ /	02/26/03	0	0	13
NGL	MPT-8-MW19S-03	P0302240-06	NORMAL	P0302240	ETHE	02/11/03	/ /	02/26/03	0	0	15
NM	MPT-5-MW025-03	P0302240-05	NORMAL	P0302240	H2	02/11/03	/ /	02/26/03	0	0	15
NM	MPT-5-MW03S-03	P0302240-03	NORMAL	P0302240	H2	02/11/03	/ /	02/26/03	0	0	15
NM	MPT-8-DU01-03	P0302240-11	NORMAL	P0302240	H2	02/11/03	/ /	02/26/03	0	0	15
NM	MPT-8-MW01S-03	P0302240-02	NORMAL	P0302240	H2	02/10/03	/ /	02/26/03	0	0	16
NM	MPT-8-MW04S-03	P0302240-09	NORMAL	P0302240	H2	02/14/03	/ /	02/26/03	0	0	12
NM	MPT-8-MW06S-03	P0302240-07	NORMAL	P0302240	H2	02/14/03	/ /	02/26/03	0	0	12
NM	MPT-8-MW09S-03	P0302240-01	NORMAL	P0302240	H2	02/10/03	/ /	02/26/03	0	0	16
NM	MPT-8-MW16S-03	P0302240-04	NORMAL	P0302240	H2	02/11/03	/ /	02/26/03	0	0	15
NM	MPT-8-MW17S-03	P0302240-10	NORMAL	P0302240	H2	02/14/03	/ /	02/26/03	0	0	12
NM	MPT-8-MW18S-03	P0302240-08	NORMAL	P0302240	H2	02/13/03	/ /	02/26/03	0	0	13
NM	MPT-8-MW19S-03	P0302240-06	NORMAL	P0302240	H2	02/11/03	/ /	02/26/03	0	0	15
UGL	MPT-5-MW025-03	P0302240-05	NORMAL	P0302240	METH	02/11/03	/ /	02/26/03	0	0	15
UGL	MPT-5-MW03S-03	P0302240-03	NORMAL	P0302240	METH	02/11/03	/ /	02/26/03	0	0	15
UGL	MPT-8-DU01-03	P0302240-11	NORMAL	P0302240	METH	02/11/03	/ /	02/26/03	0	0	15
UGL	MPT-8-MW01S-03	P0302240-02	NORMAL	P0302240	METH	02/10/03	/ /	02/26/03	0	0	16
UGL	MPT-8-MW04S-03	P0302240-09	NORMAL	P0302240	METH	02/14/03	/ /	02/26/03	0	0	12
UGL	MPT-8-MW06S-03	P0302240-07	NORMAL	P0302240	METH	02/14/03	/ /	02/26/03	0	0	12
UGL	MPT-8-MW09S-03	P0302240-01	NORMAL	P0302240	METH	02/10/03	/ /	02/26/03	0	0	16

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-MW16S-03	P0302240-04	NORMAL	P0302240	METH	02/11/03	/ /	02/26/03	0	0	15
UGL	MPT-8-MW17S-03	P0302240-10	NORMAL	P0302240	METH	02/14/03	/ /	02/26/03	0	0	12
UGL	MPT-8-MW18S-03	P0302240-08	NORMAL	P0302240	METH	02/13/03	/ /	02/26/03	0	0	13
UGL	MPT-8-MW19S-03	P0302240-06	NORMAL	P0302240	METH	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-5-MW025-03	P0302240-05	NORMAL	P0302240	N2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-5-MW03S-03	P0302240-03	NORMAL	P0302240	N2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-DU01-03	P0302240-11	NORMAL	P0302240	N2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-MW01S-03	P0302240-02	NORMAL	P0302240	N2	02/10/03	/ /	02/26/03	0	0	16
MGL	MPT-8-MW04S-03	P0302240-09	NORMAL	P0302240	N2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW06S-03	P0302240-07	NORMAL	P0302240	N2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW09S-03	P0302240-01	NORMAL	P0302240	N2	02/10/03	/ /	02/26/03	0	0	16
MGL	MPT-8-MW16S-03	P0302240-04	NORMAL	P0302240	N2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-MW17S-03	P0302240-10	NORMAL	P0302240	N2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW18S-03	P0302240-08	NORMAL	P0302240	N2	02/13/03	/ /	02/26/03	0	0	13
MGL	MPT-8-MW19S-03	P0302240-06	NORMAL	P0302240	N2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-5-MW025-03	P0302240-05	NORMAL	P0302240	O2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-5-MW03S-03	P0302240-03	NORMAL	P0302240	O2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-DU01-03	P0302240-11	NORMAL	P0302240	O2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-MW01S-03	P0302240-02	NORMAL	P0302240	O2	02/10/03	/ /	02/26/03	0	0	16
MGL	MPT-8-MW04S-03	P0302240-09	NORMAL	P0302240	O2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW06S-03	P0302240-07	NORMAL	P0302240	O2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW09S-03	P0302240-01	NORMAL	P0302240	O2	02/10/03	/ /	02/26/03	0	0	16
MGL	MPT-8-MW16S-03	P0302240-04	NORMAL	P0302240	O2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-MW17S-03	P0302240-10	NORMAL	P0302240	O2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW18S-03	P0302240-08	NORMAL	P0302240	O2	02/13/03	/ /	02/26/03	0	0	13
MGL	MPT-8-MW19S-03	P0302240-06	NORMAL	P0302240	O2	02/11/03	/ /	02/26/03	0	0	15

P0302240

HOLDING TIME

03/07/03

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-5-MW025-03	P0302240-05	NORMAL	P0302240	CO2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-5-MW03S-03	P0302240-03	NORMAL	P0302240	CO2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-DU01-03	P0302240-11	NORMAL	P0302240	CO2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-MW01S-03	P0302240-02	NORMAL	P0302240	CO2	02/10/03	/ /	02/26/03	0	0	16
MGL	MPT-8-MW04S-03	P0302240-09	NORMAL	P0302240	CO2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW06S-03	P0302240-07	NORMAL	P0302240	CO2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW09S-03	P0302240-01	NORMAL	P0302240	CO2	02/10/03	/ /	02/26/03	0	0	16
MGL	MPT-8-MW16S-03	P0302240-04	NORMAL	P0302240	CO2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-MW17S-03	P0302240-10	NORMAL	P0302240	CO2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW18S-03	P0302240-08	NORMAL	P0302240	CO2	02/13/03	/ /	02/26/03	0	0	13
MGL	MPT-8-MW19S-03	P0302240-06	NORMAL	P0302240	CO2	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-5-MW025-03	P0302240-05	NORMAL	P0302240	ETHA	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-5-MW03S-03	P0302240-03	NORMAL	P0302240	ETHA	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-8-DU01-03	P0302240-11	NORMAL	P0302240	ETHA	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-8-MW01S-03	P0302240-02	NORMAL	P0302240	ETHA	02/10/03	/ /	02/26/03	0	0	16
NGL	MPT-8-MW04S-03	P0302240-09	NORMAL	P0302240	ETHA	02/14/03	/ /	02/26/03	0	0	12
NGL	MPT-8-MW06S-03	P0302240-07	NORMAL	P0302240	ETHA	02/14/03	/ /	02/26/03	0	0	12
NGL	MPT-8-MW09S-03	P0302240-01	NORMAL	P0302240	ETHA	02/10/03	/ /	02/26/03	0	0	16
NGL	MPT-8-MW16S-03	P0302240-04	NORMAL	P0302240	ETHA	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-8-MW17S-03	P0302240-10	NORMAL	P0302240	ETHA	02/14/03	/ /	02/26/03	0	0	12
NGL	MPT-8-MW18S-03	P0302240-08	NORMAL	P0302240	ETHA	02/13/03	/ /	02/26/03	0	0	13
NGL	MPT-8-MW19S-03	P0302240-06	NORMAL	P0302240	ETHA	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-5-MW025-03	P0302240-05	NORMAL	P0302240	ETHE	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-5-MW03S-03	P0302240-03	NORMAL	P0302240	ETHE	02/11/03	/ /	02/26/03	0	0	15

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-DU01-03	P0302240-11	NORMAL	P0302240	ETHE	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-8-MW01S-03	P0302240-02	NORMAL	P0302240	ETHE	02/10/03	/ /	02/26/03	0	0	16
NGL	MPT-8-MW04S-03	P0302240-09	NORMAL	P0302240	ETHE	02/14/03	/ /	02/26/03	0	0	12
NGL	MPT-8-MW06S-03	P0302240-07	NORMAL	P0302240	ETHE	02/14/03	/ /	02/26/03	0	0	12
NGL	MPT-8-MW09S-03	P0302240-01	NORMAL	P0302240	ETHE	02/10/03	/ /	02/26/03	0	0	16
NGL	MPT-8-MW16S-03	P0302240-04	NORMAL	P0302240	ETHE	02/11/03	/ /	02/26/03	0	0	15
NGL	MPT-8-MW17S-03	P0302240-10	NORMAL	P0302240	ETHE	02/14/03	/ /	02/26/03	0	0	12
NGL	MPT-8-MW18S-03	P0302240-08	NORMAL	P0302240	ETHE	02/13/03	/ /	02/26/03	0	0	13
NGL	MPT-8-MW19S-03	P0302240-06	NORMAL	P0302240	ETHE	02/11/03	/ /	02/26/03	0	0	15
NM	MPT-5-MW025-03	P0302240-05	NORMAL	P0302240	H2	02/11/03	/ /	02/26/03	0	0	15
NM	MPT-5-MW03S-03	P0302240-03	NORMAL	P0302240	H2	02/11/03	/ /	02/26/03	0	0	15
NM	MPT-8-DU01-03	P0302240-11	NORMAL	P0302240	H2	02/11/03	/ /	02/26/03	0	0	15
NM	MPT-8-MW01S-03	P0302240-02	NORMAL	P0302240	H2	02/10/03	/ /	02/26/03	0	0	16
NM	MPT-8-MW04S-03	P0302240-09	NORMAL	P0302240	H2	02/14/03	/ /	02/26/03	0	0	12
NM	MPT-8-MW06S-03	P0302240-07	NORMAL	P0302240	H2	02/14/03	/ /	02/26/03	0	0	12
NM	MPT-8-MW09S-03	P0302240-01	NORMAL	P0302240	H2	02/10/03	/ /	02/26/03	0	0	16
NM	MPT-8-MW16S-03	P0302240-04	NORMAL	P0302240	H2	02/11/03	/ /	02/26/03	0	0	15
NM	MPT-8-MW17S-03	P0302240-10	NORMAL	P0302240	H2	02/14/03	/ /	02/26/03	0	0	12
NM	MPT-8-MW18S-03	P0302240-08	NORMAL	P0302240	H2	02/13/03	/ /	02/26/03	0	0	13
NM	MPT-8-MW19S-03	P0302240-06	NORMAL	P0302240	H2	02/11/03	/ /	02/26/03	0	0	15
UGL	MPT-5-MW025-03	P0302240-05	NORMAL	P0302240	METH	02/11/03	/ /	02/26/03	0	0	15
UGL	MPT-5-MW03S-03	P0302240-03	NORMAL	P0302240	METH	02/11/03	/ /	02/26/03	0	0	15
UGL	MPT-8-DU01-03	P0302240-11	NORMAL	P0302240	METH	02/11/03	/ /	02/26/03	0	0	15
UGL	MPT-8-MW01S-03	P0302240-02	NORMAL	P0302240	METH	02/10/03	/ /	02/26/03	0	0	16
UGL	MPT-8-MW04S-03	P0302240-09	NORMAL	P0302240	METH	02/14/03	/ /	02/26/03	0	0	12
UGL	MPT-8-MW06S-03	P0302240-07	NORMAL	P0302240	METH	02/14/03	/ /	02/26/03	0	0	12
UGL	MPT-8-MW09S-03	P0302240-01	NORMAL	P0302240	METH	02/10/03	/ /	02/26/03	0	0	16

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-MW16S-03	P0302240-04	NORMAL	P0302240	METH	02/11/03	/ /	02/26/03	0	0	15
UGL	MPT-8-MW17S-03	P0302240-10	NORMAL	P0302240	METH	02/14/03	/ /	02/26/03	0	0	12
UGL	MPT-8-MW18S-03	P0302240-08	NORMAL	P0302240	METH	02/13/03	/ /	02/26/03	0	0	13
UGL	MPT-8-MW19S-03	P0302240-06	NORMAL	P0302240	METH	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-5-MW025-03	P0302240-05	NORMAL	P0302240	N2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-5-MW03S-03	P0302240-03	NORMAL	P0302240	N2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-DU01-03	P0302240-11	NORMAL	P0302240	N2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-MW01S-03	P0302240-02	NORMAL	P0302240	N2	02/10/03	/ /	02/26/03	0	0	16
MGL	MPT-8-MW04S-03	P0302240-09	NORMAL	P0302240	N2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW06S-03	P0302240-07	NORMAL	P0302240	N2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW09S-03	P0302240-01	NORMAL	P0302240	N2	02/10/03	/ /	02/26/03	0	0	16
MGL	MPT-8-MW16S-03	P0302240-04	NORMAL	P0302240	N2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-MW17S-03	P0302240-10	NORMAL	P0302240	N2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW18S-03	P0302240-08	NORMAL	P0302240	N2	02/13/03	/ /	02/26/03	0	0	13
MGL	MPT-8-MW19S-03	P0302240-06	NORMAL	P0302240	N2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-5-MW025-03	P0302240-05	NORMAL	P0302240	O2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-5-MW03S-03	P0302240-03	NORMAL	P0302240	O2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-DU01-03	P0302240-11	NORMAL	P0302240	O2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-MW01S-03	P0302240-02	NORMAL	P0302240	O2	02/10/03	/ /	02/26/03	0	0	16
MGL	MPT-8-MW04S-03	P0302240-09	NORMAL	P0302240	O2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW06S-03	P0302240-07	NORMAL	P0302240	O2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW09S-03	P0302240-01	NORMAL	P0302240	O2	02/10/03	/ /	02/26/03	0	0	16
MGL	MPT-8-MW16S-03	P0302240-04	NORMAL	P0302240	O2	02/11/03	/ /	02/26/03	0	0	15
MGL	MPT-8-MW17S-03	P0302240-10	NORMAL	P0302240	O2	02/14/03	/ /	02/26/03	0	0	12
MGL	MPT-8-MW18S-03	P0302240-08	NORMAL	P0302240	O2	02/13/03	/ /	02/26/03	0	0	13
MGL	MPT-8-MW19S-03	P0302240-06	NORMAL	P0302240	O2	02/11/03	/ /	02/26/03	0	0	15

MICROSEEPS

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

Pittsburgh, PA 15220

Page: Page 1 of 17
Lab Project #: P0302240
Report Date: 02/28/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

Laboratory Results

Lab Sample #	Client Sample ID
P0302240-01	MPT-8-MW09S-03
P0302240-02	MPT-8-MW01S-03
P0302240-03	MPT-S-MW03S-03
P0302240-04	MPT-8-MW16S-03
P0302240-05	MPT-S-MW02S-03
P0302240-06	MPT-8-MW19S-03
P0302240-07	MPT-8-MW06S-03
P0302240-08	MPT-8-MW18S-03
P0302240-09	MPT-8-MW04S-03
P0302240-10	MPT-8-MW17S-03
P0302240-11	MPT-8-DU01-03

Approved By: Rebecca J. Adams

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

MICROSEEPS

Case Narrative
Tetra Tech NUS, Incorporated

Date: March 4, 2003

Contract:	N62467-94-D-0888
Contract Task Order:	CTO #253
Task Order Manager:	Mr. Chuck Bryan
Site Name:	NAVSTA Mayport
Laboratory Project Manager:	Rebecca Hans
Analytical Method:	AM20GAX
SDG:	MPT-8-MW09S-03

Sample Name	Lab ID	Date Sampled	Date Rcvd.	Date Analyzed
MPT-8-MW09S-03	P0302240-01	2/10/03	2/18/03	2/26/03
MPT-8-MW01S-03	P0302240-02	2/10/03	2/18/03	2/26/03
MPT-S-MW03S-03	P0302240-03	2/11/03	2/18/03	2/26/03
MPT-8-MW16S-03	P0302240-04	2/11/03	2/18/03	2/26/03
MPT-S-MW02S-03	P0302240-05	2/11/03	2/18/03	2/26/03
MPT-8-MW19S-03	P0302240-06	2/11/03	2/18/03	2/26/03
MPT-8-MW06S-03	P0302240-07	2/14/03	2/18/03	2/26/03
MPT-8-MW18S-03	P0302240-08	2/13/03	2/18/03	2/26/03
MPT-8-MW04S-03	P0302240-09	2/14/03	2/18/03	2/26/03
MPT-8-MW17S-03	P0302240-10	2/14/03	2/18/03	2/26/03
MPT-8-DU01-03	P0302240-11	2/11/03	2/18/03	2/26/03

Samples in sample delivery group (SDG) MPT-8-MW09S-03 were received at Microseeps on February 18, 2003. COC records indicated that the samples were to be analyzed for Hydrogen, and Dissolved Light Hydrocarbons/Permanent Gases.

All analyses were performed by method AM20GAX. Microseeps' Standard Operating Procedures for this method were followed. No anomalies occurred during the course of the sample analyses.

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Method Detection Limits
Dissolved Gases
Microseeps method
AM20GAX

Analyte	MDL
Hydrogen	0.029
Carbon Dioxide	0.57
Nitrogen	0.004
Oxygen	0.01
Methane	0.002
Ethane	1
Ethene	3

Y0502240

TETRA TECH NUS, INC. — **CHAIN OF CUSTODY** — NUMBER 0270 — PAGE 1 OF 1

PROJECT NO: N4259	FACILITY: SWMU7 CCTO 253
PROJECT MANAGER: Terry Hansen	PHONE NUMBER: 850-385-9866
LABORATORY NAME AND CONTACT: Microseeps Inc	
SAMPLERS (SIGNATURE): Charles Metz, Louis Griffith	
FIELD OPERATIONS LEADER: Charles Metz	PHONE NUMBER: 901-634-6125
ADDRESS: 220 William Pitt Way	
CARRIER/WAYBILL NUMBER	CITY, STATE: Pittsburgh PA

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: None None

	DATE YEAR 2003	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: AMGO	GAX							COMMENTS
01	2-10	1235	MPT-8-MW09s-03				Air/Gw	G	2	1								*analysis for
02	2-10	1435	MPT-8-MW01s-03					G	2	1	1							H^+, MEE, O_2, NO3,
03	2-11	0910	MPT-5-MW03s-03					G	2	1	1							CO_2
04	2-11	1025	MPT-8-MW16s-03					G	2	1	1							
05	2-11	1350	MPT-5-MW02s-03					G	2	1	1							
06	2-11	1530	MPT-8-MW19s-03					G	2	1	1							
07	2-14	0900	MPT-8-MW06s-03					G	2	1	1							
08	2-13	0925	MPT-8-MW18s-03					G	2	1	1							
09	2-14	0940	MPT-8-MW04s-03					G	2	1	1							
10	2-14	0920	MPT-8-MW17s-03					G	2	1	1							
11																		

1. RELINQUISHED BY: Charles Metz	DATE: 2-14-03	TIME: 1100	1. RECEIVED BY: [illegible]	DATE: 2/15/03	TIME: 09:37
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

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

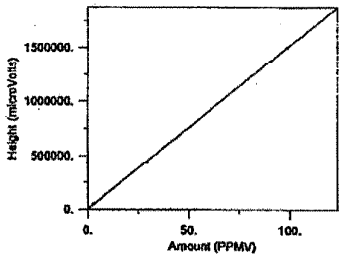
4/02R
FORM NO. TtNUS-001

Calibration File Name: **C:\CPWIN\T69\T69AV1.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

Retention time = 0.460 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	47328.0	15989.19	Manual	1/21/2003 1:20:2
2	29.600	437531.0	14781.45	Manual	1/21/2003 1:20:2
3	98.670	1497729.0	15179.17	Manual	1/21/2003 1:20:2

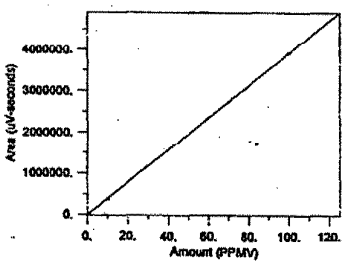


Calibration formula: Y = 15147.03 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9999, Average error = 2.73%
Average CF = 15316.6000 with RSD = 4.02%

2 ETHANE

Retention time = 0.670 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

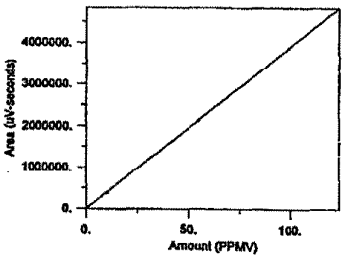
Level	Amount	Area	Area/Amt	Source	Date and time
1	1.000	37140.0	37140	Manual	1/21/2003 1:20:2
2	10.000	380065.0	38006.5	Manual	1/21/2003 1:20:2
3	100.000	3916271.0	39162.71	Manual	1/21/2003 1:20:2



Calibration formula: Y = 39151.06 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 1.0000, Average error = 2.70%
Average CF = 38103.0700 with RSD = 2.66%

3 ETHYLENE
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	36107.0	36471.72	Manual	1/21/2003 1:20:2
2	9.900	374644.0	37842.83	Manual	1/21/2003 1:20:2
3	99.000	3865691.0	39047.38	Manual	1/21/2003 1:20:2



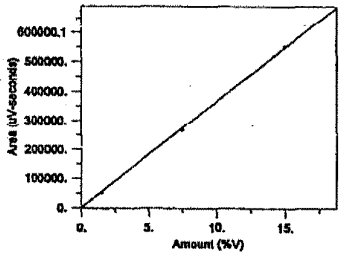
Calibration formula: Y = 39035.2 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 1.0000, Average error = 3.22%
Average CF = 37787.3100 with RSD = 3.41%

Calibration File Name: **C:\CPWIN\T69\T69BV1.CAL** Version = 2
External standard calibration
No injection volume correction
No sample weight correction
Area reject threshold = 100
Reference peak area reject threshold = 1000
Amount units = %V
5 components with 4 levels each

1 CARBON DIOXIDE

Retention time = 5.350 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	0.150	4922.0	32813.33	Manual	1/21/2003 3:39:1
2	1.500	51342.0	34228	Manual	1/21/2003 3:39:1
3	7.500	266076.0	35476.8	Manual	1/21/2003 3:39:1
4	15.000	552952.0	36863.46	Manual	1/21/2003 3:39:1



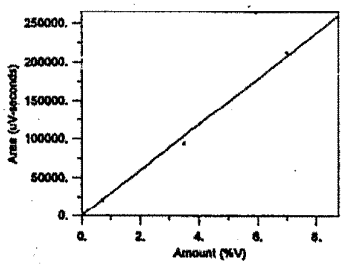
Calibration formula: Y = 36567.12 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9995, Average error = 5.11%
Average CF = 34845.4000 with RSD = 4.97%

2 OXYGEN

Retention time = 6.560 min., Search window = 0.250 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	2326.0	33228.57	Manual	1/21/2003 3:39:1
2	0.700	20391.0	29130	Manual	1/21/2003 3:39:1

Level	Amount	Area	Area/Amt	Source	Date and time
3	3.500	93941.0	26840.29	Manual	1/21/2003 3:39:1
4	7.000	212568.0	30366.86	Manual	1/21/2003 3:39:1

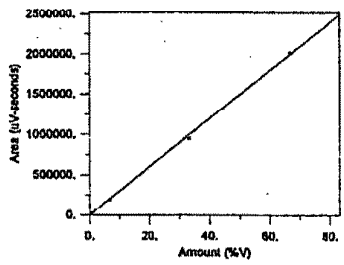


Calibration formula: Y = 29657.61 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9955, Average error = 6.43%
Average CF = 29891.4300 with RSD = 8.90%

3 NITROGEN

Retention time = 7.240 min., Search window = 0.700 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	19936.0	29978.95	Manual	1/21/2003 3:39:1
2	6.650	194038.0	29178.65	Manual	1/21/2003 3:39:1
3	33.250	946956.0	28479.88	Manual	1/21/2003 3:39:1
4	66.500	2017101.0	30332.35	Manual	1/21/2003 3:39:1

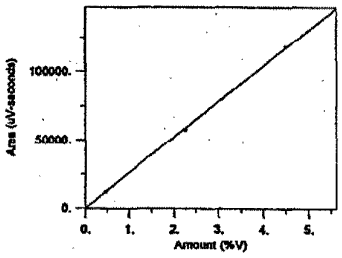


Calibration formula: Y = 29955.64 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9988, Average error = 2.21%
Average CF = 29492.4600 with RSD = 2.81%

4 METHANE

Retention time = 9.840 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

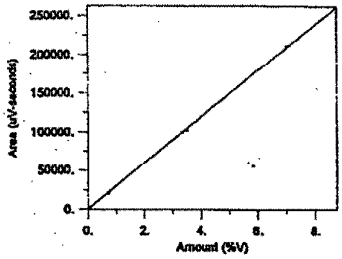
Level	Amount	Area	Area/Amt	Source	Date and time
1	0.045	1227.0	27266.67	Manual	1/21/2003 3:39:1
2	0.450	11592.0	25760	Manual	1/21/2003 3:39:1
3	2.250	57309.0	25470.67	Manual	1/21/2003 3:39:1
4	4.500	117869.0	26193.11	Manual	1/21/2003 3:39:1



Calibration formula: Y = 26046.43 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9997, Average error = 2.14%
Average CF = 26172.6100 with RSD = 3.01%

5 CARBON MONOXIDE
Retention time = 10.760 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	0.070	2042.0	29171.43	Manual	1/21/2003 3:39:1
2	0.700	20353.0	29075.71	Manual	1/21/2003 3:39:1
3	3.500	102410.0	29260	Manual	1/21/2003 3:39:1
4	7.000	210189.0	30027	Manual	1/21/2003 3:39:1



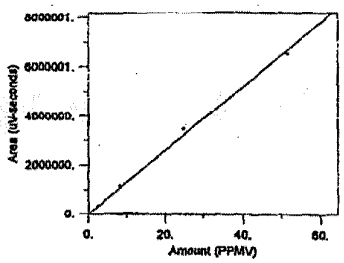
Calibration formula: Y = 29867.21 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9998, Average error = 1.89%
Average CF = 29383.5400 with RSD = 1.48%

Calibration File Name: **C:\CPWIN\T69\T69CH1.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	54762.0	221708.5	Manual	1/21/2003 1:33:1
2	2.470	351310.0	142230.8	Manual	1/21/2003 1:33:1
3	8.230	1174832.0	142750	Manual	1/21/2003 1:33:1
4	24.700	3475458.0	140706.8	Manual	1/21/2003 1:33:1
5	51.450	6568751.0	127672.5	Manual	1/21/2003 1:33:1



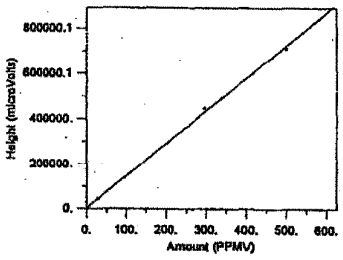
Calibration formula: Y = 130394.7 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9968, Average error = 19.72%
Average CF = 155013.7000 with RSD = 24.38%

Calibration File Name: **C:\CPWIN\T69\T69DV1.CAL** Version = 2
External standard calibration
No injection volume correction
No sample weight correction
Area reject threshold = 100
Reference peak area reject threshold = 1000
Amount units = PPMV
3 components with 3 levels each

1 METHANE

Retention time = 0.450 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	43692.0	1476.081	Manual	1/21/2003 1:43:3
2	296.000	446682.0	1509.061	Manual	1/21/2003 1:43:3
3	500.000	712722.0	1425.444	Manual	1/21/2003 3:58:3

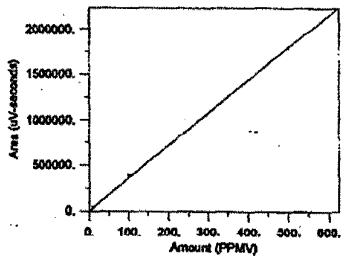


Calibration formula: Y = 1447.219 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9980, Average error = 2.59%
Average CF = 1470.1950 with RSD = 2.86%

2 ETHANE

Retention time = 0.660 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	38203.0	3820.3	Manual	1/21/2003 1:43:3
2	100.000	390327.0	3903.27	Manual	1/21/2003 1:43:3
3	500.000	1790791.0	3581.582	Manual	1/21/2003 3:58:3

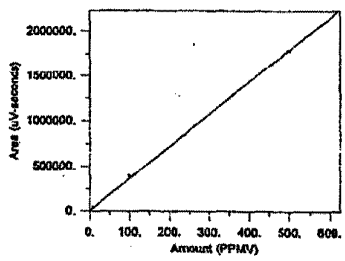


Calibration formula: Y = 3594.042 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9994, Average error = 5.08%
Average CF = 3768.3840 with RSD = 4.43%

3 ETHYLENE

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	37731.0	3811.212	Manual	1/21/2003 1:43:3
2	99.000	385748.0	3896.444	Manual	1/21/2003 1:43:3
3	500.000	1784224.0	3568.448	Manual	1/21/2003 3:58:3



Calibration formula: Y = 3580.908 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9994, Average error = 5.20%
Average CF = 3758.7010 with RSD = 4.53%

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

Pittsburgh, PA 15220

Lab Project #: P0302240
Report Date: 02/28/03
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

M030226002-MB

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

M030226002-LCS

			TrueSpikeConc.	%Recovery	Ctl Limits
Ethane	97	ng/L	100.00	97	87 - 112
Ethene	96	ng/L	99.00	97	83 - 120

M030226002-LCSD

			TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Ethane	97	ng/L	100.00	97	87 - 112	0.00	0 - 20
Ethene	96	ng/L	99.00	97	83 - 120	0.00	0 - 20

Outlined Results indicate results outside of Control limits

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

Pittsburgh, PA 15220

Lab Project #: P0302240
Report Date: 02/28/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
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

M030226003-MB

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

M030226003-LCS

			TrueSpikeConc.	%Recovery	Ctl Limits
Methane	300	ug/L	296.00	101	80 - 120

M030226003-LCSD

			TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Methane	300	ug/L	296.00	101	80 - 120	0.00	0 - 20

Outlined Results indicate results outside of Control limits

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

Pittsburgh, PA 15220

Lab Project #: P0302240
Report Date: 02/28/03
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

M030226004-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

M030226004-LCS

			TrueSpikeConc.	%Recovery	Ctl Limits
Carbon dioxide	5.0	mg/L	4.99	100	80 - 120
Oxygen	2.0	mg/L	1.99	101	80 - 120

M030226004-LCSD

			TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Carbon dioxide	5.0	mg/L	4.99	100	80 - 120	0.00	0 - 20
Oxygen	2.0	mg/L	1.99	101	80 - 120	0.00	0 - 20

Outlined Results indicate results outside of Control limits

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

Pittsburgh, PA 15220

Lab Project #: P0302240
Report Date: 02/28/03
Client Proj Name: NAVSTA Mayport Jacksonville FL
Client project #: N4259 CTO 253

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

M030226005-MB

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

M030226005-LCS

			TrueSpikeConc.	%Recovery	Ctl Limits
Hydrogen	23	nM	24.70	93	79 - 118

M030226005-LCSD

			TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Hydrogen	26	nM	24.70	105	79 - 118	12.24	0 - 20

[ ] Outlined Results indicate results outside of Control limits

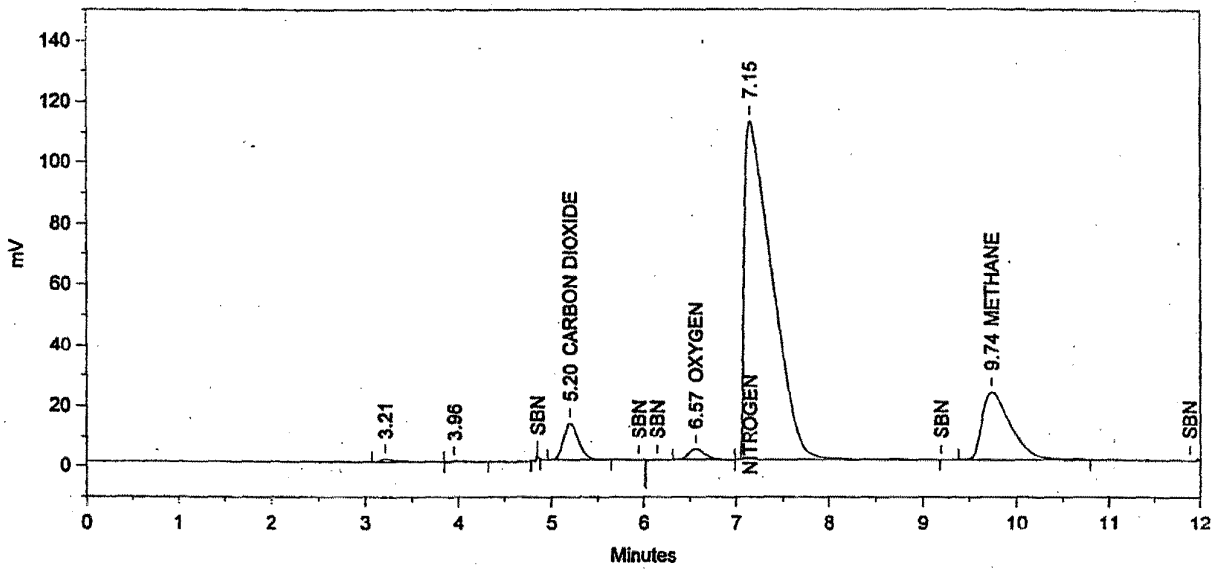
TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE ____ OF ____

CLIENT Mayport CTO-253		JOB NUMBER Job-4259 SDG-PO 302240	
SUBJECT Sample Calculation			
BASED ON		DRAWING NUMBER	
BY Bernard F Spada III	CHECKED BY	APPROVED BY	DATE 10-Mar-03

Sample MPT-8-MW04S-03 Methane = 9400 ug/L

$$\text{Methane} = \frac{(467772.3)(524)}{(26046.73)} = 9410 \text{ ug/L}$$

P302240-09A



Sample Name: **P302240-09A**
Acquired from BIOREM 1--TCD via port 2 on 2/26/03 02:46:33pm by BC
header 1 for chan 1B
header 2 for chan 1B

Data File: **C:\CPWIN\T69\T69B1.53R**
Date Stamp: 2/26/03 02:46:32pm
Sequence File: T69A.SEQ #153
Method File: C:\CPWIN\T69\T69BV1.MET
Version 1. Date Stamp: 2/14/03 10:20:34am
Calibration File: C:\CPWIN\T69\T69BV1.CAL
Version 2. Date Stamp: 2/20/03 01:07:04pm

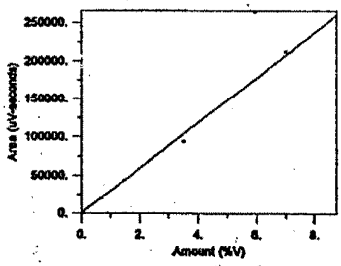
Run Time = 12.0 min Sample Rate = 3.0 per sec.
Amount Inj. = 0.000 Dilution Factor = 0.000
Sample Weight = 0.000 Int Std Amount = 0.000

Starting Peak Width = 0.07 min. Peak Threshold = 3 Area Reject = 100

PK#	Ret Time	Name	Amount	Amount%	Area	Area%	Type	Width	Height	Height%
1	3.214		0.2700	0.269	9871.9	0.334	BV	0.173	952.08	0.630
2	3.956		0.0609	0.061	2225.9	0.075	VB	0.157	236.96	0.157
4	5.200	CARBON DIOXIDE	3.7552	3.746	137317.2	4.640	BB	0.186	12303.05	8.141
5	6.568	OXYGEN	1.4601	1.456	43302.3	1.463	BV	0.204	3544.97	2.346
6	7.147	NITROGEN	76.7444	76.553	2298928.0	77.682	VB	0.343	111734.10	73.931
7	9.738	METHANE	17.9592	17.914	467772.3	15.806	BB	0.349	22362.19	14.796

Total Area = 2959418.0, Total Amount = 100.25, Total Height = 151133.3, Sample Units = %V

Level	Amount	Area	Area/Amt	Source	Date and time
3	3.500	93941.0	26840.29	Manual	1/21/2003 3:39:1
4	7.000	212568.0	30366.86	Manual	1/21/2003 3:39:1

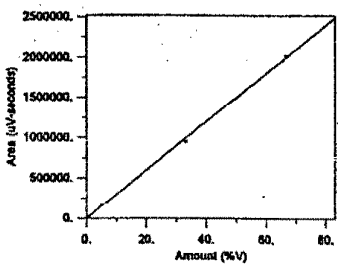


Calibration formula: Y = 29657.61 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9955, Average error = 6.43%
Average CF = 29891.4300 with RSD = 8.90%

3 NITROGEN

Retention time = 7.240 min., Search window = 0.700 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	19936.0	29978.95	Manual	1/21/2003 3:39:1
2	6.650	194038.0	29178.65	Manual	1/21/2003 3:39:1
3	33.250	946956.0	28479.88	Manual	1/21/2003 3:39:1
4	66.500	2017101.0	30332.35	Manual	1/21/2003 3:39:1

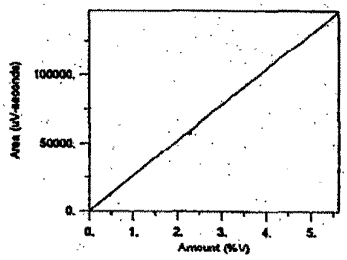


Calibration formula: Y = 29955.64 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9988, Average error = 2.21%
Average CF = 29492.4600 with RSD = 2.81%

4 METHANE

Retention time = 9.840 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	0.045	1227.0	27266.67	Manual	1/21/2003 3:39:1
2	0.450	11592.0	25760	Manual	1/21/2003 3:39:1
3	2.250	57309.0	25470.67	Manual	1/21/2003 3:39:1
4	4.500	117869.0	26193.11	Manual	1/21/2003 3:39:1



Calibration formula: Y = 26046.43 X
Fit type = Linear with equal weighting, forced to origin
Coefficient of determination = 0.9997, Average error = 2.14%
Average CF = 26172.6100 with RSD = 3.01%

5 CARBON MONOXIDE

Retention time = 10.760 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	0.070	2042.0	29171.43	Manual	1/21/2003 3:39:1
2	0.700	20353.0	29075.71	Manual	1/21/2003 3:39:1
3	3.500	102410.0	29260	Manual	1/21/2003 3:39:1
4	7.000	210189.0	30027	Manual	1/21/2003 3:39:1

VNC.

