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TECHNICAL MEMORANDUM REGARDING SOUTHERN PILOT STUDY OPERABLE UNIT 9 (OU9) SITE 59NAS CECIL FIELD FL

11/1/2008

TETRA TECH

Comprehensive **L**ong-term **E**nvironmental **A**ction **N**avy

CONTRACT NUMBER N62467-94-D-0888

11/08

Technical Memorandum of Southern Pilot Study at Operable Unit 9, Site 59

Naval Air Station Cecil Field
Jacksonville, Florida

Contract Task Order 0359

November 2008

NAVFAC
Naval Facilities Engineering Command
NAVFAC SOUTHEAST
NAS Jacksonville
Jacksonville, Florida 32212-0030

TETRA TECH NUS, Inc.

010707/P

TECHNICAL MEMORANDUM OF SOUTHERN PILOT STUDY AT OPERABLE UNIT 9, SITE 59

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Naval Facilities Engineering Command
Southeast
NAS Jacksonville
Jacksonville, Florida 32212-0030

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CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0359

NOVEMBER 2008

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ACRONYMS

bgs	Below ground surface
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
CSSI	Compound Specific Stable Isotope
CTO	Contract Task Order
DCE	Dichloroethene
DHC	*Dehalococcoides*
DO	Dissolved Oxygen
DPT	Direct push technology
FDEP	Florida Department of Environmental Protection
GPH	Gallons per hour
gpm	Gallons per minute
ID	Inside diameter
IR	Installation Restoration
MNA	Monitored Natural Attenuation
mV	Millivolt
NADEP	Navy Aviation Depot
NA-DV	Natural Attenuation Default Value
NAS	Naval Air Station
NAVFAC SE	Naval Facilities Engineering Command Southeast
ORP	Oxidation-reduction potential
OU	Operable Unit
PCE	Tetrachloroethene
PCR	polymerase chain reaction
PVC	Polyvinyl chloride
P&ID	Piping and instrumentation diagram
RI	Remedial Investigation
TCE	Trichloroethene
TOC	Total organic carbon
TtNUS	Tetra Tech NUS, Inc.
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

1.0 INTRODUCTION

1.1 PURPOSE OF REPORT

This Technical Memorandum of the Southern Pilot Study for Site 59 at Naval Air Station (NAS) Cecil Field, Jacksonville, Florida has been prepared by Tetra Tech NUS, Inc. (TtNUS) for Naval Facilities Engineering Command Southeast (NAVFAC SE) under the Navy Comprehensive Long-Term Environmental Action Navy (CLEAN) Program, Contract Number N62467-94-D-0888, Contract Task Order (CTO) 0359. This report describes the activities and results of a pilot study conducted to determine the feasibility and effectiveness of in-situ bioremediation to treat part of the contaminated groundwater plume at Site 59. An earlier pilot study at a different location was not completed because trichloroethene (TCE) concentrations were too low. Information from the previous pilot study was used to develop the Work Plan for this pilot study. The pilot study was conducted according to the Pilot Study Work Plan for In Situ Bioremediation at Operable Unit (OU) 9, Site 59, Building 1845 Southern Area (TtNUS, 2006b).

1.2 SITE DESCRIPTION

Groundwater sampling conducted around Buildings 324/1845 under the Base Realignment and Closure (BRAC) program identified TCE contamination, and the area was designated Site 59 under OU 9 (see Figure 1-1). The groundwater contamination was originally discovered during a Due-Diligence investigation in 2003. Based on follow-up analyses of the groundwater, Site 59 was investigated under the Installation Restoration (IR) program as governed by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The TCE plume is over 1,000 feet long and reaches the full depth of the surficial aquifer, about 100 to 115 feet below ground surface (bgs). A Remedial Investigation (RI) was performed for the site, and a pilot-scale treatability study was proposed to address biological treatment. That treatability study was implemented at the northern end of the plume (referred to as the Northern Pilot Study) in the vicinity of well cluster 59-003 where relatively high concentrations of TCE had been measured during the RI. However, shortly after the start of the treatability study, it was determined that the initial TCE concentrations were less than 300 micrograms per liter (µg/L) and conditions were not favorable for completing the pilot study. Relatively high concentrations of TCE were also measured at the southern end of the plume at well NG-12D in the vicinity of well cluster 59-006.

At Site 59, the majority of unconsolidated materials are fine to very fine sands with varying amounts of silt. Isolated discontinuous relatively thin clay layers were encountered to approximately 40 feet bgs, and clay content increases significantly at approximately 90 feet bgs. The groundwater flow is to the southwest.

1.3 EXTENT OF CONTAMINATION

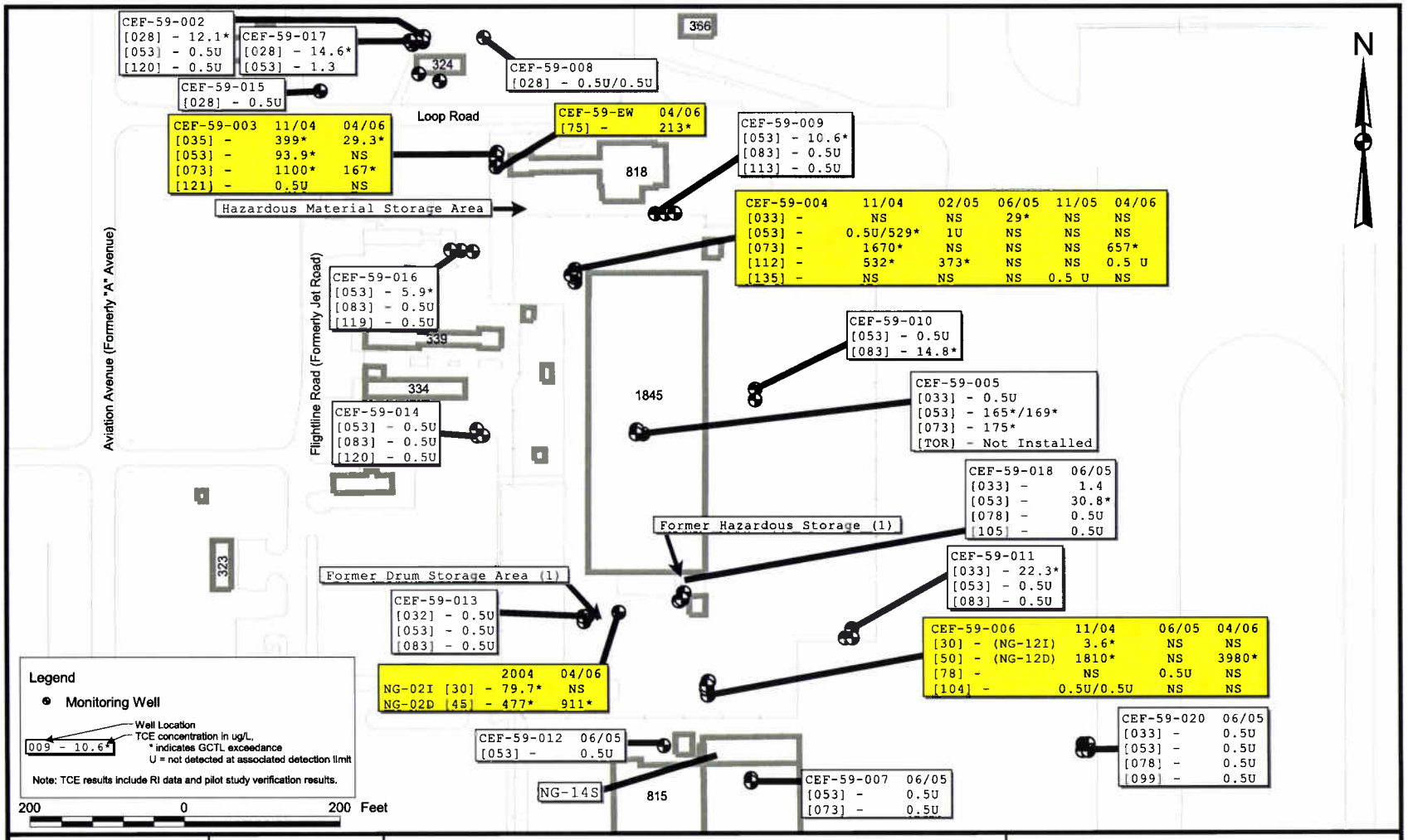
Figure 1-1 shows a tag map of TCE concentrations at Site 59 based on groundwater results from the RI and sampling conducted during the Northern Pilot Study. As shown in Figure 1-1, the "hot spots," as defined by TCE concentrations greater than the Florida Department of Environmental Protection (FDEP) Natural Attenuation Default Value (NA-DV) of 300 µg/L, are located at NG-02D, CEF-059-004-73, and CEF-59-NG-12D. In the vicinity of NG-12D, the depth of contamination appears to be limited to 30 and 78 feet bgs.

1.4 PILOT STUDY SYSTEM

In the pilot study system, sodium lactate and sodium bicarbonate were injected into the subsurface of Site 59 via a groundwater recirculation to promote anaerobic degradation of TCE. Once target geochemical conditions identified in the Work Plan (dissolved oxygen, pH, oxidation-reduction potential) of the treatment zone were established, a microbial inoculum was injected to enhance in situ bioremediation. The pilot study results will be evaluated and used to support selection of the preferred alternative and preparation of the remedial design.

1.5 DOCUMENT ORGANIZATION

This report describes the activities, evaluation, and conclusions and recommendations for the Site 59 Southern Pilot Study. Section 1.0 is the introduction which summarizes Site 59 background information and describes the document organization. Section 2.0 provides a description of the design and operation of the pilot study system. Section 3.0 provides analytical results and observations made during the pilot study. Section 4.0 discusses the results of the study. Section 5.0 provides conclusions and recommendations. The appendices include well construction logs, operator log sheets, a summary of the data from the operator log sheets, field geochemical parameter forms, analytical reports, and a report of the Northern Pilot Study.



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MONITORING WELL LOCATIONS AND TCE CONCENTRATIONS
SOUTHERN PILOT STUDY REPORT
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

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2.0 PILOT STUDY SYSTEM DESIGN AND OPERATION

2.1 GENERAL DESCRIPTION

The pilot study system consisted of the following components as shown on Figure 2-1:

- Extraction well (EW-1A)
- Extraction well pump (P-1)
- Sodium lactate feed pump (P-2) and solution tank (T-1)
- Sodium bicarbonate feed pump (P-3) and solution tank (T-2)
- In-line static mixer (SM-1)
- Two injection wells (IW-1A, IW-2A)
- Recirculation flow meter (FQI-1 and FI-1)
- Monitoring wells (MW-1A and NG-12D)
- Flow control valves
- Pressure gauges

The pilot study equipment and chemical feed systems were housed in a mobile trailer. Groundwater was pumped by the extraction well pump to the treatment system. The flow rate was controlled by a manual flow control valve. Sodium lactate and sodium bicarbonate were injected into the system piping and subsequently mixed in the in-line static mixer. The mixture then flowed into the two injection wells. Operation and maintenance of the system was conducted at least twice per week and chemical solution tanks were refilled then, as needed. The target recirculation rate was 3 gallons per minute (gpm). The system was constructed to treat contaminated groundwater identified at a nominal depth of 50 feet bgs.

Figure 2-1 is a piping and instrumentation diagram (P&ID) of the pilot study system. Figure 2-2 shows the layout of the treatment system and the wells. The wells and trailer were installed entirely within the Navy Aviation Depot (NADEP) fenced area, just south of Building 1845.

2.2 WELL INSTALLATION

Two injection wells (IWA1 and IWA2), one extraction well (EWA), and one monitoring well (MW1A) were installed for the pilot study. Existing well NG-12D (50 feet deep) was also used as a monitoring well for the pilot study. Other existing monitoring wells in the vicinity [NG-12I (30 feet deep) and CEF-59-006-78 (78 feet deep)] were used to monitoring the groundwater above and below the pilot study interval.

The four new wells were installed using mud rotary methods. Running sands prevented the use of hollow stem auger or direct push technology (DPT) methods. IWA1, IWA2, and EWA were all installed to a depth of 52 feet bgs with 10-foot long 0.02-inch slotted screens. Screen and riser piping was 4-inch diameter threaded Schedule 40 polyvinyl chloride (PVC). MW1A was installed to a depth of 50 feet bgs with a 5-foot long 0.01-inch slotted screen. Screen and riser piping was 1-inch diameter threaded Schedule 40 PVC. All wells were installed with flush-mounted casings. Well construction logs are included in Appendix A. After installation, the wells were developed to remove fines.

2.3 PROCESS DESCRIPTION

Groundwater was extracted from extraction well EW-1A using a Grundfos SQ pump (P-1) at approximately 3 gpm. The original pump was replaced on September 19, 2006 because the output could not consistently meet the 3 gpm requirement. Wear of the pumps seals and/or impeller caused the reduced performance. The water flowed through PVC hose to the treatment system in the trailer. Inside the trailer, the hose was connected to the 1-inch schedule 80 PVC system piping.

Inside the trailer, the flow rate was controlled with a manually-adjusted globe valve at the upstream end of the system and a manually-adjusted ball valve at the downstream end of the system. The ball valve was used to create the largest pressure drop and to maintain a positive pressure within the system. The globe valve was used for finer adjustments to the flow rate.

A cartridge filter and sampling port were located after the globe valve. A 5-micron disposable filter element was used in the early operation of the system to capture particles from the extraction well to minimize plugging in the injection wells. The filter elements were changed to 50 micron filters and were replaced at two weeks after *Dehalococcoides* (DHC) injection. Pressure gauges were located upstream (PI-1) and downstream (PI-2) of the filter.

A paddle wheel flow meter (FQI-1) was used to measure the flow rate and adjust the control valves. The flow meter did not have a direct read out of the flow rate, but did indicate the volume that passed through the meter. The flow rate was measured using a timer and observing the volume of a timed period. The valves were adjusted according to these readings.

Downstream of the flow meter were the injection points for the sodium lactate solution and the sodium bicarbonate solution. The injection points had spring loaded check valves to prevent flow of groundwater if the chemical feed pumps were taken off line. The chemical feed systems are described further below.

The in-line static mixer (SM-1) followed the injection points. The mixer was a 1-inch, clear PVC, 6-element Koflo Model 328. Downstream of the static mixer was a pressure gauge (PI-3) and a sampling port.

After the static mixer, the water flowed through the ball valve and through PVC piping to the injection wells. The flow was split evenly between the injection wells, although there was no means of measuring or balancing the flow rates. After startup, it was discovered that unlike the northern pilot study the recirculated water could not be reliably reinjected by gravity head. The depth to water was only 7 to 8 feet bgs and after startup, the depth to water was too close to the top of the well for continuous unattended operation. Thus, the well heads were sealed to enable pressurization and to prevent groundwater from leaking onto the ground.

Sodium lactate was prepared in a 40-gallon polyethylene tank (T-1). A 1/20 hp mixer on the tank was used to mix the stock solution with water. The 60 percent sodium lactate solution was diluted to 0.83 lb/gallon (about 10 percent) and injected at 0.2 gallons per hour (GPH) using an LMI P031 metering pump (P-2) (maximum output of 0.42 GPH). At this rate, the sodium lactate tank was refilled about once per week, although typically the tank was topped off each time the operator inspected the system.

Sodium bicarbonate was prepared in a 150-gallon polyethylene tank (T-2). A 1/3 hp mixer on the tank was used to mix the solid sodium bicarbonate with water. The solid sodium bicarbonate in 50-lb bags was used to make the 0.52 lb/gallon (about 6 percent) solution and injected at 1.46 gallons GPH using an LMI C121 metering pump (P-3) (maximum output of 4.0 GPH). At this rate, the sodium bicarbonate tank was refilled twice per week, each time the operator inspected the system. This concentration of sodium bicarbonate is close to saturation, and the low solubility limited the amount of sodium bicarbonate that could be injected.

The ball valve and globe valves were adjusted such that a positive pressure was observed on all three pressure gauges. Otherwise, sub-atmospheric pressures are created allowing air to leak in at some seals and gaskets.

A run time meter was included for the extraction well pump to confirm operating durations. The injection wells were provided with high level alarms, but these were removed when the well seals were installed.

2.4 STARTUP

Prior to startup, baseline samples (Event 1) were collected from wells IW2A, EWA, MW1A, NG-12D, NG-12I, and CEF-59-006-78 on July 28 and 31, 2006. Monitoring well sampling and analysis is discussed further in Section 2.8. On August 17, 2006, the system was started up in recirculation mode

only. Chemical solutions were prepared and the injection wells were tested, but no chemicals were injected. During this period, the flow rate of 3 gpm could not be maintained and new pump was ordered. However, the system was operated at about 1.5 to 2.5 gpm. Groundwater samples were collected for the analysis of field natural attenuation parameters (Event 2) on August 23, 2006.

The recirculation system operation was satisfactory for a week, so the chemical feed pumps were activated on August 24, 2006. The chemical feed pumps operated properly, and the system began normal operations.

2.5 OPERATIONS

TtNUS personnel visited the system at least twice per week to make routine measurements and to check and refill the chemical solutions. A daily log sheet was filled out for each visit. Operating information such as well pH, dissolved oxygen (DO), and oxidation-reduction potential (ORP); chemical use, and recirculation rate were recorded on the log sheets. Copies of the log sheets are included in Appendix B. The log sheet entries were later transposed to a spreadsheet (see Appendix C) for tracking and comparing data.

Initially, the recirculation rate was 1.5 to 2.5 gpm. A new extraction well pump (P-1) was installed on September 19, 2006 and after that, the recirculation rate was 3 gpm consistently.

Fine material was captured by the cartridge filter and the filter element was replaced often, particularly in the beginning of the operation.

System shutdowns occurred for various reasons and are noted as follows:

- August 29 to August 31, 2006 – Hurricane Ernesto.
- September 8 to September 12, 2006 – leak in injection well seals.

The sodium lactate feed rate was increased by 25 percent on September 26, 2006 to try to promote reducing conditions in the injection wells prior to the injection of the DHC. This is discussed further in Section 2.7.

Samples were collected according to the Work Plan (TtNUS, 2006b). The time to reach acceptable reducing conditions in the injection wells took longer than anticipated in the Work Plan, so the DHC injection and the sampling events that were tied into the DHC injection (such as Event 3) were rescheduled.

Decreases in pH were observed in early October. To address the low pH, the recirculation rate was reduced to about 2.5 gpm and the sodium bicarbonate feed rate was increased by about 20 percent. In November, pH decreases were still observed, so the sodium bicarbonate feed was increased to about 1.3 times the planned rate by increasing the solution concentration to about 95 percent of saturation. However, this was not sufficient to raise the pH, so the flow rate was also increased such that the sodium bicarbonate rate was about 1.4 times the planned rate. Because of the increase solution use rate, the site was visited three times per week to replenish the sodium bicarbonate solution. The full measurements listed on the operators log sheet were made only two times per week as originally scoped.

Based on the reductions in TCE concentrations, chemical addition was stopped on January 26, 2007. The system was operated in a recirculation-only mode until March 15, 2007, when the system was shut down.

2.6 CHEMICAL ADDITIONS

Based on calculation in the Work Plan, the entire contents of a drum of 60 percent sodium lactate was to be added. This was completed by December 11, 2006. A second drum of sodium lactate was purchased, and sodium lactate addition continued, as noted. The sodium lactate feed rate was increased by 25 percent on September 26 to try to improve reducing conditions. In addition, the sodium lactate was routinely shut off for several hours a week to minimize biological growth in the immediate vicinity of the injection wells to minimize clogging.

Sodium bicarbonate was added as needed to maintain the pH between 6.5 and 8. The quantity of bicarbonate was estimated from a field test performed as part of the Work Plan preparation. The pH in the injection wells was greater than 6.5 by August 29, 2006 and was consistently greater than 7 after September 26, 2006. The feed rate was adjusted as needed based on the results of the routine pH measurements. These results are discussed further in Section 3.

Over the course of the study, 440 pounds of sodium lactate and approximately 2,500 pounds of sodium bicarbonate were added.

2.7 DHC ADDITION

DHC (provided by SiREM) could not be injected until reducing conditions were met in the injection wells. The target conditions were: DO less than 0.2 milligrams per liter (mg/L), ORP less than -75 millivolts (mV), and pH between 6 and 8.5. In the first pilot study, the pH and ORP conditions were met and the DO was less than 1 mg/L after three weeks, although the DO range was typically 0.4 to 0.9 mg/L. In the southern pilot study, the pH reached the target range after 1 week. The ORP initially fell to less than 0

after approximately two weeks, but did not reach values consistently less than -75 mV until September 26, 2006, nearly 5 weeks after the start of chemical injection. DO values fluctuated around 1 mg/L during the first 5 weeks, decreasing to less than 0.5 mg/L thereafter.

Based on discussions with SiREM, the operator log data from September 26 and 29, 2006, the decision was made to proceed with the DHC injection. The DHC was injected by SiREM personnel on October 11, 2006. Table 3-1 (see Section 3) summarizes the measurements of the important parameters up to the time of the injection.

Six liters of DHC inoculum were injected into IW1A and IW2A, with three liters into each well. The injection procedures minimize the exposure of the DHC to oxygen. The recirculation system was shut down and polyethylene tubing was inserted into each well. Each well was first purged via the tubing with argon gas for 10 minutes. The inoculum is provided in a special sealed container that has a fitting for compressed argon gas, a fitting for the injection tubing, and a vent valve to release gas from the container. A hose from the argon gas regulator is attached to the container and argon is used to displace the DHC into the well. The process took less than three hours. After the DHC was injected, the extraction well pump was restarted. The chemical feed pumps were started again about 24 hours later.

2.8 SUMMARY OF MONITORING EVENTS

Samples were collected for analysis according to a schedule included in the Work Plan. Table 2-1 summarizes the samples that were collected. There were eleven events, seven that included outside laboratory analyses, and four that were field analyses only.

Routine environmental analyses were performed by Accutest Laboratories. These analyses included volatile organic compounds (VOCs), iron, manganese, sodium, total organic carbon (TOC), sulfate, sulfide, nitrate, nitrite, chloride, and phosphate.

Dissolved gases (methane, ethane, ethane, and acetylene) and metabolic acids (lactic, pyruvic, acetic, propionic, and butyric) analyses were performed by Microseeps, Inc.

Polymerase chain reactions (PCR) and functional gene analysis was performed by Microbial Insights, Inc. SiREM also performed PCR analyses.

Field analyses were also performed using field instruments and field kits. These analyses were performed by TtNUS personnel and included temperature, pH, specific conductivity, ORP, dissolved carbon dioxide, DO, alkalinity, ferrous iron, and hydrogen sulfide.

2.9 SYSTEM SHUTDOWN

Chemical feeds ceased on January 26, 2007. The recirculation system was shut down on March 15, 2007.

2.10 SUMMARY OF SYSTEM OPERATION

The operator log sheet entries were complied into a single spreadsheet. This table is provided in Appendix C. The spreadsheet was used to generate graphs for tracking trends and comparing data.

System operation: August 17, 2006 through March 15, 2007
Periods of downtime: August 30 to September 1 (hurricane); September 8 to September 12 (leaks);
Sodium lactate added: 440 lb
Sodium bicarbonate added: 2,500 lb
DHC added: 6 L of inoculum
Recirculation rate: 2.5 to 3 gpm

TABLE 2-1

GROUNDWATER SAMPLING AND ANALYSIS SUMMARY
OU 9 SITE 59 SOUTHERN PILOT STUDY
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Location	Sample Designation	Screen Depth (feet bgs)	LABORATORY ANALYSES									FIELD TESTS										
			Chlorinated VOCs	Dissolved Gases[1]	Iron and Manganese (Dissolved)	Sodium (Total)	Sulfide	Miscellaneous Anions[2]	Metabolic Acids[3]	TOC	PCR and genes[4]	Temperature	pH	Specific Conductivity	Oxidation / Reduction Potential	Dissolved CO_2	Alkalinity as ($CaCO_3$)	Dissolved Oxygen	Iron (Ferrous)	Hydrogen Sulfide	Water Level
Event 1 - Baseline Samples - July 28 and 31, 2006																						
059-IW2A	CEF-059-GW-IW2A-01B	42-52	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
059-EWA	CEF-059-GW-EWA-01B	42-52	•									•	•	•	•	•	•	•	•	•	•	•
059-MW1A	CEF-059-GW-MW1A-01B	45-50	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
NG-12D	NG-12D-GW-01B	45-50	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
NG-12I	NG-12I-GW-01B	25-30	•																			
059-006-078	CEF-059-GW-006-78-01B	73-78	•																			
059-MW-21-050	CEF-059-MW-21-050-01B	45-50	•																			
Event 2 - 1 week after recirc start - August 24, 2006																						
059-IW2A	CEF-059-GW-IW2A-02B	42-52										•	•	•	•	•	•	•	•	•	•	•
059-EWA	CEF-059-GW-EWA-02B	42-52										•	•	•	•	•	•	•	•	•	•	•
059-MW1A	CEF-059-GW-MW1A-02B	45-50										•	•	•	•	•	•	•	•	•	•	•
NG-12D	NG-12D-GW-02B	45-50										•	•	•	•	•	•	•	•	•	•	•
Event 3 - 3 weeks after chem feed start - September 13 - 14, 2006																						
059-IW2A	CEF-059-GW-IW2A-03B	42-52	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
059-EWA	CEF-059-GW-EWA-03B	42-52	•									•	•	•	•	•	•	•	•	•	•	•
059-MW1A	CEF-059-GW-MW1A-03B	45-50	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
NG-12D	NG-12D-GW-03B	45-50	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
NG-12I	NG-12I-GW-03B	25-30	•																			
059-006-078	CEF-059-GW-006-78-03B	73-78	•																			
Event 4 - 2 weeks after DHC injection - October 25, 2006																						
059-IW2A	CEF-059-GW-IW2A-04B	42-52	•									•	•	•	•	•	•	•	•	•	•	•
059-EWA	CEF-059-GW-EWA-04B	42-52										•	•	•	•	•	•	•	•	•	•	•
059-MW1A	CEF-059-GW-MW1A-04B	45-50	•									•	•	•	•	•	•	•	•	•	•	•
NG-12D	NG-12D-GW-04B	45-50										•	•	•	•	•	•	•	•	•	•	•

TABLE 2-1

GROUNDWATER SAMPLING AND ANALYSIS SUMMARY
OU 9 SITE 59 SOUTHERN PILOT STUDY
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Location	Sample Designation	Screen Depth (feet bgs)	LABORATORY ANALYSES									FIELD TESTS									
			Chlorinated VOCs	Dissolved Gases[1]	Iron and Manganese (Dissolved)	Sodium (Total)	Sulfide	Miscellaneous Anions[2]	Metabolic Acids[3]	TOC	PCR and genes[4]	Temperature	pH	Specific Conductivity	Oxidation / Reduction Potential	Dissolved CO_2	Alkalinity as ($CaCO_3$)	Dissolved Oxygen	Iron (Ferrous)	Hydrogen Sulfide	Water Level
Event 5 - 4 weeks after DHC injection - November 9, 2006																					
059-IW2A	CEF-059-GW-IW2A-05B	42-52	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
059-EWA	CEF-059-GW-EWA-05B	42-52	•									•	•	•	•	•	•	•	•	•	•
059-MW1A	CEF-059-GW-MW1A-05B	45-50	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
NG-12D	NG-12D-GW-05B	45-50	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
NG-12I	NG-12I-GW-05B	25-30	•									•	•	•	•			•			•
059-006-078	CEF-059-GW-006-78-05B	73-78	•									•	•	•	•			•			•
Event 6 - 6 weeks after DHC injection - November 20, 2006																					
059-IW2A	CEF-059-GW-IW2A-06B	42-52										•	•	•	•	•	•	•	•	•	•
059-EWA	CEF-059-GW-EWA-06B	42-52										•	•	•	•	•	•	•	•	•	•
059-MW1A	CEF-059-GW-MW1A-06B	45-50										•	•	•	•	•	•	•	•	•	•
NG-12D	NG-12D-GW-06B	45-50										•	•	•	•	•	•	•	•	•	•
Event 7 - 8 weeks after DHC injection - December 5, 2006																					
059-IW2A	CEF-059-GW-IW2A-07B	42-52	•	•	•	•	•	•	•	•	•*	•	•	•	•	•	•	•	•	•	•
059-EWA	CEF-059-GW-EWA-07B	42-52	•									•	•	•	•	•	•	•	•	•	•
059-MW1A	CEF-059-GW-MW1A-07B	45-50	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
NG-12D	NG-12D-GW-07B	45-50	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
NG-12I	NG-12I-GW-07B	25-30	•									•	•	•	•			•			•
059-006-078	CEF-059-GW-006-78-07B	73-78	•									•	•	•	•			•			•
Event 8 - 15 weeks after DHC injection - January 23, 2007																					
059-IW2A	CEF-059-GW-IW2A-05B	42-52	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
059-EWA	CEF-059-GW-EWA-05B	42-52	•									•	•	•	•	•	•	•	•	•	•
059-MW1A	CEF-059-GW-MW1A-05B	45-50	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
NG-12D	NG-12D-GW-05B	45-50	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
NG-12I	NG-12I-GW-05B	25-30	•									•	•	•	•			•			•
059-006-078	CEF-059-GW-006-78-05B	73-78	•									•	•	•	•			•			•
Event 9 - 19 weeks after DHC injection - February 19, 2007																					
059-IW2A	CEF-059-GW-IW2A-06B	42-52										•	•	•	•	•	•	•	•	•	•
059-EWA	CEF-059-GW-EWA-06B	42-52										•	•	•	•	•	•	•	•	•	•
059-MW1A	CEF-059-GW-MW1A-06B	45-50										•	•	•	•	•	•	•	•	•	•
NG-12D	NG-12D-GW-06B	45-50										•	•	•	•	•	•	•	•	•	•

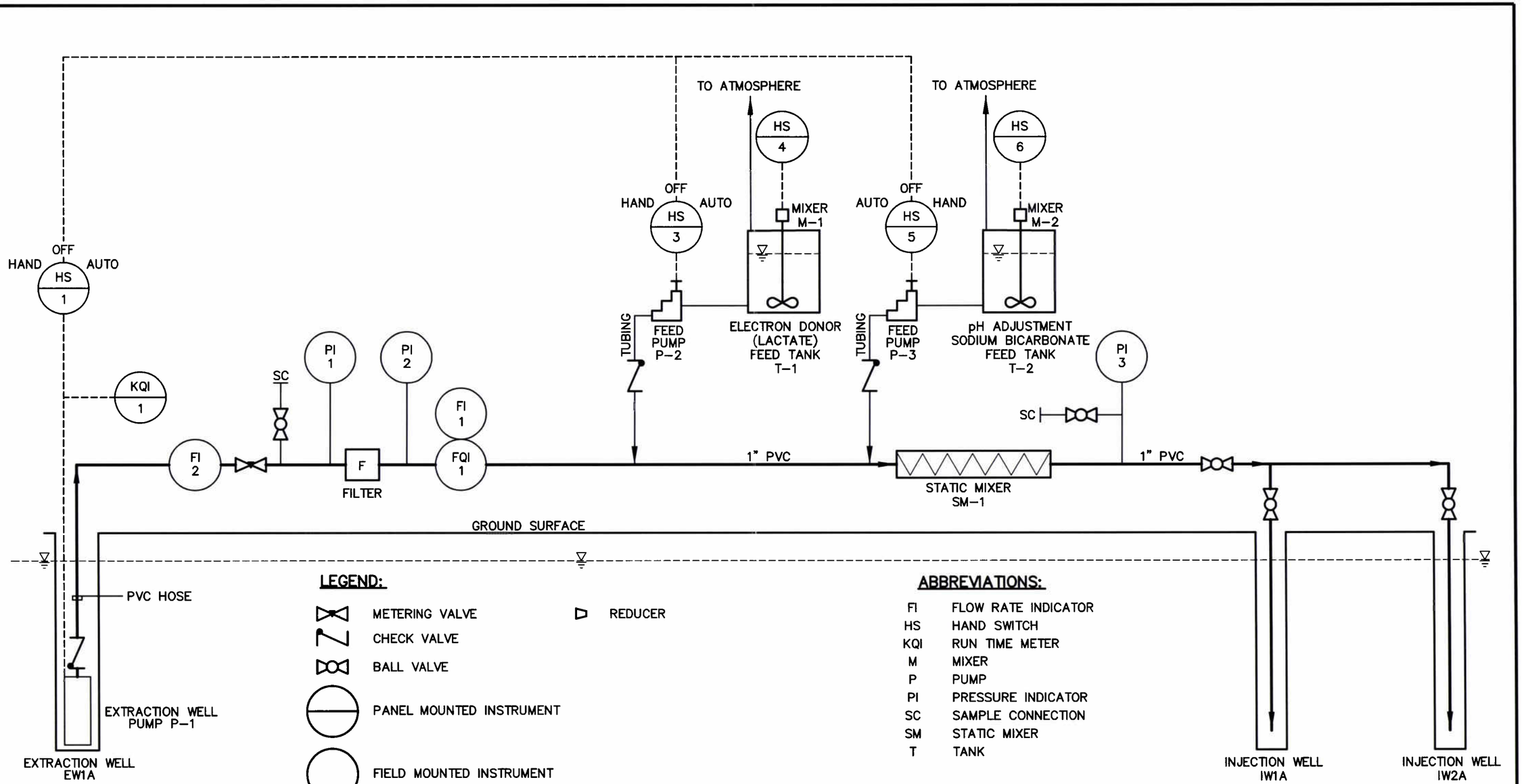
TABLE 2-1

GROUNDWATER SAMPLING AND ANALYSIS SUMMARY
OU 9 SITE 59 SOUTHERN PILOT STUDY
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Location	Sample Designation	Screen Depth (feet bgs)	LABORATORY ANALYSES									FIELD TESTS										
			Chlorinated VOCs	Dissolved Gases[1]	Iron and Manganese (Dissolved)	Sodium (Total)	Sulfide	Miscellaneous Anions[2]	Metabolic Acids[3]	TOC	PCR and genes[4]	Temperature	pH	Specific Conductivity	Oxidation / Reduction Potential	Dissolved CO_2	Alkalinity as ($CaCO_3$)	Dissolved Oxygen	Iron (Ferrous)	Hydrogen Sulfide	Water Level
Event 10 - 21 weeks after DHC injection - March 6 - 7, 2007																						
059-IW2A	CEF-059-GW-IW2A-07B	42-52	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
059-EWA	CEF-059-GW-EWA-07B	42-52	•									•	•	•	•	•	•	•	•	•	•	•
059-MW1A	CEF-059-GW-MW1A-07B	45-50	•	•	•	•	•	•	•	•	•*	•	•	•	•	•	•	•	•	•	•	•
NG-12D	NG-12D-GW-07B	45-50	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
NG-12I	NG-12I-GW-07B	25-30	•									•	•	•	•			•				•
059-006-078	CEF-059-GW-006-78-07B	73-78	•									•	•	•	•			•				•
Event 11 - 30 weeks after DHC injection - May 7 - 8, 2007																						
059-IW2A	CEF-059-GW-IW2A-05B	42-52	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•
059-EWA	CEF-059-GW-EWA-05B	42-52	•									•	•	•	•	•	•	•	•	•	•	•
059-MW1A	CEF-059-GW-MW1A-05B	45-50	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•
NG-12D	NG-12D-GW-05B	45-50	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•
NG-12I	NG-12I-GW-05B	25-30	•									•	•	•	•			•				•
059-006-078	CEF-059-GW-006-78-05B	73-78	•									•	•	•	•			•				•

1 Dissolved gases include ethane, ethene, methane, and acetylene.
2 Miscellaneous anions include sulfate, sulfide, nitrate, nitrite, chloride, phosphate.
3 Metabolic Acids include lactic, pyruvic, acetic, propionic, and butyric.
4 Functional genes include TCE reductase, BAV1 VC reductase, and VC reductase.
bgs = Below ground surface.
Ex = Existing.
PCR = Polymerase chain reaction.
VOC = Volatile organic compounds.
* A 1 L sample was collected for analysis by SiREM also.