Table 7.1
Conversion Factors

Analyte	Vapor Units	Conversion Factor	Water Units
Hydrogen	ppmv	1.98	nm*
Carbon Dioxide	% by volume	36.6	mg/L
Oxygen	% by volume	0.998	mg/L
Nitrogen	% by volume	0.444	mg/L
**Methane	% by volume	524	µg/L
Methane	ppmv	0.0524	µg/L
Ethane	ppmv	136	ng/L
Ethene	ppmv	329	ng/L
Propane	ppmv	151	ng/L
Propene	ppmv	482	ng/L
i-butane	ppmv	121	ng/L
n-butane	ppmv	148	ng/L

* nM (nanomoles per liter) is the industry standard unit for hydrogen.
**High level methane is quantified off of the ECD as % volume.

Controlled Document

8.0 Sampling Safety

All sampling shall be conducted in accordance with the site-specific Health and Safety Plan. The specific safety issue with the Bubble Strip Sampling Method is handling needles with care. Needles shall always be capped when not in use and when being handled, especially when being transferred between persons. When placing a cap on a needle it is important to not hold the cap, but place the cap on a solid object and then slide the needle into the cap.

9.0 Waste Disposal

All sampling waste disposal shall be in accordance with the site-specific Work Plan.

10.0 References

Cao, X.L., Hewitt, C.N., Waterhouse, K.S., Determination of Reactive Hydrocarbons by Capillary Gas Chromatography with the Reduction Gas Detector. Journal of Chromatography A. May 1994.

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**T. HANSEN**	**DATE:**	**APRIL 11, 2003**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – IRON, MANGANESE, AND MISCELLANEOUS PARAMETERS**
NS MAYPORT – CTO 253
SAMPLE DELIVERY GROUP (SDG) – 302089

SAMPLES: 4/AQUEOUS/

MPT-8-MW04S-03 MPT-8-MW06S-03 MPT-8-MW17S-03
MPT-8-MW18S-03

Overview

The sample set for NS Mayport, CTO 253, SDG 302089, consists of four (4) aqueous environmental samples.

All samples were analyzed for iron, manganese, alkalinity, ammonia, chloride, nitrate, nitrite, orthophosphate, sulfate, and total organic carbon (TOC). The samples were collected by Tetra Tech NUS February 13, 2003 and analyzed by GPL Laboratories, LLLP. Metals analyses were conducted using SW846 method 6010B. Alkalinity analyses were conducted using EPA method 310.1. Ammonia analyses were conducted using EPA method 350.2. Chloride, nitrate, nitrite, orthophosphate, and sulfate analyses were conducted using EPA method 300. TOC analyses were conducted using SW846 method 9060.

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

These data were evaluated based on the following parameters:

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

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

Laboratory Blank Analyses

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

Analyte	Maximum Concentration	Action Level
Iron	52.1 ug/L	260.5 ug/L
Manganese	0.5 ug/L	2.5 ug/L

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. The positive result less than the action level for iron was qualified as nondetected (U) as a result of laboratory blank contamination. Manganese was not qualified for blank contamination because the sample values were greater than the action level.

Matrix Spike Analyses

The matrix spike percent recoveries (%Rs) were below the 75% control limit for nitrate and orthophosphate. The positive result reported for nitrate was qualified as estimated (J). The nondetected results reported for nitrate and orthophosphate were qualified as estimated (UJ).

Laboratory Duplicate Analyses

Laboratory duplicate imprecision (Difference > Reporting Limit) was noted for nitrate. The positive result reported for nitrate was qualified as estimated (J). The nondetected results reported for nitrate were qualified as estimated (UJ).

Notes

Due to low matrix spike recoveries for nitrate and orthophosphate, the laboratory re-analyzed sample MPT-8-MW06S-03. This resulted in an acceptable matrix spike recovery for nitrate, but the recovery for orthophosphate was still below the control limit. Because the laboratory reported the results from the initial analyses for these analytes, the matrix spike results from the initial analyses were also used.

Due to high laboratory duplicate relative percent difference (RPD) for nitrate, the laboratory re-analyzed sample MPT-8-MW06S-03. This resulted in an acceptable RPD for nitrate. However, because the laboratory reported the results from the initial analyses for nitrate, the laboratory duplicate results from the initial analyses were also used.

Dilutions were performed for chloride in all samples.

Dilutions were performed for sulfate in all samples except MPT-8-MW04S-03.

A dilution was performed for TOC in sample MPT-8-MW04S-03.

The detection limits reported by the laboratory for nitrite (0.10 mg/L) do not meet the detection limits in the laboratory specifications (0.01 mg/L).

TO: **HANSEN, T. – PAGE 3**
DATE: **APRIL 11, 2003**

Executive Summary

Laboratory Performance: Iron was qualified due to laboratory method/preparation blank noncompliance. Nitrate was qualified due to laboratory duplicate imprecision. Iron, ammonia, and nitrite detection limits do not meet those requested in the laboratory specifications.

Other Factors Affecting Data Quality: Nitrate and orthophosphate were qualified due to matrix spike noncompliance.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", July 2002 and the NFESC document entitled "Navy IRCDQM" (September 1999).

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

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

Tetra Tech NUS
Ethan G. Lee
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

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

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

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

PROJ_NO: 4259

SDG: 302089 MEDIA: WATER DATA FRACTION:

nsample	MPT-8-MW04S-03
samp_date	2/13/2003
lab_id	302089-003-007-
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	500		
AMMONIA	MG/L	5		
CHLORIDE	MG/L	15		
NITRATE	MG/L	0.1	UJ	DF
NITRITE	MG/L	0.1	U	
ORTHOPHOSPHATE	MG/L	0.1	UJ	D
SULFATE	MG/L	0.19		
TOTAL ORGANIC CARBON	MG/L	34		

nsample	MPT-8-MW06S-03
samp_date	2/13/2003
lab_id	302089-004-008-
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	180		
AMMONIA	MG/L	0.24		
CHLORIDE	MG/L	6.4		
NITRATE	MG/L	0.61	J	DF
NITRITE	MG/L	0.1	U	
ORTHOPHOSPHATE	MG/L	0.1	UJ	D
SULFATE	MG/L	17		
TOTAL ORGANIC CARBON	MG/L	1.3		

nsample	MPT-8-MW17S-03
samp_date	2/13/2003
lab_id	302089-002-006-
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	300		
AMMONIA	MG/L	0.25		
CHLORIDE	MG/L	11		
NITRATE	MG/L	0.1	UJ	DF
NITRITE	MG/L	0.1	U	
ORTHOPHOSPHATE	MG/L	0.1	UJ	D
SULFATE	MG/L	14		
TOTAL ORGANIC CARBON	MG/L	2.9		

PROJ_NO: 4259

SDG: 302089 MEDIA: WATER DATA FRACTION:

nsample	MPT-8-MW18S-03
samp_date	2/13/2003
lab_id	302089-001-005-
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	220		
AMMONIA	MG/L	0.1	U	
CHLORIDE	MG/L	6.6		
NITRATE	MG/L	0.1	UJ	DF
NITRITE	MG/L	0.1	U	
ORTHOPHOSPHATE	MG/L	0.1	UJ	D
SULFATE	MG/L	15		
TOTAL ORGANIC CARBON	MG/L	2.8		

PROJ_NO: 4259

SDG: 302089 MEDIA: WATER DATA FRACTION:

nsample	MPT-8-MW04S-03
samp_date	2/13/2003
lab_id	302089-003-003-
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	14100		
MANGANESE	226		

nsample	MPT-8-MW06S-03
samp_date	2/13/2003
lab_id	302089-004-004-
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	187	U	A
MANGANESE	40.9		

nsample	MPT-8-MW17S-03
samp_date	2/13/2003
lab_id	302089-002-002-
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	2390		
MANGANESE	78.8		

PROJ_NO: 4259

SDG: 302089 MEDIA: WATER DATA FRACTION:

nsample	MPT-8-MW18S-03
samp_date	2/13/2003
lab_id	302089-001-001-
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	1300		
MANGANESE	58.8		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

GPL - Maryland Laboratory

Metals Data Reporting Form

Sample Results **SDG:** 302089

Lab Sample ID: S 302089-003-003-1/1 **Client ID:** MPT-8-MW04S-03

Matrix: Water **Units:** ug/L **Prep Date:** 2/26/03 **Prep Batch:** 59193

Weight: 100.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	271.44	10.7	150	14100		1	ICPST	2/27/03	18:59
Manganese	257.61	0.30	5.0	226		1	ICPST	2/27/03	18:59

Comments: Sample Date: 02/13/03 Sample Time: 12:55 PM Color(Before): COLORLESS Color(After): COLORLESS
Clarity(Before): CLEAR Clarity(After): CLEAR

E Serial dilution percent difference not within limits
U Result is less than the IDL

GPL - Maryland Laboratory

Metals Data Reporting Form

Sample Results **SDG:** 302089

Lab Sample ID: S 302089-004-004-1/1 **Client ID:** MPT-8-MW06S-03

Matrix: Water **Units:** ug/L **Prep Date:** 2/26/03 **Prep Batch:** 59193

Weight: 100.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	271.44	10.7	150	187		1	ICPST	2/27/03	19:05
Manganese	257.61	0.30	5.0	40.9		1	ICPST	2/27/03	19:05

Comments: Sample Date: 02/13/03 Sample Time: 10:45 AM Color(Before): COLORLESS Color(After): COLORLESS
Clarity(Before): CLEAR Clarity(After): CLEAR

E Serial dilution percent difference not within limits
U Result is less than the IDL

Form 1 Equivalent

GPL - Maryland Laboratory

Metals Data Reporting Form

Sample Results **SDG:** 302089

Lab Sample ID: S 302089-002-002-1/1 **Client ID:** MPT-8-MW17S-03

Matrix: Water **Units:** ug/L **Prep Date:** 2/26/03 **Prep Batch:** 59193

Weight: 100.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	271.44	10.7	150	2390		1	ICPST	2/27/03	18:52
Manganese	257.61	0.30	5.0	78.8		1	ICPST	2/27/03	18:52

Comments: Sample Date: 02/13/03 Sample Time: 02:05 PM Color(Before): COLORLESS Color(After): COLORLESS
Clarity(Before): CLEAR Clarity(After): CLEAR

E Serial dilution percent difference not within limits
U Result is less than the IDL

GPL - Maryland Laboratory

Metals Data Reporting Form

Sample Results **SDG:** 302089

Lab Sample ID: S 302089-001-001-1/1 **Client ID:** MPT-8-MW18S-03

Matrix: Water **Units:** ug/L **Prep Date:** 2/26/03 **Prep Batch:** 59193

Weight: 100.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	271.44	10.7	150	1300		1	ICPST	2/27/03	18:45
Manganese	257.61	0.30	5.0	58.8		1	ICPST	2/27/03	18:45

Comments: Sample Date: 02/13/03 Sample Time: 09:25 AM Color(Before): COLORLESS Color(After): COLORLESS
Clarity(Before): CLEAR Clarity(After): CLEAR

E Serial dilution percent difference not within limits
U Result is less than the IDL

Form 1 Equivalent

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW04S-03
GPL ID: 302089-003-007-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E310.1
Date Analyzed: 02/21/2003
Time Analyzed: 10:30
Analysis Batch: 59286

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
alkalinity, Total (as CaCO3)	500	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW04S-03
GPL ID: 302089-003-011-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E350.2
Date Analyzed: 02/28/2003
Time Analyzed: 15:00
Analysis Batch: 59313

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrogen, Ammonia (as N)	5.0	0.10	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW04S-03
GPL ID: 302089-003-007-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 03/05/2003
Time Analyzed: 00:12
Analysis Batch: 59308

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Chloride	15	1.0	mg/L		10

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW04S-03
GPL ID: 302089-003-007-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 02/14/2003
Time Analyzed: 21:22
Analysis Batch: 59308

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrate	BQL	0.10	mg/L	U	1
Nitrite	BQL	0.10	mg/L	U	1
Ortho-Phosphate	BQL	0.10	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW04S-03
GPL ID: 302089-003-007-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 03/04/2003
Time Analyzed: 23:42
Analysis Batch: 59308

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Sulfate	0.19	0.10	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW04S-03
GPL ID: 302089-003-011-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060
Date Analyzed: 03/10/2003
Time Analyzed: 09:00
Analysis Batch: 59343

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Total Organic Carbon	34	5.0	mg/L		5

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW06S-03
GPL ID: 302089-004-008-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E310.1
Date Analyzed: 02/21/2003
Time Analyzed: 10:30
Analysis Batch: 59286

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
alkalinity, Total (as CaCO3)	180	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW06S-03
GPL ID: 302089-004-012-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E350.2
Date Analyzed: 02/28/2003
Time Analyzed: 15:00
Analysis Batch: 59313

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrogen, Ammonia (as N)	0.24	0.10	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW06S-03
GPL ID: 302089-004-008-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 03/05/2003
Time Analyzed: 03:42
Analysis Batch: 59308

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Chloride	6.4	1.0	mg/L		10
Sulfate	17	1.0	mg/L		10

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW06S-03
GPL ID: 302089-004-008-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 02/14/2003
Time Analyzed: 21:52
Analysis Batch: 59308

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrate	0.61	0.10	mg/L		1
Nitrite	BQL	0.10	mg/L	U	1
Ortho-Phosphate	BQL	0.10	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW06S-03
GPL ID: 302089-004-012-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060
Date Analyzed: 03/10/2003
Time Analyzed: 09:00
Analysis Batch: 59343

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Total Organic Carbon	1.3	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW17S-03
GPL ID: 302089-002-006-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E310.1
Date Analyzed: 02/21/2003
Time Analyzed: 10:30
Analysis Batch: 59286

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
alkalinity, Total (as CaCO3)	300	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW17S-03
GPL ID: 302089-002-010-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E350.2
Date Analyzed: 02/28/2003
Time Analyzed: 15:00
Analysis Batch: 59313

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrogen, Ammonia (as N)	0.25	0.10	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW17S-03
GPL ID: 302089-002-006-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 03/04/2003
Time Analyzed: 23:12
Analysis Batch: 59308

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Chloride	11	1.0	mg/L		10
Sulfate	14	1.0	mg/L		10

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW17S-03
GPL ID: 302089-002-006-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 02/14/2003
Time Analyzed: 20:52
Analysis Batch: 59308

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrate	BQL	0.10	mg/L	U	1
Nitrite	BQL	0.10	mg/L	U	1
Ortho-Phosphate	BQL	0.10	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW17S-03
GPL ID: 302089-002-010-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060
Date Analyzed: 03/10/2003
Time Analyzed: 09:00
Analysis Batch: 59343

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Total Organic Carbon	2.9	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW18S-03
GPL ID: 302089-001-005-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E310.1
Date Analyzed: 02/21/2003
Time Analyzed: 10:30
Analysis Batch: 59286

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
alkalinity, Total (as CaCO3)	220	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW18S-03
GPL ID: 302089-001-009-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E350.2
Date Analyzed: 02/28/2003
Time Analyzed: 15:00
Analysis Batch: 59313

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrogen, Ammonia (as N)	BQL	0.10	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW18S-03
GPL ID: 302089-001-005-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 03/04/2003
Time Analyzed: 22:42
Analysis Batch: 59308

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Chloride	6.6	1.0	mg/L		10
Sulfate	15	1.0	mg/L		10

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW18S-03
GPL ID: 302089-001-005-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 02/14/2003
Time Analyzed: 20:22
Analysis Batch: 59308

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrate	BQL	0.10	mg/L	U	1
Nitrite	BQL	0.10	mg/L	U	1
Ortho-Phosphate	BQL	0.10	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW18S-03
GPL ID: 302089-001-009-1/1
Matrix: WATER
Date Collected: 02/13/2003
Date Received: 02/14/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060
Date Analyzed: 03/10/2003
Time Analyzed: 09:00
Analysis Batch: 59343

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Total Organic Carbon	2.8	1.0	mg/L		1

APPENDIX C

SUPPORT DOCUMENTATION

302089

HOLDING TIME
03/19/03

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
MG/L	MPT-8-MW04S-03	302089-003-007-	NORMAL	302089	ALK	02/13/03	02/21/03	02/21/03	8	0	8
MG/L	MPT-8-MW06S-03	302089-004-008-	DUPLICATE	302089	ALK	02/13/03	02/21/03	02/21/03	8	0	8
MG/L	MPT-8-MW17S-03	302089-002-006-	NORMAL	302089	ALK	02/13/03	02/21/03	02/21/03	8	0	8
MG/L	MPT-8-MW18S-03	302089-001-005-	DUPLICATE	302089	ALK	02/13/03	02/21/03	02/21/03	8	0	8
MG/L	MPT-8-MW04S-03	302089-003-007-	NORMAL	302089	CL	02/13/03	03/05/03	03/05/03	20	0	20
MG/L	MPT-8-MW06S-03	302089-004-008-	DUPLICATE	302089	CL	02/13/03	03/05/03	03/05/03	20	0	20
MG/L	MPT-8-MW17S-03	302089-002-006-	NORMAL	302089	CL	02/13/03	03/04/03	03/04/03	19	0	19
MG/L	MPT-8-MW18S-03	302089-001-005-	DUPLICATE	302089	CL	02/13/03	03/04/03	03/04/03	19	0	19
%	BKS59193	BKS59193	LCS	302089	M	02/26/03	02/26/03	02/27/03	0	1	1
UG/L	BLK59193	BLK59193	M_BLANK	302089	M	02/26/03	02/26/03	02/27/03	0	1	1
UG/L	MPT-8-MW04S-03	302089-003-003-	NORMAL	302089	M	02/13/03	02/26/03	02/27/03	13	1	14
UG/L	MPT-8-MW06S-03	302089-004-004-	NORMAL	302089	M	02/13/03	02/26/03	02/27/03	13	1	14
UG/L	MPT-8-MW17S-03	302089-002-002-	NORMAL	302089	M	02/13/03	02/26/03	02/27/03	13	1	14
UG/L	MPT-8-MW18S-03	302089-001-001-	NORMAL	302089	M	02/13/03	02/26/03	02/27/03	13	1	14
MG/L	MPT-8-MW04S-03	302089-003-011-	NORMAL	302089	NH4	02/13/03	02/28/03	02/28/03	15	0	15
MG/L	MPT-8-MW06S-03	302089-004-012-	NORMAL	302089	NH4	02/13/03	02/28/03	02/28/03	15	0	15
MG/L	MPT-8-MW17S-03	302089-002-010-	NORMAL	302089	NH4	02/13/03	02/28/03	02/28/03	15	0	15
MG/L	MPT-8-MW18S-03	302089-001-009-	DUPLICATE	302089	NH4	02/13/03	02/28/03	02/28/03	15	0	15
MG/L	MPT-8-MW04S-03	302089-003-007-	NORMAL	302089	NTA	02/13/03	02/14/03	02/14/03	1	0	1
MG/L	MPT-8-MW06S-03	302089-004-008-	NORMAL	302089	NTA	02/13/03	02/14/03	02/14/03	1	0	1
MG/L	MPT-8-MW17S-03	302089-002-006-	NORMAL	302089	NTA	02/13/03	02/14/03	02/14/03	1	0	1
MG/L	MPT-8-MW18S-03	302089-001-005-	NORMAL	302089	NTA	02/13/03	02/14/03	02/14/03	1	0	1
MG/L	MPT-8-MW04S-03	302089-003-007-	NORMAL	302089	NTI	02/13/03	02/14/03	02/14/03	1	0	1
MG/L	MPT-8-MW06S-03	302089-004-008-	DUPLICATE	302089	NTI	02/13/03	02/14/03	02/14/03	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-MW17S-03	302089-002-006-	NORMAL	302089	NTI	02/13/03	02/14/03	02/14/03	1	0	1
MG/L	MPT-8-MW18S-03	302089-001-005-	NORMAL	302089	NTI	02/13/03	02/14/03	02/14/03	1	0	1
MG/L	MPT-8-MW04S-03	302089-003-007-	NORMAL	302089	OPO4	02/13/03	02/14/03	02/14/03	1	0	1
MG/L	MPT-8-MW06S-03	302089-004-008-	NORMAL	302089	OPO4	02/13/03	02/14/03	02/14/03	1	0	1
MG/L	MPT-8-MW17S-03	302089-002-006-	NORMAL	302089	OPO4	02/13/03	02/14/03	02/14/03	1	0	1
MG/L	MPT-8-MW18S-03	302089-001-005-	DUPLICATE	302089	OPO4	02/13/03	02/14/03	02/14/03	1	0	1
MG/L	MPT-8-MW04S-03	302089-003-007-	NORMAL	302089	SO4	02/13/03	03/04/03	03/04/03	19	0	19
MG/L	MPT-8-MW06S-03	302089-004-008-	NORMAL	302089	SO4	02/13/03	03/05/03	03/05/03	20	0	20
MG/L	MPT-8-MW17S-03	302089-002-006-	NORMAL	302089	SO4	02/13/03	03/04/03	03/04/03	19	0	19
MG/L	MPT-8-MW18S-03	302089-001-005-	NORMAL	302089	SO4	02/13/03	03/04/03	03/04/03	19	0	19
MG/L	MPT-8-MW04S-03	302089-003-011-	NORMAL	302089	TOC	02/13/03	03/10/03	03/10/03	25	0	25
MG/L	MPT-8-MW06S-03	302089-004-012-	DUPLICATE	302089	TOC	02/13/03	03/10/03	03/10/03	25	0	25
MG/L	MPT-8-MW17S-03	302089-002-010-	NORMAL	302089	TOC	02/13/03	03/10/03	03/10/03	25	0	25
%	MPT-8-MW18S-03	302089-001-009-	NORMAL	302089	TOC	02/13/03	03/10/03	03/10/03	25	0	25

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 21203 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
N4259	Mayport (CTO 253	Terry Hansen	850-385-9866	GPL Laboratories, LLLP
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Charles Metz, Louis Kyff		Charles Metz	904-636-6125	202 Perry Parkway
		CARRIER/WAYBILL NUMBER 8371-1005-8627 ~~837~~		CITY, STATE Gaithersburg MD 20877

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	6010 B	310.1 + 300.0	350.3 + TOC					COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)									P	P	G					
PRESERVATIVE USED									HNO3	None	H_2SO_4					
2-12	0925	MPT-8-MW18s-03				GW	G	3	1 ✓	1 ✓	1 ✓					
2-12	1405	MPT-8-MW17s-03				GW	G	3	1 ✓	1 ✓	1 ✓					
2-12	1255	MPT-8-MW04s-03				GW	G	3	1 ✓	1 ✓	1 ✓					
2-12	1045	MPT-8-MW06s-03				GW	G	3	1 ✓	1 ✓	1 ✓					
2-13																

1. RELINQUISHED BY Charles Metz	DATE 2-13-03	TIME	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE 2/14/03	TIME 1:05

COMMENTS

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

302089

4/02R
FORM NO. TtNUS-001

Analytical Report For 302089

for

Tetra Tech NUS Inc.

Project Manager : Amy Thomson

Project Name : NAVSTA Mayport CTO-253

March 11, 2003

GPL

Laboratories

GPL Laboratories, LLLP Certifies that the test results meet all requirements of the NELAC Standards unless otherwise noted.

Reviewed by,
Project Manager

Approved by,
Laboratory Director

202 Perry Parkway Gaithersburg, MD 20877 Phone (301) 926-6802 Fax: (301) 840-1209
www.gplab.com

TOTAL # OF PAGES : 34

GPL

Laboratories

CASE NARRATIVE

CLIENT: **TETRA TECH NUS INC.**
PROJECT/SITE: **NAVSTA MAYPORT**
WORK ORDER(S): 302089
REVIEW DATE: 03/12/03

The Case Narrative, Chain of Custody, Sample Receipt Checklist, and the cover page of the Sample Analysis Report, are integral parts of GPL Laboratories' report package. If you did not receive all of these documents, please contact GPL immediately.

Sample Receipt

Four water samples were received on 02/14/2003. The samples were delivered by Federal Express. Sample receipt conditions and temperatures are documented on the Sample Receipt Checklist.

Sample Analysis

Samples were prepared and analyzed by GPL using the analytical methodologies indicated on the Sample Analysis Summary Report. In some chromatographic analyses, manual integration is used instead of automated integration because it produces more accurate results. All manual integrations are denoted on the sample quantitation report as "m".

Metals

1. Four water samples were analyzed for iron and manganese by EPA SW846 methods.

2. A matrix spike, duplicate, and serial dilution were performed on the batch sample 302112-001. They were within the control limits.

3. Calibration standards are verified against independent check standards purchased from a commercial vendor of environmental standards.

4. All GPL QA/QC criteria were met.

General Chemistry

1. Four water samples were analyzed for Total Alkalinity by EPA method 310.1. Duplicate analysis was shared with GPL work order 302062. A laboratory control sample was analyzed along with the sample batch. All QC criteria were met.

2. Four water samples were analyzed for Ammonia-Nitrogen by EPA method 350.3. Duplicate and matrix spike analyses were performed on sample MPT-8-MW18S-03. All QC criteria were met.

3. Four water samples were analyzed for Total Organic Carbon by SW846 method 9060. All samples were run in quadruplicate and the average result is reported. A matrix spike analysis was performed on sample MMPT-8-MW18S-03. All QC criteria were met.

GPL

Laboratories

CASE NARRATIVE

IC Analyses

1. Four water samples were analyzed for Chloride, Nitrite-Nitrogen, Nitrate-Nitrogen, ortho-Phosphorus-P, and Sulfate by EPA method 300.0.

2. Duplicate analyses were performed on sample MPT-8-MW06S-03. The sample/duplicate RPD was above the control limit for Nitrate-N. The sample and duplicate were re-analyzed with an acceptable RPD.

3. Matrix spike analyses were also performed on sample MPT-8-MW06S-03. The Recovery of Nitrate-N and ortho-Phosphate were below control limits. The MS was re-analyzed with similar results.

4. A laboratory control sample was analyzed along with the sample batches. The percent recovery of Nitrate was slightly below control limits.

5. All other QC criteria were met.

Project Manager

Lab Director

GPL LABORATORIES, LLP
ANALYTICAL RESULTS

Project Name : NAVSTA Mayport CTO-253

Date Printed: March 11, 2003

GPL ID	Client ID
302089-003-003-1/1	MPT-8-MW04S-03
302089-003-007-1/1	MPT-8-MW04S-03
302089-003-011-1/1	MPT-8-MW04S-03
302089-004-004-1/1	MPT-8-MW06S-03
302089-004-008-1/1	MPT-8-MW06S-03
302089-004-012-1/1	MPT-8-MW06S-03
302089-002-002-1/1	MPT-8-MW17S-03
302089-002-006-1/1	MPT-8-MW17S-03
302089-002-010-1/1	MPT-8-MW17S-03
302089-001-001-1/1	MPT-8-MW18S-03
302089-001-005-1/1	MPT-8-MW18S-03
302089-001-009-1/1	MPT-8-MW18S-03

GPL - Maryland Laboratory

Cover Page - Inorganic Analysis Data Package

SDG: 302089

Client ID	Lab Sample ID:
EFF-0221	D 302112-001-033-1/1
EFF-0221	S 302112-001-033-1/1
EFF-0221	SP302112-001-033-1/1
MPT-8-MW04S-03	S 302089-003-003-1/1
MPT-8-MW06S-03	S 302089-004-004-1/1
MPT-8-MW17S-03	S 302089-002-002-1/1
MPT-8-MW18S-03	S 302089-001-001-1/1

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 conditions detailed above. Release of the data combined in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Steve Dill Name: Steve Dill

Date: 3-10-03 Title: Metals Supervisor

GPL - Maryland Laboratory

Metals Data Reporting Form

Preparation Blank Results **SDG:** 302089

Lab Sample ID: BLK59193

Matrix: Water **Units:** ug/L **Prep Date:** 2/26/03 **Prep Batch:** 59193

Weight: 100.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	271.441	10.7	150	10.7	U	1	ICPST	2/27/03	16:25
Manganese	**257.61**	**0.30**	**5.0**	**0.39**	**B**	**1**	**ICPST**	**2/27/03**	**16:25**

Comments: Color(Before): COLORLESS Color(After): COLORLESS Clarity(Before): CLEAR Clarity(After): CLEAR
Texture: FINE

U Result is less than the IDL

GPL - Maryland Laboratory

Metals Data Reporting Form

Initial Calibration Blank Results **SDG:** 302089

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

Chart Number: 030227V.ARC

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

Element	WL/ Mass	Report Limit	BIICB 2/27/03 11:44 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Iron	271.441	150	12.2	B								
Manganese	257.61	5	0.3	U								

U Result is less than the IDL

B Result is between IDL and RL

GPL - Maryland Laboratory

Metals Data Reporting Form

Continuing Calibration Blank Result **SDG:** 302089

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

Chart Number: 030227V.ARC

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

Element	WL/ Mass	Report Limit	BCCCB 2/27/03 11:59 AM		BCCCB3 2/27/03 12:52 PM		BCCCB3 2/27/03 2:12 PM		BCCCB3 2/27/03 3:39 PM		BCCCB4 2/27/03 4:58 PM	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Iron	271.441	150	**21.2**	**B**	**54.6**	**B**	**93.4**	**B**	**35.5**	**B**	**60.3**	**B**
Manganese	257.61	5	0.3	U	**0.7**	**B**	**1.3**	**B**	**0.4**	**B**	0.3	U

U Result is less than the IDL

B Result is between IDL and RL

GPL - Maryland Laboratory

Metals Data Reporting Form

Continuing Calibration Blank Result **SDG:** 302089

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

Chart Number: 030227V.ARC

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

Element	WL/ Mass	Report Limit	BCCCB4 2/27/03 6:19 PM Found	Q	BCCCB4 2/27/03 7:38 PM Found	Q	Found	Q	Found	Q	Found	Q
Iron	271.441	150	**36.9**	**B**	**52.1**	**B**						
Manganese	257.61	5	0.3	U	**0.5**	**B**						

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

Form 3 Equivalent

Form 3 MD/MS

E300 CHEMISTRY DUPLICATE/MATRIX SPIKE RECOVERY

Lab Name: GPL Laboratories, LLLC Client: Tetra Tech NUS

GPL Work-Order: 302089

Analyte	Method	Sample ID	Sample Conc. (mg/L)	Duplicate Conc. (mg/L)	RPD	RPD Limit
Chloride	E300	MPT-8-MW06S-03	6.40	6.40	0	15%
Nitrite-N	E300	MPT-8-MW06S-03	BQL	BQL	N/C	15%
Nitrate-N	E300	MPT-8-MW06S-03	0.61	0.33	60*	15%
Nitrate-N(re-inj)	E300	MPT-8-MW06S-03	0.31	0.30	3.3	15%
ortho-Phosphate	E300	MPT-8-MW06S-03	BQL	BQL	N/C	15%
Sulfate	E300	MPT-8-MW06S-03	17.0	16.7	1.8	15%

RPD - 1 out of 6 outside control limits

Analyte	Method	Sample ID	Conc. (mg/L)	MS Conc. (mg/L)	Spike Added (mg/L)	MS % Recov.	MS Recovery Limits
Chloride	E300	MPT-8-MW06S-03	6.40	14.9	10.0	85.0	85 - 115%
Nitrite-N	E300	MPT-8-MW06S-03	0	0.9	1.00	90.0	85 - 115%
Nitrate-N	E300	MPT-8-MW06S-03	0.61	1.17	1.00	56.0*	85 - 115%
Nitrate-N(re-inj)	E300	MPT-8-MW06S-03	0.31	1.13	1.00	82.0* OK	85 - 115%
ortho-Phosphate	E300	MPT-8-MW06S-03	0	0.73	1.00	73.0*	85 - 115%
ortho-Phosphate	E300	MPT-8-MW06S-03	0	0.62	1.00	62.0*	85 - 115%
Sulfate	E300	MPT-8-MW06S-03	17.0	27.3	10.0	103	85 - 115%

Recovery - 4 out of 7 outside control limits

General Chemistry Form VII

E300 LABORATORY CONTROL SAMPLE RECOVERY

Lab Name: GPL Laboratories, LLLC

Client: Tetra Tech NUS

QC Sample ID: #21556/20561/21151

2/13/03

Analyte	LCS True Value (mg/L)	LCS Concentration (mg/L)	LCS %Recovery	Recovery Control Limits
Nitrate-N	2.99	2.54	84.9* OK	85 - 115%
ortho-Phosphate	2.49	2.18	87.6	85 - 115%

within 80-120% limit

Recovery - 1 out of 2 outside Control Limits

3/4/03

Analyte	LCS True Value (mg/L)	LCS Concentration (mg/L)	LCS %Recovery	Recovery Control Limits
Chloride	58.3	53.8	92.3	85 - 115%
Sulfate	22.4	19.8	88.4	85 - 115%

Recovery - 0 out of 2 outside Control Limits

GPL - Maryland Laboratory

Metals Data Reporting Form

Instrument Detection Limits **SDG:** 302089

Instrument: ICPST **Units:** ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL
Iron	271.441	150.0	10.7	2/20/03
Manganese	257.610	5.0	0.30	2/20/03

GPL - Maryland Laboratory

Metals Data Reporting Form

Preparation Log **SDG:** 302089

Preparation Batch: 59193 **Instrument:** ICP **Matrix:** Water

Sample ID	Prep Date	Weight (g)	Volume (ml)	% Moisture
BKS59193	2/26/03	100.00	100	NA
BLK59193	2/26/03	100.00	100	NA
D 302112-001-033-1/1	2/26/03	50.00	50	NA
S 302089-001-001-1/1	2/26/03	100.00	100	NA
S 302089-002-002-1/1	2/26/03	100.00	100	NA
S 302089-003-003-1/1	2/26/03	100.00	100	NA
S 302089-004-004-1/1	2/26/03	100.00	100	NA
S 302112-001-033-1/1	2/26/03	50.00	50	NA
SP302112-001-033-1/1	2/26/03	50.00	50	NA

GPL - Maryland Laboratory

Metals Data Reporting Form

Instrument Runlog **SDG:** 302089

Instrument: ICPST **Chart Number:** 030227V.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
STD0		2/27/03	11:09
STD1		2/27/03	11:18
STD2		2/27/03	11:25
STD3		2/27/03	11:32
IVICV		2/27/03	11:37
BIICB		2/27/03	11:44
CVCCV		2/27/03	11:51
BCCCB		2/27/03	11:59
REPORTING LIMIT		2/27/03	12:06
ZZZZZZ		2/27/03	12:13
IAICSAI		2/27/03	12:20
IBICSABI		2/27/03	12:27
ZZZZZZ		2/27/03	12:35
CVCCV3		2/27/03	12:43
BCCCB3		2/27/03	12:52
ZZZZZZ		2/27/03	12:59
ZZZZZZ		2/27/03	13:06
ZZZZZZ		2/27/03	13:13
ZZZZZZ		2/27/03	13:19
ZZZZZZ		2/27/03	13:26
ZZZZZZ		2/27/03	13:32
ZZZZZZ		2/27/03	13:39
ZZZZZZ		2/27/03	13:46
ZZZZZZ		2/27/03	13:52
ZZZZZZ		2/27/03	13:59
CVCCV3		2/27/03	14:06
BCCCB3		2/27/03	14:12
ZZZZZZ		2/27/03	14:26
ZZZZZZ		2/27/03	14:32
ZZZZZZ		2/27/03	14:39
ZZZZZZ		2/27/03	14:46
ZZZZZZ		2/27/03	14:52
ZZZZZZ		2/27/03	14:59
ZZZZZZ		2/27/03	15:05
ZZZZZZ		2/27/03	15:12
ZZZZZZ		2/27/03	15:19
ZZZZZZ		2/27/03	15:25
CVCCV3		2/27/03	15:32
BCCCB3		2/27/03	15:39

GPL - Maryland Laboratory

Metals Data Reporting Form

Instrument Runlog **SDG:** 302089

Instrument: ICPST **Chart Number:** 030227V.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
ZZZZZZ		2/27/03	15:45
ZZZZZZ		2/27/03	15:52
ZZZZZZ		2/27/03	15:58
ZZZZZZ		2/27/03	16:05
ZZZZZZ		2/27/03	16:12
ZZZZZZ		2/27/03	16:18
BLK59193	BLK59193	2/27/03	16:25
ZZZZZZ		2/27/03	16:32
ZZZZZZ		2/27/03	16:38
ZZZZZZ		2/27/03	16:45
CVCCV4		2/27/03	16:52
BCCCB4		2/27/03	16:58
BKS59193	BKS59193	2/27/03	17:05
S 302112-001-033-1/1	EFF-0221	2/27/03	17:11
D 302112-001-033-1/1	EFF-0221	2/27/03	17:18
SP302112-001-033-1/1	EFF-0221	2/27/03	17:25
ZZZZZZ		2/27/03	17:32
SE302112-001-033-1/1	EFF-0221	2/27/03	17:39
ZZZZZZ		2/27/03	17:46
ZZZZZZ		2/27/03	17:52
ZZZZZZ		2/27/03	17:59
ZZZZZZ		2/27/03	18:06
CVCCV4		2/27/03	18:12
BCCCB4		2/27/03	18:19
ZZZZZZ		2/27/03	18:25
ZZZZZZ		2/27/03	18:32
ZZZZZZ		2/27/03	18:39
S 302089-001-001-1/1	MPT-8-MW18S-03	2/27/03	18:45
S 302089-002-002-1/1	MPT-8-MW17S-03	2/27/03	18:52
S 302089-003-003-1/1	MPT-8-MW04S-03	2/27/03	18:59
S 302089-004-004-1/1	MPT-8-MW06S-03	2/27/03	19:05
ZZZZZZ		2/27/03	19:12
ZZZZZZ		2/27/03	19:19
ZZZZZZ		2/27/03	19:25
CVCCV4		2/27/03	19:32
BCCCB4		2/27/03	19:38
ZZZZZZ		2/27/03	19:45
ZZZZZZ		2/27/03	19:52
ZZZZZZ		2/27/03	19:58

GPL Laboratories, LLLP *Document Control No: GP_W_210*

Method Title: Alkalinity, Titrimetric
Method Reference: MCAWW 310.1

#59284

Analyst: R.S
Date: 2-21-03 10:30Am
Reviewed by Date: 03-6-03

Normality of Titrant: 0.0200 N

Raw Data

GPL ID	Client ID	Sample Vol./Wt.	Initial pH	pH 8.3 ml	pH 4.5 ml	pH 4.2 ml	Total Alk mg/L	Hyd. Alk mg/L	Carb. Alk mg/L	Bic. Alk mg/L
ICV	#19993	10.0mL	7.00							
ICB	prep Blank	50.0mL	~~5.14~~ 4.40	—	~~0.05~~ 0.05	~~0.10~~ 0.05	02-21-03 <1.0			
LCS	#20561	50.0mL	8.70	1.30	3.10	—	62			
302062-001	0496W202D0001	50.0mL	5.66	—	1.20	—	24.00			
003	0496W2065000	50.0mL	6.06	—	0.85	0.95	15.0			
dup 1	dup1	50.0mL	6.08	—	0.85	0.95	15.0			
302067-001	MPT-8-MW095-03	50.0mL	6.95	—	16.65	—	333			
002	MPT-8-MW015-03	50.0mL	7.47	—	8.30	—	166			
003	MPT-8-DW01-03	50.0mL	6.59	—	28.25	—	565			
004	MPT-5-MW035-03	50.0mL	6.99	—	18.60	—	372			
005	MPT-8-MW165-03	50.0mL	6.87		28.30		566			
006	MPT-5-MW025-03	50.0mL	7.18	—	18.75		375			
007	MPT-8-TB01-03	50.0mL	4.48	—	—	—	<1.0			
CCV1	#19993	10.0mL	7.00							
CCB1	prepBlank	50.0mL	4.40	—	—					
302067-008	MPT-8-MW195-03	50.0mL	7.43	—	6.70	—	134			
302068-001	0496W206M0001	50.0mL	~~11.76~~ 6.60	—	2.55	—	51			
302086-001	0496W206D0001	50mL	~~7.12~~ 6.60	—	5.75	—	115			
006	0496W206D9901	50mL	7.03	—	5.70	—	114			
302089-001	MPT-8-MW185-03	50mL	7.21	—	11.15	—	223			
002	MPT-8-MW175-03	50mL	7.03	—	14.95	—	299			
003	MPT-8-MW045-03	50mL	6.72		24.80	—	496			
004	MPT-8-MW065-03	50mL	7.45	—	8.85	—	177			
CCV2	#19993	10.0mL	7.00							

Calculations:

A. Potentiometric titration to pH 4.5

$$\text{Alkalinity (mg/l CaCO3)} = \frac{A \times N \times 50{,}000}{\text{ml of sample}}$$

where A = ml standard acid
N = normality of acid standard

B. Potentiometric titration of Low Alkalinity

$$\text{Total Alkalinity (mg/L CaCO3)} = \frac{(2B - C) \times N \times 50{,}000}{\text{ml of sample}}$$

where: B = ml titrant to first recorded pH
C = total mo titrant to reach pH 0.3 units lower
N = normality of acid

GPL Laboratories, LLLP

Document Control No: GP_W_210

Method Title: Alkalinity, Titrimetric

Method Reference: MCAWW 310.1

Analyst: RCS

Date: 2-21-03 10:30AM

Reviewed by Date: 2-21-03

Normality of Titrant: 0.0200N

Raw Data

GPL ID	Client ID	Sample Vol./Wt.	Initial pH	pH 8.3 ml	pH 4.5 ml	pH 4.2 ml	Total Alk mg/L	Hyd. Alk mg/L	Carb. Alk mg/L	Bic. Alk mg/L
CCB2	Prep Blank	50.0mL	4.40	—	—	—				

RCS 2-21-03

Calculations:

A. Potentiometric titration to pH 4.5

Alkalinity (mg/l CaCO3) = $\frac{A \times N \times 50{,}000}{\text{ml of sample}}$ where A = ml standard acid, N = normality of acid standard

B. Potentiometric titration of Low Alkalinity

Total Alkalinity (mg/L CaCO3) = $\frac{(2B - C) \times N \times 50{,}000}{\text{ml of sample}}$

where: B = ml titrant to first recorded pH

C = total mo titrant to reach pH 0.3 units lower

N = normality of acid

GPL Laboratories, LLLP *Document Control No: GP_W_190*

Method Title: NH3, Potentiometric
Method Reference:MCAWW 350.3
Work Order: #54313

Analyst: dt
Date: 2-28-03 3:00 pm
Reviewed by/Date: 3-3-03

RAW DATA

W.O.	FRA.	Client ID	Sample Vol/wt	Dil	MV Reading	Sample Conc.	Results mg/L
ICV	–	# 21139	25	2.5	-35	0.2194 ~~0.7176~~	13.05
ICB	–	Blk	25	1	94	0.0261	<0.1
302067	001	MPT-8-MW095-03	25	1	26	0.4426	0.44
dup	001	–	25	1	26	0.4426	0.44
2.0mg/L spk	001	–	25	1	-15	2.3242	2.32
	002	MPT-8-MW015-03	25	1	29	0.3920	0.39
	003	MPT-8-DW01-03	25	1	-28	3.9324	3.93
	004	MPT-5-MW035-03	25	1	24	0.4799	0.48
	005	MPT-8-MW165-03	25	1	-28	3.9324	3.93
	006	MPT-5-MW025-03	25	1	12	0.7797	0.78
	007	MPT-8-TW01-03	25	1	87	0.0375	0.038
	008	MPT-8-MW195-03	25	1	100	0.0222	0.022
ccv1	–	# 21139	25	2.5	-38	5.8931	14.7
ccb1	–	Blk	25	1	92	0.0307	<0.1
302089	001	MPT-8-MW185-03	25	1	66	0.0878	0.09
dup	001	–	25	1	66	0.0878	0.09
spk	001	–	25	1	-11	1.9770	1.98
	002	MPT-8-MW175-03	25	1	40	0.2512	0.25
	003	MPT-8-MW045-03	25	1	-34	5.0127	5.01
	004	MPT-8-MW005-03	25	1	41	0.2412	0.24
ccv2	–	# 21139	25	2.5	-36	5.4351	13.6
ccb2	–	Blk	25	1	94	0.0261	<0.1
		2-28-03 dt					

Calculations:

1. Prepare a Standard curve by plotting the log of the Standard concentration versus the corresponding MV reading.
2. Obtain concentration value of samples directly from Standard curve.

Method Title: Total Organic Carbon #59343 Analyst: [illegible]
Method Reference: MCAWW 415.1 / Lloyd Kahn / 9060 Date: 3-10-03 9:00am
#59344 Reviewed By / Date:

GP ID	Client ID	Sample Vol/Wt.	D.F.	Instrument Reading	Conc.	Final Results mg/L / mg/Kg	SW9060 Average TOC (mg/L)
#21184	ICV	1.0mL	(2)1	5.144	4.836	4.84	
Blank	ICB		1	0.085	0	<1.0	
302089-001	MPT-8-MW185-03			2.930	2.628	2.63	
				3.317	3.006	3.01	2.76
				3.107	2.797	2.80	
				2.926	2.624	2.62	
-001MS	+2.5%			5.551	5.129	5.13	
				6.075	5.629	5.63	5.32
				5.902	5.464	5.46	
				5.464	5.046	5.05	
-002	MPT-8-MW175-03			3.234	2.918	2.92	
				2.954	2.657	2.65	2.91
				3.148	2.836	2.84	
				3.580	3.248	3.25	
#21186	CCV1			5.153	4.749	4.75	
Blank	CCB1		1	0.136	0	<1.0	
302089-003	MPT-8-MW045-03		5	7.591	7.076	35.4	
				7.418	6.911	34.6	33.9
				7.476	6.966	34.8	
				6.620	6.149	30.7	
-004	MPT-8-MW065-03		1	1.389	1.157	1.16	
				1.599	1.357	1.36	1.28
				1.348	1.178	1.12	
				1.737	1.489	1.49	
#21186	CCV2			5.417	5.001	5.00	
Blank	CCB2			0.050	0	<1.0	
302141-001	SA00301MW02			9.262	8.671	8.67	
-003	SA00301MW100	1.0mL	1	4.859	4.469	4.47	

Calculation:

Water Final Results = (instrument reading vs.cal.curve) x dilution factor

Soil Final Results = $\frac{\text{(instrument reading vs.cal. Curve) x 0.040ml)}}{\text{Sample weight (g) x \% solids}}$

(If not detected, report < 1.0 mg/L)

Cont. on pg 132

GPL Laboratories, LLLP **Document Control No: GP_IC_012**

ION CHROMATOGRAPHY ANALYSIS LOG

Instrument ID: Dionex 4000 Reviewed by/Date:_____

Analytes(s): F, Cl, NO2-N, Br, NO3-N, PO4-P, SO4	Guard Column ID: AG9-HC #5917
Analysis Method: E300	Analysis Column ID: AS9-HC #5767
Backpressure: 2350 psi Conductivity: 23.3 µS	Gradient Mixer/ATC ID: NA
Injection Volume: 200 uL	

ICAL Method File: 030211-300.met ICAL Date: 2-11-03 Analyst: VZ

Seq. ID. H:\ICDATA\IC4000\030211\

Seq.Ext.ID	GPL ID	Dil	Matrix	Date	Time	Comments
030211-001.dat	Cal. Blank	1	Std	2-11-03	22:35	
2	0.10 mg/L					
3	0.25 mg/L					
4	0.50 mg/L					
5	1.00 mg/L					
6	2.50 mg/L					
7	ICV-1.25					
8	ICB					
9	MDL-check-0.10					
10	LCS1 #21556 1:2	2				
11	LCS2 #19688 1:40	40				
12	302017-001	1	H2O			
13	-001 MD					
14	-001 MS					
15	207096-012 Br check					
16	301101-012					
17	-012 MD					
18	-012 MS					
19	CCV1-0.25		Std			
20	CCB1					
21	LCS1 #19688					
22	301101-011		H2O			
23	-011 MD					
24	-011 MS					
25	LCS1 # 21556 1:2	2	Std			
26	302067-001	1	H2O			MPT-8-MW095-03
030211-027.dat	-002	1	H2O	2-12-03	11:36	MPT-8-MW015-03

Remarks	Std / Eluent	Lot#	/ Conc.	/ Prep. date
F- Corr = 0.9993 int = 0.029	Carbonate Eluent	21197	9mM	1-10-03
Cl- Corr = 0.9995 int = 0.00005	mixed Anion spike sol'n	21314	100 mg/L	1-16-03
NO2-N - Corr = 0.9995 int = 0.017	mixed Anion QC sol'n	21315*	100 mg/L	1-16-03
Br- Corr = 0.9998 int = 0.011	LCS1	21556	NO3-N = 2.99 mg/L PO4-P = 2.49 mg/L	1-29-03
NO3-N - Corr = 0.9986 int = 0.045	LCS2	19688	F = 1.71 mg/L Cl = 37.5 mg/L SO4 = 41.3 mg/L	8-26-02
PO4-P - Corr = 0.9992 int = 0.025				
SO4 - Corr = 0.9999 int = 0.04				

* F for QC = #19626 -1000 mg/L -8-26-02
Br for QC = #21656 -1000 mg/L -2-4-03

ION CHROMATOGRAPHY ANALYSIS LOG

Instrument ID: Dionex 4000 Reviewed by/Date:_____

Analytes(s): F, Cl, NO_2-N, NO_3-N, PO_4-P, SO_4	Guard Column ID: AG9-HC #5912
Analysis Method: 6300	Analysis Column ID: AS9-HC #5767
Backpressure: 2330psi Conductivity: 23.1µS	Gradient Mixer/ATC ID: N/A
Injection Volume: 200 uL	

ICAL Method File: 030211-300.mrt ICAL Date: 2-11-03 Analyst: VZ

Seq. ID. ICDATA\IC4000\030213\

cont. from pg 32

Seq.Ext.ID	GPL ID	Dil	Matrix	Date	Time	Comments
030213-028.dxd	301101-011 1:5	5	H_2O	2-14-03	07:50	
29	301103-023 1:5	5	↓			
30	-025 1:5	5	↓			
31	LCS #19688 1:2	2	std			
32	301103-028 1:2	2	H_2O			
33	-028 1:2 MD	↓	↓			
34	Rinse Blank	—	—			
35	CCV3-0.25	1	std			
36	CCB3	1	↓			
37	LCS #19688 1:40	40	↓			
38	301101-009 1:100	100	H_2O			
39	-009 1:100 MD	↓	↓			
40	-009 1:100 MS	↓	↓			
41	301101-013 1:20	20	↓			
42	-013 1:20 MD	↓	↓			
43	-013 1:20 MS	↓	↓			
44	301103-028 1:10	10	↓			
45	-028 1:10 MD	↓	↓			
46	Rinse Blank	—	—			
47	CCV4-2.00	1	std			
48	CCB4	1	↓			
49	301103-028 1:100	100	H_2O			
50	-028 1:100 MD	↓	↓			Bad inject
51	-028 1:100 MS	↓	↓			
52	LCS #21556 1:2	2	std			
53	302089-001	1	H_2O			
030213-054.dxd	-001	1	H_2O	2-14-03	20:52	

Remarks

Std / Eluent	Lot#	/ Conc.	/ Prep. date
Carbonate Eluent	21197	9mM	1-10-03
Mixed Anion spike std	21314	100 mg/L	1-16-03
Mixed Anion QC std	21315	100 mg/L	1-16-03
LCS1	21556	NO_3-N = 2.99%, PO_4-P = 2.45%, Cl = 58.5%, SO_4 = 41.3%	1-29-03
LCS2	19688		8-26-01

GPL Laboratories, LLLP

Document Control No: GP_IC_012

ION CHROMATOGRAPHY ANALYSIS LOG

Instrument ID: Dionex 4000

Reviewed by/Date:____________

Analytes(s): Cl, NO2-N, NO3-N, PO4-P, SO4	
Analysis Method: E300	
Backpressure: 2330psi	Conductivity: 23.1µs
Injection Volume: 200 uL	

Guard Column ID: AG9-HC #5927
Analysis Column ID: AS9-HC #5767
Gradient Mixer/ATC ID: N/A

ICAL Method File: 030211-300.met ICAL Date: 2-11-03 Analyst: VZ

Seq. ID. ICDATA\IC4000\030213\

cont. from pg 33

Seq.Ext.ID	GPL ID	Dil	Matrix	Date	Time	Comments
030213-055.dxd	302089-003	1	H2O	2-14-03	21:22	
56	-004	↓	↓			
57	-004 MD					
58	-004 MS					
59	CCV5-1.25	↓	std			
030213-060.dxd	CCB5	1	↓	2-14-03	23:52	

CZ 2-14-03

Remarks

Std / Eluent	Lot# / Conc. / Prep. date
	see pg 33

ION CHROMATOGRAPHY ANALYSIS LOG

Instrument ID: Dionex 4000 Reviewed by/Date:_____

Analytes(s): Chloride, Sulfate	
Analysis Method: 9300	
Backpressure: 2300 psi Conductivity: 22.8 µs	
Injection Volume: 200 uL	

Guard Column ID: AG9-HC #5927	
Analysis Column ID: AS9-HC #5707	
Gradient Mixer/ATC ID: N/A	

ICAL Method File: 030211-300.mdt ICAL Date: 2-11-03 Analyst: VZ
Seq. ID. IC DATA \ IC4000 \ 030304 \

Seq.Ext.ID	GPL ID	Dil	Matrix	Date	Time	Comments
030304-001.dxd	ICV-1.25	1	std	3-4-03	18:41	
2	ICB	1	↓			
3	LCS #21151 · 1:25	25	↓			
4	302062-001 1:50	50	H2O			
5	302067-006 1:100	100				
6	302086-001 1:200	200				
7	-006 1:20	20				
8	-006 1:200	200				
9	302089-001 1:10	10				
10	-001 1:10	10				
11	-003	1				
12	-003 1:10	10	↓			
13	CCV1-2.00	1	std			
14	CCB1	1	↓			
15	302089-004 reinj	1	H2O			
16	-004 dup reinj					
17	-004 ms reinj	↓	↓			
18	Rinse Blank	–	–			
19	302089-004 1:10	10	H2O			
20	-004 1:10 dup					
21	-004 1:10 ms	↓	↓			
22	CCV2-0.50	1	std			
030304-023.dxd	CCB2	1	std	3-5-03	05:42	
				0360		

Remarks

Std / Eluent	Lot#	Conc.	Prep. date
Carbonate Eluent	2070	9mM	3-4-03
mixed Anion QC std	21315	100%	1-6-03
mixed Anion spike std	21314	100%	1-6-03
LCS	21151	Cl=5.43% SO4=2.47%	1-8-03

Analysis Report 02/27/03 07:05:42 PM page 1

Method: TRACEV8 Sample Name: S 302089-003-003-1/1 Operator:
Run Time: 02/27/03 18:59:08
Comment: UG/L
Mode: CONC Corr. Factor: 1

Elem	Al	Sb	As	Ba	Be	Cd	Ca
Avge	60.39181	-.495180	.0684725	5.563990	-.322957	-.143055	180164.4
#1	60.31078	.1609728	.3110251	5.562269	-.321982	-.052489	180089.4
#2	60.47285	-1.15133	-.174080	5.565710	-.323932	-.233620	180239.4
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	525000.0	5250.000	2100.000	10500.00	525.0000	2100.000	525000.0
Low	-200.000	-20.0000	-20.0000	-5.00000	-2.00000	-3.00000	-1000.00

Elem	Cr	Co	Cu	Fe	Pb	Mg	Mn
Avge	.2306777	-1.42487	-.135547	14133.97	.7790112	7959.396	226.3307
#1	.3911031	-1.39007	-.059441	14127.05	1.067191	7957.629	226.2160
#2	.0702523	-1.45966	-.211654	14140.89	.4908310	7961.164	226.4454
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	10500.00	10500.00	10500.00	525000.0	21000.00	525000.0	10500.00
Low	-5.00000	-5.00000	-10.0000	-150.000	-10.0000	-250.000	-5.00000

Elem	Ni	K	Se	Ag	Na	Tl	V
Avge	-.698183	2973.423	-.310252	.0210887	11447.74	.5091321	-.142328
#1	-1.10510	2975.707	-1.43501	.3638763	11457.93	-.666850	-.056121
#2	-.291268	2971.139	.8145084	-.321699	11437.55	1.685114	-.228534
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	7875.000	50000.00	2100.000	1050.000	525000.0	2100.000	10500.00
Low	-10.0000	-250.000	-20.0000	-3.00000	-2500.00	-30.0000	-10.0000

Elem	Zn	B	Mo	Sn	Ti	1/Pb	2/Pb
Avge	4.471146	56.57689	.3263715	.0307156	.4762738	1.561749	.3876303
#1	4.619131	56.72975	.4678745	-1.02788	.5096722	2.270754	.4653981
#2	4.323160	56.42404	.1848685	1.089307	.4428755	.8527430	.3098626
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	NOCHECK	NOCHECK
High	2100.000	5250.000	10500.00	10500.00	10500.00		
Low	-20.0000	-15.0000	-5.00000	-25.0000	-10.0000		

Elem	1/Se	2/Se
Avge	-3.62334	1.346276
#1	-4.14185	-.081609
#2	-3.10483	2.774160
Errors	NOCHECK	NOCHECK
High		
Low		

Sample: MPT-8-MW045-03

226 mg/L ✓

	Description	A	Sample Id	ST	Method	Results	RL Raw	R	Raw	Multiplie	Reporti	Raw	nFinal	Sort	spk	%	Raw Final
1																	
2																	
3																	
4	Nitrogen, Ammonia (as	AN	ICV	ICV /	E350.2	13.0	0.1000		5.2196	.50000000	MGL	MGL	13.0000	0	13.4000	0.00	13.0490
5	Nitrogen, Ammonia (as	AN	ICB	ICB /	E350.2	0	0.1000		0.0261	.00000000	MGL	MGL	0.0000	0	0.0000	0.00	0.0261
6	Nitrogen, Ammonia (as	AN	302067-001-0	SMP /	E350.2	0.44	0.1000		0.4426	.00000000	MGL	MGL	0.4400	0	0.0000	0.00	0.4426
7	Nitrogen, Ammonia (as	AN	302067-001-0	MD /	E350.2	0.44	0.1000		0.4426	.00000000	MGL	MGL	0.4400	0	0.0000	0.00	0.4426
8	Nitrogen, Ammonia (as	AN	302067-001-0	MS /	E350.2	2.32	0.1000		2.3242	.00000000	MGL	MGL	2.3200	0	2.0000	-22.00	2.3242
9	Nitrogen, Ammonia (as	AN	302067-002-0	SMP /	E350.2	0.39	0.1000		0.3920	.00000000	MGL	MGL	0.3900	0	0.0000	0.00	0.3920
10	Nitrogen, Ammonia (as	AN	302067-003-0	SMP /	E350.2	3.93	0.1000		3.9324	.00000000	MGL	MGL	3.9300	0	0.0000	0.00	3.9324
11	Nitrogen, Ammonia (as	AN	302067-004-0	SMP /	E350.2	0.48	0.1000		0.4799	.00000000	MGL	MGL	0.4800	0	0.0000	0.00	0.4799
12	Nitrogen, Ammonia (as	AN	302067-005-0	SMP /	E350.2	3.93	0.1000		3.9324	.00000000	MGL	MGL	3.9300	0	0.0000	0.00	3.9324
13	Nitrogen, Ammonia (as	AN	302067-006-0	SMP /	E350.2	0.78	0.1000		0.7797	.00000000	MGL	MGL	0.7800	0	0.0000	0.00	0.7797
14	Nitrogen, Ammonia (as	AN	302067-007-0	SMP /	E350.2	0	0.1000		0.0375	.00000000	MGL	MGL	0.0000	0	0.0000	0.00	0.0375
15	Nitrogen, Ammonia (as	AN	302067-008-0	SMP /	E350.2	0	0.1000		0.0222	.00000000	MGL	MGL	0.0000	0	0.0000	0.00	0.0222
16	Nitrogen, Ammonia (as	AN	CCV1	CCV /	E350.2	14.7	0.1000		5.8931	.50000000	MGL	MGL	14.7000	0	13.4000	0.00	14.7328
17	Nitrogen, Ammonia (as	AN	CCB1	CCB /	E350.2	0	0.1000		0.0307	.00000000	MGL	MGL	0.0000	0	0.0000	0.00	0.0307
18	Nitrogen, Ammonia (as	AN	302089-001-0	SMP /	E350.2	0	0.1000		0.0878	.00000000	MGL	MGL	0.0000	0	0.0000	0.00	0.0878
19	Nitrogen, Ammonia (as	AN	302089-001-0	MD /	E350.2	0	0.1000		0.0878	.00000000	MGL	MGL	0.0000	0	0.0000	0.00	0.0878
20	Nitrogen, Ammonia (as	AN	302089-001-0	MS /	E350.2	1.98	0.1000		1.9770	.00000000	MGL	MGL	1.9800	0	2.0000	0.00	1.9770
21	Nitrogen, Ammonia (as	AN	302089-002-0	SMP /	E350.2	0.25	0.1000		0.2512	.00000000	MGL	MGL	0.2500	0	0.0000	0.00	0.2512
22	Nitrogen, Ammonia (as	AN	302089-003-0	SMP /	E350.2	5.01	0.1000		5.0127	.00000000	MGL	MGL	5.0100	0	0.0000	0.00	5.0127
23	Nitrogen, Ammonia (as	AN	302089-004-0	SMP /	E350.2	0.24	0.1000		0.2412	.00000000	MGL	MGL	0.2400	0	0.0000	0.00	0.2412
24	Nitrogen, Ammonia (as	AN	CCV2	CCV /	E350.2	13.6	0.1000		5.4351	.50000000	MGL	MGL	13.6000	0	13.4000	0.00	13.5878
25	Nitrogen, Ammonia (as	AN	CCB2	CCB /	E350.2	0	0.1000		0.0261	.00000000	MGL	MGL	0.0000	0	0.0000	0.00	0.0261

Sample: MPT-8-MW04S-03

5.01 mg/L ✓

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**T. HANSEN**	**DATE:**	**APRIL 11, 2003**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – IRON, MANGANESE, AND MISCELLANEOUS PARAMETERS**
NS MAYPORT – CTO 253
SAMPLE DELIVERY GROUP (SDG) – 302067

SAMPLES: 8/AQUEOUS/

MPT-5-MW02S-03	MPT-5-MW03S-03	MPT-8-DU01-03
MPT-8-MW01S-03	MPT-8-MW09S-03	MPT-8-MW16S-03
MPT-8-MW19S-03	MPT-8-TB01-03	

Overview

The sample set for NS Mayport, CTO 253, SDG 302067, consists of seven (7) aqueous environmental samples and one (1) equipment blank (MPT-8-TB01-03). One (1) field duplicate pair (MPT-8-DU01-03 / MPT-8-MW16S-03) is included in this SDG.

All samples were analyzed for iron, manganese, alkalinity, ammonia, chloride, nitrate, nitrite, orthophosphate, sulfate, and total organic carbon (TOC). Samples MPT-8-MW19S-03 and MPT-8-TB01-03 were also analyzed for dissolved organic carbon (DOC) and fractional organic carbon (FOC). The samples were collected by Tetra Tech NUS February 10-11, 2003 and analyzed by GPL Laboratories, LLLP. Metals analyses were conducted using SW846 method 6010B. Alkalinity analyses were conducted using EPA method 310.1. Ammonia analyses were conducted using EPA method 350.2. Chloride, nitrate, nitrite, orthophosphate, and sulfate analyses were conducted using EPA method 300. TOC, DOC, and FOC analyses were conducted using SW846 methods 9060, 9060D, and 9060F, respectively.

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

These data were evaluated based on the following parameters:

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

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

Holding Time Noncompliance

The 48-hour holding time limit was exceeded (by 1-2 days) for nitrate in samples MPT-5-MW02S-03, MPT-5-MW03S-03, MPT-8-MW09S-03, MPT-8-MW16S-03, MPT-8-MW19S-03, and MPT-8-TB01-03; for nitrite in samples MPT-5-MW02S-03, MPT-5-MW03S-03, MPT-8-MW01S-03, MPT-8-MW09S-03, MPT-8-MW16S-03, MPT-8-MW19S-03, and MPT-8-TB01-03; and for orthophosphate in samples MPT-5-MW02S-03, MPT-8-MW01S-03, MPT-8-MW09S-03, MPT-8-MW16S-03, MPT-8-MW19S-03, and MPT-8-TB01-03. Positive and nondetected results reported for these analytes in the affected samples were qualified as estimated (J) and (UJ), respectively.

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	54.7 ug/L	273.5 ug/L
Manganese[1]	1.0 ug/L	5.0 ug/L

[1] Maximum concentration present in aqueous preparation blank.

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. The positive result less than the action level for iron was qualified as nondetected (U) as a result of laboratory blank contamination. Manganese was not qualified for blank contamination because the sample values were greater than the action level. The equipment blank was not qualified for laboratory blank contamination.

Notes

The samples were initially analyzed for nitrate, nitrite, and orthophosphate on 2/12/03. Due to slightly low calibration recoveries, the samples were analyzed again on 2/13/03. This caused some of the samples to be analyzed outside of the holding time limit. Because the analyses were performed within the 2X holding time limit, the results for the second analyses are reported.

Dilutions were performed for chloride in all samples except MPT-8-TB01-03.