ACAD: 0039PF21.dwg 12/10/07 MF PIT



LEGEND:

- METERING VALVE
- CHECK VALVE
- BALL VALVE
- PANEL MOUNTED INSTRUMENT
- FIELD MOUNTED INSTRUMENT
- WATER LEVEL
- METERING PUMP
- ELECTRICAL CONNECTION
- REDUCER

ABBREVIATIONS:

FI	FLOW RATE INDICATOR
HS	HAND SWITCH
KQI	RUN TIME METER
M	MIXER
P	PUMP
PI	PRESSURE INDICATOR
SC	SAMPLE CONNECTION
SM	STATIC MIXER
T	TANK

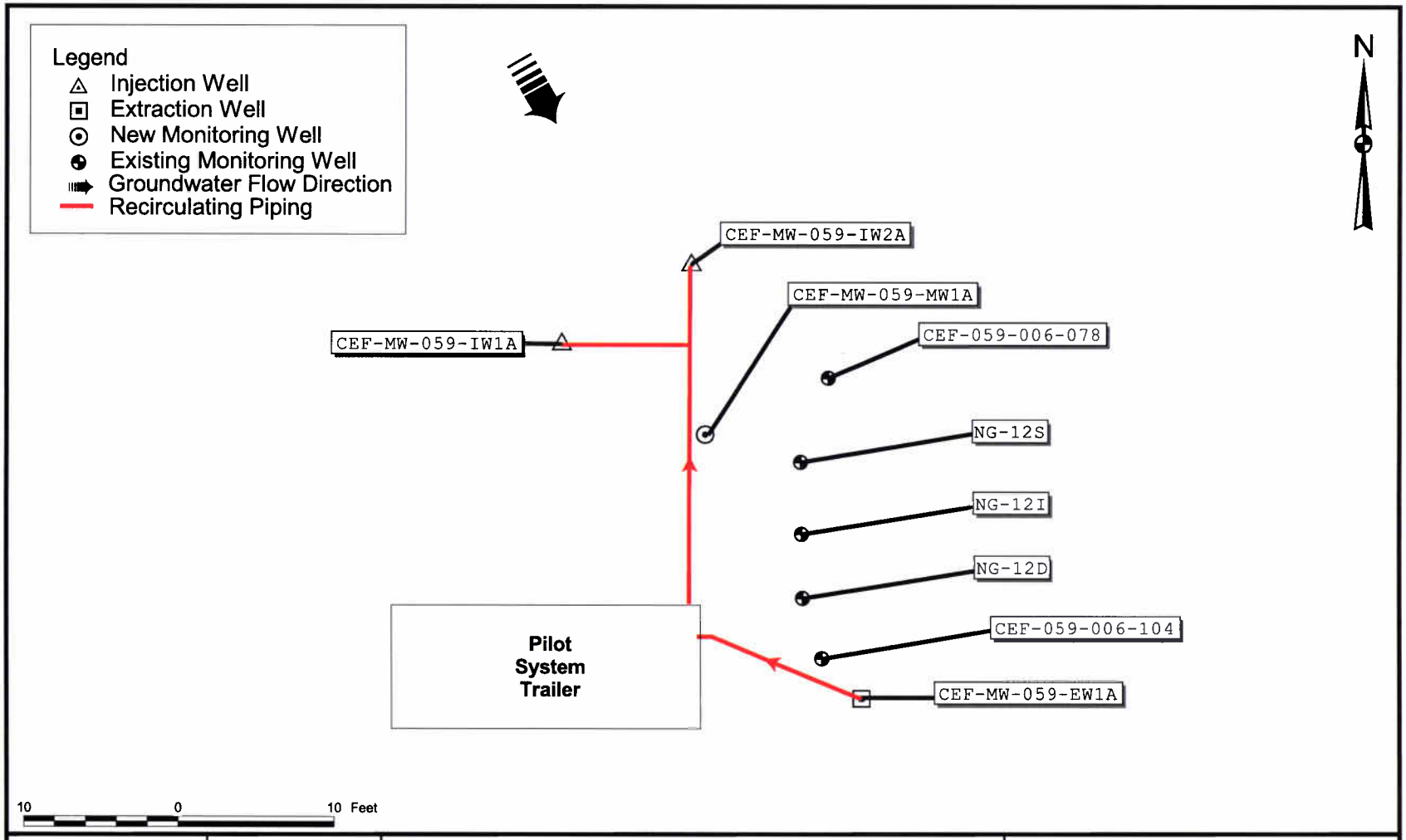
DRAWN BY: DLT	DATE: 1/12/07
CHECKED BY	DATE
REVISED BY	DATE
SCALE: AS NOTED	

NAVFAC

PIPING AND INSTRUMENTATION DIAGRAM
SOUTHERN PILOT STUDY REPORT
OU 9, SITE 59
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NO. 0039	
OWNER NO. 0000	
APPROVED BY	DATE 11/7/08
DRAWING NO. FIGURE 2-1	REV. 0

FORM CADD NO. SDIV-BH.DWG - REV 1 - 9/10/98



DRAWN BY	DATE
MJJ	16Jun04
CHECKED BY	DATE
J. LOGAN	10/26/05
COST/SCHEDULE-AREA	
SCALE	AS NOTED

NAVFAC

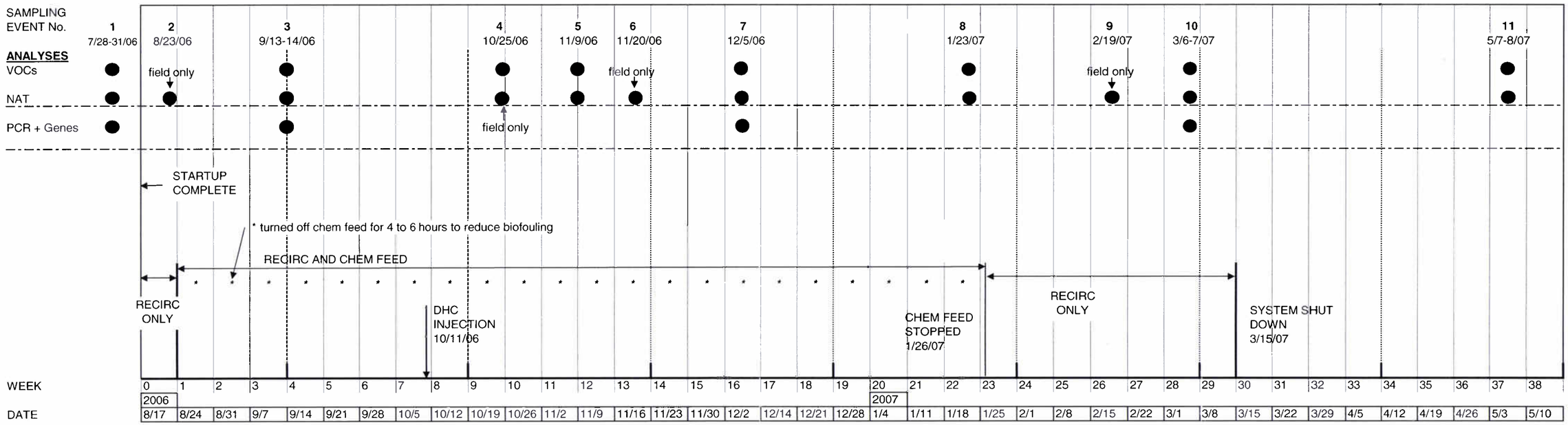
PILOT SYSTEM SITE PLAN
SOUTHERN PILOT STUDY REPORT
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NUMBER	0039
APPROVED BY	DATE 11/7/08
APPROVED BY	DATE
DRAWING NO.	FIGURE 2-2
REV	0

P:\GIS\NAS_Cecil\Field\Site-59_20050616.apr 12Jan07 MJJ Layout8

FIGURE 2-3

TIMELINE OF ACTIVITIES
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA



DATE is the start of the week.
● Parameters analyzed for the sampling event shown.
Event 1 is the baseline event and was performed prior to startup.
This figure only shows major events. Refer to the report and operator logs for details.
NAT = Natural attenuation parameters.

3.0 RESULTS

3.1 OPERATOR LOG ROUTINE MEASUREMENTS

Measurements regarding system operation and groundwater geochemistry were recorded on the operator log sheets. The most significant parameters to evaluate the anaerobic reductive dechlorination process are DO, pH, and ORP. These results are summarized on Table 3-1.

DO concentrations in each well varied over the course of the study. The DO levels decreased below 1 mg/L in the injection wells following the initial injection of the sodium lactate, but gradually increased to the 1 to 2 mg/L range but toward late November and through the rest of the operation, DO concentrations were usually less than 1.0 mg/L. The system was operated at a positive pressure to minimize vacuum conditions that could draw air into the system. The cause of the high DO concentrations in November could not be confirmed.

The DO concentrations in MW1A, NG-12D, and EWA gradually decreased to less than 1 mg/L over the course of the study. By December, the DO concentrations in MW1A and EWA were typically less than 1 mg/L. DO concentrations less than 1 mg/L were consistently observed in NG-12D after October.

ORP values varied over the course of the study. The ORP values in the injection wells gradually decreased to less than -100 mV, but coincidental with the DO, it inexplicably increased to around -25 to -20 mV after about 6 weeks of operation, but quickly returned to less than -100 mV. A similar event occurred during late October when the ORP increased momentarily to -20 to -25 mV, and then returned to less than -100 mV. The cause of the increases could not be confirmed. This trend was observed in all of the wells.

The ORP values in MW1A decreased to less than -100 mV by October. The ORP values in NG-12D and EWA decreased to less than -100 mV by November.

pH values increased to the 7 to 8 range in the injection wells soon after the start of sodium bicarbonate. The pH level in the downgradient wells (MW1A, NG-12D, and EWA gradually increased over time. However, after about 6 weeks the pH decreased to the 5 to 6 range, and additional sodium bicarbonate was added. With the increase in the sodium bicarbonate feed rate, the pH in the injection wells was maintained above 6.5. The pH in MW1A was also kept above 6.5 in late October. The pH in NG-12D was consistently greater than 6.0 after November. The pH in EWA reached 6.0 in January.

3.2 LABORATORY RESULTS – CONTAMINANTS

The results of the laboratory TCE, cis-1,2-dichloroethene (DCE), and vinyl chloride analyses are summarized on Table 3-2. Initial TCE reductions (Event 3) are most likely the result of dilution. None of the biological activity indicators suggested a real reduction in contaminant mass during this period.

The Event 4 samples were collected two weeks after DHC injection and included VOC analyses of IW2A and MW1A. The TCE concentrations in both wells decreased sharply, and the cis-1,2-DCE concentrations increased significantly. By Event 5, TCE concentrations in IW2A, MW1A, and NG-12D had decrease significantly accompanied by a significant increase in the concentrations of cis-1,2-DCE. Also, by Event 5, the vinyl chloride (VC) concentration in IW2A had increased significantly, too.

In the Event 7 samples, the TCE concentration in IW2A was 13.6 µg/L and less than 5 µg/L in MW1A and NG-12D. The cis-1,2-DCE concentrations were still high in the three wells, but had decreased slightly in IW2A and MW1A. The range of vinyl chloride concentrations in all three wells was 48 to 77 µg/L. Vinyl chloride was also detected in EWA.

By Event 11, concentrations of TCE, cis-1,2-DCE, and VC in IW2A decreased to 0.69 µg/L, 56.5 µg/L, and 13.8 µg/L, respectively. Similarly, concentrations of TCE, cis-1,2-DCE, and VC in MW1A decreased to less than 0.5 µg/L, 23.2 µg/L, and 15.8 µg/L, respectively. In NG-12D, concentrations of TCE, cis-1,2-DCE, and VC decreased to less than 4.5 µg/L, 84.7 µg/L, and 61.9 µg/L, respectively. In EWA, the Event 11 concentrations of TCE, cis-1,2-DCE, and VC were 88.3 µg/L, 56.8 µg/L, and 35.4 µg/L, respectively. The contaminant concentrations in IW2A, MW1A, and NG-12D increased in March, and decreased again by the next sampling event. The contaminant concentration trends in wells IW2A, MW1A, NG-12D, and EWA are depicted on Figures 3-1 through 3-4.

The TCE, cis-1,2-DCE, and VC concentrations in NG-12I increased to 66.3 µg/L, 74.9 µg/L, and 44.5 µg/L, respectively. The increase of contaminant concentrations in this well is likely caused by the recirculation. No contaminants were detected in CEF-59-006-78.

3.3 LABORATORY RESULTS – BIOLOGICAL ACTIVITY INDICATOR PARAMETERS

In addition to the routine pH, DO, and ORP measurements, several other measurements and analyses were performed to monitor indications of biological activity. (These measurements and analyses are the same as those used to monitor natural attenuation.) These results are summarized on Table 3-3 and the field data collection forms are included in Appendix D. Propionic acid, acetic acid, TOC, ethene, methane, hydrogen sulfide, alkalinity, ferrous iron (IW2A and MW1A), dissolved iron (IW2A and MW1A), and dissolved manganese (IW2A and MW1A) showed increasing trends during the study, while sulfate

and chloride showed decreasing trends. After the sodium lactate feed was stopped, concentrations of TOC, propionic acid, and acetic acid decreased. There was no trend in the data for carbon dioxide which was highly variable and ethane which was nearly constant. The results of the field parameters measured in Events 4, 6, and 10 were generally inconsistent with the preceding and following events.

3.4 LABORATORY RESULTS – PCR

The results of the laboratory PCR and functional gene analyses are also summarized on Table 3-3. Essentially no dechlorinating microorganisms were detected in the baseline and pre-injection samples. However, in Event 7, significant quantities of dechlorinating microorganisms were detected in the IW2A, MW1A, and NG-12D. BAV1 VC and VC reductase concentrations increased significantly.

3.5 WATER LEVELS

The depth to water in the injection wells could not be measured during pumping because the well heads were sealed. The data is included in Table 3-4. The water level elevations were examined for the effects of drawdown at EWA and mounding at IW1A and IW2A. On a given day, the water level elevations were expected to follow a pattern of lowest to highest of EWA to NG-12D to MW1A to IW1A or IW2A. However, this was observed for only about 40 percent of the sets of measurements. The absence of the expected trend could be associated with the small difference in the water level elevations of EWA, NG-12D, and MW1A, which was usually about 0.1 foot or less. Inaccuracies in field measurements, such as in reading the measuring tape, could have lead to the poor correlation of the water levels.

TABLE 3-1

SUMMARY OF DO, pH, AND ORP DATA
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 1 OF 3

Date	7/28/2006	8/23/2006	8/29/2006	9/1/2006	9/5/2006	9/8/2006	9/12/2006	9/15/2006	9/19/2006	9/22/2006	9/26/2006	9/29/2006	10/3/2006	10/6/2006	10/10/2006	10/17/2006	10/20/2006
EWA																	
DO, mg/L	0.28	0.54	1.43	2.26	1.25	1	0.41	0.35	NM	0.26	1.75	1.23	NM	NM	1.53	NM	1.68
pH	5.5	5.3	6.6	6.5	5.4	5.2	5.7	4.6	NM	5.1	6.0	7.0	NM	NM	5.9	6.2	5.0
ORP, mV	65.6	33.9	4.2	6.3	29.6	16.3	-0.1	-9.4	NM	-45.2	-51.3	-98	NM	NM	-40.7	-109.9	-90.4
IW1A																	
DO, mg/L	NM	0.42	1.19	0.68	1.28	0.87	0.68	0.82	1.54	1.59	0.18	1.02	1.65	2.12	2.18	NM	0.56
pH	NM	5.2	7.3	6.9	6.3	6.7	7.2	7.0	6.7	6.9	7.4	7.0	6.6	6.6	5.3	7.1	6.5
ORP, mV	NM	-28	-38.5	-10.5	-23	-22.2	-152.3	-56	-35.1	-56.4	-144.2	-91.2	-98.8	-43.6	-32.3	-138.5	-174
IW2A																	
DO, mg/L	0.53	0.59	0.96	0.7	0.66	0.8	0.54	1.15	1.81	1.01	0.24	1.25	1.71	1.99	1.62	NM	0.58
pH	5.8	5.3	6.7	7.0	6.1	6.8	6.6	7.0	6.5	6.8	7.4	7.0	6.6	6.6	5.3	6.9	6.5
ORP, mV	-56.5	27.8	36.1	-51.1	-26.7	-63	-114.1	-70.6	-13.6	-52.7	-148.6	-101.9	-95.6	-65.1	-27.2	-76.2	-170
MW1A																	
DO, mg/L	0.38	0.55	1.73	1.49	3.3	1.67	2	2.51	0.77	0.47	0.45	0.88	1.78	1.1	2.31	NM	5.44
pH	6.7	7.2	6.8	7.0	7.2	6.6	6.9	6.7	6.4	6.7	6.4	6.3	6.4	6.4	6.5	6.7	6.2
ORP, mV	31	26.1	-1.1	7	56.3	47.3	-7.8	-28.8	-32.8	-92.4	-88.5	-107.2	-128	-117.7	-115.7	-82.4	-143.1
NG-12D																	
DO, mg/L	0.44	0.33	0.25	0.33	1.49	0.43	1.73	1.63	0.47	1.27	0.47	0.93	0.72	0.51	1.81	NM	0.57
pH	4.6	6.1	5.4	6.0	6.2	4.8	5.7	4.9	4.9	5.4	4.8	5.1	5.6	5.2	5.4	5.6	5.5
ORP, mV	78	30.3	30.3	21.8	71	114.5	63	4.1	-35.7	-30.4	-55.5	-100	-94	-72	-40.2	-30.4	-74
NG-12I																	
DO, mg/L	0.27	0.98	0.47	0.58	1.77	0.33	1.62	1.84	0.57	1.97	0.46	0.43	0.56	0.44	1.48	NM	0.86
pH	4.9	5.5	5.2	5.5	5.5	5.1	5.3	5.3	5.3	5.3	5.2	5.3	5.1	5.2	5.3	5.4	4.6
ORP, mV	61.9	39.6	61.4	41.6	70.9	72	68.1	7.5	-55.3	-32.2	-34.8	-86.7	-55.1	51	-11.8	-14.8	-47.8
CEF-59-006-78																	
DO, mg/L	0.27	0.34	0.61	0.45	0.41	0.28	0.23	0.42	0.44	0.52	0.32	0.39	0.61	0.4	1.35	NM	0.65
pH	6.3	5.4	5.9	5.5	5.5	5.2	5.5	5.4	5.2	5.4	4.9	5.2	5.5	5.5	5.3	5.6	4.5
ORP, mV	-0.8	-24.8	18.8	8.6	25.9	45.6	-19.2	-17.7	-54	-56.9	-32.4	-73.7	0.92	-82.6	-47.6	-44.3	-59.4