Dilutions were performed for sulfate in all samples except MPT-8-DU01-03, MPT-8-MW16S-03, and MPT-8-TB01-03.

Dilutions were performed for TOC in samples MPT-5-MW02S, MPT-8-DU01-03, MPT-8-MW09S-03, and MPT-8-MW16S-03.

A dilution was performed for FOC in sample MPT-8-MW19S-03.

Manganese was present in the equipment blank.

The detection limits reported by the laboratory for iron (51.7 ug/L), nitrite (0.10 mg/L), and TOC (1.0 mg/L) do not meet the detection limits in the laboratory specifications (25 ug/L, 0.01 mg/L, and 0.10, respectively).

A trip blank was collected with samples included in this SDG. This is an unusual occurrence because trip blanks are usually collected for volatiles only and no samples were collected for volatile organic analyses.

TO: **HANSEN, T. – PAGE 3**
DATE: **APRIL 11, 2003**

Executive Summary

Laboratory Performance: Several analytes were qualified due to holding time exceedance. Iron was qualified due to laboratory method/preparation blank noncompliance. Iron, ammonia, nitrite, and TOC detection limits do not meet those requested in the laboratory specifications.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", July 2002 and the NFESC document entitled "Navy IRCDQM" (September 1999).

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

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

Tetra Tech NUS
Ethan G. Lee
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

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

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

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

PROJ_NO: 4259

SDG: 302067 MEDIA: WATER DATA FRACTION:

nsample	MPT-5-MW02S-03
samp_date	2/11/2003
lab_id	302067-006-006-
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	51.7	U	
MANGANESE	8.4		

nsample	MPT-5-MW03S-03
samp_date	2/11/2003
lab_id	302067-004-004-
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	4020		
MANGANESE	190		

nsample	MPT-8-DU01-03
samp_date	2/11/2003
lab_id	302067-003-003-
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	MPT-8-MW16S-03

Parameter	Result	Val Qual	Qual Code
IRON	14600		
MANGANESE	270		

PROJ_NO: 4259

SDG: 302067 MEDIA: WATER DATA FRACTION:

nsample	MPT-8-MW01S-03
samp_date	2/10/2003
lab_id	302067-002-002-
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	185	U	A
MANGANESE	26.4		

nsample	MPT-8-MW09S-03
samp_date	2/10/2003
lab_id	302067-001-001-
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	1650		
MANGANESE	231		

nsample	MPT-8-MW16S-03
samp_date	2/11/2003
lab_id	302067-005-005-
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	14800		
MANGANESE	270		

PROJ_NO: 4259

SDG: 302067 MEDIA: WATER DATA FRACTION:

nsample	MPT-8-MW19S-03	nsample	MPT-8-TB01-03
samp_date	2/11/2003	samp_date	2/11/2003
lab_id	302067-008-008-	lab_id	302067-007-007-
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	51.7	U	
MANGANESE	94.4		

Parameter	Result	Val Qual	Qual Code
IRON	51.7	U	
MANGANESE	1.3		

PROJ_NO: 4259

SDG: 302067 MEDIA: WATER DATA FRACTION:

nsample	MPT-5-MW02S-03
samp_date	2/11/2003
lab_id	302067-006-014-
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	380		
AMMONIA	MG/L	0.78		
CHLORIDE	MG/L	150		
NITRATE	MG/L	0.80	J	H
NITRITE	MG/L	0.10	UJ	H
ORTHOPHOSPHATE	MG/L	0.10	UJ	H
SULFATE	MG/L	25		
TOTAL ORGANIC CARBON	MG/L	13		

nsample	MPT-5-MW03S-03
samp_date	2/11/2003
lab_id	302067-004-012-
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	370		
AMMONIA	MG/L	0.48		
CHLORIDE	MG/L	14		
NITRATE	MG/L	0.10	UJ	H
NITRITE	MG/L	0.10	UJ	H
ORTHOPHOSPHATE	MG/L	0.10	U	
SULFATE	MG/L	40		
TOTAL ORGANIC CARBON	MG/L	2.7		

nsample	MPT-8-DU01-03
samp_date	2/11/2003
lab_id	302067-003-011-
qc_type	NM
Pct_Solids	0
DUP_OF:	MPT-8-MW16S-03

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	570		
AMMONIA	MG/L	3.9		
CHLORIDE	MG/L	17		
NITRATE	MG/L	0.10	U	
NITRITE	MG/L	0.10	U	
ORTHOPHOSPHATE	MG/L	0.10	U	
SULFATE	MG/L	0.66		
TOTAL ORGANIC CARBON	MG/L	34		

PROJ_NO: 4259

SDG: 302067 MEDIA: WATER DATA FRACTION:

nsample	MPT-8-MW01S-03
samp_date	2/10/2003
lab_id	302067-002-010-
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	170		
AMMONIA	MG/L	0.39		
CHLORIDE	MG/L	17		
NITRATE	MG/L	0.10	U	
NITRITE	MG/L	0.10	UJ	H
ORTHOPHOSPHATE	MG/L	0.10	UJ	H
SULFATE	MG/L	31		
TOTAL ORGANIC CARBON	MG/L	3.1		

nsample	MPT-8-MW09S-03
samp_date	2/10/2003
lab_id	302067-001-009-
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	330		
AMMONIA	MG/L	0.44		
CHLORIDE	MG/L	23		
NITRATE	MG/L	0.10	UJ	H
NITRITE	MG/L	0.10	UJ	H
ORTHOPHOSPHATE	MG/L	0.10	UJ	H
SULFATE	MG/L	18		
TOTAL ORGANIC CARBON	MG/L	10		

nsample	MPT-8-MW16S-03
samp_date	2/11/2003
lab_id	302067-005-013-
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	570		
AMMONIA	MG/L	3.9		
CHLORIDE	MG/L	17		
NITRATE	MG/L	0.10	UJ	H
NITRITE	MG/L	0.10	UJ	H
ORTHOPHOSPHATE	MG/L	0.10	UJ	H
SULFATE	MG/L	0.67		
TOTAL ORGANIC CARBON	MG/L	35		

PROJ_NO: 4259

SDG: 302067 MEDIA: WATER DATA FRACTION:

nsample	MPT-8-MW19S-03
samp_date	2/11/2003
lab_id	302067-008-016-
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	130		
AMMONIA	MG/L	0.10	U	
CHLORIDE	MG/L	23		
DISSOLVED ORGANIC CARBO	MG/L	4.2		
FRACTION ORGANIC CARBON	MG/L	29		
NITRATE	MG/L	2.0	J	H
NITRITE	MG/L	0.10	UJ	H
ORTHOPHOSPHATE	MG/L	0.10	UJ	H
SULFATE	MG/L	36		
TOTAL ORGANIC CARBON	MG/L	4.6		

nsample	MPT-8-TB01-03
samp_date	2/11/2003
lab_id	302067-007-015-
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
ALKALINITY	MG/L	1.0	U	
AMMONIA	MG/L	0.10	U	
CHLORIDE	MG/L	0.10	U	
DISSOLVED ORGANIC CARBO	MG/L	1.0	U	
FRACTION ORGANIC CARBON	MG/L	1.0	U	
NITRATE	MG/L	0.10	UJ	H
NITRITE	MG/L	0.10	UJ	H
ORTHOPHOSPHATE	MG/L	0.10	UJ	H
SULFATE	MG/L	0.10	U	
TOTAL ORGANIC CARBON	MG/L	1.0	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

GPL - Maryland Laboratory

Metals Data Reporting Form

Sample Results **SDG:** 302067

Lab Sample ID: S 302067-006-006-1/1 **Client ID:** MPT-5-MW02S-03

Matrix: Water **Units:** ug/L **Prep Date:** 2/13/03 **Prep Batch:** 59105

Weight: 100.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	271.44	51.7	150	51.7	U	1	ICPST	2/14/03	22:00
Manganese	**257.61**	**0.20**	**5.0**	**8.4**		**1**	**ICPST**	**2/14/03**	**22:00**

Comments: Sample Date: 02/11/03 Sample Time: 01:50 PM Color(Before): COLORLESS Color(After): COLORLESS
Clarity(Before): CLEAR Clarity(After): CLEAR

E Serial dilution percent difference not within limits
U Result is less than the IDL

GPL - Maryland Laboratory

Metals Data Reporting Form

Sample Results **SDG:** 302067

Lab Sample ID: S 302067-004-004-1/1 **Client ID:** MPT-5-MW03S-03

Matrix: Water **Units:** ug/L **Prep Date:** 2/13/03 **Prep Batch:** 59105

Weight: 100.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	271.44	51.7	150	4020		1	ICPST	2/14/03	21:47
Manganese	257.61	0.20	5.0	190		1	ICPST	2/14/03	21:47

Comments: Sample Date: 02/11/03 Sample Time: 09:10 AM Color(Before): COLORLESS Color(After): COLORLESS
Clarity(Before): CLEAR Clarity(After): CLEAR

E Serial dilution percent difference not within limits
U Result is less than the IDL

GPL - Maryland Laboratory

Metals Data Reporting Form

Sample Results **SDG:** 302067

Lab Sample ID: S 302067-003-003-1/1 **Client ID:** MPT-8-DU01-03

Matrix: Water **Units:** ug/L **Prep Date:** 2/13/03 **Prep Batch:** 59105

Weight: 100.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	271.44	51.7	150	14600		1	ICPST	2/14/03	21:40
Manganese	257.61	0.20	5.0	270		1	ICPST	2/14/03	21:40

Comments: Sample Date: 02/11/03 Sample Time: 12:00 AM Color(Before): COLORLESS Color(After): COLORLESS
Clarity(Before): CLEAR Clarity(After): CLEAR

E Serial dilution percent difference not within limits
U Result is less than the IDL

GPL - Maryland Laboratory

Metals Data Reporting Form

Sample Results **SDG:** 302067

Lab Sample ID: S 302067-002-002-1/1 **Client ID:** MPT-8-MW01S-03

Matrix: Water **Units:** ug/L **Prep Date:** 2/13/03 **Prep Batch:** 59105

Weight: 100.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	271.44	51.7	150	185		1	ICPST	2/14/03	21:20
Manganese	257.61	0.20	5.0	26.4		1	ICPST	2/14/03	21:20

Comments: Sample Date: 02/10/03 Sample Time: 02:35 PM Color(Before): COLORLESS Color(After): COLORLESS
Clarity(Before): CLEAR Clarity(After): CLEAR

E Serial dilution percent difference not within limits
U Result is less than the IDL

GPL - Maryland Laboratory

Metals Data Reporting Form

Sample Results **SDG:** 302067

Lab Sample ID: S 302067-001-001-1/1 **Client ID:** MPT-8-MW09S-03

Matrix: Water **Units:** ug/L **Prep Date:** 2/13/03 **Prep Batch:** 59105

Weight: 100.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	271.44	51.7	150	1650		1	ICPST	2/14/03	20:47
Manganese	257.61	0.20	5.0	231		1	ICPST	2/14/03	20:47

Comments: Sample Date: 02/10/03 Sample Time: 12:35 PM Color(Before): COLORLESS Color(After): COLORLESS
Clarity(Before): CLEAR Clarity(After): CLEAR

E Serial dilution percent difference not within limits
U Result is less than the IDL

GPL - Maryland Laboratory

Metals Data Reporting Form

Sample Results SDG: 302067

Lab Sample ID: S 302067-005-005-1/1 **Client ID:** MPT-8-MW16S-03

Matrix: Water **Units:** ug/L **Prep Date:** 2/13/03 **Prep Batch:** 59105

Weight: 100.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	271.44	51.7	150	14800		1	ICPST	2/14/03	21:53
Manganese	257.61	0.20	5.0	270		1	ICPST	2/14/03	21:53

Comments: Sample Date: 02/11/03 Sample Time: 10:25 AM Color(Before): COLORLESS Color(After): COLORLESS
Clarity(Before): CLEAR Clarity(After): CLEAR

E Serial dilution percent difference not within limits
U Result is less than the IDL

GPL - Maryland Laboratory

Metals Data Reporting Form

Sample Results **SDG:** 302067

Lab Sample ID: S 302067-008-008-1/1 **Client ID:** MPT-8-MW19S-03

Matrix: Water **Units:** ug/L **Prep Date:** 2/13/03 **Prep Batch:** 59105

Weight: 100.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	271.44	51.7	150	51.7	U	1	ICPST	2/14/03	22:13
Manganese	**257.61**	**0.20**	**5.0**	**94.4**		**1**	**ICPST**	**2/14/03**	**22:13**

Comments: Sample Date: 02/11/03 Sample Time: 03:30 PM Color(Before): COLORLESS Color(After): COLORLESS
Clarity(Before): CLEAR Clarity(After): CLEAR

E Serial dilution percent difference not within limits
U Result is less than the IDL

Form 1 Equivalent

GPL - Maryland Laboratory

Metals Data Reporting Form

Sample Results **SDG:** 302067

Lab Sample ID: S 302067-007-007-1/1 **Client ID:** MPT-8-TB01-03

Matrix: Water **Units:** ug/L **Prep Date:** 2/13/03 **Prep Batch:** 59105

Weight: 100.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	271.44	51.7	150	51.7	U	1	ICPST	2/14/03	22:07
Manganese	**257.61**	**0.20**	**5.0**	**1.3**	**B**	**1**	**ICPST**	**2/14/03**	**22:07**

Comments: Sample Date: 02/11/03 Sample Time: 03:00 PM Color(Before): COLORLESS Color(After): COLORLESS
Clarity(Before): CLEAR Clarity(After): CLEAR

E Serial dilution percent difference not within limits
U Result is less than the IDL

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-5-MW02S-03	Prep Method:	Analytical Method: E310.1
GPL ID: 302067-006-014-1/1	Prep Date:	Date Analyzed: 02/21/2003
Matrix: WATER	Prep Time:	Time Analyzed: 10:30
Date Collected: 02/11/2003	Prep Batch:	Analysis Batch: 59286
Date Received: 02/12/2003		

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
alkalinity, Total (as CaCO3)	380	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-5-MW02S-03
GPL ID: 302067-006-022-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E350.2
Date Analyzed: 02/28/2003
Time Analyzed: 15:00
Analysis Batch: 59313

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrogen, Ammonia (as N)	0.78	0.10	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-5-MW02S-03
GPL ID: 302067-006-014-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 03/04/2003
Time Analyzed: 20:41
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Chloride	150	10	mg/L		100

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-5-MW02S-03
GPL ID: 302067-006-014-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 02/14/2003
Time Analyzed: 04:19
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrate	0.80	0.10	mg/L		1
Nitrite	BQL	0.10	mg/L	U	1
Ortho-Phosphate	BQL	0.10	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-5-MW02S-03
GPL ID: 302067-006-014-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 03/03/2003
Time Analyzed: 02:18
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Sulfate	25	4.0	mg/L		40

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-5-MW02S-03
GPL ID: 302067-006-022-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060
Date Analyzed: 03/07/2003
Time Analyzed: 12:13
Analysis Batch: 59309

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Total Organic Carbon	13	2.0	mg/L		2

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-5-MW03S-03
GPL ID: 302067-004-012-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E310.1
Date Analyzed: 02/21/2003
Time Analyzed: 10:30
Analysis Batch: 59286

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
alkalinity, Total (as CaCO3)	370	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-5-MW03S-03	Prep Method:	Analytical Method: E350.2
GPL ID: 302067-004-020-1/1	Prep Date:	Date Analyzed: 02/28/2003
Matrix: WATER	Prep Time:	Time Analyzed: 15:00
Date Collected: 02/11/2003	Prep Batch:	Analysis Batch: 59313
Date Received: 02/12/2003		

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrogen, Ammonia (as N)	0.48	0.10	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-5-MW03S-03
GPL ID: 302067-004-012-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 03/03/2003
Time Analyzed: 00:48
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Chloride	14	1.0	mg/L		10

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-5-MW03S-03
GPL ID: 302067-004-012-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 02/14/2003
Time Analyzed: 03:19
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrate	BQL	0.10	mg/L	U	1
Nitrite	BQL	0.10	mg/L	U	1
Ortho-Phosphate	BQL	0.10	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-5-MW03S-03	Prep Method:	Analytical Method: E300
GPL ID: 302067-004-012-1/1	Prep Date:	Date Analyzed: 03/03/2003
Matrix: WATER	Prep Time:	Time Analyzed: 01:18
Date Collected: 02/11/2003	Prep Batch:	Analysis Batch: 59305
Date Received: 02/12/2003		

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Sulfate	40	5.0	mg/L		50

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-5-MW03S-03
GPL ID: 302067-004-020-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060
Date Analyzed: 03/07/2003
Time Analyzed: 12:13
Analysis Batch: 59309

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Total Organic Carbon	2.7	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-DU01-03	Prep Method:	Analytical Method: E310.1
GPL ID: 302067-003-011-1/1	Prep Date:	Date Analyzed: 02/21/2003
Matrix: WATER	Prep Time:	Time Analyzed: 10:30
Date Collected: 02/11/2003	Prep Batch:	Analysis Batch: 59286
Date Received: 02/12/2003		

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
alkalinity, Total (as CaCO3)	570	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-DU01-03
GPL ID: 302067-003-019-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E350.2
Date Analyzed: 02/28/2003
Time Analyzed: 15:00
Analysis Batch: 59313

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrogen, Ammonia (as N)	3.9	0.10	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-DU01-03
GPL ID: 302067-003-011-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 03/03/2003
Time Analyzed: 00:18
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Chloride	17	2.0	mg/L		20

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-DU01-03
GPL ID: 302067-003-011-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 02/14/2003
Time Analyzed: 02:49
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrate	BQL	0.10	mg/L	U	1
Nitrite	BQL	0.10	mg/L	U	1
Ortho-Phosphate	BQL	0.10	mg/L	U	1
Sulfate	0.66	0.10	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-DU01-03
GPL ID: 302067-003-019-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060
Date Analyzed: 03/07/2003
Time Analyzed: 12:13
Analysis Batch: 59309

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Total Organic Carbon	34	5.0	mg/L		5

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW01S-03
GPL ID: 302067-002-010-1/1
Matrix: WATER
Date Collected: 02/10/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E310.1
Date Analyzed: 02/21/2003
Time Analyzed: 10:30
Analysis Batch: 59286

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
alkalinity, Total (as CaCO3)	170	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW01S-03
GPL ID: 302067-002-018-1/1
Matrix: WATER
Date Collected: 02/10/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E350.2
Date Analyzed: 02/28/2003
Time Analyzed: 15:00
Analysis Batch: 59313

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrogen, Ammonia (as N)	0.39	0.10	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW01S-03
GPL ID: 302067-002-010-1/1
Matrix: WATER
Date Collected: 02/10/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 03/02/2003
Time Analyzed: 23:47
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Chloride	17	2.5	mg/L		25
Sulfate	31	2.5	mg/L		25

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW01S-03
GPL ID: 302067-002-010-1/1
Matrix: WATER
Date Collected: 02/10/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 02/14/2003
Time Analyzed: 02:19
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrate	BQL	0.10	mg/L	U	1
Nitrite	BQL	0.10	mg/L	U	1
Ortho-Phosphate	BQL	0.10	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW01S-03
GPL ID: 302067-002-018-1/1
Matrix: WATER
Date Collected: 02/10/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060
Date Analyzed: 03/07/2003
Time Analyzed: 12:13
Analysis Batch: 59309

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Total Organic Carbon	3.1	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW09S-03
GPL ID: 302067-001-009-1/1
Matrix: WATER
Date Collected: 02/10/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E310.1
Date Analyzed: 02/21/2003
Time Analyzed: 10:30
Analysis Batch: 59286

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
alkalinity, Total (as CaCO3)	330	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW09S-03
GPL ID: 302067-001-017-1/1
Matrix: WATER
Date Collected: 02/10/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E350.2
Date Analyzed: 02/28/2003
Time Analyzed: 15:00
Analysis Batch: 59313

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrogen, Ammonia (as N)	0.44	0.10	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW09S-03
GPL ID: 302067-001-009-1/1
Matrix: WATER
Date Collected: 02/10/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 03/02/2003
Time Analyzed: 22:17
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Chloride	23	2.0	mg/L		20
Sulfate	18	2.0	mg/L		20

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW09S-03
GPL ID: 302067-001-009-1/1
Matrix: WATER
Date Collected: 02/10/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 02/14/2003
Time Analyzed: 01:49
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrate	BQL	0.10	mg/L	U	1
Nitrite	BQL	0.10	mg/L	U	1
Ortho-Phosphate	BQL	0.10	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW09S-03
GPL ID: 302067-001-017-1/1
Matrix: WATER
Date Collected: 02/10/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060
Date Analyzed: 03/07/2003
Time Analyzed: 12:13
Analysis Batch: 59309

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Total Organic Carbon	10	2.0	mg/L		2

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW16S-03	Prep Method:	Analytical Method: E310.1
GPL ID: 302067-005-013-1/1	Prep Date:	Date Analyzed: 02/21/2003
Matrix: WATER	Prep Time:	Time Analyzed: 10:30
Date Collected: 02/11/2003	Prep Batch:	Analysis Batch: 59286
Date Received: 02/12/2003		

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
alkalinity, Total (as CaCO3)	570	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW16S-03
GPL ID: 302067-005-021-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E350.2
Date Analyzed: 02/28/2003
Time Analyzed: 15:00
Analysis Batch: 59313

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrogen, Ammonia (as N)	3.9	0.10	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW16S-03
GPL ID: 302067-005-013-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 03/03/2003
Time Analyzed: 01:48
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Chloride	17	2.0	mg/L		20

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW16S-03
GPL ID: 302067-005-013-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 02/14/2003
Time Analyzed: 03:49
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrate	BQL	0.10	mg/L	U	1
Nitrite	BQL	0.10	mg/L	U	1
Ortho-Phosphate	BQL	0.10	mg/L	U	1
Sulfate	0.67	0.10	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW16S-03
GPL ID: 302067-005-021-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060
Date Analyzed: 03/07/2003
Time Analyzed: 12:13
Analysis Batch: 59309

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Total Organic Carbon	35	5.0	mg/L		5

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW19S-03
GPL ID: 302067-008-016-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E310.1
Date Analyzed: 02/21/2003
Time Analyzed: 10:30
Analysis Batch: 59286

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
alkalinity, Total (as CaCO3)	130	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW19S-03
GPL ID: 302067-008-024-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E350.2
Date Analyzed: 02/28/2003
Time Analyzed: 15:00
Analysis Batch: 59313

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrogen, Ammonia (as N)	BQL	0.10	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW19S-03
GPL ID: 302067-008-016-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 03/03/2003
Time Analyzed: 02:48
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Chloride	23	2.5	mg/L		25
Sulfate	36	2.5	mg/L		25

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW19S-03
GPL ID: 302067-008-016-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060D
Date Analyzed: 03/07/2003
Time Analyzed: 12:13
Analysis Batch: 59310

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Dissolved Organic Carbon	4.2	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW19S-03
GPL ID: 302067-008-016-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060F
Date Analyzed: 03/07/2003
Time Analyzed: 12:13
Analysis Batch: 59311

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Fractional Organic Carbon	29	5.0	mg/L		5

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW19S-03
GPL ID: 302067-008-016-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 02/14/2003
Time Analyzed: 04:50
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrate	2.0	0.10	mg/L		1
Nitrite	BQL	0.10	mg/L	U	1
Ortho-Phosphate	BQL	0.10	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-MW19S-03
GPL ID: 302067-008-024-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060
Date Analyzed: 03/07/2003
Time Analyzed: 12:13
Analysis Batch: 59309

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Total Organic Carbon	4.6	1.0	mg/L		1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-TB01-03
GPL ID: 302067-007-015-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E310.1
Date Analyzed: 02/21/2003
Time Analyzed: 10:30
Analysis Batch: 59286

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
alkalinity, Total (as CaCO3)	BQL	1.0	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-TB01-03
GPL ID: 302067-007-023-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E350.2
Date Analyzed: 02/28/2003
Time Analyzed: 15:00
Analysis Batch: 59313

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Nitrogen, Ammonia (as N)	BQL	0.10	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-TB01-03
GPL ID: 302067-007-015-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: E300
Date Analyzed: 02/14/2003
Time Analyzed: 05:50
Analysis Batch: 59305

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Chloride	BQL	0.10	mg/L	U	1
Nitrate	BQL	0.10	mg/L	U	1
Nitrite	BQL	0.10	mg/L	U	1
Ortho-Phosphate	BQL	0.10	mg/L	U	1
Sulfate	BQL	0.10	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-TB01-03
GPL ID: 302067-007-015-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060D
Date Analyzed: 03/07/2003
Time Analyzed: 12:13
Analysis Batch: 59310

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Dissolved Organic Carbon	BQL	1.0	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-TB01-03
GPL ID: 302067-007-015-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060F
Date Analyzed: 03/07/2003
Time Analyzed: 12:13
Analysis Batch: 59311

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Fractional Organic Carbon	BQL	1.0	mg/L	U	1

GPL LABORATORIES, LLLP

Summary of Analytical Results

Client ID: MPT-8-TB01-03
GPL ID: 302067-007-023-1/1
Matrix: WATER
Date Collected: 02/11/2003
Date Received: 02/12/2003

Prep Method:
Prep Date:
Prep Time:
Prep Batch:

Analytical Method: SW9060
Date Analyzed: 03/07/2003
Time Analyzed: 12:13
Analysis Batch: 59309

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
Total Organic Carbon	BQL	1.0	mg/L	U	1

APPENDIX C

SUPPORT DOCUMENTATION

302067

HOLDING TIME
03/19/03

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
MG/L	MPT-5-MW02S-03	302067-006-014-	NM	302067	ALK	02/11/03	02/21/03	02/21/03	10	0	10
MG/L	MPT-5-MW03S-03	302067-004-012-	NM	302067	ALK	02/11/03	02/21/03	02/21/03	10	0	10
MG/L	MPT-8-DU01-03	302067-003-011-	NM	302067	ALK	02/11/03	02/21/03	02/21/03	10	0	10
MG/L	MPT-8-MW01S-03	302067-002-010-	MS	302067	ALK	02/10/03	02/21/03	02/21/03	11	0	11
MG/L	MPT-8-MW09S-03	302067-001-009-	MS	302067	ALK	02/10/03	02/21/03	02/21/03	11	0	11
MG/L	MPT-8-MW16S-03	302067-005-013-	NM	302067	ALK	02/11/03	02/21/03	02/21/03	10	0	10
MG/L	MPT-8-MW19S-03	302067-008-016-	NM	302067	ALK	02/11/03	02/21/03	02/21/03	10	0	10
MG/L	MPT-8-TB01-03	302067-007-015-	NM	302067	ALK	02/11/03	02/21/03	02/21/03	10	0	10
MG/L	MPT-5-MW02S-03	302067-006-014-	NM	302067	CL	02/11/03	03/04/03	03/04/03	21	0	21
MG/L	MPT-5-MW03S-03	302067-004-012-	NM	302067	CL	02/11/03	03/03/03	03/03/03	20	0	20
MG/L	MPT-8-DU01-03	302067-003-011-	NM	302067	CL	02/11/03	03/03/03	03/03/03	20	0	20
MG/L	MPT-8-MW01S-03	302067-002-010-	NM	302067	CL	02/10/03	03/02/03	03/02/03	20	0	20
MG/L	MPT-8-MW09S-03	302067-001-009-	MS	302067	CL	02/10/03	03/02/03	03/02/03	20	0	20
MG/L	MPT-8-MW16S-03	302067-005-013-	NM	302067	CL	02/11/03	03/03/03	03/03/03	20	0	20
MG/L	MPT-8-MW19S-03	302067-008-016-	NM	302067	CL	02/11/03	03/03/03	03/03/03	20	0	20
MG/L	MPT-8-TB01-03	302067-007-015-	NM	302067	CL	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-8-MW19S-03	302067-008-016-	NM	302067	DOC	02/11/03	03/07/03	03/07/03	24	0	24
MG/L	MPT-8-TB01-03	302067-007-015-	NM	302067	DOC	02/11/03	03/07/03	03/07/03	24	0	24
MG/L	MPT-8-MW19S-03	302067-008-016-	NM	302067	FOC	02/11/03	03/07/03	03/07/03	24	0	24
MG/L	MPT-8-TB01-03	302067-007-015-	NM	302067	FOC	02/11/03	03/07/03	03/07/03	24	0	24
%	BKS59105	BKS59105	LCS	302067	M	02/13/03	02/13/03	02/14/03	0	1	1
UG/L	BLK59105	BLK59105	MB	302067	M	02/13/03	02/13/03	02/14/03	0	1	1
UG/L	MPT-5-MW02S-03	302067-006-006-	NM	302067	M	02/11/03	02/13/03	02/14/03	2	1	3
UG/L	MPT-5-MW03S-03	302067-004-004-	NM	302067	M	02/11/03	02/13/03	02/14/03	2	1	3

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
UG/L	MPT-8-DU01-03	302067-003-003-	NM	302067	M	02/11/03	02/13/03	02/14/03	2	1	3
UG/L	MPT-8-MW01S-03	302067-002-002-	NM	302067	M	02/10/03	02/13/03	02/14/03	3	1	4
UG/L	MPT-8-MW09S-03	302067-001-001-	MS	302067	M	02/10/03	02/13/03	02/14/03	3	1	4
UG/L	MPT-8-MW16S-03	302067-005-005-	NM	302067	M	02/11/03	02/13/03	02/14/03	2	1	3
UG/L	MPT-8-MW19S-03	302067-008-008-	NM	302067	M	02/11/03	02/13/03	02/14/03	2	1	3
UG/L	MPT-8-TB01-03	302067-007-007-	NM	302067	M	02/11/03	02/13/03	02/14/03	2	1	3
MG/L	MPT-5-MW02S-03	302067-006-022-	NM	302067	NH4	02/11/03	02/28/03	02/28/03	17	0	17
MG/L	MPT-5-MW03S-03	302067-004-020-	NM	302067	NH4	02/11/03	02/28/03	02/28/03	17	0	17
MG/L	MPT-8-DU01-03	302067-003-019-	NM	302067	NH4	02/11/03	02/28/03	02/28/03	17	0	17
MG/L	MPT-8-MW01S-03	302067-002-018-	NM	302067	NH4	02/10/03	02/28/03	02/28/03	18	0	18
MG/L	MPT-8-MW09S-03	302067-001-017-	MS	302067	NH4	02/10/03	02/28/03	02/28/03	18	0	18
MG/L	MPT-8-MW16S-03	302067-005-021-	NM	302067	NH4	02/11/03	02/28/03	02/28/03	17	0	17
MG/L	MPT-8-MW19S-03	302067-008-024-	NM	302067	NH4	02/11/03	02/28/03	02/28/03	17	0	17
MG/L	MPT-8-TB01-03	302067-007-023-	NM	302067	NH4	02/11/03	02/28/03	02/28/03	17	0	17
MG/L	MPT-5-MW02S-03	302067-006-014-	NM	302067	NTA	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-5-MW03S-03	302067-004-012-	NM	302067	NTA	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-8-DU01-03	302067-003-011-	NM	302067	NTA	02/11/03	02/12/03	02/12/03	1	0	1
MG/L	MPT-8-MW01S-03	302067-002-010-	NM	302067	NTA	02/10/03	02/12/03	02/12/03	2	0	2
MG/L	MPT-8-MW09S-03	302067-001-009-	DUPLICATE	302067	NTA	02/10/03	02/14/03	02/14/03	4	0	4
MG/L	MPT-8-MW16S-03	302067-005-013-	NM	302067	NTA	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-8-MW19S-03	302067-008-016-	NM	302067	NTA	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-8-TB01-03	302067-007-015-	NM	302067	NTA	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-5-MW02S-03	302067-006-014-	NM	302067	NTI	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-5-MW03S-03	302067-004-012-	NM	302067	NTI	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-8-DU01-03	302067-003-011-	NM	302067	NTI	02/11/03	02/12/03	02/12/03	1	0	1
MG/L	MPT-8-MW01S-03	302067-002-010-	NM	302067	NTI	02/10/03	02/14/03	02/14/03	4	0	4
MG/L	MPT-8-MW09S-03	302067-001-009-	DUPLICATE	302067	NTI	02/10/03	02/14/03	02/14/03	4	0	4

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-03	302067-005-013-	NM	302067	NTI	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-8-MW19S-03	302067-008-016-	NM	302067	NTI	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-8-TB01-03	302067-007-015-	NM	302067	NTI	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-5-MW02S-03	302067-006-014-	NM	302067	OPO4	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-5-MW03S-03	302067-004-012-	NM	302067	OPO4	02/11/03	02/12/03	02/12/03	1	0	1
MG/L	MPT-8-DU01-03	302067-003-011-	NM	302067	OPO4	02/11/03	02/12/03	02/12/03	1	0	1
MG/L	MPT-8-MW01S-03	302067-002-010-	NM	302067	OPO4	02/10/03	02/14/03	02/14/03	4	0	4
MG/L	MPT-8-MW09S-03	302067-001-009-	MS	302067	OPO4	02/10/03	02/14/03	02/14/03	4	0	4
MG/L	MPT-8-MW16S-03	302067-005-013-	NM	302067	OPO4	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-8-MW19S-03	302067-008-016-	NM	302067	OPO4	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-8-TB01-03	302067-007-015-	NM	302067	OPO4	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-5-MW02S-03	302067-006-014-	NM	302067	SO4	02/11/03	03/03/03	03/03/03	20	0	20
MG/L	MPT-5-MW03S-03	302067-004-012-	NM	302067	SO4	02/11/03	03/03/03	03/03/03	20	0	20
MG/L	MPT-8-DU01-03	302067-003-011-	NM	302067	SO4	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-8-MW01S-03	302067-002-010-	NM	302067	SO4	02/10/03	03/02/03	03/02/03	20	0	20
MG/L	MPT-8-MW09S-03	302067-001-009-	MS	302067	SO4	02/10/03	03/02/03	03/02/03	20	0	20
MG/L	MPT-8-MW16S-03	302067-005-013-	NM	302067	SO4	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-8-MW19S-03	302067-008-016-	NM	302067	SO4	02/11/03	03/03/03	03/03/03	20	0	20
MG/L	MPT-8-TB01-03	302067-007-015-	NM	302067	SO4	02/11/03	02/14/03	02/14/03	3	0	3
MG/L	MPT-5-MW02S-03	302067-006-022-	NM	302067	TOC	02/11/03	03/07/03	03/07/03	24	0	24
MG/L	MPT-5-MW03S-03	302067-004-020-	NM	302067	TOC	02/11/03	03/07/03	03/07/03	24	0	24
MG/L	MPT-8-DU01-03	302067-003-019-	NM	302067	TOC	02/11/03	03/07/03	03/07/03	24	0	24
MG/L	MPT-8-MW01S-03	302067-002-018-	MS	302067	TOC	02/10/03	03/07/03	03/07/03	25	0	25
MG/L	MPT-8-MW09S-03	302067-001-017-	NM	302067	TOC	02/10/03	03/07/03	03/07/03	25	0	25
MG/L	MPT-8-MW16S-03	302067-005-021-	NM	302067	TOC	02/11/03	03/07/03	03/07/03	24	0	24
MG/L	MPT-8-MW19S-03	302067-008-024-	NM	302067	TOC	02/11/03	03/07/03	03/07/03	24	0	24
MG/L	MPT-8-TB01-03	302067-007-023-	NM	302067	TOC	02/11/03	03/07/03	03/07/03	24	0	24

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

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
N4259	Mayport (CTO 253)	Terry Hansen	850-385-9866	GPL Laboratories, LLLP
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Charles Metz / Louis Fizzell		Charles Metz	904-636-6125	202 Perry Parkway
		CARRIER/WAYBILL NUMBER	8371-1005-8101 / 8371-1005-8112	CITY, STATE: Gaithersburg MD 20877

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

CONTAINER TYPE PLASTIC (P) or GLASS (G): P P G P
PRESERVATIVE USED: HNO3 H2SO4

DATE YEAR 2003	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	6010B	310.1 + 300.0	350.3 + TOC	310.1 + 300.0 + DOC + FOC				COMMENTS
~~2-10~~						~~GW~~	~~G~~	~~3~~								
2-10	1235	MPT-8-MW09s-03					G	3	✓	✓	✓					
2-10	1435	MPT-8-MW01s-03					G	3	✓	✓	✓					
2-11	0000	MPT-8-DU01-03					G	3	✓	✓	✓					
2-11	0910	MPT-8-MW03s-03					G	3	✓	✓	✓					
2-11	1025	MPT-8-MW16s-03					G	3	✓	✓	✓					
2-11	1350	MPT-S-MW02s-03					G	3	✓	✓	✓					
2-11	1500	MPT-8-TB01-03					G	3	✓	O	✓	✓			*	Trip Blank
2-11	1530	MPT-8-MW19s-03				↓	G	3	✓	O	✓	✓				

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY: Charles Metz	2-11-03	1800	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY	02/12/03	9:15 AM

COMMENTS

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

4/02R
FORM NO. TINUS-001

Analytical Report For 302067

for

Tetra Tech NUS Inc.