TABLE 3-1

SUMMARY OF DO, pH, AND ORP DATA
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	10/24/2006	10/27/2006	10/31/2006	11/3/2006	11/7/2006	11/10/2006	11/13/2006	11/17/2006	11/20/2006	11/22/2006	11/29/2006	12/4/2006	12/8/2006	12/11/2006	12/13/2006	12/18/2006	12/26/2006
EWA																	
DO, mg/L	0.82	1.59	0.25	1.79	1.65	3.3	1.27	0.36	1.04	0.37	0.27	0.52	0.1	0.19	0.74	0.26	0.24
pH	5.2	5.2	5.3	5.4	5.4	5.5	5.4	5.6	5.8	5.9	5.7	5.9	5.8	5.91	5.89	5.95	5.95
ORP, mV	-164.8	-124.5	-36.2	-150.7	-204.1	-151.5	-193	-126.7	-104.7	-147.9	-94.9	-102.8	-88.1	-88.8	-78	-102.3	-111.9
IW1A																	
DO, mg/L	0.93	4	1.25	0.48	3.08	0.2	0.98	0.35	0.21	0.24	0.23	0.66	0.18	0.33	0.21	0.07	0.27
pH	6.7	6.6	5.9	6.8	5.3	6.5	6.1	6.4	6.6	6.6	6.5	6.7	6.5	6.56	6.56	6.68	6.79
ORP, mV	-184.8	-159	-21	-141.8	-148	-97.2	-184	-139.1	-187.5	-187.3	-153.4	-160.1	-176.3	-156.6	-154.8	-172.1	-173.3
IW2A																	
DO, mg/L	1.03	2	0.89	0.89	4.06	0.25	2.98	0.45	2.41	1.24	0.23	0.14	0.22	0.21	0.2	0.08	0.23
pH	6.6	6.5	6.1	6.8	5.4	6.5	6.0	6.4	6.6	6.6	6.5	6.8	6.6	6.56	6.56	6.68	6.81
ORP, mV	-173.3	-155.3	-24.7	-155.2	-153.7	-88.9	-175	-159.7	-42.8	-164.1	-153.4	-171	-170.8	-150.8	-154.3	-162.6	-170.2
MW1A																	
DO, mg/L	1.06	4	3.86	1.45	6.01	5.2	1.68	0.23	4.23	2.14	0.2	0.16	2.19	0.13	0.13	0.19	0.12
pH	6.4	6.7	6.6	6.7	6.6	6.7	6.5	6.7	6.8	6.9	6.8	7.0	6.7	6.8	6.8	6.79	6.95
ORP, mV	-146.4	-124.7	-49.4	-127.1	-90.4	-12.3	-180	-147	-52	-74.1	-123.8	-137.9	-50.5	-143.4	-134	-139.5	-135.3
NG-12D																	
DO, mg/L	1	1.53	0.22	0.75	1.98	0.22	2.83	0.25	0.1	0.13	0.3	0.36	0.26	0.34	0.3	0.27	0.31
pH	5.4	5.8	5.9	5.9	5.9	6.2	6.0	6.3	6.4	6.7	6.6	6.6	6.6	6.7	6.46	6.45	6.67
ORP, mV	-100.6	-140	-90	-156.5	-110.3	-46.6	-174	-106.4	-186.2	-199.4	-110.7	-147.1	-162.1	-145.4	-126.3	-148.9	-153.5
NG-12I																	
DO, mg/L	5	5	3.84	4.84	4.1	1.35	3.42	2.42	0.32	0.17	0.32	0.34	0.3	0.27	0.24	0.64	0.31
pH	5.1	5.4	5.1	5.1	4.8	5.0	4.5	5.0	5.2	5.4	5.1	5.5	6.1	5.23	5.24	5.26	5.45
ORP, mV	-91.3	-100.7	69.1	68.7	-88	-113.4	-147	-39.7	-49.6	-86.6	-54.1	-66.7	-67.8	-44.7	-30.8	-53.6	-95.9
CEF-59-006-78																	
DO, mg/L	1.25	2.92	0.7	0.79	1.22	0.75	5.58	0.31	0.28	0.42	0.26	0.45	0.32	0.33	0.38	0.63	1.31
pH	4.8	5.3	5.5	5.9	5.3	6.2	4.9	5.2	5.0	5.3	5.0	5.1	4.9	4.9	4.8	4.82	5.17
ORP, mV	-89.3	-89.8	64	46.7	-72.3	57.1	-142	2.5	39.2	58.6	97.5	68.2	51.6	92.2	93.4	83.2	41.1

TABLE 3-1

SUMMARY OF DO, pH, AND ORP DATA
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	1/2/2007	1/8/2007	1/15/2007	1/24/2007	2/5/2007	2/15/2007	3/7/2007	3/12/2007	5/7/2007
EWA									
DO, mg/L	1.01	NM	NM	0.28	0.18	0.36	0.24	0.19	0.02
pH	6.14	NM	NM	6.09	6.05	6.13	6.1	5.99	6.4
ORP, mV	-89.2	NM	NM	-231.5	-150	-179	-174.3	-165.5	-168
IW1A									
DO, mg/L	0.52	0.5	0.12	0.36	0.94	0.64	0.75	1.1	NM
pH	6.15	6.99	5.74	6.75	6.11	6.12	6.07	6.12	NM
ORP, mV	-78.9	-150.1	-189.3	-251.6	-182	-154	-151.3	-144.6	NM
IW2A									
DO, mg/L	0.48	0.6	0.18	0.23	0.43	0.61	0.32	0.31	2.1
pH	6.14	7.23	7.82	6.74	6.07	6.15	5.97	6.07	6.2
ORP, mV	-89	-132.4	-198.6	-266.9	-189	-151	-210.6	-156	-98.3
MW1A									
DO, mg/L	0.33	3	0.14	1.82	3.95	0.28	0.29	2.78	0.5
pH	6.87	7.99	8.83	6.83	6.8	6.77	6.42	6.59	6.7
ORP, mV	-133.2	-130.5	-183.4	-133.6	-81.1	-149	-189.9	-63.4	-142
NG-12D									
DO, mg/L	0.15	0.24	0.28	0.29	0.48	0.78	0.19	0.4	0.15
pH	6.83	7.58	8.45	6.73	6.86	6.45	6.51	6.65	6.3
ORP, mV	-165.2	-176.2	-190.5	-272.3	-245	-179	-239.6	-196.4	-81
NG-12I									
DO, mg/L	0.14	0.2	0.22	0.27	0.29	0.53	0.13	0.76	0.14
pH	5.42	6.48	7.26	5.5	5.54	5.39	5.5	5.17	5.9
ORP, mV	-93.7	-97.2	-135	-177.8	-134	-147	-206.4	-8.4	-55
CEF-59-006-78									
DO, mg/L	0.61	0.45	0.4	0.66	1.5	0.63	0.31	1.86	0.23
pH	5.05	5.43	7.33	5.07	5.34	5.07	5.5	5.43	5.1
ORP, mV	21.9	61	-34.7	-20.4	-19	-43	-206.4	73.4	61.3

Blank indicates no measurement recorded.
Data is from Operator Log Sheets.
NM - Not measured.

TABLE 3-2

SUMMARY OF VOC CONCENTRATIONS
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	7/28/2006	9/13/2006	10/25/2006	11/9/2006	12/5/2006	1/23/2007	3/7/2007	5/7/2007
Sampling Event Number	**Baseline**	**3**	**4**	**5**	**7**	**8**	**10**	**11**
IW2A								
TCE, ug/L	1,180	924	477	150	13.6	0.85	1.6	0.69
cis-1,2-DCE, ug/L	10 U	5 U	31.8	384	332	22.6	144	56.5
Vinyl chloride, ug/L	10 U	5 U	0.52	25.2	77.6	26.7	80.7	13.8
MW1A								
TCE, ug/L	1,250	907	191	20.5	5 U	0.5 U	13	0.5 U
cis-1,2-DCE, ug/L	10 U	5 U	208	630	350	31.3	86.4	23.2
Vinyl chloride, ug/L	10 U	5 U	0.5 U	5 U	66.5	32.8	66.8	15.8
NG-12D								
TCE, ug/L	2,160	1,570	NM	486	5 U	0.81	28.1	4.5
cis-1,2-DCE, ug/L	25 U	5 U	NM	338	492	58	123	84.7
Vinyl chloride, ug/L	25 U	5 U	NM	5 U	48.4	75	74.1	61.9
EW1A								
TCE, ug/L	2,170	703	NM	740	420	291	191	88.3
cis-1,2-DCE, ug/L	25 U	5 U	NM	62.8	146	92.2	85.9	56.8
Vinyl chloride, ug/L	25 U	5 U	NM	5 U	14.9	34.4	53.9	35.4
NG12I								
TCE, ug/L	8.9	3.5	NM	541	370	198	96.9	66.3
cis-1,2-DCE, ug/L	0.5 U	1.8	NM	5.6	205	194	91.4	74.9
Vinyl chloride, ug/L	0.5 U	0.5 U	NM	5 U	0.5 U	22	47.3	44.5
006-078								
TCE, ug/L	0.5 U	0.5 U	NM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-DCE, ug/L	0.5 U	0.5 U	NM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride, ug/L	0.5 U	0.5 U	NM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Blanks indicate no analysis was performed.
NM - Not measured.
U - Not detected at detection limit shown.

TABLE 3-3

SUMMARY OF GEOCHEMICAL AND BIOLOGICAL INDICATOR CONCENTRATIONS
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	7/28/2006	8/24/2006	9/13/2006	10/25/2006	11/9/2006	11/20/2006	12/5/2006
Sample Event Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**
IW2A							
Lactic Acid, mg/L	< 10	NM	29	NM	1.7	NM	1.5
Propionic Acid, mg/L	< 10	NM	6	NM	61	NM	51
Acetic Acid, mg/L	< 10	NM	12	NM	40	NM	39
Total Organic Carbon, mg/L	2.1	NM	31.9	NM	53	NM	49.3
Ethene, ug/L	0.21	NM	0.22	NM	3.1	NM	25
Ethane, ug/L	0.091	NM	0.11	NM	0.029	NM	0.034
Methane, ug/L	350	NM	350	NM	580	NM	1,300
Field CO2, mg/L	90	50	70	11	190	13	180
Field DO, mg/L	0.6	1	1	4	1	3	0.4
Field Hydrogen Sulfide, mg/L	ND	ND	2	1	2	0.2	5
Field Alkalinity, mg/L	16	< 10	40	< 10	700	11	500
Field Ferrous Iron, mg/L	0.56	1.02	1.47	0	1.12	0	0.96
Iron Filtered, ug/L	608	NM	1,310	NM	988	NM	884
Manganese Filtered, ug/L	87.2	NM	12.6	NM	10.2	NM	3.81
Sulfate, mg/L	17.3	NM	7.1	NM	9.4	NM	9.1
Sulfide, mg/L	< 1	NM	5.5	NM	2.9	NM	5
Chloride, mg/L	9	NM	10.4	NM	11	NM	16.2
Sodium, mg/L	10.6	NM	40.1	NM	233	NM	254,000
PCR, cells/mL	< 0.25	NM	< 0.417	NM	NM	NM	70,300
TCE Reductase, cells/mL	< 0.25	NM	< 0.417	NM	NM	NM	< 0.5
BAV1 VC Reductase, cells/mL	< 0.25	NM	< 0.417	NM	NM	NM	13.2
VC Reductase, cells/mL	< 0.25	NM	< 0.417	NM	NM	NM	21,300

TABLE 3-3

SUMMARY OF GEOCHEMICAL AND BIOLOGICAL INDICATOR CONCENTRATIONS
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	**1/23/2007**	**2/19/2007**	**3/7/2007**	**5/7/2007**
Sample Event Number	**8**	**9**	**10**	**11**
IW2A				
Lactic Acid, mg/L	1.3	NM	1.7	1.3
Propionic Acid, mg/L	76	NM	19	4.2
Acetic Acid, mg/L	72	NM	24	21
Total Organic Carbon, mg/L	67.2	NM	26.6	31.7
Ethene, ug/L	91	NM	54	53
Ethane, ug/L	0.01	NM	0.014	0.064
Methane, ug/L	2,600	NM	1,500	19,000
Field CO2, mg/L	13	12	17	12
Field DO, mg/L	0.3	1	0.4	0.6
Field Hydrogen Sulfide, mg/L	2	2	2	0
Field Alkalinity, mg/L	< 10	12	< 10	10
Field Ferrous Iron, mg/L	0	0	0	0
Iron Filtered, ug/L	851	NM	751	1,580
Manganese Filtered, ug/L	4.1	NM	3.4	10.6
Sulfate, mg/L	9	NM	8.2	9.1
Sulfide, mg/L	2.4	NM	4.5	2.6
Chloride, mg/L	16.9	NM	6.8	12.4
Sodium, mg/L	435	NM	104	104
PCR, cells/mL	NM	NM	1,630	NM
TCE Reductase, cells/mL	NM	NM	1	NM
BAV1 VC Reductase, cells/mL	NM	NM	<1	NM
VC Reductase, cells/mL	NM	NM	640	NM

TABLE 3-3

SUMMARY OF GEOCHEMICAL AND BIOLOGICAL INDICATOR CONCENTRATIONS
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	7/28/2006	8/24/2006	9/13/2006	10/25/2006	11/9/2006	11/20/2006	12/5/2006
Sample Event Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**
MW1A							
Lactic Acid, mg/L	< 10	NM	0.88	NM	1	NM	2.3
Propionic Acid, mg/L	< 10	NM	11	NM	46	NM	43
Acetic Acid, mg/L	< 10	NM	4	NM	28	NM	29
Total Organic Carbon, mg/L	9.9	NM	11.8	NM	39.8	NM	41
Ethene, ug/L	0.46	NM	0.56	NM	0.42	NM	17
Ethane, ug/L	0.34	NM	0.21	NM	0.093	NM	0.065
Methane, ug/L	190	NM	290	NM	290	NM	670
Field CO2, mg/L	70	< 10	160	13	500	13	170
Field DO, mg/L	1	0.8	1	3	1	5	2
Field Hydrogen Sulfide, mg/L	ND	ND	2	0.5	2.22	0.1	2
Field Alkalinity, mg/L	60	100	125	< 10	400	11	400
Field Ferrous Iron, mg/L	0.16	ND	0.47	0	2.22	0	3.27
Iron Filtered, ug/L	99.1	NM	516	NM	1,240	NM	3,790
Manganese Filtered, ug/L	321	NM	814	NM	1,680	NM	1,100
Sulfate, mg/L	64.7	NM	25.3	NM	11.6	NM	9.1
Sulfide, mg/L	< 1	NM	1.2	NM	1	NM	1.6
Chloride, mg/L	10.9	NM	10.5	NM	10.8	NM	14.4
Sodium, mg/L	80.5	NM	55.8	NM	118	NM	16,300
PCR, cells/mL	< 0.25	NM	0.95	NM	NM	NM	71,500
TCE Reductase, cells/mL	< 0.25	NM	< 0.294	NM	NM	NM	< 0.333
BAV1 VC Reductase, cells/mL	< 0.25	NM	< 0.294	NM	NM	NM	168
VC Reductase, cells/mL	< 0.25	NM	< 0.294	NM	NM	NM	18,300

TABLE 3-3

SUMMARY OF GEOCHEMICAL AND BIOLOGICAL INDICATOR CONCENTRATIONS
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	1/23/2007	2/19/2007	3/7/2007	5/7/2007
Sample Event Number	**8**	**9**	**10**	**11**
MW1A				
Lactic Acid, mg/L	1.1	NM	1.9	1.8
Propionic Acid, mg/L	36	NM	18	4.9
Acetic Acid, mg/L	35	NM	26	12
Total Organic Carbon, mg/L	39.2	NM	34	27.3
Ethene, ug/L	92	NM	81	92
Ethane, ug/L	0.034	NM	0.034	0.88
Methane, ug/L	1,100	NM	1,800	4,700
Field CO2, mg/L	12	14	180	150
Field DO, mg/L	0.4	1	1	0.8
Field Hydrogen Sulfide, mg/L	1	2	2	2
Field Alkalinity, mg/L	< 10	11	350	280
Field Ferrous Iron, mg/L	0	0	3.3	2.8
Iron Filtered, ug/L	3,730	NM	3,600	4,500
Manganese Filtered, ug/L	710	NM	636	727
Sulfate, mg/L	8.6	NM	7.9	9.7
Sulfide, mg/L	3.6	NM	2.9	1.2
Chloride, mg/L	14.1	NM	12.8	12.3
Sodium, mg/L	192	NM	143	108
PCR, cells/mL	NM	NM	132,000	NM
TCE Reductase, cells/mL	NM	NM	5,000	NM
BAV1 VC Reductase, cells/mL	NM	NM	27,000	NM
VC Reductase, cells/mL	NM	NM	180,000	NM

TABLE 3-3

SUMMARY OF GEOCHEMICAL AND BIOLOGICAL INDICATOR CONCENTRATIONS
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	7/28/2006	8/24/2006	9/13/2006	10/25/2006	11/9/2006	11/20/2006	12/5/2006
Sample Event Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**
NG-12D							
Lactic Acid, mg/L	< 10	NM	0.25	NM	0.86	NM	1.3
Propionic Acid, mg/L	< 10	NM	5.8	NM	52	NM	47
Acetic Acid, mg/L	< 10	NM	2.4	NM	35	NM	32
Total Organic Carbon, mg/L	1.1	NM	5.6	NM	43	NM	45.4
Ethene, ug/L	0.067	NM	0.12	NM	0.21	NM	3.2
Ethane, ug/L	0.027	NM	0.029	NM	0.037	NM	0.042
Methane, ug/L	270	NM	300	NM	420	NM	620
Field CO2, mg/L	105	18	70	13	200	13	160
Field DO, mg/L	1	1	1	1	0.9	1	0.2
Field Hydrogen Sulfide, mg/L	ND	ND	2	2	5	2	5
Field Alkalinity, mg/L	<10	19	<10	25	350	11	400
Field Ferrous Iron, mg/L	0.74	0.05	0.92	0	0.4	0	0.48
Iron Filtered, ug/L	796	NM	898	NM	NM	NM	184
Manganese Filtered, ug/L	3.8	NM	4.8	NM	NM	NM	2
Sulfate, mg/L	21.4	NM	20.4	NM	9.6	NM	9.1
Sulfide, mg/L	< 1	NM	1.1	NM	3.8	NM	5.5
Chloride, mg/L	9.9	NM	10.8	NM	11.1	NM	15.2
Sodium, mg/L	4.2	NM	5.3	NM	145	NM	202,000
PCR, cells/mL	1.34	NM	0.908	NM	NM	NM	28,400
TCE Reductase, cells/mL	< 0.667	NM	< 0.25	NM	NM	NM	< 0.5
BAV1 VC Reductase, cells/mL	< 0.667	NM	< 0.25	NM	NM	NM	0.368
VC Reductase, cells/mL	< 0.667	NM	< 0.25	NM	NM	NM	88,400
EWA							
Field CO2, mg/L	60	70	40	12	150	13	200
Field DO, mg/L	0.8	0.4	2	0.6	1	2	0.3
Field Hydrogen Sulfide, mg/L	ND	ND	ND	1	50	2	5

TABLE 3-3

SUMMARY OF GEOCHEMICAL AND BIOLOGICAL INDICATOR CONCENTRATIONS
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	1/23/2007	2/19/2007	3/7/2007	5/7/2007
Sample Event Number	**8**	**9**	**10**	**11**
NG-12D				
Lactic Acid, mg/L	1.4	NM	1.8	0.38
Propionic Acid, mg/L	47	NM	23	0.15
Acetic Acid, mg/L	40	NM	30	0.38
Total Organic Carbon, mg/L	41.6	NM	30	24.4
Ethene, ug/L	84	NM	53	90
Ethane, ug/L	0.11	NM	0.034	0.12
Methane, ug/L	1,200	NM	1,400	2,700
Field CO2, mg/L	300	13	290	160
Field DO, mg/L	0.6	0.2	1	1
Field Hydrogen Sulfide, mg/L	2	2	2	0.3
Field Alkalinity, mg/L	120	12	140	100
Field Ferrous Iron, mg/L	0.44	0	0.34	0
Iron Filtered, ug/L	115	NM	79.4	432
Manganese Filtered, ug/L	1.7	NM	1.7	2.2
Sulfate, mg/L	9.1	NM	8.2	9.3
Sulfide, mg/L	5.1	NM	3	5.2
Chloride, mg/L	14.8	NM	10.5	13.3
Sodium, mg/L	208	NM	166	118
PCR, cells/mL	NM	NM	2,600	NM
TCE Reductase, cells/mL	NM	NM	1	NM
BAV1 VC Reductase, cells/mL	NM	NM	2	NM
VC Reductase, cells/mL	NM	NM	3,600	NM
EWA				
Field CO2, mg/L	180	12	190	200
Field DO, mg/L	0.2	0.3	1	1
Field Hydrogen Sulfide, mg/L	2	2	2	2

TABLE 3-3

SUMMARY OF GEOCHEMICAL AND BIOLOGICAL INDICATOR CONCENTRATIONS
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	**7/28/2006**	**8/24/2006**	**9/13/2006**	**10/25/2006**	**11/9/2006**	**11/20/2006**	**12/5/2006**
Sample Event Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Field Alkalinity, mg/L	17	< 10	< 10	< 10	50	13	70
Field Ferrous Iron, mg/L	0.84	1.19	2.48	ND	1.6	0	2.46