Project Manager : Amy Thomson
Project Name : NAVSTA Mayport CTO-253

March 10, 2003

GPL
Laboratories

GPL Laboratories, LLLP Certifies that the test results meet all requirements of the NELAC Standards unless otherwise noted.

Reviewed by,
Project Manager

Approved by,
Laboratory Director

202 Perry Parkway Gaithersburg, MD 20877 Phone (301) 926-6802 Fax: (301) 840-1209
www.gplab.com

TOTAL # OF PAGES : 70

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CASE NARRATIVE

CLIENT: **TETRA TECH NUS INC**
PROJECT/SITE: **NAVSTA MAYPORT**
WORK ORDER(S): 302067
REVIEW DATE: 03/10/03

The Case Narrative, Chain of Custody, Sample Receipt Checklist, and the cover page of the Sample Analysis Report, are integral parts of GPL Laboratories' report package. If you did not receive all of these documents, please contact GPL immediately.

Sample Receipt

Eight water samples were received on 02/12/2003. The samples were delivered by Federal Express. Sample receipt conditions and temperatures are documented on the Sample Receipt Checklist.

Sample Analysis

Samples were prepared and analyzed by GPL using the analytical methodologies indicated on the Sample Analysis Summary Report. In some chromatographic analyses, manual integration is used instead of automated integration because it produces more accurate results. All manual integrations are denoted on the sample quantitation report as "m".

Metals

1. Eight water samples were analyzed for iron and manganese by EPA SW846 methods.

2. A matrix spike, duplicate, and serial dilution were performed on sample MPT-8-MW09S-03 for all required analytes. They were within the control limits.

3. Calibration standards are verified against independent check standards purchased from a commercial vendor of environmental standards.

4. All GPL QA/QC criteria were met.

General Chemistry

1. Eight water samples were analyzed for Total Alkalinity by EPA method 310.1. Duplicate analysis was shared with GPL work order 302062. A laboratory control sample was analyzed along with the sample batch. All QC criteria were met.

2. Eight water samples were analyzed for Ammonia-Nitrogen by EPA method 350.3. Duplicate and matrix spike analyses were performed on sample MPT-8-MW09S-03. All QC criteria were met.

3. Eight water samples were analyzed for Total Organic Carbon by SW846 method 9060. All samples were analyzed in quadruplicate and the average result is reported. Two water samples were also analyzed for Dissolved Organic Carbon and Total Inorganic Carbon (reported as Fraction Organic Carbon) by this method. A matrix spike analysis was performed on sample MPT-8-MW01S-03. All QC criteria were met.

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CASE NARRATIVE

IC Analyses

1. Eight water samples were analyzed for Chloride, Nitrite-Nitrogen, Nitrate-Nitrogen, Phosphate-P, and Sulfate by EPA method 300.0.

2. The samples were originally analyzed on February 12, 2003. Recovery of Nitrate, Nitrite, and Phosphate were below control limits in the continuing standards. The samples were re-analyzed on February 13, 2003 with similar results for the samples and acceptable QC recovery. Both sets of results are reported results are reported. All re-analyses were performed within 2x the holding time.

3. Duplicate and matrix spike analyses were shared with GPL work order 302062.

4. A laboratory control sample was analyzed along with the sample batches.

5. All QC criteria were met.

Project Manager

Lab Director

GPL LABORATORIES, LLP
ANALYTICAL RESULTS

Project Name : NAVSTA Mayport CTO-253

Date Printed: March 10, 2003

GPL ID	Client ID
302067-006-006-1/1	MPT-5-MW02S-03
302067-006-014-1/1	MPT-5-MW02S-03
302067-006-022-1/1	MPT-5-MW02S-03
302067-004-004-1/1	MPT-5-MW03S-03
302067-004-012-1/1	MPT-5-MW03S-03
302067-004-020-1/1	MPT-5-MW03S-03
302067-003-003-1/1	MPT-8-DU01-03
302067-003-011-1/1	MPT-8-DU01-03
302067-003-019-1/1	MPT-8-DU01-03
302067-002-002-1/1	MPT-8-MW01S-03
302067-002-010-1/1	MPT-8-MW01S-03
302067-002-018-1/1	MPT-8-MW01S-03
302067-001-001-1/1	MPT-8-MW09S-03
302067-001-009-1/1	MPT-8-MW09S-03
302067-001-017-1/1	MPT-8-MW09S-03
302067-005-005-1/1	MPT-8-MW16S-03
302067-005-013-1/1	MPT-8-MW16S-03
302067-005-021-1/1	MPT-8-MW16S-03
302067-008-008-1/1	MPT-8-MW19S-03
302067-008-016-1/1	MPT-8-MW19S-03
302067-008-024-1/1	MPT-8-MW19S-03
302067-007-007-1/1	MPT-8-TB01-03
302067-007-015-1/1	MPT-8-TB01-03
302067-007-023-1/1	MPT-8-TB01-03

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Cover Page - Inorganic Analysis Data Package

SDG: 302067

Client ID	Lab Sample ID:
MPT-5-MW02S-03	S 302067-006-006-1/1
MPT-5-MW03S-03	S 302067-004-004-1/1
MPT-8-DU01-03	S 302067-003-003-1/1
MPT-8-MW01S-03	S 302067-002-002-1/1
MPT-8-MW09S-03	D 302067-001-001-1/1
MPT-8-MW09S-03	S 302067-001-001-1/1
MPT-8-MW09S-03	SP302067-001-001-1/1
MPT-8-MW16S-03	S 302067-005-005-1/1
MPT-8-MW19S-03	S 302067-008-008-1/1
MPT-8-TB01-03	S 302067-007-007-1/1

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 conditions detailed above. Release of the data combined in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Steve Dill Name: Steve Dill

Date: 3-4-03 Title: Metals Supervisor

GPL - Maryland Laboratory

Metals Data Reporting Form

Preparation Blank Results **SDG:** 302067

Lab Sample ID: BLK59105

Matrix: Water **Units:** ug/L **Prep Date:** 2/13/03 **Prep Batch:** 59105

Weight: 100.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	271.441	51.7	150	51.7	U	1	ICPST	2/14/03	20:34
Manganese	**257.61**	**0.20**	**5.0**	**1.0**	**B**	**1**	**ICPST**	**2/14/03**	**20:34**

Comments: Color(Before): COLORLESS Color(After): COLORLESS Clarity(Before): CLEAR Clarity(After): CLEAR
Texture: FINE

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Metals Data Reporting Form

Initial Calibration Blank Results **SDG:** 302067

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

Chart Number: 030214V.ARC

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

Element	WL/ Mass	Report Limit	BIICB 2/14/03 2:52 PM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Iron	271.441	150	51.7	U								
Manganese	257.61	5	0.2	U								

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

Form 3 Equivalent

GPL - Maryland Laboratory

Metals Data Reporting Form

Continuing Calibration Blank Result **SDG:** 302067

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

Chart Number: 030214V.ARC

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

Element	WL/ Mass	Report Limit	BCCCB 2/14/03 3:07 PM		BCCCB3 2/14/03 4:01 PM		BCCCB3 2/14/03 5:35 PM		BCCCB3 2/14/03 6:54 PM		BCCCB4 2/14/03 8:14 PM	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Iron	271.441	150	51.7	U	51.7	U	51.7	U	51.7	U	51.7	U
Manganese	257.61	5	0.2	U	**0.4**	**B**	0.2	U	0.2	U	**0.2**	**B**

U Result is less than the IDL

B Result is between IDL and RL

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Metals Data Reporting Form

Continuing Calibration Blank Result **SDG:** 302067

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

Chart Number: 030214V.ARC

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

Element	WL/ Mass	Report Limit	BCCCB4 2/14/03 9:33 PM Found	Q	BCCCB4 2/14/03 10:53 PM Found	Q	Found	Q	Found	Q	Found	Q
Iron	271.441	150	51.7	U	54.7	B						
Manganese	257.61	5	0.3	B	0.3	B						

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

Form 3 Equivalent

General Chemistry Form 2

E300.0 CONTINUING CALIBRATION CHECK STANDARD RECOVERY

Lab Name: GPL Laboratories, LLLC | Client: Tetra Tech NUS

Work-Order # 302067 | STD Solution ID: #21315

2/11/03

Standard ID	Analyte	Control Std True Value (mg/L)	Standard Concentration (mg/L)	Standard %Recovery	Recovery Control Limits
CCV1	**Nitrite-N**	0.25	0.25	100	90 - 110%
	Nitrate-N	0.25	0.25	100	90 - 110%
	ortho-Phosphate	0.25	0.26	104	90 - 110%

Standard ID	Analyte	Control Std True Value (mg/L)	Standard Concentration (mg/L)	Standard %Recovery	Recovery Control Limits
CCV2	**Nitrite-N**	2.00	1.72	86.0*	90 - 110%
	Nitrate-N	2.00	1.68	84.0*	90 - 110%
	ortho-Phosphate	2.00	1.71	85.5*	90 - 110%

Standard ID	Analyte	Control Std True Value (mg/L)	Standard Concentration (mg/L)	Standard %Recovery	Recovery Control Limits
CCV3	**Nitrite-N**	1.25	1.06	84.8*	90 - 110%
	Nitrate-N	1.25	1.03	82.4*	90 - 110%
	ortho-Phosphate	1.25	1.07	85.6*	90 - 110%

reported results are from 2/13/03 run

2/13/03

Standard ID	Analyte	Control Std True Value (mg/L)	Standard Concentration (mg/L)	Standard %Recovery	Recovery Control Limits
ICV	**Nitrite-N**	1.25	1.27	102	90 - 110%
	Nitrate-N	1.25	1.23	98.4	90 - 110%
	ortho-Phosphate	1.25	1.29	103	90 - 110%

Standard ID	Analyte	Control Std True Value (mg/L)	Standard Concentration (mg/L)	Standard %Recovery	Recovery Control Limits
CCV1	**Chloride**	2.00	1.89	94.5	90 - 110%
	Nitrite-N	2.00	1.96	98.0	90 - 110%
	Nitrate-N	2.00	1.90	95.0	90 - 110%
	ortho-Phosphate	2.00	1.89	94.5	90 - 110%

	Sulfate	2.00	2.19	110	90 - 110%

Standard ID	Analyte	Control Std True Value (mg/L)	Standard Concentration (mg/L)	Standard %Recovery	Recovery Control Limits
CCV2	**Chloride**	0.25	0.24	96.0	90 - 110%
	Nitrite-N	0.25	0.24	96.0	90 - 110%
	Nitrate-N	0.25	0.25	100	90 - 110%
	ortho-Phosphate	0.25	0.23	92.0	90 - 110%
	Sulfate	0.25	0.24	96.0	90 - 110%

3/2/03

Standard ID	Analyte	Control Std True Value (mg/L)	Standard Concentration (mg/L)	Standard %Recovery	Recovery Control Limits
ICV	**Chloride**	1.25	1.13	90.4	90 - 110%
	Sulfate	1.25	1.18	94.4	90 - 110%

Standard ID	Analyte	Control Std True Value (mg/L)	Standard Concentration (mg/L)	Standard %Recovery	Recovery Control Limits
CCV1	**Chloride**	2.00	1.83	91.5	90 - 110%
	Sulfate	2.00	1.91	95.5	90 - 110%

Standard ID	Analyte	Control Std True Value (mg/L)	Standard Concentration (mg/L)	Standard %Recovery	Recovery Control Limits
CCV2	**Chloride**	0.50	0.46	92.0	90 - 110%
	Sulfate	0.50	0.51	102	90 - 110%

3/4/03

Standard ID	Analyte	Control Std True Value (mg/L)	Standard Concentration (mg/L)	Standard %Recovery	Recovery Control Limits
ICV	**Chloride**	1.25	1.19	95.2	90 - 110%

Standard ID	Analyte	Control Std True Value (mg/L)	Standard Concentration (mg/L)	Standard %Recovery	Recovery Control Limits
ICV	**Chloride**	2.00	2.15	108	90 - 110%

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Metals Data Reporting Form

Instrument Detection Limits **SDG:** 302067

Instrument: ICPST **Units:** ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL
Iron	271.441	150.0	51.7	2/13/02
Manganese	257.610	5.0	0.20	2/13/02

GPL - Maryland Laboratory

Metals Data Reporting Form

Preparation Log **SDG:** 302067

Preparation Batch: 59105 **Instrument:** ICP **Matrix:** Water

Sample ID	Prep Date	Weight (g)	Volume (ml)	% Moisture
BKS59105	2/13/03	100.00	100	NA
BLK59105	2/13/03	100.00	100	NA
D 302067-001-001-1/1	2/13/03	100.00	100	NA
S 302067-001-001-1/1	2/13/03	100.00	100	NA
S 302067-002-002-1/1	2/13/03	100.00	100	NA
S 302067-003-003-1/1	2/13/03	100.00	100	NA
S 302067-004-004-1/1	2/13/03	100.00	100	NA
S 302067-005-005-1/1	2/13/03	100.00	100	NA
S 302067-006-006-1/1	2/13/03	100.00	100	NA
S 302067-007-007-1/1	2/13/03	100.00	100	NA
S 302067-008-008-1/1	2/13/03	100.00	100	NA
SP302067-001-001-1/1	2/13/03	100.00	100	NA

GPL - Maryland Laboratory

Metals Data Reporting Form

Instrument Runlog **SDG:** 302067

Instrument: ICPST **Chart Number:** 030214V.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
STD0		2/14/03	14:18
STD1		2/14/03	14:26
STD2		2/14/03	14:33
STD3		2/14/03	14:40
IVICV		2/14/03	14:45
BIICB		2/14/03	14:52
CVCCV		2/14/03	15:00
BCCCB		2/14/03	15:07
LOWCHECK(PQL)		2/14/03	15:14
ZZZZZZ		2/14/03	15:21
IAICSAI		2/14/03	15:28
IBICSABI		2/14/03	15:36
ZZZZZZ		2/14/03	15:43
CVCCV3		2/14/03	15:54
BCCCB3		2/14/03	16:01
ZZZZZZ		2/14/03	16:08
ZZZZZZ		2/14/03	16:15
ZZZZZZ		2/14/03	16:21
ZZZZZZ		2/14/03	16:28
ZZZZZZ		2/14/03	16:35
ZZZZZZ		2/14/03	16:55
ZZZZZZ		2/14/03	17:02
ZZZZZZ		2/14/03	17:08
ZZZZZZ		2/14/03	17:15
ZZZZZZ		2/14/03	17:21
CVCCV3		2/14/03	17:28
BCCCB3		2/14/03	17:35
ZZZZZZ		2/14/03	17:41
ZZZZZZ		2/14/03	17:48
ZZZZZZ		2/14/03	17:55
ZZZZZZ		2/14/03	18:01
ZZZZZZ		2/14/03	18:08
ZZZZZZ		2/14/03	18:15
ZZZZZZ		2/14/03	18:21
ZZZZZZ		2/14/03	18:28
ZZZZZZ		2/14/03	18:34
ZZZZZZ		2/14/03	18:41
CVCCV3		2/14/03	18:48
BCCCB3		2/14/03	18:54

GPL - Maryland Laboratory

Metals Data Reporting Form

Instrument Runlog **SDG:** 302067

Instrument: ICPST **Chart Number:** 030214V.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
ZZZZZZ		2/14/03	19:01
ZZZZZZ		2/14/03	19:08
ZZZZZZ		2/14/03	19:14
ZZZZZZ		2/14/03	19:21
ZZZZZZ		2/14/03	19:27
ZZZZZZ		2/14/03	19:34
ZZZZZZ		2/14/03	19:41
ZZZZZZ		2/14/03	19:47
ZZZZZZ		2/14/03	19:54
ZZZZZZ		2/14/03	20:01
CVCCV4		2/14/03	20:07
BCCCB4		2/14/03	20:14
ZZZZZZ		2/14/03	20:21
ZZZZZZ		2/14/03	20:27
BLK59105	BLK59105	2/14/03	20:34
BKS59105	BKS59105	2/14/03	20:40
S 302067-001-001-1/1	MPT-8-MW09S-03	2/14/03	20:47
D 302067-001-001-1/1	MPT-8-MW09S-03	2/14/03	20:54
SP302067-001-001-1/1	MPT-8-MW09S-03	2/14/03	21:00
ZZZZZZ		2/14/03	21:07
SE302067-001-001-1/1	MPT-8-MW09S-03	2/14/03	21:14
S 302067-002-002-1/1	MPT-8-MW01S-03	2/14/03	21:20
CVCCV4		2/14/03	21:27
BCCCB4		2/14/03	21:33
S 302067-003-003-1/1	MPT-8-DU01-03	2/14/03	21:40
S 302067-004-004-1/1	MPT-5-MW03S-03	2/14/03	21:47
S 302067-005-005-1/1	MPT-8-MW16S-03	2/14/03	21:53
S 302067-006-006-1/1	MPT-5-MW02S-03	2/14/03	22:00
S 302067-007-007-1/1	MPT-8-TB01-03	2/14/03	22:07
S 302067-008-008-1/1	MPT-8-MW19S-03	2/14/03	22:13
ZZZZZZ		2/14/03	22:20
ZZZZZZ		2/14/03	22:27
ZZZZZZ		2/14/03	22:33
ZZZZZZ		2/14/03	22:40
CVCCV4		2/14/03	22:46
BCCCB4		2/14/03	22:53
ZZZZZZ		2/14/03	23:00
ZZZZZZ		2/14/03	23:06
ZZZZZZ		2/14/03	23:15

GPL Laboratories, LLLP *Document Control No: GP_W_210*

Method Title: Alkalinity, Titrimetric
Method Reference: MCAWW 310.1

#59284

Analyst: Ros
Date: 2-21-03 10:30Am
Reviewed by Date: 03-6-03

Normality of Titrant: 0.0200 N

Raw Data

GPL ID	Client ID	Sample Vol./Wt.	Initial pH	pH 8.3 ml	pH 4.5 ml	pH 4.2 ml	Total Alk mg/L	Hyd. Alk mg/L	Carb. Alk mg/L	Bic. Alk mg/L
ICV	#19993	10.0mL	7.00							
ICB	prep Blank	50.0mL	~~5.14~~ 4.40	—	~~0.05~~ 0.05	~~0.10~~ 0.10	<1.0			
LCS	#20561	50.0mL	8.70	1.30	3.10	—	62			
302062-001	0496W202D001	50.0mL	5.66	—	1.20	—	24.00			
003	0496W2065000	50.0mL	6.06	—	0.85	0.95	15.0			
dup	dup	50.0mL	6.08	—	0.85	0.95	15.0			
302067-001	MPT-8-MW095-03	50.0mL	6.95	—	16.65	—	333			
002	MPT-8-MW015-03	50.0mL	7.47	—	8.30	—	166			
003	MPT-8-DUO1-03	50.0mL	6.59	—	28.25	—	565			
004	MPT-5-MW035-03	50.0mL	6.99	—	18.60	—	372			
005	MPT-8-MW165-03	50.0mL	6.87		28.30		566			
006	MPT-5-MW025-03	50.0mL	7.18	—	18.75		375			
007	MPT-8-TB01-03	50.0mL	4.48	—	—	—	<1.0			
CCV1	#19993	10.0mL	7.00							
CCB1	prepBlank	50.0mL	4.40	—	—					
302067-008	MPT-8-MW195-03	50.0mL	7.43	—	6.70	—	134			
302068-001	0496W206M0001	50.0mL	11.75	—	2.55	—	51			
302086-001	0496W206D0001	50mL	6.60 7.12	—	5.75	—	115			
006	0496W206D9901	50mL	7.03	—	5.70	—	114			
302089-001	MPT-8-MW185-03	50mL	7.21	—	11.15	—	223			
002	MPT-8-MW175-03	50mL	7.03	—	14.95	—	299			
003	MPT-8-MW045-03	50mL	6.72		24.80	—	496			
004	MPT-8-MW065-03	50mL	7.45	—	8.85	—	177			
CCV2	#19993	10.0mL	7.00							

Calculations:

A. Potentiometric titration to pH 4.5

$$\text{Alkalinity (mg/l CaCO3)} = \frac{A \times N \times 50{,}000}{\text{ml of sample}}$$

where A = ml standard acid
N = normality of acid standard

B. Potentiometric titration of Low Alkalinity

$$\text{Total Alkalinity (mg/L CaCO3)} = \frac{(2B - C) \times N \times 50{,}000}{\text{ml of sample}}$$

where: B = ml titrant to first recorded pH
C = total mo titrant to reach pH 0.3 units lower
N = normality of acid

GPL Laboratories, LLLP

Document Control No: GP_W_210

Method Title: Alkalinity, Titrimetric

Method Reference: MCAWW 310.1

Analyst: RCS

Date: 2-21-03 10:30AM

Reviewed by Date: 2-21-03

Normality of Titrant: 0.0200N

Raw Data

GPL ID	Client ID	Sample Vol./Wt.	Initial pH	pH 8.3 ml	pH 4.5 ml	pH 4.2 ml	Total Alk mg/L	Hyd. Alk mg/L	Carb. Alk mg/L	Bic. Alk mg/L
CCB2	Prep Blank	50.0mL	4.40	—	—					

RCS 2-21-03

Calculations:

A. Potentiometric titration to pH 4.5

Alkalinity (mg/l CaCO3) = $\frac{A \times N \times 50{,}000}{\text{ml of sample}}$ where A = ml standard acid, N = normality of acid standard

B. Potentiometric titration of Low Alkalinity

Total Alkalinity (mg/L CaCO3) = $\frac{(2B - C) \times N \times 50{,}000}{\text{ml of sample}}$

where: B = ml titrant to first recorded pH

C = total mo titrant to reach pH 0.3 units lower

N = normality of acid

GPL Laboratories, LLLP *Document Control No: GP_W 190*

Method Title: NH3, Potentiometric
Method Reference:MCAWW 350.3
Work Order: #59313

Analyst: dc
Date: 2-28-03 3:00 pm
Reviewed by/Date: 3-3-03

RAW DATA

W.O.	FRA.	Client ID	Sample Vol/wt	Dil	MV Reading	Sample Conc.	Results mg/L
ICV	–	# 21139	25	2.5	-35	5.2196	13.05
ICB	–	Blk.	25	1	96	0.0261	<0.1
302067	001	MPT-8-MW095-03	25	1	26	0.4426	0.44
dup	001	–	25	1	26	0.4426	0.44
2.0mg/L spk	001	–	25	1	-15	2.3242	2.32
	002	MPT-8-MW015-03	25	1	29	0.3920	0.39
	003	MPT-5-D401-03	25	1	-28	3.9324	3.93
	004	MPT-5-MW035-03	25	1	24	0.4799	0.48
	005	MPT-8-MW165-03	25	1	-28	3.9324	3.53
	006	MPT-5-MW025-03	25	1	12	0.7797	0.78
	007	MPT-8-TT301-03	25	1	87	0.0375	0.038
	008	MPT-8-MW195-03	25	1	100	0.0222	0.022
ccv1	–	# 21139	25	2.5	-38	5.8931	14.7
ccb1	–	Blk	25	1	92	0.0307	<0.1
302089	001	MPT-8-MW185-03	25	1	66	0.0878	0.09
dup	001	–	25	1	66	0.0878	0.09
spk	001	–	25	1	-11	1.9770	1.98
	002	MPT-8-MW175-03	25	1	40	0.2512	0.25
	003	MPT-8-MW045-03	25	1	-34	5.0127	5.01
	004	MPT-8-MW065-03	25	1	41	0.2412	0.24
ccv2	–	# 21139	25	2.5	-36	5.4351	13.6
ccb2	–	Blk	25	1	96	0.0261	<0.1
		2-28-03 dt					

Calculations:

1. Prepare a Standard curve by plotting the log of the Standard concentration versus the corresponding MV reading.
2. Obtain concentration value of samples directly from Standard curve.

Method Title: Total Organic Carbon
Method Reference: MCAWW 415.1 / Lloyd Kahn / 9060

Analyst: REP
Date: 3/7/03 12:13
Reviewed By / Date: @ 3-7-03

#59309-TOC

GP ID	Client ID	Sample Vol/Wt.	D.F.	Instrument Reading	Conc.	Final Results mg/L / mg/Kg	
ICV #19516-5.00mg/L	ICV	1.0 mL	1	5.434	5.0174	5.02	
Blank	ICB		1	0.179	0.0022	<1.00 mg/L	
302067-001	MPT-8-MW098-03		2	5.220	4.8132	9.62	
			2	~~4.887~~ 5.765	~~4.4954~~ 5.3333	~~8.99~~ 10.7	10.13
			2	~~5.765~~ 5.721	~~5.3333~~ 5.2913	~~10.7~~ 10.6	REP 3/19/03
			2	~~6.103~~ 5.227	~~5.6559~~ 4.8199	~~11.3~~ 9.64	
302067-002	MPT-8-MW015-03		1	3.217	2.9616	2.90	
			1	3.518	3.1888	3.19	3.08
			1	3.588	3.2556	3.26	
			1	3.309	2.9894	2.99	
302067-002MS	MPT-8-MW015-03		1	5.839	5.4039	5.40	
			1	5.780	5.3476	5.35	5.250
			1	5.566	~~5.09~~ 5.1434	5.14	
			1	5.525	5.1043	5.10	
#19516-5.00mg/L	CCV1		1	5.303	4.8924	4.89	
Blank	CCB1		1	0.225	0.0461	<1.00	
302067-003	MPT-8-DU01-03		5	7.796	7.2717	36.4	
			5	7.489	6.9787	34.9	34.4
			5	7.373	6.8680	34.3	
			5	6.920	6.4356	32.2	
302067-004	MPT-5-MW035-03		1	3.091	2.7813	2.78	
			1	3.004	2.6983	2.70	2.66
			1	2.879	2.5790	2.58	
		1.0mL	1	3.039	2.7317	2.73	

Calculation:

Water Final Results = (instrument reading vs.cal.curve) x dilution factor

Soil Final Results = $\frac{\text{(instrument reading vs.cal. Curve) x 0.040ml)}}{\text{Sample weight (g) x \% solids}}$

(If not detected, report < 1.00 mg/L)

Method Title: Total Organic Carbon
Method Reference: MCAWW 415.1 / Lloyd Kahn / 9060

Analyst: RGP
Date: 3/7/03 12:13
Reviewed By / Date: 3/3/03

#59310-DOC #59310-POC

	GP ID	Client ID	Sample Vol/Wt.	D.F.	Instrument Reading	Conc.	Final Results mg/L / mg/Kg	
	302067-005	MPT-8-MW165-03	1.0 mL	5	7.900	7.3709	36.9	
	↓	↓	↓	5	7.776	7.2526	36.3	35.49
	↓	↓	↓	5	7.460	6.9510	34.8	
	↓	↓	↓	5	7.323	6.8202	34.1	
	#19516-5.00mg/L	CCV2		1	5.760	5.3286	5.33	
	Blank	CCB2		1	0.094	-0.0790	<1.00	
	302067-006	MPT-5-MW025-03		2	7.007	6.5187	13.0	
	↓	↓	↓	2	6.826	6.3459	12.7	~~6.398~~ 12.8
	↓	↓	↓	2	6.905	6.4213	12.8	
	↓	↓	↓	2	6.787	6.3087	12.6	
DOC	302067-007	MPT-8-TB01-03		1	0.513	0.3209	<1.00	DOC <1.00
	↓	↓	↓	1	0.495	0.3037	<1.00	
	↓	↓	↓	1	0.526	0.3333	<1.00	
	↓	↓	↓	1	0.310	0.1272	<1.00	
TOC	302067-007	MPT-8-TB01-03		1	0.011	-0.1582	<1.00	TOC <1.00
	↓	↓	↓	1	0.035	-0.1353	<1.00	
	↓	↓	↓	1	0.077	-0.0952	<1.00	
	↓	↓	↓	1	0.070	-0.1019	<1.00	
	#19516-5.00mg/L	CCV3		1	5.693	5.2646	5.26	
	Blank	CCB3		1	0.103	-0.0704	<1.00	
TC	302067-007	MPT-8-TB01-03		1	0.360	0.1749	<1.00	TC <1.1
	↓	↓		1	0.345	0.1606	<1.00	
	↓	↓	↓	1	0.364	0.1787	<1.00	
	↓	↓	1.0 mL	1	0.303	0.1205	<1.00	

Calculation:

Water Final Results = (instrument reading vs.cal.curve) x dilution factor

Soil Final Results = $\frac{\text{(instrument reading vs.cal. Curve) x 0.040ml)}}{\text{Sample weight (g) x \% solids}}$

(If not detected, report < 1.00mg/L)

cont'd on p. 128

Method Title: Total Organic Carbon
Method Reference: MCAWW 415.1 / Lloyd Kahn / 9060

Analyst: REP
Date: 3/7/03 12:13
Reviewed By / Date: C 3-7-03

Cont'd from p. 126

	GP ID	Client ID	Sample Vol/Wt.	D.F.	Instrument Reading	Conc.	Final Results mg/L mg/Kg	
DOC	302067-008	MPT-8-MW195-03	1.0 mL	1	4.858	4.4677	4.47	DOC 4.206
				1	4.573	4.1957	4.20	
				1	4.281	3.9170	3.92	
				1	4.623	4.2434	4.24	
TOC	302067-008			1	5.006	4.6089	4.61	TOC 4.607
				1	4.921	4.5278	4.53	
				1	4.980	4.5841	4.58	
				1	5.109	4.7073	4.71	
	#19516-5.00 mg/L	CCV4		1	5.730	5.2999	5.30	
	Blank	CCB4		1	0.133	-0.0417	<1.00	
TC	302067-008	MPT-8-MW195-03		5	7.294	6.7926	REP ~~33.0~~ 34.0	TC 33.4
				5	7.308	6.8059	34.0	
				5	7.101	6.6084	33.0	
				5	7.039	6.5492	32.7	TIC 28.8
	#19516-5.00 mg/L	CCV5		1	5.775	5.3429	5.34	
	Blank	CCB5	1.0 mL	1	0.157	-0.0188	<1.00	

REP 3/7/03

Calculation:
Water Final Results = (instrument reading vs.cal.curve) x dilution factor
Soil Final Results = (instrument reading vs.cal. Curve) x 0.040ml) / Sample weight (g) x % solids
(If not detected, report < 1.00 mg/L)

ION CHROMATOGRAPHY ANALYSIS LOG

Instrument ID: Dionex 4000 Reviewed by/Date:_____

Analytes(s): F, Cl, NO2-N, Br, NO3-N, PO4-P, SO4	Guard Column ID: AG9-HC #5917
Analysis Method: E300	Analysis Column ID: AS9-HC #5767
Backpressure: 2350 psi Conductivity: 23.3 µS	Gradient Mixer/ATC ID: NA
Injection Volume: 200 uL	

ICAL Method File: 030211-300.met ICAL Date: 2-11-03 Analyst: VZ

Seq. ID. #\DCDATA\DC4000\030211\

Seq.Ext.ID	GPL ID	Dil	Matrix	Date	Time	Comments
030211-001.dxd	Cal. Blank	1	Std	2-11-03	22:35	
2	0.10 mg/L					
3	0.25 mg/L					
4	0.50 mg/L					
5	1.00 mg/L					
6	2.50 mg/L					
7	ICV-1.25					
8	ICB					
9	MDL-check-0.10					
10	LCS1 #21556 1:2	2				
11	LCS2 #19688 1:40	40				
12	302017-001	1	H2O			
13	-001 MD					
14	-001 MS					
15	207096-012 Br check					
16	301101-011					
17	-011 MD					
18	-011 MS					
19	CCV1-0.25		Std			
20	CCB1					
21	LCS1 #19688					
22	301101-011		H2O			
23	-011 MD					
24	-011 MS					
25	LCS1 #21556 1:2	2	Std			
26	302067-001	1	H2O			MPT-8-MW095-03
030211-027.dxd	-002	1	H2O	2-12-03	11:36	MPT-8-MW015-03

Remarks

F- Corr = 0.9993 int = 0.029
Cl- Corr = 0.9995 int = 0.00005
NO2-N - Corr = 0.9995 int = 0.017
Br- Corr = 0.9998 int = 0.011
NO3-N - Corr = 0.9984 int = 0.045
PO4-P - Corr = 0.9992 int = 0.025
SO4 - Corr = 0.9999 int = 0.04

Std / Eluent	Lot#	/ Conc.	/ Prep. date
Carbonate Eluent	21197	9mM	1-10-03
mixed Anion spike sol'n	21314	100 mg/L	1-16-03
mixed Anion QC sol'n	21315*	100 mg/L	1-16-03
LCS1	21556	NO3-N = 2.99 mg/L PO4-P = 2.49 mg/L	1-29-03
LCS2	19688	F = 1.72 mg/L SO4 = 41.3 mg/L Cl = 38.5 mg/L	8-26-02