TABLE 3-3

SUMMARY OF GEOCHEMICAL AND BIOLOGICAL INDICATOR CONCENTRATIONS
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	**1/23/2007**	**2/19/2007**	**3/7/2007**	**5/7/2007**
Sample Event Number	**8**	**9**	**10**	**11**
Field Alkalinity, mg/L	70	13	110	110
Field Ferrous Iron, mg/L	2.63	0	1.66	1.8

TABLE 3-4

SUMMARY OF WATER LEVEL ELEVATIONS
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	7/28/2006	8/23/2006	8/29/2006	9/1/2006	9/5/2006	9/8/2006	9/12/2006	9/15/2006	9/19/2006	9/22/2006	9/26/2006
EW1A	67.92	67.94	68.30	68.58	68.43	68.28	68.53	68.59	57.53	68.41	68.34
NG-12D	68.07	67.95	68.33	68.51	68.34	68.44	68.56	68.60	68.32	68.34	68.36
MW1A	68.42	67.89	68.13	68.47	68.43	68.47	68.54	68.61	68.48	67.85	68.36
IW1A	NM	71.53	73.88	72.66	68.72	72.33	68.61	71.01	70.66	68.38	68.13
IW2A	68.13	69.70	71.28	68.93	68.54	68.81	68.74	68.75	68.17	68.25	69.38
NG-12I	68.08	67.97	68.26	68.52	68.45	68.44	68.56	68.59	68.49	68.35	68.36
006-78	68.00	67.87	68.34	68.52	68.34	68.35	68.61	68.59	68.36	68.21	68.33

TABLE 3-4

SUMMARY OF WATER LEVEL ELEVATIONS
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	9/29/2006	10/3/2006	10/6/2006	10/10/2006	10/17/2006	10/20/2006	10/24/2006	10/27/2006	10/31/2006	11/3/2006
EW1A	67.88	62.65	63.60	67.95	67.81	67.74	67.78	67.72	67.63	67.57
NG-12D	68.36	67.96	67.87	67.94	67.77	67.79	67.71	67.75	67.56	67.60
MW1A	68.37	67.77	67.83	67.77	67.90	67.89	67.48	67.77	67.66	67.57
IW1A	68.83	70.39	69.19	68.72	69.11	68.36	67.74	67.64	68.88	70.10
IW2A	68.78	68.47	70.65	68.86	68.66	68.38	67.41	67.12	67.46	68.03
NG-12I	68.34	68.14	67.95	67.93	67.77	67.77	67.80	67.76	67.66	67.60
006-78	68.33	67.96	67.84	67.89	67.58	67.61	67.76	67.71	67.49	67.44

TABLE 3-4

SUMMARY OF WATER LEVEL ELEVATIONS
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	11/7/2006	11/10/2006	11/13/2006	11/17/2006	11/20/2006	11/22/2006	11/29/2006	12/4/2006	12/8/2006	12/11/2006	12/13/2006
EW1A	67.76	67.67	67.61	67.51	67.55	67.56	67.42	67.41	67.36	67.31	67.27
NG-12D	67.77	67.75	67.59	67.54	67.56	67.63	67.47	67.44	67.40	67.35	67.29
MW1A	67.68	67.52	67.82	67.55	67.54	68.75	68.09	67.60	67.42	67.65	67.38
IW1A	68.50	68.61	68.78	69.77	67.95	69.37	68.90	69.92	69.05	69.15	69.41
IW2A	68.89	68.24	69.37	69.03	68.53	69.66	69.28	69.89	69.29	70.08	69.80
NG-12I	67.77	67.75	67.62	67.56	67.57	67.58	67.47	67.44	67.40	67.35	67.31
006-78	67.72	67.65	67.44	67.37	67.51	67.53	67.31	67.36	67.32	67.15	67.12

TABLE 3-4

SUMMARY OF WATER LEVEL ELEVATIONS
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	12/18/2006	12/26/2006	1/2/2007	1/8/2007	1/15/2007	1/24/2007	2/5/2007	2/15/2007	3/7/2007	3/12/2007
EW1A	67.31	67.48	67.49	67.65	67.59	67.63	67.81	68.72	66.08	68.15
NG-12D	67.20	67.24	67.42	67.66	67.59	67.73	67.80	68.04	68.15	68.02
MW1A	67.40	67.26	67.42	67.63	67.71	67.46	67.98	68.10	68.44	67.98
IW1A	68.12	68.09	68.47	67.34	68.29	69.41	69.63	70.93	NM	70.68
IW2A	68.06	68.03	68.65	68.13	69.93	68.53	69.66	71.02	68.88	70.57
NG-12I	67.30	67.34	67.48	67.66	67.67	67.64	67.93	68.05	68.13	68.13
006-78	67.25	67.17	67.47	67.53	67.73	67.52	67.95	68.08	68.18	68.07

Water level measurements were made during operation, except for injection wells, which are sealed.
Wells are shown in order from extraction to injection. NG-12I is above the treatment zone; 006-78 is below the treatment zone.
Elevations are in feet NGVD 1988.
NM - Not measured.

FIGURE 3-1
CONTAMINANT TRENDS IN WELL IW2A
SITE 59 SOUTHERN PILOT STUDY
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

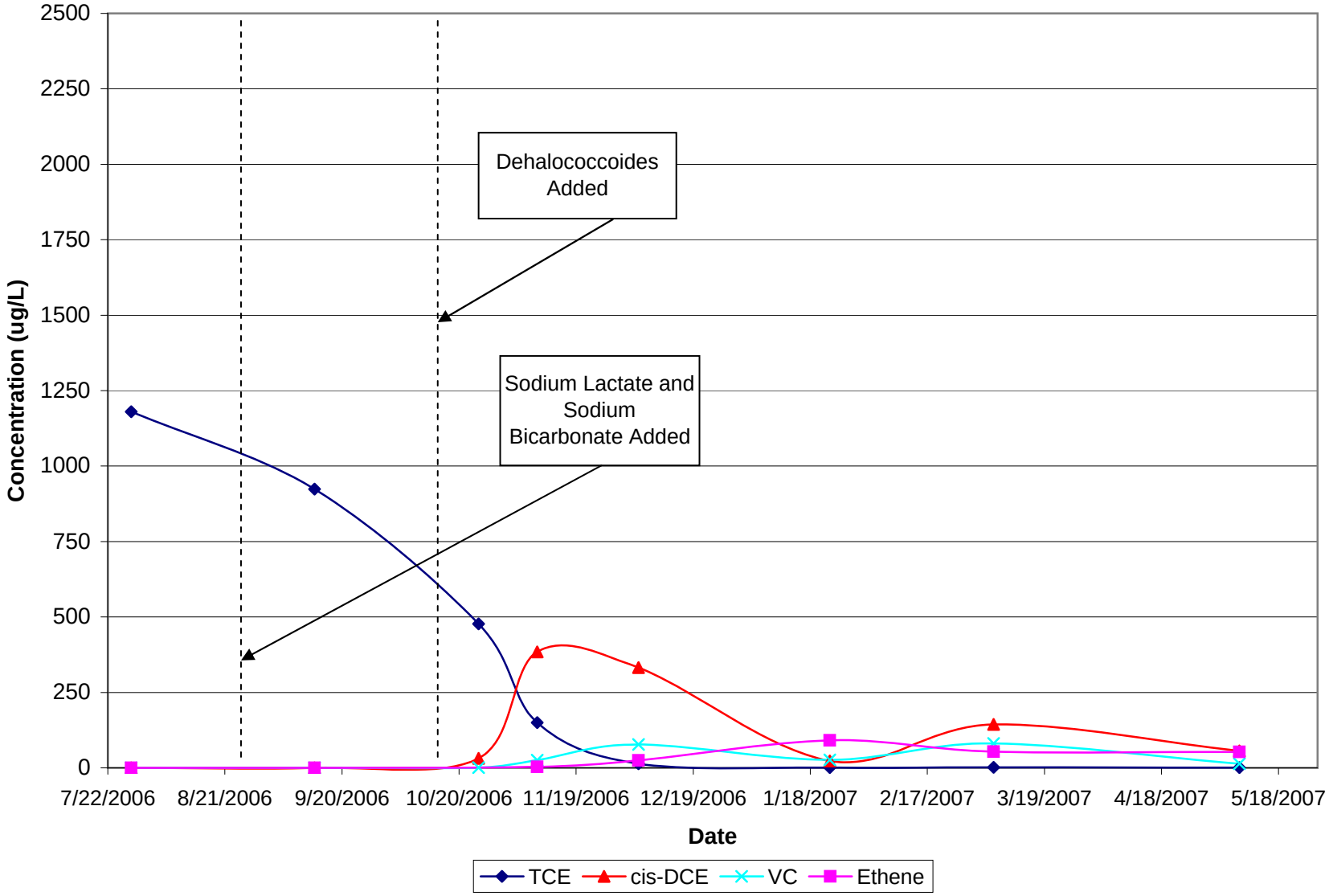


FIGURE 3-2
CONTAMINANT TRENDS IN WELL MW1A
SITE 59 SOUTHERN PILOT STUDY
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

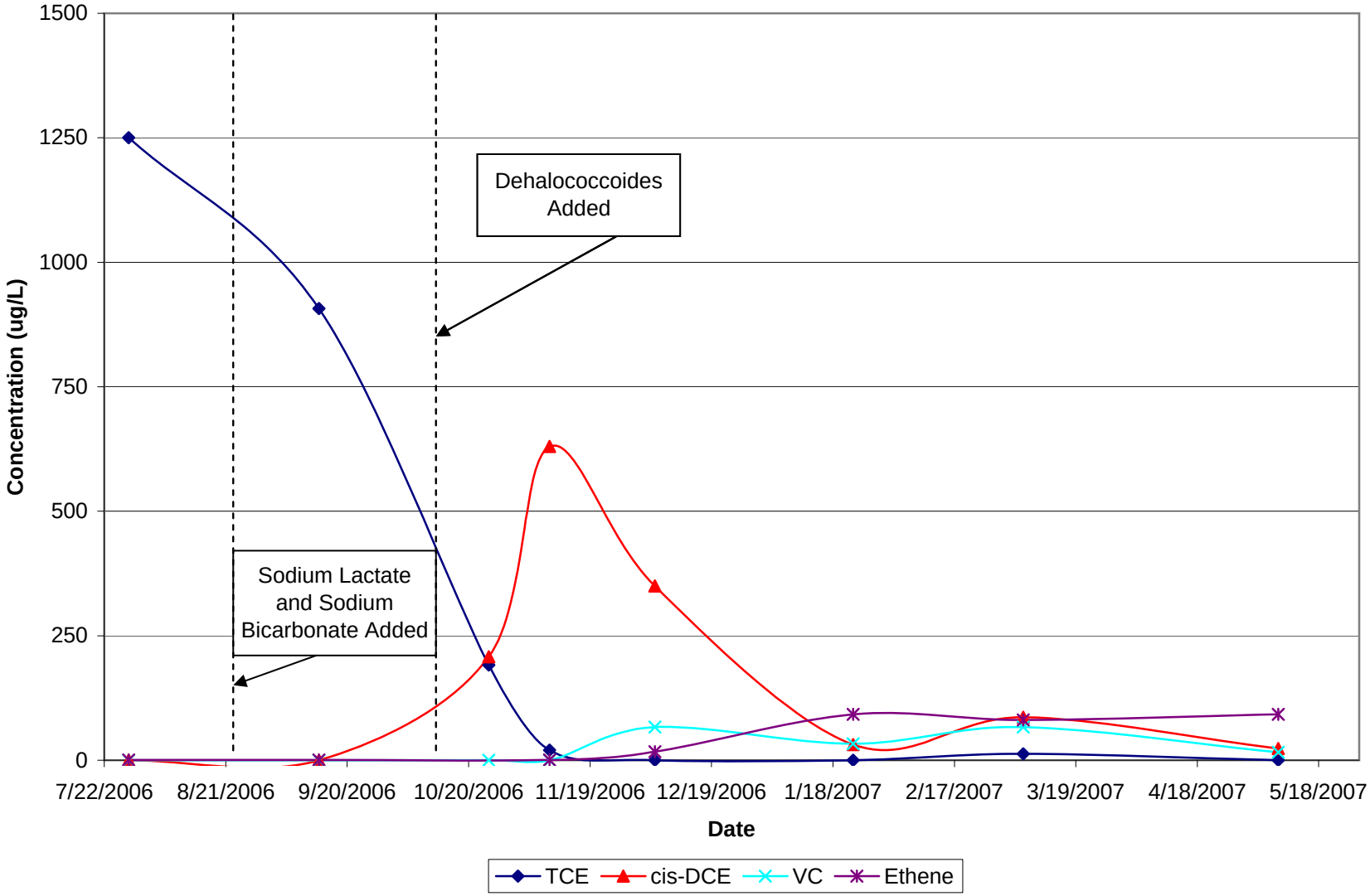


FIGURE 3-3
CONTAMINANT TRENDS IN WELL NG-12D
SITE 59 SOUTHERN PILOT STUDY
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

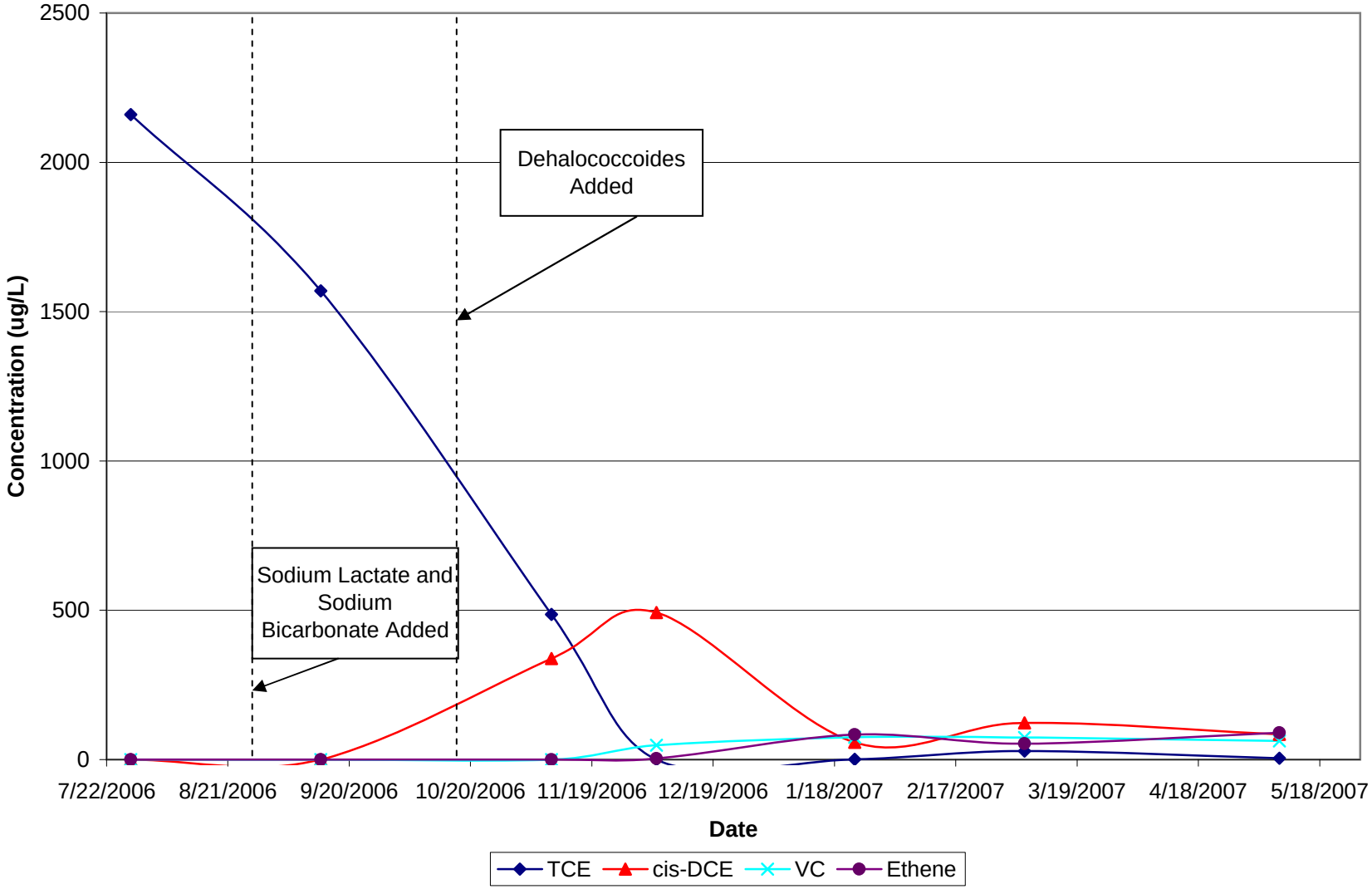
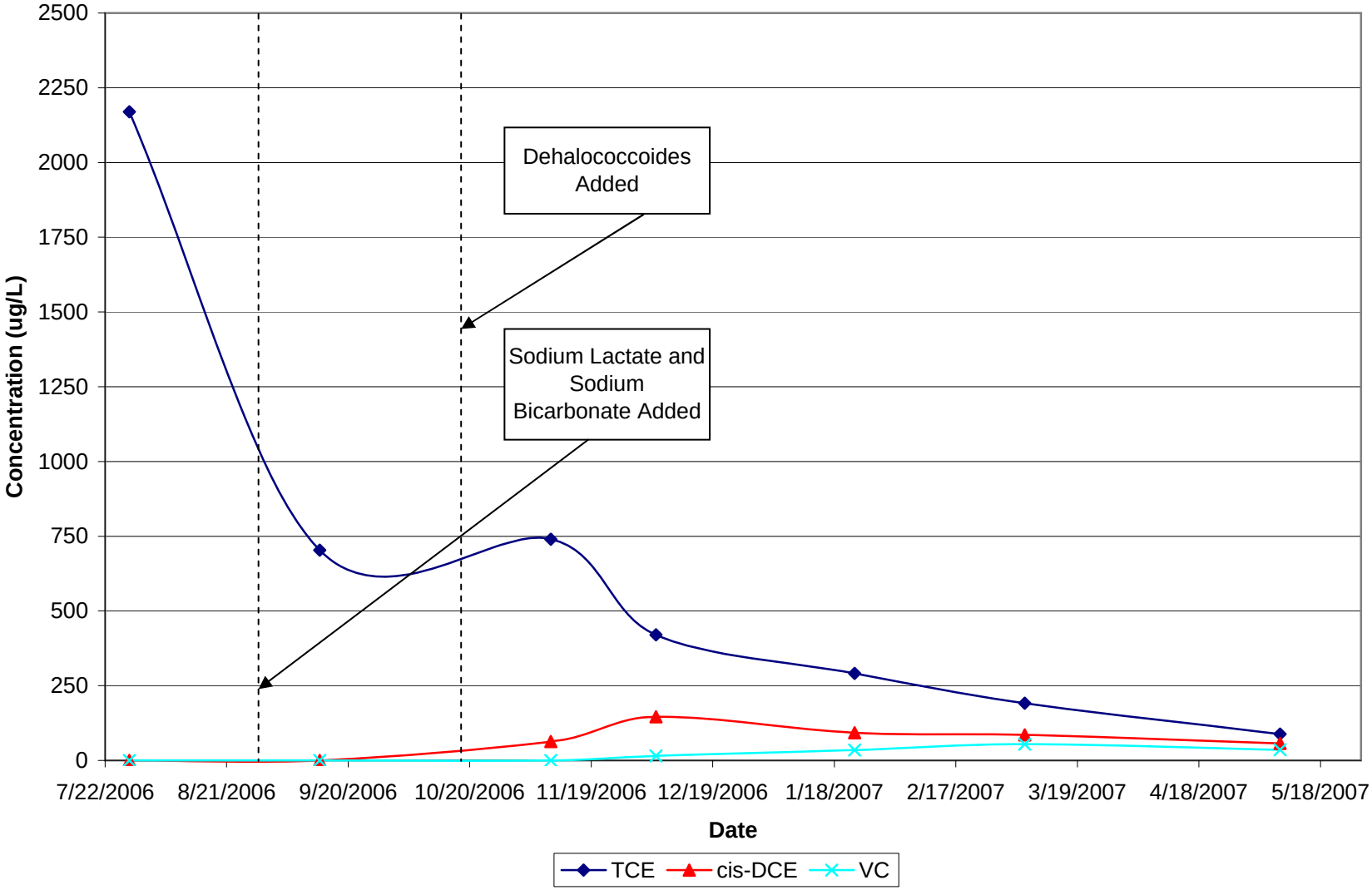


FIGURE 3-4
CONTAMINANT TRENDS IN WELL EWA
SITE 59 SOUTHERN PILOT STUDY
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA



4.0 DISCUSSION

4.1 REDUCTIONS IN CONTAMINANTS

Laboratory results prior to the pilot study showed that the primary contaminant in the groundwater in the area of the southern pilot study was TCE. This observation is typical throughout Site 59. In the baseline results (Event 1), the TCE concentrations ranged from 1,000 to 2,000 µg/L. No cis-1,2-DCE was detected. Similarly, in the next set of laboratory analyses after startup and before DHC injection (Event 3), the TCE concentration range was 700 to 1,600 µg/L and no cis-1,2-DCE was detected. These TCE reductions are most likely attributable to the effects of recirculation causing mixing and groundwater with lower contamination concentrations being pulled in.

Event 4, with analysis for field parameters only, was scheduled for two weeks after DHC injection, and the samples from wells IW2A and MW1A were also analyzed for VOCs. Significant changes in the VOCs were observed. In IW2A, the TCE concentration was 477 µg/L, the cis-1,2-DCE concentration was 31.8 µg/L, and the vinyl chloride concentration was 0.52 µg/L. In MW1A, the TCE concentration was 191 µg/L, and the cis-1,2-DCE concentration was 208 µg/L (no vinyl chloride was detected). Based on previous observations, the reduction in TCE concentrations and the increase in cis-1,2-DCE concentrations are attributable to the biological reduction.

The concentration trends of TCE, cis-1,2-DCE, and VC in IW2A, MW1A, and NG-12D are typical of biological degradation. In all three wells, the TCE concentration decreased significantly, to less than 1 µg/L in January. Concentrations of cis-1,2-DCE began to increase in November and then gradually decreased toward the end of the study. Similarly, concentrations of VC began to increase in November, peaking in December or January, and then gradually decreased toward the end of the study. However, the reason for the increase in concentrations of TCE, cis-1,2-DCE, and VC in December and subsequent decrease in January is not known.

In EWA, there was a gradual decrease in TCE concentrations and a gradual increase in concentrations in cis-1,2-DCE and VC. These results are most likely the result of pulling in treated water from the direction of the injection wells and untreated water from the opposite direction.

In NG-12D, TCE and cis-1,2-DCE concentrations increased in November along with an increase in VC concentrations in January, followed by a gradual decrease after that. These results are believed to be a result of groundwater mixing caused by the recirculation.

4.2 CHANGES IN NATURAL ATTENUATION PARAMETERS

DO, pH, and ORP were routinely measured as part of the routine inspection and were the primary means of monitoring the condition of the pilot system. The DO concentrations varied significantly and were frequently well above 1.0 mg/l in the aerobic range, despite the very low ORP values and other indications of anaerobic activity. The elevated DO concentrations in EWA could have been the result of natural background conditions. Elevated DO concentrations in the IWs could have been a result of the DO from the extraction well and to a lesser extent from leakage of air into the system because of sub-atmospheric pressure conditions. The elevated DO in the monitoring wells (MW1A and NG-12D), however, is not readily explained. With the lactate providing a source of carbon for aerobic microorganisms, the DO was expected to have dropped off quickly. One explanation is that a sufficient aerobic microorganism population may not be present. Another possibility is the recirculation of the high DO concentration water. Finally, another possibility is error in the performance of the DO sample collection and analysis. Because of the unusual observations, DO is not considered to be a good indicator of the pilot operation.

ORP appeared to provide a better indication of the condition of the system. This is also the opinion of the DHC provider. The ORP values in the injection wells were relatively low at the start of the operation (-28 to 27.8 mV). Within 2 weeks of sodium lactate injection, the ORP in both wells was negative. In 5 weeks, the ORP was typically around -100 mV. Although there were occasions when the ORP rose to -35 mV to -30 mV, the value was typically less than the target value of -75 mV and usually less than -100 mV even after the chemical feed was stopped in January. The ORP in MW1A and EWA also decreased steadily. In MW1A, the ORP started at 26.1 mV and after 5 weeks, was typically less than -100 mV. In EWA, the ORP started at 33.9 mV, and was typically less than -100 mV after 9 weeks. Although there were two sampling events where the ORP was greater than -100 mV, the ORP in the pilot study wells was typically les than -100mV, indicating reducing conditions. Like the injection wells, the ORP values in these wells remained low even after the chemical feed was turned off.

The pH reached the minimum target value of 6 in the injection wells and MW1A in about 1 week, and after 12 weeks, the pH in NG-12D was 6 to 6.5. However, the pH began to decrease to less than 6 on October 10, 2006, so the sodium bicarbonate rate was increased to 1.2 times the design rate by increasing the solution concentration. The pH began to fall again on the October 31, 2006, so the sodium bicarbonate rate was increased to 1.3 times the design rate by increasing the solution concentration. However, this concentration is about 95 percent of saturation. On November 7, 2006, the pH began to drop again, so the bicarbonate solution feed pump rate was increased such that the sodium bicarbonate rate was increased to 1.4 times the design rate for the rest of the pilot study. These decreases in pH were probably attributable to anaerobic degradation of the sodium lactate and TCE.

The pH in MW1A was greater than 6 throughout the study, and typically greater than 6.5 after the sodium bicarbonate feed rate was increased. The pH in EWA was erratic and usually less than 6 with occasional peaks greater than 6.5. Although the sodium bicarbonate feed was stopped in January, the pH values measured in May were not substantially different from earlier values.

Ferrous iron – Prior to the pilot study, the ferrous iron concentrations were 0.2 to 0.8 mg/L. During Event 3, concentrations rose to 0.5 to 2.5 mg/L, suggesting anaerobic activity. By Event 7, the ferrous iron concentrations in IW2A and MW1A were 0.96 and 3.27 mg/L, further suggesting anaerobic activity.

After Event 7, the concentrations of ferrous iron in IW2A were measured as 0 mg/L, but the total dissolved iron measured in the laboratory was still very high. This conflicting result suggests that there may have been errors in the field measurement. Similarly, the ferrous iron concentrations measured in MW1A in events 8 and 9 were both 0 mg/L, but the total dissolved iron measured in the laboratory was also very high. The ferrous iron concentrations measured during Events 10 and 11 were 2.8 and 3.3 mg/L, respectively.

Ferrous iron concentrations in NG-12D were never greater than 1 mg/L, and the total dissolved iron concentrations were significantly less than those in IW2A and MW1A. Ferrous iron concentrations in EWA were in the range of 1.6 mg/L to 2.63 mg/L during most of the pilot study. The reason for the elevated ferrous iron in EWA as compared to the nearby NG-12D is uncertain.

Alkalinity and CO2 – Prior to the pilot study, alkalinity concentrations were <10 mg/L to 60 mg/L, and carbon dioxide concentrations were 30 mg/L to 105 mg/L. The results for Events 4, 6, and 9 appear to be anomalous, and if these values are ignored, then the trends for carbon dioxide and alkalinity are increasing. These increases are from a combination of biological activity and sodium bicarbonate addition. After Event 7, the alkalinity and carbon dioxide concentrations in IW2A were very low, and may be anomalous. Similarly, the results for MW1A also appear to be anomalous in Event 8. However, in Events 10 and 11, the alkalinity concentrations were 350 mg/L and 280 mg/L, respectively, with carbon dioxide concentrations of 150 mg/L and 180 mg/L. In NG-12D, alkalinity reached 350 mg/L and 400 mg/L in Events 5 and 7, respectively, and declined to 100 mg/L to 140 mg/L in the last sampling events. Similarly, carbon dioxide concentrations reached 200 mg/L and 160 mg/L in Events 5 and 7, respectively, and were in the range of 300 mg/L to 160 mg/L in the last sampling events. In EWA, the alkalinity was generally low throughout the study until increasing to 110 mg/L in the last two events. Carbon dioxide concentrations increased to 180 to 200 mg/l in the last four events.

Methane, ethane, ethene – Methane, ethane, and ethene concentrations changed very little between the baseline sampling and the Event 3 sampling. Methane concentrations began to increase in IW2A in

November and in MW1A and NG-12D in December. Ethene concentrations began to increase in IW2A in November and reached 53 to 91 µg/L in the last three events. In MW1A, ethene concentrations began to increase in December to a range of 81 to 92 µg/L during the last three events. In NG-12D, ethene concentrations began to increase in December to a range of 53 to 90 µg/L during the last three events. There were no significant changes in ethane concentrations in any of the wells. The methane trend indicates anaerobic activity, and the increase in ethene concentrations indicates the degradation of TCE.

Metabolic acids – No metabolic acids were detected during the baseline sampling. However, in the Event 3 samples, the total of lactic, acetic, and proprionic acids concentrations was 47.9 µg/L in IW2A, 16 µg/L in MW1A, and 8.5 µg/L in NG-12D. By Event 7, these totals were 91 µg/L, 74 µg/L, and 89 µg/L, respectively. By Event 8, these totals were 149.3 µg/L, 72.1 µg/L, and 88.4 µg/L, respectively. By Event 11, these totals were 26.5 µg/L, 18.7 µg/L, and 0.9 µg/L, respectively. These results indicate biological activity from the addition of the sodium lactate.

Sulfate – Prior to the pilot study, the sulfate concentration range of IW2A, MW1A, and NG-12D was 17.3 to 64.7 mg/L. During Event 3, the sulfate concentrations in IW2A and MW1A decreased to 7.1 and 25.3 mg/L, respectively. The sulfate concentration in NG-12D changed very little in that time. In Event 7, the sulfate concentration was 9.1 mg/L in the three wells, and remained in the range of 7.1 to 9.4 mg/L for the rest of the pilot study. This decline in sulfate suggests anaerobic activity.

Sulfide – Prior to the pilot study, no sulfide was detected in the wells. Following Event 3, the sulfide concentration range was 2.4 to 5.5 mg/L in IW2A, 1.2 to 3.6 mg/L in MW1A, and 1.1 to 5.5 mg/L in NG-12D. Similarly, prior to the pilot study, no hydrogen sulfide was detected using the field analysis kits, but after Event 3, the field hydrogen sulfide concentrations were typically 2 mg/L or more, suggesting anaerobic activity.

Chloride – Prior to the pilot study, the chloride concentration range was 9 to 10 mg/L. Following DHC injection, the concentration range was 12 to 16 mg/L, and this increase in chloride concentrations is most likely from the degradation of TCE.

4.3 PCR INTERPRETATION

PCR analyses were performed at the baseline, three weeks after the start of the sodium lactate injection, 8 weeks after the DHC injection, and 21 weeks after the DHC injection. The PCR analysis included TCE reductase, BAV1 VC reductase, and VC reductase functional genes. In the baseline, DHC was detected in only one well, NG-12D. No functional genes were detected in any of the wells. During Event 3, DHC was detected at very low concentrations in MW1A and NG-12D; no functional genes were detected in any of the wells. Thus, prior to DHC injection, the population of DHC was not significant.

But in Event 7, the population of DHC was significant, 28,400 to 70,300 cell/mL, and the VC reductase concentration increased to a range of 18,300 to 88,400 cell/mL. A value of 10^7 cells/L (or 10^4 cells/mL) is considered to be a indication of a good microbial population. Thus, the results indicate a significant population of DHC.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

There does not appear to be a naturally occurring population of microorganisms at Site 59 that promote the reductive dechlorination of TCE. This is indicated by laboratory analyses and the absence of degradation of TCE after the sodium lactate has been injected. However, because of the relatively short period of chemical injection prior to DHC injection (approximately 6 weeks), there is some uncertainty whether there was sufficient time to promote the growth of indigenous microorganisms.

There is insufficient organic material in the Site 59 plume to promote reductive dechlorination.

DHC injection will significantly promote the conversion of TCE to cis-1,2-DCE, vinyl chloride, and ethene. There has not been sufficient time for the vinyl chloride to be completely converted; however, the presence of ethene shows that some of the TCE is being dechlorinated completely.

5.2 RECOMMENDATIONS

Data shows that TCE at Site 59 hot spots can be remediated by biostimulation and bioaugmentation. Based on historical data from similar projects, this technology is appropriate for the remediation of this site.

REFERENCES

TtNUS, 2004. Remedial Investigation Work Plan, Site Operable Unit 9, Site 59 - Buildings 324/1845 Area, Naval Air Station Cecil Field, Jacksonville, Florida, August 2004.

TtNUS, 2006a. Pilot Study Work Plan for In Situ Bioremediation, Site Operable Unit 9, Site 59 - Buildings 324/1845 Area, Naval Air Station Cecil Field, Jacksonville, Florida, January 2006.

TtNUS, 2006b. Pilot Study Work Plan for In Situ Bioremediation, Site Operable Unit 9, Site 59 - Buildings 324/1845 Southern Area, Naval Air Station Cecil Field, Jacksonville, Florida, July 2006.

APPENDIX A

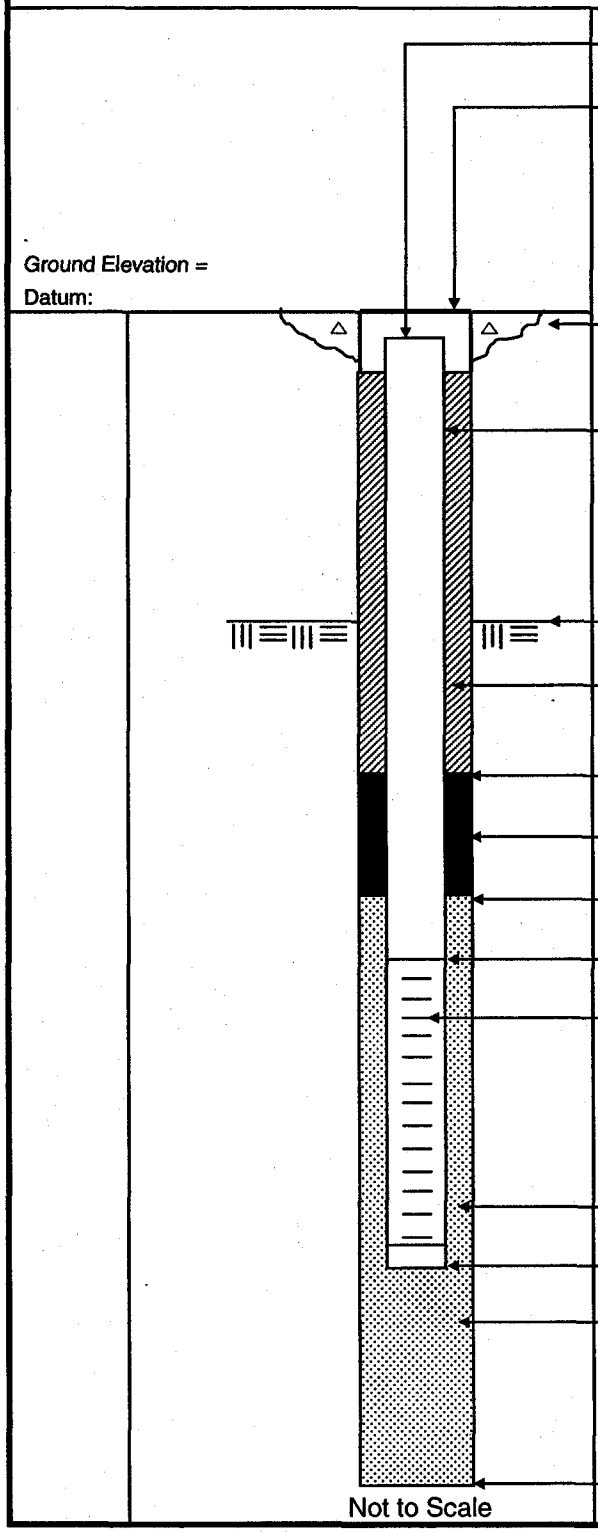
MONITORING WELL CONSTRUCTION SHEETS

Tetra Tech NUS, Inc.