* F for QC = #19626 -1000 mg/L -8-26-02
Br for QC = #21656 -1000 mg/L -2-4-03

ION CHROMATOGRAPHY ANALYSIS LOG

Instrument ID: Dionex 4000 Reviewed by/Date:_____

Analytes(s):	F, Cl, NO_2-N, Br, NO_3-N, PO_4-P, SO_4
Analysis Method:	E300
Backpressure: 2350psi	Conductivity: 23.3 µs
Injection Volume: 200 uL	

Guard Column ID:	AG9-HC # 5927
Analysis Column ID:	AS9-HC # 5767
Gradient Mixer/ATC ID:	N/A

ICAL Method File: 030211-300.mrt ICAL Date: 2-11-03 Analyst: VL

Seq. ID. ICDATA | ICY000 | 030211 |

cont. from pg 29

Seq.Ext.ID	GPL ID	Dil	Matrix	Date	Time	Comments
030211-028.dxd	302067-003	1	H_2O	2-11-03	12:06	MPT-8-DW01-03
29	-004					MPT-8-MW035-03
30	-005					MPT-8-MW145-03
31	CW2-2.00		Std			
32	CCB2					
33	302067-006		H_2O			MPT-5-MW025-03
34	-007					MPT-8-TB01-03
35	-008					MPT-8-MW145-03
36	302062-001					049GW2010 0001
37	-003					049GW2065 0001
38	-003 dup					dup
39	-003 ms					ms
40	CW3-1.25		Std			
41	CCB3					
42	301103-028	1	H_2O			
43	-028 1:5	5				
44	-028 1:5 dup					
45	-028 1:5 ms					
46	LCS # 21556 1:2	2	Std			
47	301101-011 1:5	5	H_2O			
48	-011 1:5 dup					
49	-011 1:5 MS					
50	CW4-0.25	1	Std			
51	CCB4	1				
52	301103-023 1:5	5	H_2O			
53	-023 1:5 dup	5				
030211-054.dxd	-023 1:5 ms	5	H_2O	2-13-03	01:08	

Remarks

Std / Eluent	Lot#	Conc.	Prep. date
Carbonate Eluent	2147	9mM	1-10-03
mixed Anion spike std	21314	100 mg/L	1-16-03
mixed Anion QC std	21315*	100 mg/L	1-16-03
LCS1	21556	NO_3-N = 2.69% PO_4-P = 2.49%	1-29-03
LCS2	19688	F: 4.21% Cl = 58.57% SO_4 = 41.3%	8-26-01

* F for QC# 19624 - 1000% - 8-26-02

GPL Laboratories, LLLP **Document Control No: GP_IC_012**

ION CHROMATOGRAPHY ANALYSIS LOG

Instrument ID: Dionex 4000 Reviewed by/Date:_____

Analytes(s): F, Cl, NO2-N, NO3-N PO4-P, SO4	Guard Column ID: AG9-HC #5927
Analysis Method: 8300	Analysis Column ID: AS9HC #5267
Backpressure: 2330psi Conductivity: 23.1mS	Gradient Mixer/ATC ID: N/A
Injection Volume: 200 uL	

ICAL Method File: 030211-300.met ICAL Date: 2-11-03 Analyst: VZ
Seq. ID. ICDATA|IC4000|030213|

Seq.Ext.ID	GPL ID	Dil	Matrix	Date	Time	Comments
030213-001.dxd	ICV-1.25	1	std	2-13-03	18:18	
2	ICB	1	↓			
3	LCS #21556 1:2	2	↓			
4	302068-001	1	H2O			
5	302086-001	↓	↓			049GW206D0001
6	-006					049GW206D9901
7	302017-001					
8	-001 MD					
9	-001 MS					
10	302062-001					
11	-003					
12	-003 MD		↓			
13	CCV1-1.00		std			
14	CCB1		↓			
15	302062-003 MS		H2O			
16	302070-001		↓			
17	-002					
18	-003					
19	-004					
20	-005					
21	-006					
22	-008	↓	↓			
23	Rinse Blank	-	-			
24	302067-007	1	H2O			
25	CCV2-0.25	1	std			
26	CCB2	1	↓			
030213-027.dxd	LCS #21556 1:2	2	std	2-14-03	02:20	

Remarks	Std / Eluent	Lot# / Conc. / Prep. date
	Carbonate Eluent	21147 9mM 1-10-03
	Mixed Anion spike std	21314 100mg/L 1-16-03
	Mixed Anion QC std	21315* 100mg/L 1-16-03
	LCS1	21556 NO3-N=2.49% PO4-P=2.49% 1-26-03
	LCS2	19688 F=1.12% Cl=56.5% SO4=41.3% 8-26-02

*F for QC #19636 1000mg/L 8-26-02

ION CHROMATOGRAPHY ANALYSIS LOG

Instrument ID: Dionex 4000 Reviewed by/Date:

Analytes(s): Chloride, Bromide, Sulfate	Guard Column ID: AG9-HC #5927
Analysis Method: E300.0	Analysis Column ID: AS9-HC #5767
Backpressure: 2390 psi Conductivity: 23.2 µS	Gradient Mixer/ATC ID: N/A
Injection Volume: 200 uL	

ICAL Method File: 030211-300.mt ICAL Date: 2-11-03 Analyst: VR
Seq. ID. ICU/FT4 | IC4000 | 030301 | ~~030303-303~~

Seq.Ext.ID	GPL ID	Dil	Matrix	Date	Time	Comments
030301-001.dxd	ICU-1.25	1	std	3-3-03	16:46	
2	ICB	1	↓			
3	LCS #20561 1:30	30	↓			
4	302017-001 1:10	10	H_2O			
5	-001 1:10 dup	↓	↓			
6	-001 1:10 ms	↓	↓			
7	302068-001 1:20	20	↓			
8	302062-001 1:20	20	↓			
9	-003 1:20	20	↓			
10	-003 1:20 dup	↓	↓			
11	-003 1:20 ms	↓	↓			
12	302067-001 1:20	20	↓			
13	CCU1-2.00	1	std			
14	CCB1	1	↓			
15	302067-002 1:25	25	H_2O			
16	-003 1:20	20	↓			
17	-004 1:10	10	↓			
18	-004 1:50	50	↓			
19	-005 1:20	20	↓			
20	-006 1:40	40	↓			
21	-008 1:25	25	↓			
22	302086-001 1:20	20	↓			
23	-001 1:100	100	↓			
24	CCU2-0.50	1	std			
25	CCB2	1	↓			
26	302086-006 1:20	20	H_2O			
030301-027.dxd	-006 1:100	100	H_2O	3-3-03	05:48	

Remarks	Std / Eluent	Lot#	Conc.	Prep. date
	Carbonate Eluent	21197	9 mM	1-10-03
	Mixed Anion spike std	21314	100 ppm	1-16-03
	Mixed Anion QC std	21315	100 ppm	1-16-03
	Bromide QC std	21656	1000 ppm	2-4-03
	LCS	20561	9 = 69.7 mg/L SO4 = 38.2 mg	11-14-01

ION CHROMATOGRAPHY ANALYSIS LOG

Instrument ID: Dionex 4000 Reviewed by/Date:_____

Analytes(s): Chloride, Sulfate	
Analysis Method: 9300	
Backpressure: 2300 psi	Conductivity: 22.8 µs
Injection Volume: 200 uL	

Guard Column ID: AG9-HC #5927	
Analysis Column ID: AS9-HC #5767	
Gradient Mixer/ATC ID: N/A	

ICAL Method File: 030211-300.mdt ICAL Date: 2-11-03 Analyst: VZ

Seq. ID. ICDATA\IC4000\030304\

Seq.Ext.ID	GPL ID	Dil	Matrix	Date	Time	Comments
030304-001.dad	ICV-1.25	1	std	3-4-03	18:41	
2	ICB	1	↓			
3	LCS #21151 - 1:25	25	↓			
4	302062-001 1:50	50	H_2O			
5	302067-006 1:100	100				
6	302086-001 1:200	200				
7	-006 1:20	20				
8	-006 1:200	200				
9	302089-001 1:10	10				
10	-001 1:10	10				
11	-003	1				
12	-003 1:10	10	↓			
13	CCV1-2.00	1	std			
14	CCB1	1	↓			
15	302089-004 re-inj	1	H_2O			
16	-004 dup re-inj	↓	↓			
17	-004 ms re-inj	↓	↓			
18	Rinse Blank	-	-			
19	302089-004 1:10	10	H_2O			
20	-004 1:10 dup	↓	↓			
21	-004 1:10 ms	↓	↓			
22	CCV2-0.50	1	std			
030304-023.dad	CCB2	1	std	3-5-03	05:42	

Remarks

Std / Eluent	Lot#	Conc.	Prep. date
Carbonate Eluent	02070	9 mM	3-4-03
mixed Anion QC std	21315	100 ppm	1-16-03
mixed Anion spike std	21314	100 ppm	1-16-03
LCS	21151	Cl = 5.832 SO_4 = 22.47	1-8-03

FIELD DUPLICATE PRECISION

ANALYTE	MPT-8-DU01-03	MPT-8-MW16S-03	RPD	DIFFERENCE
Iron	14600	14800	1.36	200
Manganese	270	270	0.00	0
Alkalinity	570	570	0.00	0
Chloride	17	17	0.00	0
Nitrate	.10U	.10U	#VALUE!	#VALUE!
Nitrite	.10U	.10U	#VALUE!	#VALUE!
Orthophosphate	.10U	.10U	#VALUE!	#VALUE!
Sulfate	0.66	0.67	1.50	0.01
Total Organic Carbon	34	35	2.90	1
Nitrogen	3.9	3.9	0.00	0

Analysis Report 02/14/03 10:00:26 PM page 1

Method: TRACEV8 Sample Name: S 302067-005-005-1/1 Operator:
Run Time: 02/14/03 21:53:51
Comment: UG/L
Mode: CONC Corr. Factor: 1

Elem	Al	Sb	As	Ba	Be	Cd	Ca
Avge	56.29253	-.264825	4.155016	6.386876	-.337435	-.504377	200298.7
#1	56.69119	-.477595	3.197852	6.400310	-.349729	-.505090	200110.4
#2	55.89388	-.052054	5.112179	6.373443	-.325140	-.503664	200486.9
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	525000.0	5250.000	2100.000	10500.00	525.0000	2100.000	525000.0
Low	-200.000	-20.0000	-20.0000	-5.00000	-2.00000	-3.00000	-1000.00

Elem	Cr	Co	Cu	Fe	Pb	Mg	Mn
Avge	.2575601	-1.51031	-.506752	14776.97	.3647140	18008.66	270.4124
#1	.1746246	-1.60685	-.710353	14754.60	-.624433	18006.16	270.3557
#2	.3404956	-1.41378	-.303151	14799.34	1.353861	18011.16	270.4690
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	10500.00	10500.00	10500.00	525000.0	21000.00	525000.0	10500.00
Low	-5.00000	-5.00000	-10.0000	-150.000	-10.0000	-250.000	-5.00000

Elem	Ni	K	Se	Ag	Na	Tl	V
Avge	-.860519	4756.311	.4372090	-.488449	12258.18	-.407518	.0936006
#1	-.765176	4766.331	-.691405	-.420888	12244.75	-3.09205	-.095879
#2	-.955863	4746.292	1.565823	-.556011	12271.61	2.277012	.2830806
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	7875.000	105000.0	2100.000	1050.000	525000.0	2100.000	10500.00
Low	-10.0000	-250.000	-20.0000	-3.00000	-2500.00	-30.0000	-10.0000

Elem	Zn	B	Mo	Sn	Ti	1/Pb	2/Pb
Avge	3.944490	91.77445	-.408333	-.669812	.8039335	2.527233	-.716557
#1	3.878309	92.21400	-.802784	-.309832	.6292686	2.623057	-2.24819
#2	4.010671	91.33489	-.013882	-1.02979	.9785984	2.431408	.8150742
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	NOCHECK	NOCHECK
High	2100.000	5250.000	10500.00	10500.00	10500.00		
Low	-20.0000	-15.0000	-5.00000	-25.0000	-10.0000		

Elem	1/Se	2/Se
Avge	.7908630	.2603697
#1	-.635787	-.719226
#2	2.217513	1.239966
Errors	NOCHECK	NOCHECK
High		
Low		

Sample: MPT-8-MW165-03

270 mg/L ✓

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**MR. T. HANSEN**	**DATE:**	**APRIL 9, 2003**
FROM:	**SETH C. STAFFEN**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – TPH SUB-CLASSIFICATION**
CTO 253, NS MAYPORT
SDG: C302250

SAMPLES: 11/Soil/TPH

MPT-8-SB01-3	MPT-8-SB02-3	MPT-8-SB03-3
MPT-8-SB04-2.5	MPT-8-SB05-8	MPT-8-SB06-8.5
MPT-8-SB07-7	MPT-8-SB08-7.5	MPT-8-SB09-6.5
MPT-8-SB10-3	MPT-8-SB-DU01	

OVERVIEW

The sample set for CTO 253, SDG C302250; Naval Station (NS) Mayport consists of eleven (11) soil boring environmental samples. The samples were analyzed for total petroleum hydrocarbons (TPH) sub-classifications. One field duplicate pair was included in this SDG: MPT-8-SB10-3 / MPT-8-SB-DU01.

The samples were collected on February 12, 2003 by Tetra Tech NUS, Inc. and analyzed by Severn Trent Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to Florida TPHCWG Method 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.

TPH SUB-CLASSIFICATION FRACTION

Total TPH was detected in the laboratory method blank at a concentration of 0.94 mg/kg (MDL is 0.62 mg/kg). No qualification action was warranted because the TPH sub-classifications concentrations were significantly greater than the action level for the total TPH concentration detected in the laboratory method blank.

The matrix spike (MS) percent recovery (%R) of 249% exceeded the upper quality control limit of 140% for total TPH (C6-C35). No qualification was taken on the unspiked sample MPT-8-SB01-3.

ADDITIONAL COMMENTS

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

According to the statement of work, C5-C7 aliphatic should have been reported. Per conversation with the laboratory, there is difficulty in reporting results for the aforementioned sub-classification because the method uses n-pentane as a solvent.

The laboratory reported Aliphatic ranges C16-C21 and C21-C35 per TPHWG method in lieu of C16-C35 requested in the statement of work.

Sample MPT-8-SB-DU01 is the correct sample ID even though the Chain of Custody lists it as MPT-SB-DU01.

EXECUTIVE SUMMARY

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

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

PROJ_NO: 4259

SDG: C302250 MEDIA: SOIL DATA FRACTION: P

nsample	MPT-8-SB01-3
samp_date	2/12/2003
lab_id	C302250*1
qc_type	NM
units	MG/KG
Pct_Solids	90
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
C10-C12 ALIPHATICS	42	J	P
C10-C12 AROMATICS	50	U	
C12-C16 ALIPHATICS	870		
C12-C16 AROMATICS	17	J	P
C16-C21 ALIPHATICS	840		
C16-C21 AROMATICS	4.1	J	P
C21-C35 ALIPHATICS	26	J	P
C21-C35 AROMATICS	50	U	
C5-C7 AROMATICS	34	U	
C6-C8 ALIPHATICS	55	U	
C7-C8 AROMATICS	50	U	
C8-C10 ALIPHATICS	55	U	
C8-C10 AROMATICS	50	U	

nsample	MPT-8-SB02-3
samp_date	2/12/2003
lab_id	C302250*2
qc_type	NM
units	MG/KG
Pct_Solids	90
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
C10-C12 ALIPHATICS	1900		
C10-C12 AROMATICS	600		
C12-C16 ALIPHATICS	4200		
C12-C16 AROMATICS	2000		
C16-C21 ALIPHATICS	2200		
C16-C21 AROMATICS	1500		
C21-C35 ALIPHATICS	80		
C21-C35 AROMATICS	32	J	P
C5-C7 AROMATICS	34	U	
C6-C8 ALIPHATICS	55	U	
C7-C8 AROMATICS	50	U	
C8-C10 ALIPHATICS	390		
C8-C10 AROMATICS	51		

nsample	MPT-8-SB03-3
samp_date	2/12/2003
lab_id	C302250*3
qc_type	NM
units	MG/KG
Pct_Solids	88
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
C10-C12 ALIPHATICS	730		
C10-C12 AROMATICS	50	U	
C12-C16 ALIPHATICS	3200		
C12-C16 AROMATICS	260		
C16-C21 ALIPHATICS	2300		
C16-C21 AROMATICS	320		
C21-C35 ALIPHATICS	91		
C21-C35 AROMATICS	5.8	J	P
C5-C7 AROMATICS	34	U	
C6-C8 ALIPHATICS	55	U	
C7-C8 AROMATICS	50	U	
C8-C10 ALIPHATICS	73		
C8-C10 AROMATICS	50	U	

PROJ_NO: 4259

SDG: C302250 MEDIA: SOIL DATA FRACTION: P

nsample	MPT-8-SB04-2.5	nsample	MPT-8-SB05-8	nsample	MPT-8-SB06-8.5
samp_date	2/12/2003	samp_date	2/12/2003	samp_date	2/12/2003
lab_id	C302250*4	lab_id	C302250*5	lab_id	C302250*6
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	88	Pct_Solids	91	Pct_Solids	91
DUP_CF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
C10-C12 ALIPHATICS	55	U	
C10-C12 AROMATICS	50	U	
C12-C16 ALIPHATICS	55	U	
C12-C16 AROMATICS	50	U	
C16-C21 ALIPHATICS	55	U	
C16-C21 AROMATICS	50	U	
C21-C35 ALIPHATICS	1.5	J	P
C21-C35 AROMATICS	1.5	J	P
C5-C7 AROMATICS	34	U	
C6-C8 ALIPHATICS	55	U	
C7-C8 AROMATICS	50	U	
C8-C10 ALIPHATICS	55	U	
C8-C10 AROMATICS	50	U	

Parameter	Result	Val Qual	Qual Code
C10-C12 ALIPHATICS	500		
C10-C12 AROMATICS	100		
C12-C16 ALIPHATICS	1900		
C12-C16 AROMATICS	800		
C16-C21 ALIPHATICS	1500		
C16-C21 AROMATICS	670		
C21-C35 ALIPHATICS	19	J	P
C21-C35 AROMATICS	20	J	P
C5-C7 AROMATICS	34	U	
C6-C8 ALIPHATICS	55	U	
C7-C8 AROMATICS	50	U	
C8-C10 ALIPHATICS	95		
C8-C10 AROMATICS	50	U	

Parameter	Result	Val Qual	Qual Code
C10-C12 ALIPHATICS	55	U	
C10-C12 AROMATICS	50	U	
C12-C16 ALIPHATICS	55	U	
C12-C16 AROMATICS	50	U	
C16-C21 ALIPHATICS	55	U	
C16-C21 AROMATICS	50	U	
C21-C35 ALIPHATICS	55	U	
C21-C35 AROMATICS	50	U	
C5-C7 AROMATICS	34	U	
C6-C8 ALIPHATICS	55	U	
C7-C8 AROMATICS	50	U	
C8-C10 ALIPHATICS	55	U	
C8-C10 AROMATICS	50	U	

PROJ_NO: 4259

SDG: C302250 MEDIA: SOIL DATA FRACTION: P

nsample	MPT-8-SB07-7	nsample	MPT-8-SB08-7.5	nsample	MPT-8-SB09-6.5
samp_date	2/12/2003	samp_date	2/12/2003	samp_date	2/12/2003
lab_id	C302250*7	lab_id	C302250*8	lab_id	C302250*9
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	88	Pct_Solids	93	Pct_Solids	87
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
C10-C12 ALIPHATICS	55	U	
C10-C12 AROMATICS	50	U	
C12-C16 ALIPHATICS	77		
C12-C16 AROMATICS	14	J	P
C16-C21 ALIPHATICS	48	J	P
C16-C21 AROMATICS	4.9	J	P
C21-C35 ALIPHATICS	31	J	P
C21-C35 AROMATICS	50	U	
C5-C7 AROMATICS	34	U	
C6-C8 ALIPHATICS	55	U	
C7-C8 AROMATICS	50	U	
C8-C10 ALIPHATICS	55	U	
C8-C10 AROMATICS	50	U	

Parameter	Result	Val Qual	Qual Code
C10-C12 ALIPHATICS	150		
C10-C12 AROMATICS	50	U	
C12-C16 ALIPHATICS	370		
C12-C16 AROMATICS	15	J	P
C16-C21 ALIPHATICS	110		
C16-C21 AROMATICS	3.2	J	P
C21-C35 ALIPHATICS	12	J	P
C21-C35 AROMATICS	50	U	
C5-C7 AROMATICS	34	U	
C6-C8 ALIPHATICS	55	U	
C7-C8 AROMATICS	50	U	
C8-C10 ALIPHATICS	17	J	P
C8-C10 AROMATICS	50	U	

Parameter	Result	Val Qual	Qual Code
C10-C12 ALIPHATICS	780		
C10-C12 AROMATICS	23	J	P
C12-C16 ALIPHATICS	2700		
C12-C16 AROMATICS	270		
C16-C21 ALIPHATICS	2000		
C16-C21 AROMATICS	190		
C21-C35 ALIPHATICS	130		
C21-C35 AROMATICS	50	U	
C5-C7 AROMATICS	34	U	
C6-C8 ALIPHATICS	55	U	
C7-C8 AROMATICS	50	U	
C8-C10 ALIPHATICS	100		
C8-C10 AROMATICS	50	U	

PROJ_NO: 4259

SDG: C302250 MEDIA: SOIL DATA FRACTION: P

nsample	MPT-8-SB10-3	nsample	MPT-8-SB-DU01
samp_date	2/12/2003	samp_date	2/12/2003
lab_id	C302250*10	lab_id	C302250*11
qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG
Pct_Solids	92	Pct_Solids	88
DUP_OF:		DUP_OF:	MPT-8-SB10-3

Parameter	Result	Val Qual	Qual Code
C10-C12 ALIPHATICS	13	J	P
C10-C12 AROMATICS	50	U	
C12-C16 ALIPHATICS	290		
C12-C16 AROMATICS	16	J	P
C16-C21 ALIPHATICS	62		
C16-C21 AROMATICS	4.6	J	P
C21-C35 ALIPHATICS	55	U	
C21-C35 AROMATICS	50	U	
C5-C7 AROMATICS	34	U	
C6-C8 ALIPHATICS	55	U	
C7-C8 AROMATICS	50	U	
C8-C10 ALIPHATICS	55	U	
C8-C10 AROMATICS	50	U	

Parameter	Result	Val Qual	Qual Code
C10-C12 ALIPHATICS	23	J	P
C10-C12 AROMATICS	50	U	
C12-C16 ALIPHATICS	260		
C12-C16 AROMATICS	16	J	P
C16-C21 ALIPHATICS	48	J	P
C16-C21 AROMATICS	3.4	J	P
C21-C35 ALIPHATICS	16	J	P
C21-C35 AROMATICS	50	U	
C5-C7 AROMATICS	34	U	
C6-C8 ALIPHATICS	55	U	
C7-C8 AROMATICS	50	U	
C8-C10 ALIPHATICS	55	U	
C8-C10 AROMATICS	50	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

SEVERN TRENT STL

LOG NO: C3-02250
Received: 14 FEB 03
Reported: 27 FEB 03

Ms. Amy Thomson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Cl Project No: N4259
Requisition: CTO 253

Project: NAS MAYPORT, JACKSONVILLE, FL
Sampled By: Client
Code: 091930227

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
02250-1	MPT-8-SB01-3	02-12-03/10:00
02250-2	MPT-8-SB02-3	02-12-03/10:30
02250-3	MPT-8-SB03-3	02-12-03/10:45
02250-4	MPT-8-SB04-2.5	02-12-03/12:05
02250-5	MPT-8-SB05-8	02-12-03/13:20

PARAMETER	02250-1	02250-2	02250-3	02250-4	02250-5
TPH-WG-ALI (8015M)					
>/= C6-C8 Aliphatics, mg/kg dw	<55	<55	<55	<55	<55
>C8-C10 Aliphatics, mg/kg dw	<55	390B	73B	<55	95B
>C10-C12 Aliphatics, mg/kg dw	42JB	1900B	730B	<55	500B
>C12-C16 Aliphatics, mg/kg dw	870B	4200B	3200B	<55	1900B
>C16-C21 Aliphatics, mg/kg dw	840B	2200B	2300B	<55	1500B
>C21-C35 Aliphatics, mg/kg dw	26JB	80B	91B	1.5JB	19JB
Dilution Factor	1	1	1	1	1
Prep Date	02.17.03	02.17.03	02.17.03	02.17.03	02.17.03
Analysis Date	02.21.03	02.21.03	02.21.03	02.21.03	02.21.03
Batch ID	GES198	GES198	GES198	GES198	GES198
Prep Method	TPHCWG	TPHCWG	TPHCWG	TPHCWG	TPHCWG
Analyst	IE	IE	IE	IE	IE
Quantitation Factor	1.1	1.1	1.1	1.1	1.1

SEVERN TRENT STL

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Sampled By: Client
Code: 091930227

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
02250-1	MPT-8-SB01-3	02-12-03/10:00
02250-2	MPT-8-SB02-3	02-12-03/10:30
02250-3	MPT-8-SB03-3	02-12-03/10:45
02250-4	MPT-8-SB04-2.5	02-12-03/12:05
02250-5	MPT-8-SB05-8	02-12-03/13:20

PARAMETER	02250-1	02250-2	02250-3	02250-4	02250-5
TPH-WG-ARO (8015M)					
>C5-C7 Aromatics, mg/kg dw	<34	<34	<34	<34	<34
>C7-C8 Aromatics, mg/kg dw	<50	<50	<50	<50	<50
>C8-C10 Aromatics, mg/kg dw	<50	51B	<50	<50	<50
>C10-C12 Aromatics, mg/kg dw	<50	600B	<50	<50	100B
>C12-C16 Aromatics, mg/kg dw	17JB	2000B	260B	<50	800B
>C16-C21 Aromatics, mg/kg dw	4.1JB	1500B	320B	<50	670B
>C21-C35 Aromatics, mg/kg dw	<50	32JB	5.8JB	1.5JB	20JB
Dilution Factor	1	1	1	1	1
Prep Date	02.17.03	02.17.03	02.17.03	02.17.03	02.17.03
Analysis Date	02.22.03	02.22.03	02.22.03	02.22.03	02.22.03
Batch ID	GES198	GES198	GES198	GES198	GES198
Prep Method	TPHCWG	TPHCWG	TPHCWG	TPHCWG	TPHCWG
Analyst	IE	IE	IE	IE	IE
Quantitation Factor	1	1	1	1	1
Percent Solids	90	90	88	88	91

SEVERN TRENT STL

LOG NO: C3-02250
Received: 14 FEB 03
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Project: NAS MAYPORT, JACKSONVILLE, FL
Sampled By: Client
Code: 091930227

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
02250-6	MPT-8-SB06-8.5	02-12-03/14:20
02250-7	MPT-8-SB07-7	02-12-03/14:50
02250-8	MPT-8-SB08-7.5	02-12-03/15:10
02250-9	MPT-8-SB09-6.5	02-12-03/15:45
02250-10	MPT-8-SB10-3	02-12-03/16:10

PARAMETER	02250-6	02250-7	02250-8	02250-9	02250-10
TPH-WG-ALI (8015M)					
>/= C6-C8 Aliphatics, mg/kg dw	<55	<55	<55	<55	<55
>C8-C10 Aliphatics, mg/kg dw	<55	<55	17JB	100B	<55
>C10-C12 Aliphatics, mg/kg dw	<55	<55	150B	780B	13JB
>C12-C16 Aliphatics, mg/kg dw	<55	77B	370B	2700B	290B
>C16-C21 Aliphatics, mg/kg dw	<55	48JB	110B	2000B	62B
>C21-C35 Aliphatics, mg/kg dw	<55	31JB	12JB	130B	<55
Dilution Factor	1	1	1	1	1
Prep Date	02.17.03	02.17.03	02.17.03	02.17.03	02.17.03
Analysis Date	02.21.03	02.21.03	02.21.03	02.21.03	02.21.03
Batch ID	GES198	GES198	GES198	GES198	GES198
Prep Method	TPHCWG	TPHCWG	TPHCWG	TPHCWG	TPHCWG
Analyst	IE	IE	IE	IE	IE
Quantitation Factor	1.1	1.1	1.1	1.1	1.1

SEVERN TRENT STL

LOG NO: C3-02250
Received: 14 FEB 03
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Pittsburgh, PA 15220

Cl Project No: N4259
Requisition: CTO 253

Project: NAS MAYPORT, JACKSONVILLE, FL
Sampled By: Client
Code: 091930227

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
02250-6	MPT-8-SB06-8.5	02-12-03/14:20
02250-7	MPT-8-SB07-7	02-12-03/14:50
02250-8	MPT-8-SB08-7.5	02-12-03/15:10
02250-9	MPT-8-SB09-6.5	02-12-03/15:45
02250-10	MPT-8-SB10-3	02-12-03/16:10

PARAMETER	02250-6	02250-7	02250-8	02250-9	02250-10
TPH-WG-ARO (8015M)					
>C5-C7 Aromatics, mg/kg dw	<34	<34	<34	<34	<34
>C7-C8 Aromatics, mg/kg dw	<50	<50	<50	<50	<50
>C8-C10 Aromatics, mg/kg dw	<50	<50	<50	<50	<50
>C10-C12 Aromatics, mg/kg dw	<50	<50	<50	23JB	<50
>C12-C16 Aromatics, mg/kg dw	<50	14JB	15JB	270B	16JB
>C16-C21 Aromatics, mg/kg dw	<50	4.9JB	3.2JB	190B	4.6JB
>C21-C35 Aromatics, mg/kg dw	<50	<50	<50	<50	<50
Dilution Factor	1	1	1	1	1
Prep Date	02.17.03	02.17.03	02.17.03	02.17.03	02.17.03
Analysis Date	02.22.03	02.22.03	02.22.03	02.22.03	02.22.03
Batch ID	GES198	GES198	GES198	GES198	GES198
Prep Method	TPHCWG	TPHCWG	TPHCWG	TPHCWG	TPHCWG
Analyst	IE	IE	IE	IE	IE
Quantitation Factor	1	1	1	1	1
Percent Solids	91	88	93	87	92

SEVERN TRENT STL

LOG NO: C3-02250
Received: 14 FEB 03
Reported: 27 FEB 03

Ms. Amy Thomson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Cl Project No: N4259
Requisition: CTO 253

Project: NAS MAYPORT, JACKSONVILLE, FL
Sampled By: Client
Code: 091930227

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
02250-11	MPT-8-SB-DU01	02-12-03

PARAMETER	02250-11
TPH-WG-ALI (8015M)	
>/= C6-C8 Aliphatics, mg/kg dw	<55
>C8-C10 Aliphatics, mg/kg dw	<55
>C10-C12 Aliphatics, mg/kg dw	23JB
>C12-C16 Aliphatics, mg/kg dw	260B
>C16-C21 Aliphatics, mg/kg dw	48JB
>C21-C35 Aliphatics, mg/kg dw	16JB
Dilution Factor	1
Prep Date	02.17.03
Analysis Date	02.21.03
Batch ID	GES198
Prep Method	TPHCWG
Analyst	IE
Quantitation Factor	1.1

SEVERN TRENT STL

LOG NO: C3-02250
Received: 14 FEB 03
Reported: 27 FEB 03

Ms. Amy Thomson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Cl Project No: N4259
Requisition: CTO 253

Project: NAS MAYPORT, JACKSONVILLE, FL
Sampled By: Client
Code: 091930227

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
02250-11	MPT-8-SB-DU01	02-12-03

PARAMETER	02250-11
TPH-WG-ARO (8015M)	
>C5-C7 Aromatics, mg/kg dw	<34
>C7-C8 Aromatics, mg/kg dw	<50
>C8-C10 Aromatics, mg/kg dw	<50
>C10-C12 Aromatics, mg/kg dw	<50
>C12-C16 Aromatics, mg/kg dw	16JB
>C16-C21 Aromatics, mg/kg dw	3.4JB
>C21-C35 Aromatics, mg/kg dw	<50
Dilution Factor	1
Prep Date	02.17.03
Analysis Date	02.22.03
Batch ID	GES198
Prep Method	TPHCWG
Analyst	IE
Quantitation Factor	1
Percent Solids	88

APPENDIX C

SUPPORT DOCUMENTATION

CN ID: 196

SEVERN TRENT STL

CASE NARRATIVE

Order: C302250
Project: NAS MAYPORT, JACKSONVILLE, FL

Semivolatiles by GC Fraction

SAMPLE#	SAMPLE DESCRIPTION	MATRIX
C302250*1	MPT-8-SB01-3	Solid
C302250*2	MPT-8-SB02-3	Solid
C302250*3	MPT-8-SB03-3	Solid
C302250*4	MPT-8-SB04-2.5	Solid
C302250*5	MPT-8-SB05-8	Solid
C302250*6	MPT-8-SB06-8.5	Solid
C302250*7	MPT-8-SB07-7	Solid
C302250*8	MPT-8-SB08-7.5	Solid
C302250*9	MPT-8-SB09-6.5	Solid
C302250*10	MPT-8-SB10-3	Solid
C302250*11	MPT-8-SB-DU01	Solid

STL Pensacola reports Aliphatic ranges C16-C21 and C21-C35 per TPHWG method in lieu of C16-C35 requested in the SOW.

A very small hit (0.94 mg/kg), just above the mdl (0.62 mg/kg), was detected in the "total" extract for the method blank. Data flagged accorordingly.

Matrix spike of sample SB01-3 over-recovered while the MSD recovery was acceptable. Discrepency attributed to non-homogeneity of the sample.

No other anomalies were associated with these analyses.