WELL No.: IW-1A

MONITORING WELL SHEET

PROJECT: Site 59 pilot		DRILLING Co.:	A+I	BORING No.:	
PROJECT No.: 112G00054		DRILLER:	Mark Murray	DATE COMPLETED:	2-13-06
SITE:	59	DRILLING METHOD:	Mud rotary	NORTHING:	
GEOLOGIST:	Wes Hardin	DEV. METHOD:		EASTING:	



Elevation / Depth of Top of Riser: 1

Elevation / Height of Top of Surface Casing: 1

I.D. of Surface Casing: 6"

Type of Surface Casing: manhole

Type of Surface Seal: grout Quikrete

I.D. of Riser: 4"

Type of Riser: SCH 40 PVC

Borehole Diameter: 6"

Elevation / Depth Top of Rock: NA 1

Type of Backfill: grout

Elevation / Depth of Seal: 37.5 1

Type of Seal: bentonite

Elevation / Depth of Top of Filter Pack: 39.5 1

Elevation / Depth of Top of Screen: 42 1

Type of Screen: PVC SCH 40

Slot Size x Length: 0.020" x 10'

I.D. of Screen: 4"

Type of Filter Pack: (6-20) Sand

Elevation / Depth of Bottom of Screen: 52 1

Elevation / Depth of Bottom of Filter Pack: 53 1

Type of Backfill Below Well: formation

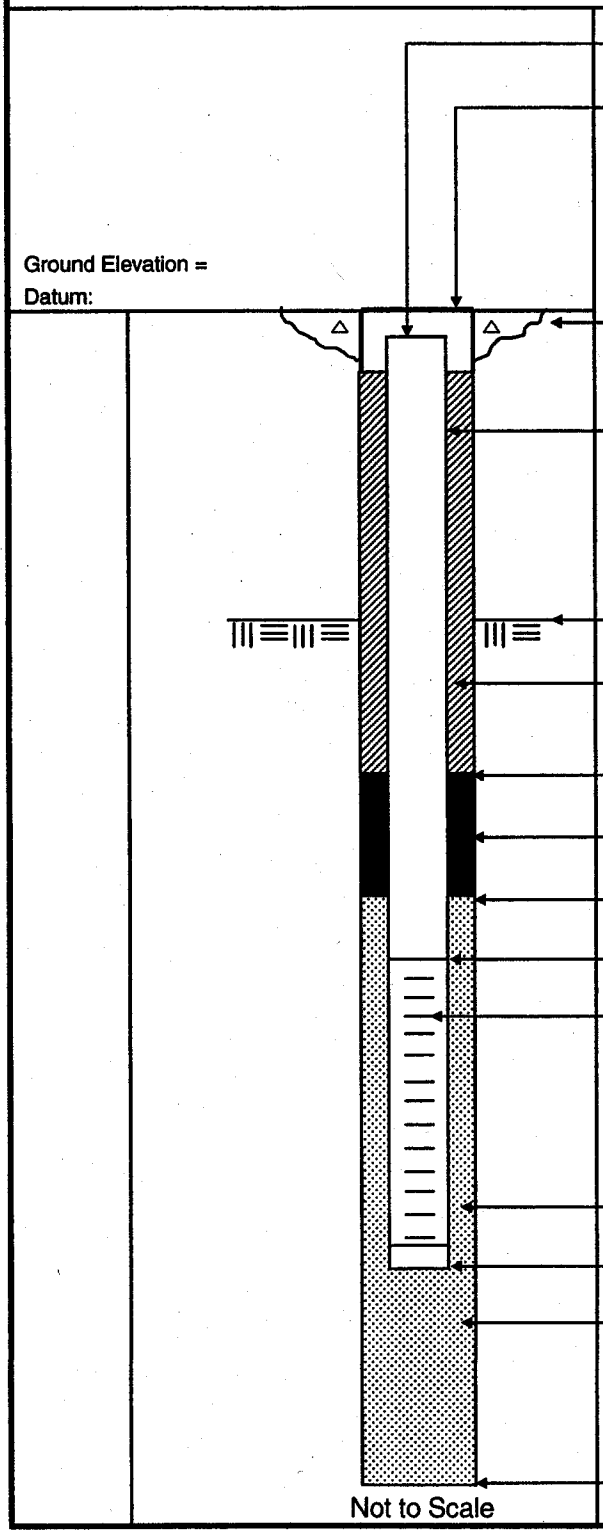
Elevation / Total Depth of Borehole: 62.5 1

Tetra Tech NUS, Inc.

WELL No.: P4-2A

MONITORING WELL SHEET

PROJECT: Site 59 Pilot | DRILLING Co.: ATI | BORING No.:
PROJECT No.: 112GN0059 | DRILLER: Mark Mcvay | DATE COMPLETED: 7-14-06
SITE: 59 | DRILLING METHOD: Mud rotary | NORTHING:
GEOLOGIST: Wes Harden | DEV. METHOD: | EASTING:



Elevation / Depth of Top of Riser: 1
Elevation / Height of Top of Surface Casing: 1
I.D. of Surface Casing: 8"
Type of Surface Casing: manhole
Type of Surface Seal: grout Quikrete
I.D. of Riser: 4"
Type of Riser: SCH 40 PVC
Borehole Diameter: 6"
Elevation / Depth Top of Rock: NA 1
Type of Backfill: grout
Elevation / Depth of Seal: 38 1
Type of Seal: bentonite
Elevation / Depth of Top of Filter Pack: 40 1
Elevation / Depth of Top of Screen: 42 1
Type of Screen: SCH 40 PVC
Slot Size x Length: 0.020" x 10'
I.D. of Screen: 4"
Type of Filter Pack: 6-20 Sand
Elevation / Depth of Bottom of Screen: 52 1
Elevation / Depth of Bottom of Filter Pack: 52 1
Type of Backfill Below Well: formation
Elevation / Total Depth of Borehole: 52.5'

Tetra Tech NUS, Inc.

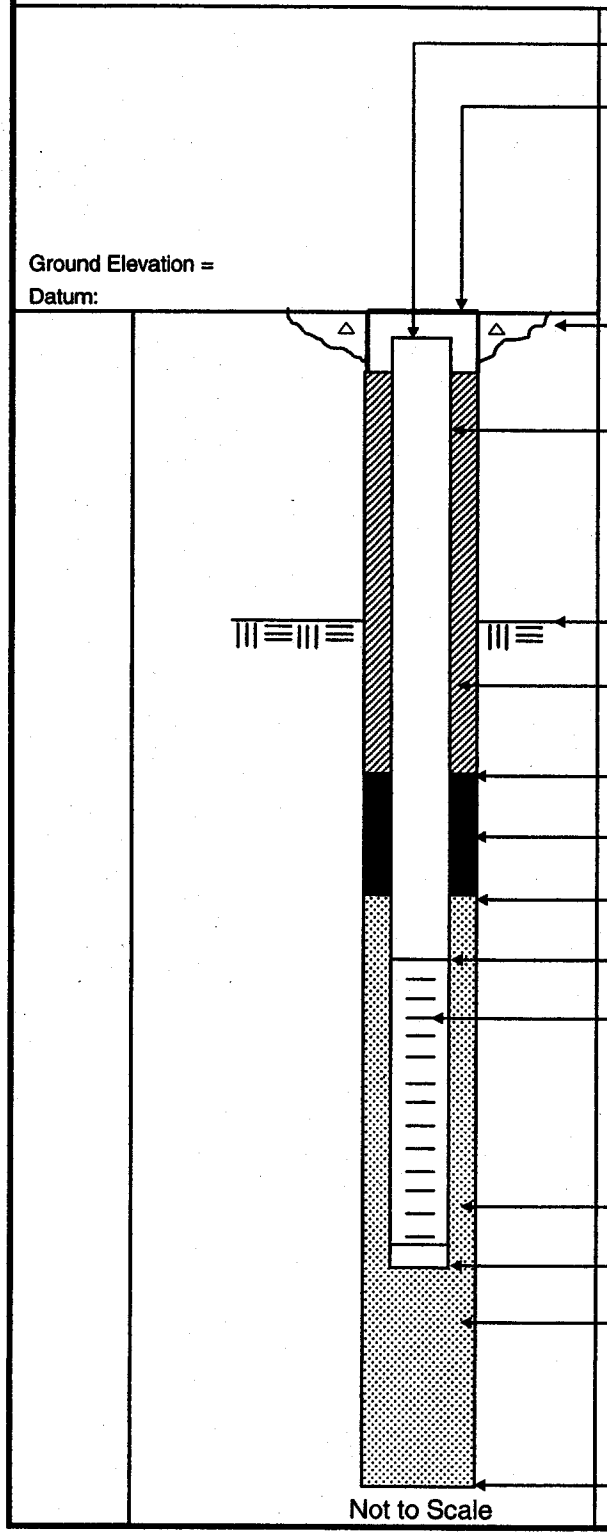
WELL No.: MW-1A

MONITORING WELL SHEET

PROJECT: Site 59 Model Study
PROJECT No.: 112GN0039
SITE: 59
GEOLOGIST: AH

DRILLING Co.: ATI
DRILLER: Roger Scruggs
DRILLING METHOD: Mud rotary
DEV. METHOD:

BORING No.:
DATE COMPLETED: 2-14-06
NORTHING:
EASTING:



Elevation / Depth of Top of Riser: 1
Elevation / Height of Top of Surface Casing: 1
I.D. of Surface Casing: 8"
Type of Surface Casing: manhole
Type of Surface Seal: grout
Quikrete
I.D. of Riser: 1"
Type of Riser: SCH40 PVC
Borehole Diameter: 4"
Elevation / Depth Top of Rock: NA 1
Type of Backfill: grout
Elevation / Depth of Seal: 43 1
Type of Seal: bentonite
Elevation / Depth of Top of Filter Pack: 44 1
Elevation / Depth of Top of Screen: 45 1
Type of Screen: SCH40 PVC
Slot Size x Length: 0.010 x 5'
I.D. of Screen: 1"
Type of Filter Pack: pre pack #0140 sand
~~#0/30 sand~~
Elevation / Depth of Bottom of Screen: 50 1
Elevation / Depth of Bottom of Filter Pack: 50 1
Type of Backfill Below Well: formation
Elevation / Total Depth of Borehole: 50.8

Tetra Tech NUS, Inc.

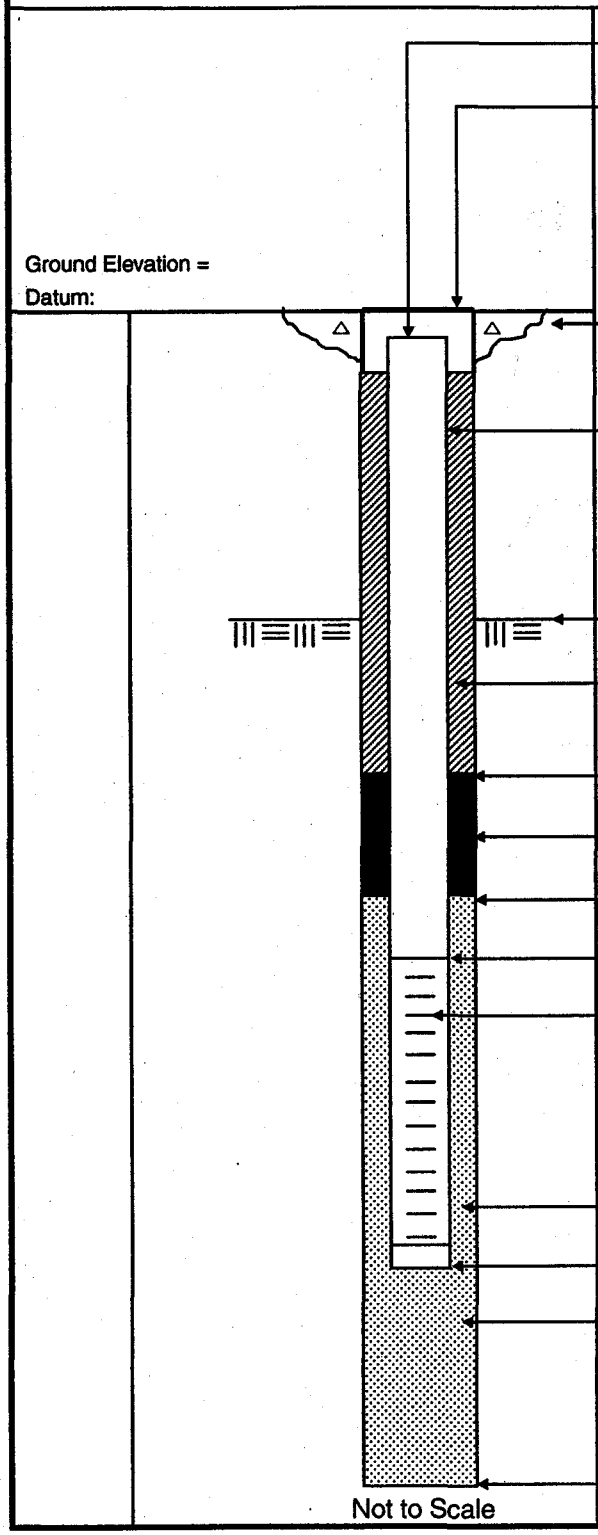
WELL No.: EW-A

MONITORING WELL SHEET

PROJECT: 59 pilot study
PROJECT No.: 112G00039
SITE: 59
GEOLOGIST: WH

DRILLING Co.: ATI
DRILLER: Mark Marcus
DRILLING METHOD: mud rotary
DEV. METHOD:

BORING No.:
DATE COMPLETED: 7-13-06
NORTHING:
EASTING:



Elevation / Depth of Top of Riser: 1
Elevation / Height of Top of Surface Casing: 1
I.D. of Surface Casing: 8"
Type of Surface Casing: flush mount
Type of Surface Seal: grout
Quikrete
I.D. of Riser: 4"
Type of Riser: SCH 40 PVC
Borehole Diameter: 6"
Elevation / Depth Top of Rock: NA 1
Type of Backfill: Grout
Elevation / Depth of Seal: 38 1
Type of Seal: bentonite
Elevation / Depth of Top of Filter Pack: 40 1
Elevation / Depth of Top of Screen: 42 1
Type of Screen: SCH 40 PVC
Slot Size x Length: 0020 inch/10'
I.D. of Screen: 4"
Type of Filter Pack: 6-20 sand
Elevation / Depth of Bottom of Screen: 52 1
Elevation / Depth of Bottom of Filter Pack: 52 1
Type of Backfill Below Well:
for
Elevation / Total Depth of Borehole: 52.51

APPENDIX B

OPERATOR LOG SHEETS

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 8.17.06 Weather Clear ; 90+ °F
Personnel Skip

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well flow rate		
Rate, gpm		1.4
Totalizer		341900
Time of day		~3 pm

Run meter	
Reading	26841.2
Time of day	~3 pm

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	—	—	6.0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate					[redacted]	[redacted]				
Bicarbonate										

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added:	gal water added:
	Bicarbonate	lb added:	gal water added:
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N):			

Samples Collected	

Notes: No chemical injected.
No GW readings taken

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date Aug 21, 2006 Weather 90°F, Clear
Personnel D. Siefken

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well flow rate		
Rate, gpm	2.1	
Totalizer	353400	
Time of day	11 Am	

Run meter	
Reading	27787.0
Time of day	11. Am

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig			

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate										
Bicarbonate										

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added:	gal water added:
	Bicarbonate	lb added:	gal water added:
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N):			

Samples Collected	None

Notes: No Chemical added
No GW readings taken

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 8-23-16 8-24 Weather p. cloudy, 90's
Personnel KH

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	7.86	3.97	5.78	7.55	7.71	7.65	7.80					
DO, mg/L	0.54*	0.42	0.59	0.55	0.33	0.98	0.34					
pH	5.26*	5.19	5.31	7.10	6.07	6.54	5.40					
ORP, mV	35.9*	-28.0	22.8	26.1	30.3	39.6	-24.8					
Spec. Cond., mS/cm	0.053	0.057	0.060	0.253	0.063	0.088	0.045					
YSI stabilization time, minutes	15	15	15	15	15	15	15					
* Recorded from in-line YSI meter.												

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	25.60	0.058	6.5

Extraction Well flow rate		
Rate, gpm	2.2	2.0
Totalizer	359700.2	361969.4
Time of day	1037	0957

8-24

Run meter	
Reading	28233
Time of day	1035

[redacted] g [redacted] 7 [redacted] 9 5 [redacted] 8

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	N/A	N/A	N/A	40			N/A	15	N/A	.2
Bicarbonate	[redacted]		N/A	150	[redacted]					1.46
Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH 0.60										
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH										

Chemical tanks refilled?:	Lactate	gal solution added: 5.5	gal water added: 40
	Bicarbonate	lb added: 78	gal water added: 150
Chemical Feed Off: N	Time Stopped:		Time Restarted:
Filter check (Y/N): N			

Samples Collected	

Notes:
Feeds started @ 0955 8-24-16

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 8-25-06 Weather rain, 80's
Personnel WH

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well flow rate		
Rate, gpm	1.5	
Totalizer	364563.2	
Time of day	1030	

Run meter		
Reading	2871.2	
Time of day	1028	

[redacted]	[redacted]
[redacted]	[redacted]

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate					[redacted]	[redacted]			0.2	
Bicarbonate									1.46	

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added:	gal water added:
	Bicarbonate	lb added:	gal water added:

Chemical Feed Off:	Time Stopped:		Time Restarted:	
Filter check (Y/N): Y				

Samples Collected	

Notes: ~4" sand in filter housing. Filter changed

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

(29)

Date 8-29-06 Weather Clear, 90's
Personnel LH

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	7.50	1.62	4.20	7.31	7.33	7.36	7.33					
DO, mg/L	1.43*	1.19	0.96	1.73	0.25	0.47	0.61					
pH	6.61*	7.25	6.71	6.84	5.43	5.21	5.89					
ORP, mV	4.2*	-38.5	36.1	-1.1	30.3	60.4	18.8					
Spec. Cond., mS/cm	0.345	1.032	0.366	0.326	0.045	0.091	0.032					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	29.13	0.194	2.16

Extraction Well flow rate		
Rate, gpm	1.9	1.8
Totalizer	3760454	3765451
Time of day	0948	1110

Run meter		
Reading	2965.1	2967.6
Time of day	0845	1120

[redacted]

[redacted]

Chemical tanks refilled?: N	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 0	gal water added: 0
Chemical Feed Off: Y	Time Stopped: 1115		Time Restarted:
Filter check (Y/N): Y			

Samples Collected	

Notes: filter replaced, system shut down for storm.

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 8-31-06 Weather cloudy, 80's
Personnel LH

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well flow rate		
Rate, gpm	2.2	
Totalizer	3766557.6	
Time of day	1040	

Run meter	
Reading	29676
Time of day	1045

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	8.5	7	5

[redacted]

Chemical tanks refilled?: Y	Lactate	gal solution added: 1.37	gal water added: 10
	Bicarbonate	lb added: 78	gal water added: 150
Chemical Feed Off:	Time Stopped:		Time Restarted: 0830
Filter check (Y/N):	N		

Samples Collected	

Notes:
System restarted @ 1030

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 9-1-06 Weather clear, 90's
Personnel LH

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	7.22	2.84	6.55	6.97	7.15	7.10	7.15					
DO, mg/L	2.26*	0.68	0.70	1.49	0.33	0.58	0.45					
pH	6.47*	6.94	7.01	6.96	5.98	5.46	5.53					
ORP, mV	6.3*	-10.5	-5.1	0.0	21.8	41.7	8.6					
Spec. Cond., mS/cm	0.217	0.705	0.538	0.341	0.057	0.060	0.044					
YSI stabilization time, minutes	15	15	15	15	15	15	15					
* Recorded from in-line YSI meter.												