SEVERN TRENT STL

LOG NO: C3-02250
Received: 14 FEB 03
Reported: 27 FEB 03

Ms. Amy Thomson
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Pittsburgh, PA 15220

Cl Project No: N4259
Requisition: CTO 253

Project: NAS MAYPORT, JACKSONVILLE, FL
Sampled By: Client
Code: 091930227

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
02250-26	Method Detection Limit (MDL)	
02250-27	Reporting Limit (RL)	

PARAMETER	02250-26	02250-27
TPH-WG-ALI (8015M)		
>/= C6-C8 Aliphatics, mg/kg dw	0.6203	50
>C8-C10 Aliphatics, mg/kg dw	0.6203	50
>C10-C12 Aliphatics, mg/kg dw	0.6203	50
>C12-C16 Aliphatics, mg/kg dw	0.6203	50
>C16-C21 Aliphatics, mg/kg dw	0.6203	50
>C21-C35 Aliphatics, mg/kg dw	0.6203	50
Prep Method	TPHCWG	TPHCWG
TPH-WG-ARO (8015M)		
>C5-C7 Aromatics, mg/kg dw	0.6203	34
>C7-C8 Aromatics, mg/kg dw	0.6203	50
>C8-C10 Aromatics, mg/kg dw	0.6203	50
>C10-C12 Aromatics, mg/kg dw	0.6203	50
>C12-C16 Aromatics, mg/kg dw	0.6203	50
>C16-C21 Aromatics, mg/kg dw	0.6203	50
>C21-C35 Aromatics, mg/kg dw	0.6203	50
Prep Method	TPHCWG	TPHCWG
Total TPH at >/= C6-C35 (8015M), mg/kg dw	0.6203	50
Prep Method	TPHCWG	TPHCWG

SEVERN TRENT STL

LOG NO: C3-02250
Received: 14 FEB 03
Reported: 27 FEB 03

Ms. Amy Thomson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Cl Project No: N4259
Requisition: CTO 253

Project: NAS MAYPORT, JACKSONVILLE, FL
Sampled By: Client
Code: 091930227

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
02250-26	Method Detection Limit (MDL)	
02250-27	Reporting Limit (RL)	

PARAMETER	02250-26	02250-27

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.
See the Project Sample Inspection Form (PSIF) to determine if a sample was received that did not meet EPA requirements for sample collection, preservation, or holding time.

Lance Larson, Project Manager

Final Page Of Report

SEVERN TRENT STL

Explanation of CLP Data Qualifiers
Organics

U: This flag indicates the compound was analyzed for but not detected. The CRQL shall be adjusted according to the equation listed in Exhibit D. CRQLs are listed in Exhibit C.

J: This flag indicates an estimated value. This flag is used (1) when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the CRQL but greater than zero, and (3) when the retention time data indicate the presence of a compound that meets the pesticide/Aroclor identification criteria, and the result is less than the CRQL but greater than zero. For example, if the sample quantitation limit is 10 µg/L, but a concentration of 3 µg/L is calculated, report it as 3J.
NOTE: The J flag is not used and the compound is not reported as being identified for Pesticide/Aroclor results less than the CRQL if the pesticide residue analysis expert determines that the peaks used for compound identification resulted from instrument noise or other interferences (column bleed, solvent contamination, etc.).

N: This flag indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N flag is not used.

P: This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). **The lower of the two values is reported on Form I and flagged with a P.**

C: This flag applies to pesticide results where the **identification** has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do **not** apply this flag; use a laboratory-defined flag instead (see the X qualifier).

B: This flag is used when the analyte is found in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user to take appropriate action. This flag shall be used for a tentatively identified compound as well as for a positively identified target compound. The combination of flags BU or UB is expressly prohibited. Blank contaminants are flagged B only when they are detected in the sample.

E: This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis. If one or more compounds have a response greater than the upper level of the calibration range, the sample or extract shall be diluted and reanalyzed according to the specifications in Exhibit D; exceptions are also noted in Exhibit D. All such compounds with a response greater than the upper level of the calibration range shall have the concentration flagged with an E on Form I for the original analysis.
NOTE: For total xylene, where three isomers are quantified as two peaks, the calibration range of **each peak** shall be considered separately. For example, a diluted analysis is **not** required for total xylene unless the concentration of the peak representing the single isomer exceeds 200 µg/L or the peak representing the two co-eluting isomers on that GC column exceeds 400 µg/L.

D: If a sample or extract is reanalyzed at a higher dilution factor, for example when the concentration of an analyte exceeds the upper calibration range, the DL suffix is appended to the sample number on Form I for the more diluted sample, and **all** reported concentrations on that Form I are flagged with the D flag. This flag alerts data users that any discrepancies between the reported concentrations may be due to dilution of the sample or extract. NOTE 1: The D flag is not applied to compounds which are not detected in the sample analysis (i.e., compounds reported with the CRQL and the U flag). NOTE 2: Separate Form Is are required for reporting the original analysis (EPA Sample No. XXXXX) and the more diluted sample analysis (EPA Sample No. XXXXXDL) (i.e., the results from both analyses cannot be combined on a single Form I).

A: This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.

A part of Severn Trent plc

Severn Trent Laboratories Inc.
STL Pensacola • 3355 McLemore Dr, Pensacola, FL 32514
Tel 850 474 1001 Fax 850 484 5315 • *www.stl-inc.com*

SEVERN TRENT STL

STL Pensacola Data Qualifiers for Final Report

B	The analyte was detected in the associated method blank and in the client's sample.
C	The compound has been quantitated against a one point calibration.
D	Recovery is not calculable due to dilution.
E	Estimated value because the analyte concentration exceeds the upper calibration range of the instrument or method.
I	Estimated value because the analyte concentration is less than the lower calibration range of the instrument but is at the method detection limit or greater than the method detection limit.
H	Sample and/or duplicate is below 5 X (times) the STL Reporting Limit and the absolute difference between the results exceeds the STL Reporting Limit.
J1	A sample surrogate or an LCS target compound recovered above the upper control limit (UCL). Compounds qualified with a J1 may be biased high.
J2	A sample surrogate or an LCS target compound recovered outside the lower control limit (LCL). Compounds qualified with a J2 may be biased low.
M1	A matrix effect was present.
M2	The MS and/or MSD %R or RPD was outside upper or lower control limits; not necessarily due to matrix effect.
N/C	Not Calculable; Sample spiked is > 4X spike concentration (may use this flag in place of negative numbers).
R1	Internal standard area exceeds the acceptance criteria
R2	Calibration verification exceeds the acceptance criteria.
S1	The Method of Standard Additions (MSA) has been performed on this sample.
T	Second-column or detector confirmation exceeded the SW-846 criteria of 40% RPD for this compound.
TIC	The compound is not included in the initial calibration curve. It is searched for qualitatively or as a Tentatively Identified Compound.
U or <	The analyte was not detected at or above the MDL or the RL, whichever is entered next to the "U" or "<".
W	Post-digestion spike for Furnace AA is out of control limits (85-115%), while sample absorbance is less than 50% spike absorbance.

It is permissible to submit an Out-of-Control Events/Corrective Action form and/or Case Narrative in lieu of using above qualifiers.

When the laboratory receives a sample that does not meet EPA requirements for sample collection, preservation or holding time, the laboratory is required to reject the samples. The client must be notified and asked whether the lab should proceed with analysis. Data from any samples that do not meet sample acceptance criteria (collection, preservation and holding time), must be flagged, or noted on a corrective action form or case narrative, or addressed on the Project Sample Inspection Form (PSIF) in an unambiguous manner clearly defining the nature and substance of the variation. NPDES samples from North Carolina that do not meet EPA requirements for sample collection, preservation or holding time are non-reportable for NPDES compliance monitoring.

Abbreviations

ND	Not Detected at or above the STL Pensacola reporting limit (RL)
NS	Not Submitted
NA	Not Applicable
MDL	STL Pensacola Method Detection Limit
RL	STL Pensacola Reporting Limit
NoMS	Not enough sample provided to prepare and/or analyze a method-required matrix spike (MS) and/or duplicate (MSD)

Florida Projects Inorganic/Organic

Refer to FL DEP 62-160.700(7); Table 7 Data Qualifier Codes. FL DEP Rule 62-160.670(1)(h) states that laboratories shall include the analytical result for each analysis with applicable data qualifiers. FL DEP Rule 62-160.700(7), Table 7 lists the FL DEP data qualifiers. FL DEP Rule 62-160.700(3), Table 3 lists the Florida sites which require data qualifiers.

AFCEE QAPP Projects

Refer to AFCEE QAPP for appropriate data qualifiers (AFCEE QAPP Version will be specified by client for the project).

Arizona DEQ Projects

Any qualified data submitted to Arizona DEQ (ADEQ) after January 1, 2001 must be designated using the Arizona Data Qualifiers as developed by the Arizona ELAC technical subcommittee. Refer to the ADEQ qualifier list.

CLP and CLP-like Projects

Refer to referenced CLP Statement of Work (SOW) for explanation of data qualifiers. CLP SOW to be followed must be specified to client.

STL Pensacola
PROJECT SAMPLE INSPECTION FORM

SEVERN TRENT STL

Lab Order #: C302250 Date Received: 2/14/03

1. Was there a Chain of Custody? Yes No+
2. Was Chain of Custody properly filled out and relinquished? Yes No+
3. Were all samples properly labeled and identified? Yes No+
4. Were samples received cold? (Criteria: 2° - 6°C: STL-SOP 1055) Yes No+ N/A
5. Did samples require splitting or compositing♦? Yes+ No
6. Were samples received in proper containers for analysis requested? Yes No+
7. Were all sample containers received intact? Yes No+
8. Were samples checked for preservative? *(Check pH of all H_2O requiring preservative (STL-PN SOP 917) except VOA vials that require zero headspace)+* Yes No+ N/A
9. Is there sufficient volume for analysis requested? Yes No+ N/A *(Can)*
10. Were samples received within Holding Time? (REFER TO STL-SOP 1040) Yes No+
11. Is Headspace visible > ¼" in diameter in VOA vials?* Yes+ No N/A
12. **Were Trip Blanks Received?** Yes No N/A
13. If sent, were matrix spike bottles returned? Yes No+ N/A
14. If sent, were T-Handles returned? Yes No+ N/A
15. If any issues, how was PM notified? PSIF ☐ Verbal ☐

Airbill Number(s): 7915 3559 0135 **Shipped By:** UPS FedX HD BUS ABX
(HD – Hand Delivery)

Cooler Numbers & Temp(s) (°C): Client 2°C CCK11
(IE. 340L-4°C-CCK8 -- LIST THERMOMETER NUMBER FOR VERIFICATION)

Out of Control Events and Inspection Comments (list sample IDs/Tests where appropriate):

1-3. COC/Sample ID/COC discrepancy:

4. Insufficient Ice ☐ Delay in delivery ☐ Other ☐
5. Samples were Split ☐ Composited ☐ Requested by: Client ☐ PM ☐ Other:
6. Improper Containers (ID/Size/desc):
7. Broken bottles/Test:
8. Incorrect pH:
9. Test/Matrix/Volume:
10. Out of Holding Time/Test:
11. VOA headspace >1/4" (list size)

List additional comments by above number:

(USE BACK OF PSIF FOR ADDITIONAL NOTES AND COMMENTS)

Inspected By: MHS **Date:** 2/14/03 **Logged By:** MHS **Date:** 2/12/03

♣ *Note all Out-of-Control and/or questionable events on Comment Section of this form. For holding times, the analytical department will flag immediate hold time samples(pH, Dissolved O2, Residual Cl) as out of hold time, therefore, these samples will not be documented on this PSIF.*

♦ *All volatile samples requested to be split or composited must be done in the Volatile Lab. Document: "Volatile sample values may be compromised due to sample splitting (compositing)"*

+ *All pH results for North Carolina, New York, and other requested samples are to be recorded on the pH log provided (STL-SOP 938).*

• *According to EPA, ¼" of headspace is acceptable in 40 ml vials requiring volatile analysis.*

SEVERN TRENT STL

STL PENSACOLA
Certifications, Memberships & Affiliations

Alabama *Department of Environmental Management, Laboratory ID No. 40150 (Drinking Water by Reciprocity with FL), expires 06/30/03*

Arizona *Department of Health Services, Lab ID No. AZ0589 (Hazardous Waste & Wastewater), expires 01/11/04*

Arkansas *Department of Pollution Control and Ecology, (No Laboratory ID No. assigned by state) (Environmental), expires 02/20/03*

California *Department of Health Services,* ***ELAP*** *Laboratory ID No. I-2510 (Hazardous Waste and Wastewater), expires 03/31/03*

Connecticut *Department of Health Services, Connecticut Lab Approval No. PH-0697 (D W, H W and Wastewater), expires 09/30/03*

Florida *DOH,* ***NELAP*** *Laboratory ID No. E81010 (Drinking Water, Hazardous Waste and Wastewater), expires 06/30/03*

Florida *DEP/DOH CompQAP # 980156*

Iowa *Department of Natural Resources, Laboratory ID No. 367 (UST), expires 08/01/04*

Kansas *Department of Health & Environment,* ***NELAP*** *Laboratory ID No. E10253 (Wastewater and Hazardous Waste), expires 10/31/03*

Kentucky *NR&EPC, Laboratory ID No. 90043 (Drinking Water), expires 12/31/03.*

Louisiana *DEQ, LELAP,* ***NELAP*** *Laboratory ID No. 02075, Agency Interest ID 30748 (Environmental, expires 6/30/03)*

Maryland *DH&MH Laboratory ID No. 233 (Drinking Water by Reciprocity with Florida), expires 09/30/03*

Massachusetts *DEP, Laboratory ID No. M-FL094 (Wastewater), expires 06/30/03*

Michigan *Bureau of E&OccH, Laboratory ID No.9912 (Drinking Water by Reciprocity with Florida), expires 06/30/03*

New Hampshire *DES ELAP,* ***NELAP*** *Laboratory ID No. 250502 (Drinking Water & Wastewater), expires 08/16/03*

New Jersey *DEP&E,* ***NELAP*** *Laboratory ID No. FL006 (Wastewater and Hazardous Waster), expires 06/30/03.*

New York State *Department of Health,* ***NELAP*** *Laboratory ID No. 11503 (WW and Solids/Hazardous Waste), expires 06/16/2003*

North Carolina *DENR, Laboratory ID No. 314 (Hazardous Waste and Wastewater), expires 12/31/03.*

North Dakota *DH&Consol Labs, Laboratory ID No. R-108 Wastewater and Hazardous Waste by Reciprocity with Florida), expires 06/30/03*

Oklahoma *Department of Environmental Quality, Laboratory ID No. 9810 (Hazardous Waste and Wastewater), expires 08/31/03*

Pennsylvania *Department of Environmental Resources,* ***NELAP*** *Laboratory ID No. 68-467 (Drinking Water & Wastewater), expires 12/01/03*

South Carolina *DH&EC, Laboratory ID No. 96026 (Wastewater & Solids/Hazardous Waste by Reciprocity with FL), expires 06/30/03*

Tennessee *Department of Health & Environment, Laboratory ID No. 02907 (Drinking Water), expires 08/03/04*

Virginia *Department of General Services, Laboratory ID No. 00008 (Drinking Water by Reciprocity with FL), expires 06/30/03.*

Washington *Department of Ecology, Laboratory ID No. C282 (Hazardous Waste and Wastewater), expires 09/14/03.*

West Virginia *DOE, Office of Water Resources, Laboratory ID No. 136 (Haz Waste and Wastewater), expires 04/30/02.*

AIHA *(American Industrial Hygiene Association) Accredited Laboratory, Laboratory ID No. 100704, expires April 1, 2004. Participant in AIHA sponsored Laboratory PAT Rounds*

EPA ICR *(Information Collection Rule) Approved Laboratory, Laboratory ID No. ICRFL031*

NFESC *(Naval Facilities Engineering Services Center), expires April 18, 2004/*

USACE *(United States Army Corps. of Engineers), MRD, expires June 30, 2003.*

STL Pensacola also has a foreign soil permit to accept soils from locations other than the continental United States. Permit No. S-37599

certlist\condcert.lst revised 2/25/03

Total Pages of Report _____

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 0374 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
N4259	Mayport CCTO 253	Terry Hansen	850-385-9866/27	
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Charles Metz		Charles Metz	904-636-6125	
		CARRIER/WAYBILL NUMBER		CITY, STATE
		8371-1005-8616		

C302250

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

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

PRESERVATIVE USED: None

TYPE OF ANALYSIS: TPH(WG)

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
2-12	1000	MPT-8-SB01-3				So	C	1							1	
2-12	1030	MPT-8-SB02-3					C	1							2	
2-12	1045	MPT-8-SB03-3					C	1							3	
2-12	1205	MPT-8-SB04-2.5					C	1							4	
2-12	1320	MPT-8-SB05-8					C	1							5	
2-12	1420	MPT-8-SB06-8.5					C	1							6	
2-12	1450	MPT-8-SB07-7					C	1							7	
2-12	1510	MPT-8-SB08-7.5					C	1							8	
2-12	1545	MPT-8-SB09-6.5					C	1							9	
2-12	1610	MPT-8-SB10-3					C	1							10	
2-12	0000	MPT-SB-DU01				So	C	1							11	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY Charles Metz	2-13-03	1800	1. RECEIVED BY Mark Swafford	2/14/03	1000
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

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

4/02R
FORM NO. TINUS-001

NAS Mayport, Jacksonville, FL CTO253

STL Pensacola

C302250

HOLDING TIME

03/18/03

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
%	LCS % Recovery	C302250*15	LCS	C302250	TPH	/ /	/ /	/ /	0	0	0
MG/KG	MPT-8-SB-DU01	C302250*11	FD	C302250	TPH	02/12/03	02/17/03	02/22/03	5	5	10
MG/KG	MPT-8-SB01-3	C302250*1	NORMAL	C302250	TPH	02/12/03	02/17/03	02/22/03	5	5	10
MG/KG	MPT-8-SB02-3	C302250*2	NORMAL	C302250	TPH	02/12/03	02/17/03	02/22/03	5	5	10
MG/KG	MPT-8-SB03-3	C302250*3	NORMAL	C302250	TPH	02/12/03	02/17/03	02/22/03	5	5	10
MG/KG	MPT-8-SB04-2.5	C302250*4	NORMAL	C302250	TPH	02/12/03	02/17/03	02/22/03	5	5	10
MG/KG	MPT-8-SB05-8	C302250*5	NORMAL	C302250	TPH	02/12/03	02/17/03	02/22/03	5	5	10
MG/KG	MPT-8-SB06-8.5	C302250*6	NORMAL	C302250	TPH	02/12/03	02/17/03	02/22/03	5	5	10
MG/KG	MPT-8-SB07-7	C302250*7	NORMAL	C302250	TPH	02/12/03	02/17/03	02/22/03	5	5	10
MG/KG	MPT-8-SB08-7.5	C302250*8	NORMAL	C302250	TPH	02/12/03	02/17/03	02/22/03	5	5	10
MG/KG	MPT-8-SB09-6.5	C302250*9	NORMAL	C302250	TPH	02/12/03	02/17/03	02/22/03	5	5	10
MG/KG	MPT-8-SB10-3	C302250*10	NORMAL	C302250	TPH	02/12/03	02/17/03	02/22/03	5	5	10
%	MSD % Recovery	C302250*22	MSD	C302250	TPH	02/12/03	02/17/03	02/21/03	5	4	9
%	Matrix Spike % Recovery	C302250*19	MS	C302250	TPH	02/12/03	02/17/03	02/21/03	5	4	9
MG/KG	Method Blank	C302250*12	M_BLANK	C302250	TPH	/ /	02/17/03	02/19/03	0	2	0

SEVERN TRENT STL

LOG NO: C3-02250
Received: 14 FEB 03
Reported: 27 FEB 03

Ms. Amy Thomson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Cl Project No: N4259
Requisition: CTO 253

Project: NAS MAYPORT, JACKSONVILLE, FL
Sampled By: Client
Code: 091930227

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
02250-12	Method Blank	
02250-13	LCS True Value	
02250-14	LCS Result	
02250-15	LCS % Recovery	
02250-16	LCS Accuracy Control Limit (%R)	

PARAMETER	02250-12	02250-13	02250-14	02250-15	02250-16
Total TPH at >/= C6-C35 (8015M), mg/kg dw	0.94J	850	1012	119 %	60-140
Dilution Factor	1	---	1	---	---
Prep Date	02.17.03	---	02.17.03	---	---
Analysis Date	02.19.03	---	02.19.03	---	---
Batch ID	GES198	GES198	GES198	GES198	---
Prep Method	TPHCWG	TPHCWG	TPHCWG	TPHCWG	TPHCWG
Analyst	IE	---	IE	---	---
Quantitation Factor	1	---	1	---	---

Injection Log

Directory: T:\DATA\021903W

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	2	0201003.D	1.	BLK GES 196		19 Feb 2003 08:11
2	3	0301004.D	1.	LCS GES 196		19 Feb 2003 08:55
3	4	0401006.D	1.07	C302158-1 MS		19 Feb 2003 10:21
4	5	0501007.D	1.01	C302158-1 MSD		19 Feb 2003 11:04
5	6	0601008.D	1.06	C302158-1		19 Feb 2003 11:47
6	7	0701005.D	1.2	C302182-1		19 Feb 2003 09:38
7	8	0801009.D	1.3	C302154-1		19 Feb 2003 12:29
8	9	0901010.D	1.04	C302185-1		19 Feb 2003 13:12
9	10	1001011.D	1.03	C302185-2		19 Feb 2003 13:55
10	11	1101012.D	1.01	C302185-3		19 Feb 2003 14:38
11	1	11111111.D	10.8	C302250-10 P		22 Feb 2003 02:59
12	2	11111112.D	10.4	C302250-11 P		22 Feb 2003 03:42
13	3	11111113.D	10.	BLK GES 199 P		22 Feb 2003 04:25
14	4	11111114.D	10.	LCS GES 199 P		22 Feb 2003 05:08
15	5	11111115.D	10.4	C302316-1 P		22 Feb 2003 05:52
16	6	11111116.D	11.3	C302316-2 P		22 Feb 2003 06:35
17	7	11111117.D	11.4	C302316-4 P		22 Feb 2003 07:18
18	8	11111118.D	12.1	C302316-8 P		22 Feb 2003 08:01
19	9	11111119.D	11.	C302316-9 P		22 Feb 2003 08:44
20	10	11111120.D	10.5	C302316-10 P		22 Feb 2003 09:27
21	12	11111121.D	11.4	C302316-11 P		22 Feb 2003 10:54
22	13	11111122.D	11.9	C302316-12 P		22 Feb 2003 11:37
23	14	11111123.D	11.	C302316-13 P		22 Feb 2003 12:20
24	15	11111124.D	11.4	C302316-14 P		22 Feb 2003 13:03
25	16	11111125.D	11.	C302316-15 P		22 Feb 2003 13:47
26	17	11111126.D	11.1	C302316-16 P		22 Feb 2003 14:30
27	18	11111127.D	20.3	C302316-17 P		22 Feb 2003 15:13
28	19	11111128.D	10.	FRAC BLK 2/21/03 M		22 Feb 2003 15:56
29	20	11111129.D	10.	BLK GES 198 M		22 Feb 2003 16:40
30	21	11111130.D	10.	LCS GES 198 M		22 Feb 2003 17:23
31	23	11111131.D	11.1	C302250-1 M		22 Feb 2003 18:49
32	24	11111132.D	10.7	C302250-2 M		22 Feb 2003 19:33
33	25	11111133.D	10.7	C302250-3 M		22 Feb 2003 20:16
34	26	11111134.D	10.	C302250-5 M		22 Feb 2003 20:59
35	27	11111135.D	11.1	C302250-7 M		22 Feb 2003 21:42
36	28	11111136.D	10.5	C302250-8 M		22 Feb 2003 22:25
37	29	11111137.D	11.	C302250-9 M		22 Feb 2003 23:08
38	30	11111138.D	10.8	C302250-10 M		22 Feb 2003 23:51
39	31	11111139.D	10.4	C302250-11 M		23 Feb 2003 00:34
40	32	11111140.D	10.	BLK GES 199 M		23 Feb 2003 01:18
41	34	11111141.D	10.	LCS GES 199 M		23 Feb 2003 02:44
42	35	11111142.D	10.4	C302316-1 M		23 Feb 2003 03:27
43	36	11111143.D	11.3	C302316-2 M		23 Feb 2003 04:10
44	37	11111144.D	11.4	C302316-4 M		23 Feb 2003 04:54
45	38	11111145.D	12.1	C302316-8 M		23 Feb 2003 05:37
46	39	11111146.D	11.	C302316-9 M		23 Feb 2003 06:20
47	40	11111147.D	10.5	C302316-10 M		23 Feb 2003 07:03
48	41	11111148.D	11.4	C302316-11 M		23 Feb 2003 07:46
49	42	11111149.D	11.9	C302316-12 M		23 Feb 2003 08:29
50	43	11111150.D	11.	C302316-13 M		23 Feb 2003 09:12
51	45	11111151.D	11.4	C302316-14 M		23 Feb 2003 10:38
52	46	11111152.D	11.	C302316-15 M		23 Feb 2003 11:22
53	47	11111153.D	11.1	C302316-16 M		23 Feb 2003 12:05
54	48	11111154.D	20.3	C302316-17 M		23 Feb 2003 12:48
55	13	1301014.D	1.19	C302185-4		19 Feb 2003 16:04
56	14	1401015.D	1.07	C302185-5		19 Feb 2003 16:47
57	15	1501016.D	1.13	C302185-6		19 Feb 2003 17:30
58	16	1601017.D	1.13	C302120-1		19 Feb 2003 18:13
59	17	1701018.D	1.13	BLK GES 198		19 Feb 2003 18:56
60	18	1801019.D	1.13	LCS GES 198		19 Feb 2003 19:39
61	19	1901020.D	1.08	C302250-1 MS		19 Feb 2003 20:22
62	20	2001021.D	1.07	C302250-1 MSD		19 Feb 2003 21:05

Injection Log

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Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
63	21	2101022.D	1.11	C302250-1		19 Feb 2003 21:48
64	22	2201023.D	1.07	C302250-2		19 Feb 2003 22:31
65	24	2401025.D	1.07	C302250-3		19 Feb 2003 23:57
66	25	2501026.D	1.04	C302250-4		20 Feb 2003 00:40
67	26	2601027.D	1.	C302250-5		20 Feb 2003 01:23
68	27	2701028.D	1.1	C302250-6		20 Feb 2003 02:06
69	28	2801029.D	1.11	C302250-7		20 Feb 2003 02:49
70	29	2901030.D	1.05	C302250-8		20 Feb 2003 03:32
71	30	3001031.D	1.1	C302250-9		20 Feb 2003 04:15
72	31	3101032.D	1.08	C302250-10		20 Feb 2003 04:58
73	32	3201033.D	1.04	C302250-11		20 Feb 2003 05:41
74	34	3401035.D	1.04	frac blk 2/19/03		20 Feb 2003 07:07
75	35	3501036.D	10.	BLK GES 196		20 Feb 2003 07:50
76	36	3601037.D	10.	LCS GES 196		20 Feb 2003 08:33
77	37	3701038.D	10.6	C302158-1		20 Feb 2003 09:16
78	38	3801039.D	12.	C302182-1		20 Feb 2003 09:59
79	39	3901040.D	10.4	C302185-1		20 Feb 2003 10:42
80	40	4001041.D	10.3	C302185-2		20 Feb 2003 11:25
81	41	4101042.D	10.1	C302185-3		20 Feb 2003 12:08
82	42	4201043.D	11.9	C302185-4		20 Feb 2003 12:51
83	43	4301044.D	10.7	C302185-5		20 Feb 2003 13:34
84	45	4501046.D	11.3	C302185-6		20 Feb 2003 15:00
85	46	4601047.D	11.3	C302120-1		20 Feb 2003 15:43
86	47	4701048.D	10.	FRAC BLK M		20 Feb 2003 16:26
87	48	4801049.D	10.	BLK GES 196 M		20 Feb 2003 17:09
88	49	4901050.D	10.	LCS GES 196 M		20 Feb 2003 17:52
89	50	5001051.D	10.6	C302158-1 M		20 Feb 2003 18:35
90	51	5101052.D	12.	C302182-1 M		20 Feb 2003 19:17
91	52	5201053.D	10.4	C302185-1 M		20 Feb 2003 20:01
92	53	5301054.D	10.3	C302185-2 M		20 Feb 2003 20:44
93	54	5401055.D	10.1	C302185-3 M		20 Feb 2003 21:27
94	56	5601057.D	11.9	C302185-4 M		20 Feb 2003 22:53
95	57	5701058.D	10.7	C302185-5 M		20 Feb 2003 23:36
96	58	5801059.D	11.3	C302185-6 M		21 Feb 2003 00:19
97	59	5901060.D	11.3	C302120-1 M		21 Feb 2003 01:02
98	60	6001061.D	1.	BLK GES 199		21 Feb 2003 01:45
99	61	6101062.D	1.	LCS GES 199		21 Feb 2003 02:28
100	62	6201063.D	1.07	C302316-1 MS		21 Feb 2003 03:11
101	63	6301064.D	1.02	C302316-1 MSD		21 Feb 2003 03:54
102	64	6401065.D	1.04	C302316-1		21 Feb 2003 04:37
103	65	6501066.D	1.13	C302316-2		21 Feb 2003 05:20
104	67	6701068.D	1.07	C302316-3		21 Feb 2003 06:47
105	68	6801069.D	1.04	C302316-4		21 Feb 2003 07:30
106	69	6901070.D	1.08	C302316-5		21 Feb 2003 08:13
107	70	7001071.D	1.14	C302316-6		21 Feb 2003 08:56
108	71	7101072.D	1.12	C302316-7		21 Feb 2003 09:40
109	72	7201073.D	1.21	C302316-8		21 Feb 2003 10:23
110	73	7301074.D	1.1	C302316-9		21 Feb 2003 11:06
111	74	7401075.D	1.05	C302316-10		21 Feb 2003 11:49
112	75	7501076.D	1.14	C302316-11		21 Feb 2003 12:32
113	76	7601077.D	1.19	C302316-12		21 Feb 2003 13:15
114	78	7801079.D	1.1	C302316-13		21 Feb 2003 14:45
115	79	7901080.D	1.14	C302316-14		21 Feb 2003 15:28
116	80	8001081.D	1.1	C302316-15		21 Feb 2003 16:11
117	81	8101082.D	1.11	C302316-16		21 Feb 2003 16:54
118	82	8201083.D	2.03	C302316-17		21 Feb 2003 17:38
119	84	8401085.D	10.	FRAC BLK 2/21/03 P		21 Feb 2003 19:04
120	85	8501086.D	10.	BLK GES 198 P		21 Feb 2003 19:47
121	86	8601087.D	10.	LCS GES 198 P		21 Feb 2003 20:30
122	87	8701088.D	11.1	C302250-1 P		21 Feb 2003 21:13
123	88	8801089.D	10.7	C302250-2 P		21 Feb 2003 21:56
124	89	8901090.D	10.7	C302250-3 P		21 Feb 2003 22:40

Injection Log

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Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
125	90	9001091.D	10.	C302250-5 P		21 Feb 2003 23:23
126	91	9101092.D	11.1	C302250-7 P		22 Feb 2003 00:06
127	92	9201093.D	10.5	C302250-8 P		22 Feb 2003 00:49
128	93	9301094.D	11.	C302250-9 P		22 Feb 2003 01:32
129	100	A001001.D	1.	HEXANE	05-ORGW83-1	19 Feb 2003 06:46
130	1	CCTPH001.D	1.	TPH CC 100 PPM	05-ORGW92-1	19 Feb 2003 07:29
131	12	CCTPH002.D	1.	TPH CC 100 PPM	05-ORGW92-1	19 Feb 2003 15:21
132	23	CCTPH003.D	1.	TPH CC 100 PPM	05-ORGW92-1	19 Feb 2003 23:14
133	33	CCTPH004.D	1.	TPH CC 100 PPM	05-ORGW92-1	20 Feb 2003 06:24
134	44	CCTPH005.D	1.	TPH CC 100 PPM	05-ORGW92-1	20 Feb 2003 14:17
135	55	CCTPH006.D	1.	TPH CC 100 PPM	05-ORGW92-1	20 Feb 2003 22:10
136	66	CCTPH007.D	1.	TPH CC 100 PPM	05-ORGW92-1	21 Feb 2003 06:04
137	77	CCTPH008.D	1.	TPH CC 100 PPM	05-ORGW92-1	21 Feb 2003 13:58
138	83	CCTPH009.D	1.	TPH CC 100 PPM	05-ORGW92-1	21 Feb 2003 18:21
139	94	CCTPH010.D	1.	TPH CC 100 PPM	05-ORGW92-1	22 Feb 2003 02:16
140	11	CCTPH011.D	1.	TPH CC 100 PPM	05-ORGW92-1	22 Feb 2003 10:11
141	22	CCTPH012.D	1.	TPH CC 100 PPM	05-ORGW92-1	22 Feb 2003 18:06
142	33	CCTPH013.D	1.	TPH CC 100 PPM	05-ORGW92-1	23 Feb 2003 02:01
143	44	CCTPH014.D	1.	TPH CC 100 PPM	05-ORGW92-1	23 Feb 2003 09:55
144	49	CCTPH015.D	1.	TPH CC 100 PPM	05-ORGW92-1	23 Feb 2003 13:31

Sequence Name: D:\HPCHEM\2\SEQUENCE\021903W.S
Comment: Linked Data Acquisition.
Operator: IE
Data Path: D:\HPCHEM\2\DATA\021903W\
Pre-Seq Cmd:
Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	100	--------	8015FRNT	HEXANE
2	Sample	1	CCTPH001	8015FRNT	TPH CC 100 PPM
3	Sample	2	--------	8015FRNT	BLK GES 196
4	Sample	3	--------	8015FRNT	LCS GES 196
5	Sample	7	--------	8015FRNT	C302182-1
6	Sample	4	--------	8015FRNT	C302158-1 MS
7	Sample	5	--------	8015FRNT	C302158-1 MSD
8	Sample	6	--------	8015FRNT	C302158-1
9	Sample	8	--------	8015FRNT	C302154-1
10	Sample	9	--------	8015FRNT	C302185-1
11	Sample	10	--------	8015FRNT	C302185-2
12	Sample	11	--------	8015FRNT	C302185-3
13	Sample	12	CCTPH002	8015FRNT	TPH CC 100 PPM
14	Sample	13	--------	8015FRNT	C302185-4
15	Sample	14	--------	8015FRNT	C302185-5
16	Sample	15	--------	8015FRNT	C302185-6
17	Sample	16	--------	8015FRNT	C302120-1
18	Sample	17	--------	8015FRNT	BLK GES 198
19	Sample	18	--------	8015FRNT	LCS GES 198
20	Sample	19	--------	8015FRNT	C302250-1 MS
21	Sample	20	--------	8015FRNT	C302250-1 MSD
22	Sample	21	--------	8015FRNT	C302250-1
23	Sample	22	--------	8015FRNT	C302250-2
24	Sample	23	CCTPH003	8015FRNT	TPH CC 100 PPM
25	Sample	24	--------	8015FRNT	C302250-3
26	Sample	25	--------	8015FRNT	C302250-4
27	Sample	26	--------	8015FRNT	C302250-5
28	Sample	27	--------	8015FRNT	C302250-6
29	Sample	28	--------	8015FRNT	C302250-7
30	Sample	29	--------	8015FRNT	C302250-8
31	Sample	30	--------	8015FRNT	C302250-9
32	Sample	31	--------	8015FRNT	C302250-10
33	Sample	32	--------	8015FRNT	C302250-11
34	Sample	33	CCTPH004	8015FRNT	TPH CC 100 PPM
35	Sample	34	--------	8015FRNT	frac blk 2/19/03
36	Sample	35	--------	8015FRNT	BLK GES 196
37	Sample	36	--------	8015FRNT	LCS GES 196
38	Sample	37	--------	8015FRNT	C302158-1
39	Sample	38	--------	8015FRNT	C302182-1
40	Sample	39	--------	8015FRNT	C302185-1
41	Sample	40	--------	8015FRNT	C302185-2
42	Sample	41	--------	8015FRNT	C302185-3
43	Sample	42	--------	8015FRNT	C302185-4

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Sequence Name: D:\HPCHEM\2\SEQUENCE\021903W.S

Line	Type	Vial	DataFile	Method	Sample Name
44	Sample	43	--------	8015FRNT	C302185-5
45	Sample	44	CCTPH005	8015FRNT	TPH CC 100 PPM
46	Sample	45	--------	8015FRNT	C302185-6
47	Sample	46	--------	8015FRNT	C302120-1
48	Sample	47	--------	8015FRNT	FRAC BLK M
49	Sample	48	--------	8015FRNT	BLK GES 196 M
50	Sample	49	--------	8015FRNT	LCS GES 196 M
51	Sample	50	--------	8015FRNT	C302158-1 M
52	Sample	51	--------	8015FRNT	C302182-1 M
53	Sample	52	--------	8015FRNT	C302185-1 M
54	Sample	53	--------	8015FRNT	C302185-2 M
55	Sample	54	--------	8015FRNT	C302185-3 M
56	Sample	55	CCTPH006	8015FRNT	TPH CC 100 PPM
57	Sample	56	--------	8015FRNT	C302185-4 M
58	Sample	57	--------	8015FRNT	C302185-5 M
59	Sample	58	--------	8015FRNT	C302185-6 M
60	Sample	59	--------	8015FRNT	C302120-1 M
61	Sample	60	--------	8015FRNT	BLK GES 199
62	Sample	61	--------	8015FRNT	LCS GES 199
63	Sample	62	--------	8015FRNT	C302316-1 MS
64	Sample	63	--------	8015FRNT	C302316-1 MSD
65	Sample	64	--------	8015FRNT	C302316-1
66	Sample	65	--------	8015FRNT	C302316-2
67	Sample	66	CCTPH007	8015FRNT	TPH CC 100 PPM
68	Sample	67	--------	8015FRNT	C302316-3
69	Sample	68	--------	8015FRNT	C302316-4
70	Sample	69	--------	8015FRNT	C302316-5
71	Sample	70	--------	8015FRNT	C302316-6
72	Sample	71	--------	8015FRNT	C302316-7
73	Sample	72	--------	8015FRNT	C302316-8
74	Sample	73	--------	8015FRNT	C302316-9
75	Sample	74	--------	8015FRNT	C302316-10
76	Sample	75	--------	8015FRNT	C302316-11
77	Sample	76	--------	8015FRNT	C302316-12
78	Sample	77	CCTPH008	8015FRNT	TPH CC 100 PPM
79	Sample	78	--------	8015FRNT	C302316-13
80	Sample	79	--------	8015FRNT	C302316-14
81	Sample	80	--------	8015FRNT	C302316-15
82	Sample	81	--------	8015FRNT	C302316-16
83	Sample	82	--------	8015FRNT	C302316-17
84	Sample	83	CCTPH009	8015FRNT	TPH CC 100 PPM
85	Sample	84	--------	8015FRNT	FRAC BLK 2/21/03 P
86	Sample	85	--------	8015FRNT	BLK GES 198 P
87	Sample	86	--------	8015FRNT	LCS GES 198 P
88	Sample	87	--------	8015FRNT	C302250-1 P
89	Sample	88	--------	8015FRNT	C302250-2 P
90	Sample	89	--------	8015FRNT	C302250-3 P
91	Sample	90	--------	8015FRNT	C302250-5 P
92	Sample	91	--------	8015FRNT	C302250-7 P
93	Sample	92	--------	8015FRNT	C302250-8 P
94	Sample	93	--------	8015FRNT	C302250-9 P
95	Sample	94	CCTPH010	8015FRNT	TPH CC 100 PPM
96	Sample	1	11111111	8015FRNT	C302250-10 P

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Sequence Name: D:\HPCHEM\2\SEQUENCE\021903W.S

Line	Type	Vial	DataFile	Method	Sample Name
97	Sample	2	11111112	8015FRNT	C302250-11 P
98	Sample	3	11111113	8015FRNT	BLK GES 199 P
99	Sample	4	11111114	8015FRNT	LCS GES 199 P
100	Sample	5	11111115	8015FRNT	C302316-1 P
101	Sample	6	11111116	8015FRNT	C302316-2 P
102	Sample	7	11111117	8015FRNT	C302316-4 P
103	Sample	8	11111118	8015FRNT	C302316-8 P
104	Sample	9	11111119	8015FRNT	C302316-9 P
105	Sample	10	11111120	8015FRNT	C302316-10 P
106	Sample	11	CCTPH011	8015FRNT	TPH CC 100 PPM
107	Sample	12	11111121	8015FRNT	C302316-11 P
108	Sample	13	11111122	8015FRNT	C302316-12 P
109	Sample	14	11111123	8015FRNT	C302316-13 P
110	Sample	15	11111124	8015FRNT	C302316-14 P
111	Sample	16	11111125	8015FRNT	C302316-15 P
112	Sample	17	11111126	8015FRNT	C302316-16 P
113	Sample	18	11111127	8015FRNT	C302316-17 P
114	Sample	19	11111128	8015FRNT	FRAC BLK 2/21/03 M
115	Sample	20	11111129	8015FRNT	BLK GES 198 M
116	Sample	21	11111130	8015FRNT	LCS GES 198 M
117	Sample	22	CCTPH012	8015FRNT	TPH CC 100 PPM
118	Sample	23	11111131	8015FRNT	C302250-1 M
119	Sample	24	11111132	8015FRNT	C302250-2 M
120	Sample	25	11111133	8015FRNT	C302250-3 M
121	Sample	26	11111134	8015FRNT	C302250-5 M
122	Sample	27	11111135	8015FRNT	C302250-7 M
123	Sample	28	11111136	8015FRNT	C302250-8 M
124	Sample	29	11111137	8015FRNT	C302250-9 M
125	Sample	30	11111138	8015FRNT	C302250-10 M
126	Sample	31	11111139	8015FRNT	C302250-11 M
127	Sample	32	11111140	8015FRNT	BLK GES 199 M
128	Sample	33	CCTPH013	8015FRNT	TPH CC 100 PPM
129	Sample	34	11111141	8015FRNT	LCS GES 199 M
130	Sample	35	11111142	8015FRNT	C302316-1 M
131	Sample	36	11111143	8015FRNT	C302316-2 M
132	Sample	37	11111144	8015FRNT	C302316-4 M
133	Sample	38	11111145	8015FRNT	C302316-8 M
134	Sample	39	11111146	8015FRNT	C302316-9 M
135	Sample	40	11111147	8015FRNT	C302316-10 M
136	Sample	41	11111148	8015FRNT	C302316-11 M
137	Sample	42	11111149	8015FRNT	C302316-12 M
138	Sample	43	11111150	8015FRNT	C302316-13 M
139	Sample	44	CCTPH014	8015FRNT	TPH CC 100 PPM
140	Sample	45	11111151	8015FRNT	C302316-14 M
141	Sample	46	11111152	8015FRNT	C302316-15 M
142	Sample	47	11111153	8015FRNT	C302316-16 M
143	Sample	48	11111154	8015FRNT	C302316-17 M
144	Sample	49	CCTPH015	8015FRNT	TPH CC 100 PPM

DATA ANALYSIS PARAMETERS

Method Name: T:\METHODS\PROCESS\WG-FL4.M

Percent Report Settings

Sort By: Signal

Output Destination
    Screen: Yes
    Printer: No
    File: No

Integration Events: AutoIntegrate

Generate Report During Run Method: No

Signal Correlation Window: 0.020

Quantitative Report Settings

Report Type: Summary

Output Destination
    Screen: No
    Printer: No
    File: No

Generate Report During Run Method: Yes

TPH Working Group
Calibration Last Updated: Wed Jan 29 09:31:13 2003

Reference Window: 2.00 Minutes
Non-Reference Window: 1.00 Minutes
Correlation Window: 0.10 minutes
Default Multiplier: 1.00
Default Sample Concentration: 0.00

Compound Information

---

1) C5-C7 (BENZENE) ( )
Ret. Time 2.60 min., Extract & Integrate from 2.50 to 2.65 min.

Lvl ID Conc (ppm) Response

1	17.500	129542
2	87.400	583451
3	175.000	1007335
4	350.000	1665355
5	699.000	2918423
6	874.000	-1
CC	not used for this compound	

Curve Fit: Quadratic

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2) C6-C8 aliphatic ( )
Ret. Time 3.00 min., Extract & Integrate from 2.20 to 3.60 min.

Lvl	ID	Conc (ppm)	Response
1		10.000	99215
2		40.000	357582
3		100.000	778528
4		200.000	1551027
5		400.000	2757408
6		800.000	4441278
CC		not used for this compound	

Curve Fit: Avg. RF

---

3) C7-C8 toluene ( )
Ret. Time 3.32 min., Extract & Integrate from 3.23 to 3.38 min.

Lvl	ID	Conc (ppm)	Response
1		17.300	304543
2		86.500	1294705
3		173.000	2262728
4		346.000	3762686
5		692.000	6297618
6		865.000	-1
CC		not used for this compound	

Curve Fit: Quadratic

---

4) C8-C10 ali aro ( )
Ret. Time 5.00 min., Extract & Integrate from 3.20 to 5.20 min.

Lvl	ID	Conc (ppm)	Response
1		10.000	219429
2		40.000	841311
3		100.000	1742093
4		200.000	3475982
5		400.000	6126535
6		not used for this compound	
CC		not used for this compound	

Curve Fit: Avg. RF

---

5) C10-C12 ali aro ( )
Ret. Time 6.00 min., Extract & Integrate from 4.80 to 6.40 min.

Lvl	ID	Conc (ppm)	Response
1		10.000	246259
2		40.000	960830
3		100.000	1932399
4		200.000	3934799
5		400.000	6884686
6		not used for this compound	
CC		not used for this compound	

Curve Fit: Avg. RF

---

6) C12-C16 ali aro ( )
Ret. Time 7.00 min., Extract & Integrate from 6.10 to 8.40 min.

Lvl	ID	Conc (ppm)	Response
1		15.000	380903
2		60.000	1483222
3		150.000	2966851
4		300.000	6176130
5		600.000	10847326
6		1200.000	17711459
CC		not used for this compound	

Curve Fit: Avg. RF

---

7) C16-C21 ali aro ( )
Ret. Time 9.00 min., Extract & Integrate from 8.20 to 10.30 min.

Lvl	ID	Conc (ppm)	Response
1		15.000	378439
2		60.000	1499408
3		150.000	3009289
4		300.000	6344675
5		600.000	11113906
6		1200.000	18233711
CC		not used for this compound	

Curve Fit: Avg. RF

---

8) C21-C35 ali aro ( )
Ret. Time 14.00 min., Extract & Integrate from 10.20 to 20.00 min.

Lvl	ID	Conc (ppm)	Response
1		35.000	891864
2		140.000	3457910
3		350.000	6987161
4		700.000	15434235
5		1400.000	27161525
6		2800.000	45355074
CC		not used for this compound	

Curve Fit: Avg. RF

---

9) C8-C40 qc aliphatic ( )
Ret. Time 14.00 min., Extract & Integrate from 3.10 to 32.00 min.

Lvl	ID	Conc (ppm)	Response
1		85.000	2031358
2		340.000	8060295
3		850.000	16426599
4		1700.000	35526476
5		3400.000	63642125
6		6800.000	105596696
CC		1700.000	-1

Curve Fit: Avg. RF

END OF DATA ANALYSIS PARAMETERS

Wed Jan 29 09:35:11 2003

Evaluate Continuing Calibration Report

```
Data File : T:\DATA\021903W\CCTPH001.D                    Vial: 1
Acq On    : 19 Feb 2003   7:29                         Operator: IE
Sample    : TPH CC 100 PPM                             Inst    : Flo
Misc      : 05-ORGW92-1                                Multiplr: 1.00
IntFile   : events.e

Method       : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title        : TPH Working Group
Last Update  : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
9 H	C8-C40 qc aliphatic	20.346	19.332 E3	5.0	0#	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
CCTPH002.D WG-FL4.M Fri Feb 21 06:48:17 2003

Evaluate Continuing Calibration Report

```
Data File : T:\DATA\021903W\CCTPH002.D                    Vial: 12
Acq On    : 19 Feb 2003  15:21                        Operator: IE
Sample    : TPH CC 100 PPM                            Inst    : Flo
Misc      : 05-ORGW92-1                               Multiplr: 1.00
IntFile   : events.e

Method       : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title        : TPH Working Group
Last Update  : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%

      Compound                        AvgRF   CCRF       %Dev  Area% Dev(Min)
-----------------------------------------------------------------------------
9 H   C8-C40 qc aliphatic            20.346  18.545 E3    8.9     0#  0.00


  (#) = Out of Range                 SPCC's out = 0  CCC's out = 0
   CCTPH002.D WG-FL4.M          Fri Feb 21 06:48:47 2003
```

Evaluate Continuing Calibration Report

```
Data File : T:\DATA\021903W\CCTPH003.D                    Vial: 23
Acq On    : 19 Feb 2003  23:14                        Operator: IE
Sample    : TPH CC 100 PPM                            Inst    : Flo
Misc      : 05-ORGW92-1                               Multiplr: 1.00
IntFile   : events.e

Method       : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title        : TPH Working Group
Last Update  : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%

      Compound                        AvgRF   CCRF        %Dev  Area% Dev(Min)
----------------------------------------------------------------------------
9 H   C8-C40 qc aliphatic            20.346  19.813 E3    2.6     0#  0.00


     ---

  (#) = Out of Range                 SPCC's out = 0  CCC's out = 0
   CCTPH002.D WG-FL4.M          Fri Feb 21 06:49:20 2003
```

Evaluate Continuing Calibration Report

```
Data File : T:\DATA\021903W\CCTPH004.D                    Vial: 33
Acq On    : 20 Feb 2003   6:24                         Operator: IE
Sample    : TPH CC 100 PPM                             Inst    : Flo
Misc      : 05-ORGW92-1                                Multiplr: 1.00
IntFile   : events.e

Method       : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title        : TPH Working Group
Last Update  : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%

      Compound                        AvgRF   CCRF        %Dev  Area% Dev(Min)
-----------------------------------------------------------------------------
9 H   C8-C40 qc aliphatic            20.346  19.626 E3    3.5     0#  0.00


  (#) = Out of Range                 SPCC's out = 0  CCC's out = 0
   CCTPH002.D WG-FL4.M          Fri Feb 21 06:49:55 2003
```

Evaluate Continuing Calibration Report

Data File : T:\DATA\021903W\CCTPH005.D Vial: 44
Acq On : 20 Feb 2003 14:17 Operator: IE
Sample : TPH CC 100 PPM Inst : Flo
Misc : 05-ORGW92-1 Multiplr: 1.00
IntFile : events.e

Method : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title : TPH Working Group
Last Update : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
9 H	C8-C40 qc aliphatic	20.346	20.592 E3	-1.2	0#	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
CCTPH002.D WG-FL4.M Fri Feb 21 06:50:27 2003

Evaluate Continuing Calibration Report

Data File : T:\DATA\021903W\CCTPH006.D Vial: 55
Acq On : 20 Feb 2003 22:10 Operator: IE
Sample : TPH CC 100 PPM Inst : Flo
Misc : 05-ORGW92-1 Multiplr: 1.00
IntFile : events.e

Method : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title : TPH Working Group
Last Update : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
9 H	C8-C40 qc aliphatic	20.346	19.537 E3	4.0	0#	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
CCTPH002.D WG-FL4.M Fri Feb 21 06:50:59 2003

Evaluate Continuing Calibration Report

Data File : T:\DATA\021903W\CCTPH007.D Vial: 66
Acq On : 21 Feb 2003 6:04 Operator: IE
Sample : TPH CC 100 PPM Inst : Flo
Misc : 05-ORGW92-1 Multiplr: 1.00
IntFile : events.e

Method : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title : TPH Working Group
Last Update : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
9 H	C8-C40 qc aliphatic	20.346	20.091 E3	1.3	0#	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
CCTPH002.D WG-FL4.M Fri Feb 21 06:51:44 2003

Evaluate Continuing Calibration Report

```
Data File : T:\DATA\021903W\CCTPH008.D                    Vial: 77
Acq On    : 21 Feb 2003  13:58                        Operator: IE
Sample    : TPH CC 100 PPM                            Inst    : Flo
Misc      : 05-ORGW92-1                               Multiplr: 1.00
IntFile   : events.e

Method       : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title        : TPH Working Group
Last Update  : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
9 H	C8-C40 qc aliphatic	20.346	19.265 E3	5.3	0#	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
CCTPH002.D WG-FL4.M Mon Feb 24 07:30:05 2003

Evaluate Continuing Calibration Report

```
Data File : T:\DATA\021903W\CCTPH009.D                    Vial: 83
Acq On    : 21 Feb 2003  18:21                         Operator: IE
Sample    : TPH CC 100 PPM                             Inst    : Flo
Misc      : 05-ORGW92-1                                Multiplr: 1.00
IntFile   : events.e

Method       : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title        : TPH Working Group
Last Update  : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
9 H	C8-C40 qc aliphatic	20.346	19.470 E3	4.3	0#	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
CCTPH002.D WG-FL4.M Mon Feb 24 07:31:02 2003

Evaluate Continuing Calibration Report

```
Data File : T:\DATA\021903W\CCTPH010.D                    Vial: 94
Acq On    : 22 Feb 2003   2:16                        Operator: IE
Sample    : TPH CC 100 PPM                            Inst    : Flo
Misc      : 05-ORGW92-1                               Multiplr: 1.00
IntFile   : events.e

Method       : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title        : TPH Working Group
Last Update  : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%

      Compound                        AvgRF   CCRF       %Dev  Area% Dev(Min)
----------------------------------------------------------------------------
9 H   C8-C40 qc aliphatic            20.346  18.893 E3    7.1     0#  0.00


  (#) = Out of Range                 SPCC's out = 0  CCC's out = 0
   CCTPH002.D WG-FL4.M          Mon Feb 24 07:31:43 2003
```

Evaluate Continuing Calibration Report

```
Data File : T:\DATA\021903W\CCTPH011.D                    Vial: 11
Acq On    : 22 Feb 2003  10:11                        Operator: IE
Sample    : TPH CC 100 PPM                            Inst    : Flo
Misc      : 05-ORGW92-1                               Multiplr: 1.00
IntFile   : events.e

Method       : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title        : TPH Working Group
Last Update  : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
9 H	C8-C40 qc aliphatic	20.346	18.764 E3	7.8	0#	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
CCTPH002.D WG-FL4.M Mon Feb 24 07:32:29 2003

Evaluate Continuing Calibration Report

```
Data File : T:\DATA\021903W\CCTPH012.D                    Vial: 22
Acq On    : 22 Feb 2003  18:06                        Operator: IE
Sample    : TPH CC 100 PPM                            Inst    : Flo
Misc      : 05-ORGW92-1                               Multiplr: 1.00
IntFile   : events.e

Method       : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title        : TPH Working Group
Last Update  : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
9 H	C8-C40 qc aliphatic	20.346	18.948 E3	6.9	0#	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
CCTPH002.D WG-FL4.M Mon Feb 24 07:33:13 2003

Evaluate Continuing Calibration Report

Data File : T:\DATA\021903W\CCTPH013.D Vial: 33
Acq On : 23 Feb 2003 2:01 Operator: IE
Sample : TPH CC 100 PPM Inst : Flo
Misc : 05-ORGW92-1 Multiplr: 1.00
IntFile : events.e

Method : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title : TPH Working Group
Last Update : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
9 H	C8-C40 qc aliphatic	20.346	21.641 E3	-6.4	0#	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
CCTPH002.D WG-FL4.M Mon Feb 24 07:34:01 2003

Evaluate Continuing Calibration Report

```
Data File : T:\DATA\021903W\CCTPH014.D                    Vial: 44
Acq On    : 23 Feb 2003   9:55                        Operator: IE
Sample    : TPH CC 100 PPM                            Inst    : Flo
Misc      : 05-ORGW92-1                               Multiplr: 1.00
IntFile   : events.e

Method       : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title        : TPH Working Group
Last Update  : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
9 H	C8-C40 qc aliphatic	20.346	19.547 E3	3.9	0#	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
CCTPH002.D WG-FL4.M Mon Feb 24 07:34:48 2003

Evaluate Continuing Calibration Report

```
Data File : T:\DATA\021903W\CCTPH015.D                    Vial: 49
Acq On    : 23 Feb 2003  13:31                        Operator: IE
Sample    : TPH CC 100 PPM                            Inst    : Flo
Misc      : 05-ORGW92-1                               Multiplr: 1.00
IntFile   : events.e

Method       : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title        : TPH Working Group
Last Update  : Mon Feb 03 10:21:39 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%

      Compound                        AvgRF   CCRF        %Dev  Area% Dev(Min)
----------------------------------------------------------------------------
9 II   C8-C40 qc aliphatic           20.346  20.861 E3   -2.5     0#  0.00


  (#) = Out of Range                 SPCC's out = 0  CCC's out = 0
   CCTPH002.D WG-FL4.M          Mon Feb 24 07:35:34 2003
```

SEVERN TRENT STL

LOG NO: C3-02250
Received: 14 FEB 03
Reported: 27 FEB 03

Ms. Amy Thomson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Cl Project No: N4259
Requisition: CTO 253

Project: NAS MAYPORT, JACKSONVILLE, FL
Sampled By: Client
Code: 16213037

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
02250-17	MS True Value	
02250-18	Matrix Spike Result	
02250-19	Matrix Spike % Recovery	
02250-20	MSD True Value	
02250-21	MSD Result	

PARAMETER	02250-17	02250-18	02250-19	02250-20	02250-21
Total TPH at >/= C6-C35 (8015M), mg/kg dw	850	3320	249 %M1	850	2286
Dilution Factor	---	1	---	---	1
Prep Date	---	02.17.03	---	---	02.17.03
Analysis Date	---	02.19.03	---	---	02.19.03
Batch ID	GES198	GES198	GES198	GES198	GES198
Prep Method	TPHCWG	TPHCWG	TPHCWG	TPHCWG	TPHCWG
Analyst	---	IE	---	---	IE
Quantitation Factor	---	1	---	---	1

SEVERN TRENT STL

LOG NO: C3-02250
Received: 14 FEB 03
Reported: 27 FEB 03

Ms. Amy Thomson
Tetra Tech NUS, Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Cl Project No: N4259
Requisition: CTO 253

Project: NAS MAYPORT, JACKSONVILLE, FL
Sampled By: Client
Code: 091930227

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
02250-22	MSD % Recovery	
02250-23	MS Accuracy Advisory Limit (%R)	
02250-24	Precision (%RPD) MS/MSD	
02250-25	MS Precision Advisory Limit (%RPD)	

PARAMETER	02250-22	02250-23	02250-24	02250-25
Total TPH at >/= C6-C35 (8015M), mg/kg dw	128 %	60-140	64	50
Batch ID	GES198	---	GES198	---
Prep Method	TPHCWG	TPHCWG	TPHCWG	TPHCWG

STL Pensacola Special Projects

Page # 83

Chemist/Analyst: [illegible] Date: 2/17/03

Batch Number: 615198 TEST (Circle): TPH1005 MET FXGAS DISMET EXXON OTHER (Please specify) TPH WG

Extraction Method: _____ Analysis Method: TPH WG

Surrogate ID: _____ Amt: _____

Matrix: Soil Water Air Oil Spike ID: OSURGNT-21 Amt: 10

Sample/QC Sample Extraction Date: 2/17/3 Sample/QC Sample Analysis Date: 2/17/03

	Sample Order #	Vol. (ml) or Weight (g) Extracted	Final Volume	Dilutions	Comments
1	Blank	10.0	10.0 ml		
2	LCS	10.0	ml		
3	Duplicate		ml		
4	C3022-50-(MS)	10.32	ml		
5	-1 (MSD)	10.42	ml		
6	-1	10.62	ml		
7	2	10.43	ml		
8	3	10.63	ml		
9	4	10.89	ml		
10	5	10.96	ml		
11	6	10.03	ml		
12	7	10.24	ml		
13	8	10.21	ml		
14	9	10.46	ml		
15	10	10.05	ml		
16	11	10.93	ml		
17			ml		
18			ml		
19			ml		
20			ml		
21			ml		
22			ml		
23			ml		
24			ml		

[illegible] 2/17/3

Batch # ges 198
TPH's and 8100's
KA/IE
2/17/03

Multiplier = [(Extract volume) x (Lab dilution)] / [(Weight extracted) x (Dry weight)]
Quantitation Factor = (Total dilution factor) / (Dry weight)
Total Dilution Factor = (Lab dilution) x [(Extract volume) / 5] x [30 / (Weight extracted)]

SA #	Multiplier (ml/kg)	Frac'd Multiplier (ml/kg)	Quant. Factor	Lab Dilution	Extract Volume (mls)	Dry Weight	Weight Extracted (g)
BLK	1.00	10.0	1.0	1	10	1	10.00
LCS	1.00	10.0	1.0	1	10	1	10.00
C302250-1 MS	1.08	10.8	1.1	1	10	0.9	10.32
C302250-1 MSD	1.07	10.7	1.1	1	10	0.9	10.42
C302250-1	1.11	11.1	1.1	1	10	0.9	10.02
C302250-2	1.07	10.7	1.1	1	10	0.9	10.43
C302250-3	1.07	10.7	1.1	1	10	0.88	10.63
C302250-4	1.04	10.4	1.1	1	10	0.88	10.89
C302250-5	1.00	10.0	1.1	1	10	0.91	10.96
C302250-6	1.10	11.0	1.1	1	10	0.91	10.03
C302250-7	1.11	11.1	1.1	1	10	0.88	10.24
C302250-8	1.05	10.5	1.1	1	10	0.93	10.21
C302250-9	1.10	11.0	1.1	1	10	0.87	10.46
C302250-10	1.08	10.8	1.1	1	10	0.92	10.05
C302250-11	1.04	10.4	1.1	1	10	0.88	10.93

STL Pensacola Special Projects

Page # 83

Chemist/Analyst: VL Date: 2/17/03

Batch Number: 615/98 TEST (Circle): TPH1005 MET FXGAS DISMET EXXON OTHER (Please specify) TPH WG

Extraction Method: _____ Analysis Method: PPH WG

Surrogate ID: _____ Amt: _____

Matrix: Soil Water Air Oil Spike ID: OSURGNT-21 Amt: 1ml

Sample/QC Sample Extraction Date: 2/17/3 Sample/QC Sample Analysis Date: 2/17/03

	Sample Order #	Vol. (ml) or Weight (g) Extracted	Final Volume	Dilutions	Comments
1	Blank	10.0	10.0 ml		
2	LCS	10.10	ml		
3	Duplicate		ml		
4	C302250-1(MS)	10.32	ml		
5	-1 MSD	10.42	ml		
6	-1	10.62	ml		
7	2	10.43	ml		
8	3	10.63	ml		
9	4	10.89	ml		
10	5	10.96	ml		
11	6	10.03	ml		
12	7	10.24	ml		
13	8	10.21	ml		
14	9	10.46	ml		
15	10	10.05	ml		
16	11	10.93	ml		
17			ml		
18			ml		
19			ml		
20			ml		
21			ml		
22			ml		
23			ml		
24			ml		

2/17/3

Field Duplicates for C302250

	Sample		Duplicate			
Compound	MPT-8-SB10-3		MPT-8-SB-DU01		RPD	Difference
	MG/KG		MG/KG		%	
C10-C12 ALIPHATICS	13	J	23	J	56	10
C12-C16 ALIPHATICS	290		260		11	30
C12-C16 AROMATICS	16	J	16	J	0	0
C16-C21 ALIPHATICS	62		48	J	25	14
C16-C21 AROMATICS	4.6		3.4	J	30	1
C21-C35 ALIPHATICS	55	U	16	J	110	39

Batch # ges 198
TPH's and 8100's
KA/IE
2/17/03

Multiplier = [(Extract volume) x (Lab dilution)] / [(Weight extracted) x (Dry weight)]
Quantitation Factor = (Total dilution factor) / (Dry weight)
Total Dilution Factor = (Lab dilution) x [(Extract volume) / 5] x [30 / (Weight extracted)]

SA #	Multiplier (ml/kg)	Frac'd Multiplier (ml/kg)	Quant. Factor	Lab Dilution	Extract Volume (mls)	Dry Weight	Weight Extracted (g)
BLK	1.00	10.0	1.0	1	10	1	10.00
LCS	1.00	10.0	1.0	1	10	1	10.00
C302250-1 MS	1.08	10.8	1.1	1	10	0.9	10.32
C302250-1 MSD	1.07	10.7	1.1	1	10	0.9	10.42
C302250-1	1.11	11.1	1.1	1	10	0.9	10.02
C302250-2	1.07	10.7	1.1	1	10	0.9	10.43
C302250-3	1.07	10.7	1.1	1	10	0.88	10.63
C302250-4	1.04	10.4	1.1	1	10	0.88	10.89
C302250-5	1.00	10.0	1.1	1	10	0.91	10.96
C302250-6	1.10	11.0	1.1	1	10	0.91	10.03
C302250-7	1.11	11.1	1.1	1	10	0.88	10.24
C302250-8	1.05	10.5	1.1	1	10	0.93	10.21
C302250-9	1.10	11.0	1.1	1	10	0.87	10.46
C302250-10	1.08	10.8	1.1	1	10	0.92	10.05
C302250-11	1.04	10.4	1.1	1	10	0.88	10.93

TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE 1 OF 1

CLIENT NS Mayport		JOB NUMBER C302250	
SUBJECT TPH Subclass			
BASED ON TPHCWG (Florida)		DRAWING NUMBER	
BY SCS	CHECKED BY	APPROVED BY	DATE

MPT-8-SB03-3 (C302250-3) 2/21/03 @ 2240

C_{12}-C_{16} Aliphatics 3200 mg/kg

$$\frac{(6198533 \text{ area})(10{,}000 \text{ ul})}{(20346 \text{ area})(10.63 \text{ g})(100 \text{ ul})(0.88)} = 3256$$

$$\boxed{\simeq 3200 \text{ mg/kg}}$$

Quantitation Report (QT Reviewed)

Data File : T:\DATA\021903W\8901090.D
Acq On : 21 Feb 2003 22:40
Sample : [redacted] P
Misc
IntFile : events.e
Quant Time: Feb 24 8:09 2003 Quant Results File: WG-FL4.RES

Vial: 89
Operator: IE
Inst : Flo
Multiplr: 10.70

Quant Method : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title : TPH Working Group
Last Update : Mon Feb 03 10:21:39 2003
Response via : Initial Calibration
DataAcq Meth : 8015FRNT.M

Volume Inj. : 1 ul
Signal Phase : RTX-5 Sil MS (30m x 0.53mm; df=0.50um)
Signal Info : serial # 231066

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) H C5-C7 (BENZENE)	0.00	0	N.D.	ppm
2) H C6-C8 aliphatic	0.00	0	N.D.	ppm
3) H C7-C8 toluene	0.00	0	N.D.	ppm
4) H C8-C10 ali aro	5.00	126568	72.738	ppm
5) H C10-C12 ali aro	6.00	1438145	733.773	ppm
6) H C12-C16 ali aro	7.00	6198533	3226.978	ppm
7) H C16-C21 ali aro	9.00	4438719	2277.026	ppm
8) H C21-C35 ali aro	14.00	181825	91.345	ppm
9) H C8-C40 qc aliphatic	14.00	9275251	4877.888	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data File : T:\DATA\021903W\2401025.D Vial: 24
Acq On : 19 Feb 2003 23:57 Operator: IE
Sample : C302250-3 Inst : Flo
Misc : Multiplr: 1.07
IntFile : events.e
Quant Time: Feb 21 7:04 2003 Quant Results File: WG-FL4.RES

Quant Method : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title : TPH Working Group
Last Update : Mon Feb 03 10:21:39 2003
Response via : Initial Calibration
DataAcq Meth : 8015FRNT.M

Volume Inj. : 1 ul
Signal Phase : RTX-5 Sil MS (30m x 0.53mm; df=0.50um)
Signal Info : serial # 231066

		Compound	R.T.	Response	Conc	Units
Target Compounds						
1)	H	C5-C7 (BENZENE)	0.00	0	N.D.	ppm
2)	H	C6-C8 aliphatic	0.00	0	N.D.	ppm
3)	H	C7-C8 toluene	0.00	0	N.D.	ppm
4)	H	C8-C10 ali aro	5.00	932632	53.598	ppm
5)	H	C10-C12 ali aro	6.00	11519722	587.762	ppm
6)	H	C12-C16 ali aro	7.00	53229444	2771.144	ppm
7)	H	C16-C21 ali aro	9.00	50304403	2580.574	ppm
8)	H	C21-C35 ali aro	14.00	8752566	439.708	ppm
9)	H	C8-C40 qc aliphatic	14.00	98258403	5167.445	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data File : T:\DATA\021903W\11111133.D Vial: 25
Acq On : 22 Feb 2003 20:16 Operator: IE
Sample : C302250-3 M Inst : Flo
Misc : Multiplr: 10.70
IntFile : events.e
Quant Time: Feb 24 8:35 2003 Quant Results File: WG-FL4.RES

Quant Method : T:\METHODS\PROCESS\WG-FL4.M (Chemstation Integrator)
Title : TPH Working Group
Last Update : Mon Feb 03 10:21:39 2003
Response via : Initial Calibration
DataAcq Meth : 8015FRNT.M

Volume Inj. : 1 ul
Signal Phase : RTX-5 Sil MS (30m x 0.53mm; df=0.50um)
Signal Info : serial # 231066

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1) H	C5-C7 (BENZENE)	0.00	0	N.D.	ppm
2) H	C6-C8 aliphatic	0.00	0	N.D.	ppm
3) H	C7-C8 toluene	0.00	0	N.D.	ppm
4) H	C8-C10 ali aro	0.00	0	N.D.	ppm
5) H	C10-C12 ali aro	0.00	0	N.D.	ppm
6) H	C12-C16 ali aro	7.00	502430	261.567	ppm
7) H	C16-C21 ali aro	9.00	623486	319.843	ppm
8) H	C21-C35 ali aro	14.00	11567	5.811	ppm
9) H	C8-C40 qc aliphatic	14.00	873628	459.444	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.