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	29.04	0.217	27.4

[redacted]	3.2	[redacted]
[redacted]	3[redacted]3	[redacted]
[redacted]y	[redacted]	

Run meter		
Reading	2991.1	2994.7
Time of day	1015	1353

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	3.5 / 4	2 /	1 / 0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	36	36	X	X	.5	.5	0.2	0.2
Bicarbonate	X	X	115	110	.6	.6	.6	.6	1.46	1.46
Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH										
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH										

Chemical tanks refilled?: N	Lactate	gal solution added:	gal water added:
	Bicarbonate	lb added:	gal water added:
Chemical Feed Off: N	Time Stopped:		Time Restarted:
Filter check (Y/N): N			

Samples Collected	

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 9-5-06 Weather Clear, 80's
Personnel WH

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	7.37	6.78	6.99	7.01	7.32	7.17	7.33					
DO, mg/L 1.25	~~1.44~~*	1.28	0.66	3.30	1.49	1.77	0.41					
pH	5.42*	6.29	6.10	7.23	6.18	5.49	5.51					
ORP, mV	29.6*	-23.0	-26.7	56.3	71.0	70.9	25.9					
Spec. Cond., mS/cm	0.060	0.208	0.107	0.384	0.055	0.055	0.041					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	27.07	0.060	15.4

Extraction Well flow rate		
Rate, gpm	2.6	2.4
Totalizer	396361.1	[redacted]
Time of day	0756	[redacted]

Run meter		
Reading	3084.8	3091.3
Time of day	0757	1426

[redacted]

Chemical tanks refilled?: Y	Lactate	gal solution added: 2.75	gal water added: 20
	Bicarbonate	lb added: 78	gal water added: 150
Chemical Feed Off: Y	Time Stopped:	0755	Time Restarted: 1425
Filter check (Y/N): N			

Samples Collected	

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date Sept 8, 2006 Weather Mostly Clear 88°F

Personnel Dave Steffen

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	7.52	3.17	6.67	6.97	7.22	7.18	7.32					
DO, mg/L	1.00*	0.87	0.80	1.67	0.43 ~~0.39~~	0.33	0.28					
pH	5.15*	6.72	6.76	6.61	4.75	5.10	5.20					
ORP, mV	16.3*	-22.2	-63.0	47.3	114.5	72.0	45.6					
Spec. Cond., mS/cm	0.057	0.726	0.748	0.453	0.49	0.066	0.047					
YSI stabilization time, minutes	15	15	15	15	15	14	10					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, mg/L
	24.90	0.057	1.00

Extraction Well flow rate		
Rate, gpm	—	—
Totalizer	408400	
Time of day	1026	

Run meter	
Reading	31592
Time of day	1026

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	6.0	3.8	2.0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	~30gl	full	←	←				off	NM	off
Bicarbonate	50gl	full	←	←	.6	off	.6	off	NM	~~off~~

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH

Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?: Yes	Lactate	gal solution added: .69 gl	gal water added: 5
	Bicarbonate	lb added: 58 gl	gal water added: 100
Chemical Feed Off: Y	Time Stopped: 1035		Time Restarted: Not Started
Filter check (Y/N): N	1035		

Samples Collected	

Notes: System running Fine when arrived - Took YSI readings

Did NOT restart system. Well plugs leaking. Therefore did not get GPM reading

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 9-12-06 Weather p. cloudy, 80's
Personnel WH

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	7.27	6.89	6.74	6.90	7.10	7.06	7.06					
DO, mg/L	0.41*	[redacted]	[redacted]	2.00	1.73	1.62	2.23					
pH	5.68*	7.22	6.64	6.91	5.72	5.28	5.46					
ORP, mV	-0.1*	-152.3	-114.1	-7.8	63.0	68.1	-19.2					
Spec. Cond., mS/cm	0.065	0.610	0.241	0.121	0.054	0.058	0.046					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.23	0.065	41.4

Extraction Well flow rate		
Rate, gpm	0	2.7
Totalizer	4085113.1	4085711.3
Time of day	0730	1152

Run meter		
Reading	3159.8	3159.9
Time of day	0730	1215

[redacted]

Chemical tanks refilled?: N	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 0	gal water added: 0
Chemical Feed Off: Y	Time Stopped:	on arrival	Time Restarted: 1435
Filter check (Y/N): N			

Samples Collected	

Notes: system restarted @ 1435
- No air in system
- replaced well seals

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 4-15-06 Weather Clear, 80s
Personnel WH

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	7.21	4.49	6.73	6.83	7.06	7.03	7.06					
DO, mg/L	0.35	0.82	1.15	2.51	1.63	1.84	0.42					
pH	4.56	7.02	6.99	6.71	4.94	5.30	5.43					
ORP, mV	9.4	-56.0	-70.6	-28.8	4.1	7.5	-12.7					
Spec. Cond., mS/cm	0.070	0.784	0.635	0.403	0.055	0.058	0.048					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

DO Ampule 1.0.9 | 1.01

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.83	0.070	4.1

[redacted]

Run meter		
Reading	3227.6	3230.1
Time of day	1023	1251

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	6.5 | 6	2 | 2	0 | 0

[redacted]

Chemical tanks refilled?: Y	Lactate	gal solution added: 1.37	gal water added: 10
	Bicarbonate	lb added: 20.8	gal water added: 40
Chemical Feed Off: N	Time Stopped:		Time Restarted:
Filter check (Y/N): N			

Samples Collected	

Notes:
- no air in static mixer
- bicarb ~~lactate~~ pump not working on arrival. Filter in tank clogged. Fixed @ 1010

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 9-18-06 Weather Cloudy 85°
Personnel SKIPK

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	16.37	4.84	7.31	6.96	7.34	7.13	7.31					
DO, mg/L	*	1.54	1.81	.77	.47	.57	.44					
pH	*	6.69	6.50	6.39	4.91	5.39	5.13					
ORP, mV	*	-35.1	-13.6	-32.8	-35.7	-55.3	-54.					
Spec. Cond., mS/cm	.06	.57	.47	.40	.05	.065	.47					
YSI stabilization time, minutes	—	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	25.35	.062	12.2

Extraction Well flow rate		
Rate, gpm	20	34
Totalizer	426400	428400
Time of day	0700	0830

Run meter	
Reading	22213
Time of day	0830

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	15 psi	20 psi	-0-

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]					
[redacted]	[redacted]					
[redacted]						

Chemical tanks refilled?: Yes	Lactate	gal solution added: 30	gal water added: 165
	Bicarbonate	lb added: 63	gal water added: 115
Chemical Feed Off: Yes	Time Stopped:	11:30	Time Restarted: 1202
Filter check (Y/N):			

Samples Collected	

Notes: Recovery Temp was Replaced Between 0700 & 0830

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 9-20-06 Weather _____
Personnel Skip V

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well flow rate		
Rate, gpm	3.5	
Totalizer	433400	
Time of day	0800	

Run meter	
Reading	33428
Time of day	0800

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	2.0	4.5	0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate					X	X				
Bicarbonate										

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added:	gal water added:
	Bicarbonate	lb added:	gal water added:

Chemical Feed Off:	Time Stopped:		Time Restarted:	
Filter check (Y/N):				

Samples Collected	

Notes: Replace Filter Housing and Adj Flow to 3.5 gpm

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 9-22-06 Weather Clear, 80's
Personnel WH, JL, KV

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	7.39	7.12*	7.23*	7.59	7.32	7.27	7.46					
DO, mg/L	0.26	1.59	1.01	0.47	1.27	1.97	0.52					
pH	6.10	6.92	6.82	6.70	5.38	5.30	5.37					
ORP, mV	-45.2	-56.4	-52.7	-92.4	-30.4	-32.3	-56.7					
Spec. Cond., mS/cm	0.064	0.574	0.558	0.403	0.051	0.054	0.011					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

DO kit - 2.0 2.0 -

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.20	0.064	2.9

* DTW MEASURED FROM TOP OF UNIONS

Extraction Well flow rate		
Rate, gpm	3.6	3.6
Totalizer	444792.4	445103.0
Time of day	1000	1225

Run meter		
Reading	3391.4	3395.0
Time of day	952	1220

[redacted]

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	26	35	[redacted]		0.50	0.50	0.2	0.2
Bicarbonate	X	X	26	150	0.60	0.60	0.60	0.60	1.46	1.46

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH, Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 1.37	gal water added: 10
	Bicarbonate	lb added: 62.4	gal water added: 120
Chemical Feed Off: N	Time Stopped:	N/A	Time Restarted: N/A
Filter check (Y/N): N			

Samples Collected	

Notes: IW-2A → DISTANCE FROM WELL LIP TO UNION = 0.38 ft
IW-1A → DISTANCE FROM WELL LIP TO UNION = 0.37 ft

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date Sept 26, 2006 Weather Pt. Clear 86°F
Personnel D. Sieflein

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	7.47	7.37	6.10	7.08	7.30	7.26	7.34					
DO, mg/L	1.75*	0.18	0.24	0.45	0.47	0.46	0.32					
pH	6.01*	7.38	7.35	6.38	4.82	5.19	4.90					
ORP, mV	-51.3*	-144.2	-148.6	-88.5	-55.5	-34.8	-32.4					
Spec. Cond., mS/cm	0.171	2.547	1.748	0.503	0.078	0.069	0.046					
YSI stabilization time, minutes	15	15	15	13	15	10	10					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	25.04	0.169	21.2

Extraction Well flow rate		
Rate, gpm	pre 6.5	post 3.2
Totalizer	458600	458600
Time of day	1015	1235

Run meter		
Reading	034888	034892
Time of day	1015	1235

[redacted] / 0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	—	—	17	33	X	X	0.5	0.62	0.4	0.5
Bicarbonate	—	—	13	150	0.6	0.6	0.6	0.60	1.46	1.46

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate Y	gal solution added: 3.85	gal water added: 8.5
	Bicarbonate	lb added: 73.2	gal water added: 135.0
Chemical Feed Off: N	Time Stopped: ~1020		Time Restarted: 1235
Filter check (Y/N): Y			

Samples Collected	NONE

Notes: ↑ Lactate pump rate 25%
Removed Drum 59-384 to Drum Storage area

Filter plugged when Arrived, System Still operating little to no flow passing through filter. (Sands)

SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date Sept 29, 2006 Weather Clear 87°F
Personnel D. Slefker

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	7.92	6.67	6.70	7.07	7.30	7.28	7.34					
DO, mg/L	1.23 *	1.02	1.25	0.88	0.93	0.43	0.39					
pH	7.01 *	7.04	7.01	6.34	5.14	5.34	5.24					
ORP, mV	-98.0 *	-91.2	-101.9	-107.2	-100.0	-86.7	-73.7					
Spec. Cond., mS/cm	1.100	1.636	1.574	0.478	0.089	0.061	0.046					
YSI stabilization time, minutes	20	10	10	10	15	10	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	25.53	2.5	25.5

Extraction Well flow rate		
Rate, gpm	1.5	3.0
Totalizer	468500	468500
Time of day	1015	1210

Run meter	
Reading	035589
Time of day	1210

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	12 / 5.5	0 / 2.5	0 / 0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	½	½	17.5	17.5			.62	.62	0.2	0.2
Bicarbonate	⅓	full	50	150	.6	.6	.62	.62	1.46	1.46

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 54.2	gal water added: 100
Chemical Feed Off:	Time Stopped:	1015	Time Restarted: 1210
Filter check (Y/N): Y	New Filter		

Samples Collected	None

Notes: DO - IW 1A & IW 2A = 1.0
EW 1A = 2.0

No bubbles in filter or in line mixer

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 10-3-06 Weather Clear 80°
Personnel Skip K

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	13.15	5.16 ~~7.69~~	7.01	7.67	7.70	7.46	7.71					
DO, mg/L	*	1.65	1.71	1.78	.72	.56	.61					
pH	*	6.60	6.63	6.74	5.60	5.65	5.56					
ORP, mV	*	-88	-86	-128	-94	-55.1	-92					
Spec. Cond., mS/cm	—	.25	.75	.534	.048	.066	.017					
YSI stabilization time, minutes	-	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.73	.760	41.6

Extraction Well flow rate		
Rate, gpm	2.4	3.5
Totalizer	481800	482500
Time of day	0730	1200

Run meter	
Reading	3650.2
Time of day	0730

Pressure Gauges	PI-1 (filter influent)		P1-2 (post-filter)		P1-3 (effluent) New Gauge	
Reading, psig	10.0	3.5	2.0	2.5	0	2.0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	16.0	3.0	190				60	60		
Bicarbonate	37.0	44.0	112.0				60	60		

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 2.5	gal water added: 18
	Bicarbonate	lb added: 12.0	gal water added: 23
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N):	0730 Replace Filters		

Samples Collected	

Notes: Replace Discharge Gauge with a 0 to 5 psi Gauge

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SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 10-6-06
Personnel [illegible]
Weather Cloudy 70°

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	12.20	6.31	4.83	7.61	7.79	7.67	7.83					
DO, mg/L	*	2.12	1.99	1.10	.51	.44	.40					
pH	*	6.56	6.60	6.43	5.16	5.15	5.45					
ORP, mV	*	-43.6	-65.1	-117.7	-720	-510	-82.6					
Spec. Cond., mS/cm	—	.95	.95	.513	.107	.058	.066					
YSI stabilization time, minutes	—	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.1	.283	39.1

Extraction Well flow rate		
Rate, gpm	2.7	3.6
Totalizer	454300	454500
Time of day	0700	0910

Run meter	
Reading	3721.6
Time of day	0700

Pressure Gauges	PI-1 (filter influent)		P1-2 (post-filter)		P1-3 (effluent)	
Reading, psig	7.0	5.5	4.5	4.0	4.5	2.5

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	21"	21"	24	24			60	60		
Bicarbonate	13"	34"	40	130	60	60	60	60		

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: none	gal water added: none
	Bicarbonate	lb added: 48.8	gal water added: 90
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N):	Replace Filter		

Samples Collected	

Notes:

C:\Documents and Settings\Charles.Miller\Local Settings\Temporary Internet Files\OLK26\log sheet 02 (2).doc

SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 10/10/06 Weather 75°F, SUNNY

Personnel TERRY COTTENOIR

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	7.85	~~6.78~~	6.62	7.67	7.72	7.69	7.78					
DO, mg/L	1.53*	2.18	1.62	2.31	1.81	1.48	1.35					
pH	5.94*	5.33	5.30	6.50	5.35	5.25	5.28					
ORP, mV	-40.7*	-32.3	-27.2	-115.7	-40.2	-11.8	-47.6					
Spec. Cond., mS/cm	0.252	0.178	0.169	0.491	0.059	0.058	0.043					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

DO Kit, mg/L | X | 1.0 | 1.5 | 0.3 |

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	25.28	0.252	1.86

Extraction Well flow rate		
Rate, gpm	2.9	3.2
Totalizer	513248.0	513480.2
Time of day	1044	1332

Run meter		
Reading	3819.8	3822.3
Time of day	1040	1330

Pressure Gauges	PI-1 (filter influent)		P1-2 (post-filter)		P1-3 (effluent)	
Reading, psig	9.0	8.5	7.0	7.0	5.0	5.0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	—	—	5	39	[redacted]	[redacted]				
Bicarbonate	~~0~~	—	0	122	60	60	60	60		

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH

Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 4.81	gal water added: 35.0
	Bicarbonate	lb added: 65.0	gal water added: 125
Chemical Feed Off:	Time Stopped:	1315	Time Restarted:
Filter check (Y/N):	REPLACED FILTER		

Samples Collected	

Notes:

WILL RESTART SYSTEM (circulation only) after DHC injections on 10/11/06. WILL RESTART Chemical Feed on 10/12/06.

SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 10-13-06
Personnel TG, LH, JF
Weather Cloudy, 60's

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	7.88	5.90	7.79	7.78	7.75	7.71	7.76					
DO, mg/L	0.63*	0.43	0.78	2.69	0.41	3.20	0.23					
pH	6.25*	7.08	7.09	6.95	5.85	5.62	5.41					
ORP, mV	-67.7*	-121.6	-94.6	-68.2	39.6	65.5	68.2					
Spec. Cond., mS/cm	0.378	1.597	1.588	0.848	0.056	0.059	0.041					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

DO NA 10.61 2.01 1

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.82	0.378	7.2

Extraction Well flow rate		
Rate, gpm	2.3	2.5
Totalizer	05200302	520100.3
Time of day	0745	0927

Run meter		
Reading	3867.0	3868.8
Time of day	0740	0923

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	[redacted]	6 / 4.0	4.5 / 3.0

Chemical [redacted]	Tank level, feet		Tank level, gallons		[redacted]	Pump speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day		start of day	end of day	start of day	end of day
Lactate	[redacted]								
Bicarbonate	[redacted]								
[redacted]									

Chemical tanks refilled?: Y	Lactate	gal solution added: 0.69	gal water added: 5.0
	Bicarbonate	lb added: 31.1	gal water added: 50.0
Chemical Feed Off: N	Time Stopped:		Time Restarted:
Filter check (Y/N): Y			

Samples Collected	

Notes:
- NEW BICARBONATE SOLN CONCENTRATION ~90% of saturation (about 1.2 higher than normal)
- ~~BICARB TANK FIX~~
- BICARB IN TANK AT START ALSO concentrated to ~90% Sat'd (of previous day)

SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 10-17-06 Weather Cloudy, 80's
Personnel WH, JF

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	7.99	6.39	6.82	7.54	7.89	7.85	8.09					
DO, mg/L	-0.16*	-0.28*	2.86*	-0.12*	-0.17*	-0.07*	-0.2*					
pH	6.22*	7.12*	6.91*	6.72*	5.[redacted]9*		5.60*					
ORP, mV	-109.9*	-138.5*	-76.2*	-82.4*	-30.4*	-141.8*	-143*					
Spec. Cond., mS/cm	0.249	0.99[redacted]				0.051	0.037					
YSI stabilization time, minutes	15	15	16	15	15	15	15					

* Recorded from in-line YSI meter.

*DO ampule 1.0 | 1.0 | 2.5 | 2.5 | 1.0 | 2.5 | 2.0 | Rarely used 1-10 0-1 not available.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	25.59	0.249	-2.0

Extraction Well flow rate		
Rate, gpm	2.0	2.5
Totalizer	533302.6	533394.6
Time of day	1440	1705

Run meter		
Reading	39699	39723
Time of day	1435	1700

Pressure Gauges	PI-1 (filter influent)		P1-2 (post-filter)		P1-3 (effluent)	
Reading, psig	9.5	18.0	7.5	16.8	6	11.0

Chemical [redacted]	Tank level, feet		[redacted]		[redacted]		Pump [redacted] Speed, %		Pu[redacted]te, [redacted]GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	of day	end of day
Lactate										
B[redacted]nate	[redacted]									
N[redacted]	[redacted]									
M[redacted]	[redacted]									

Chemical tanks refilled?: Y	Lactate	gal solution added: 452.75	gal water added: 15
	Bicarbonate	lb added: 101	gal water added: 140
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N): N			

Samples Collected	

Notes:

SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date Oct 20, 2006 Weather Pt. Clear 86°F
Personnel Dave Siefker

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	8.06	7.14	7.10	7.55	7.87	7.85	8.06					
DO, mg/L	1.68 *	0.56	0.58	5.44	0.57	.86	.65					
pH	5.00 *	6.52	6.51	6.21	5.51	4.62	4.48					
ORP, mV	-40.4 *	-174	-170	-143.1	-74.0	-47.8	-59.4					
Spec. Cond., mS/cm	94	1016	1051	519	244	59	41					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.86	253	1.87

Extraction Well flow rate		
Rate, gpm	2.0	2.3
Totalizer	05425 00	05426 00
Time of day	1155	1300

Run meter		
Reading	~~40893~~	40434 [redacted]
Time of day	1155	

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	11.5 / 11.0	9.5 / 9.5	7.0 / 7.0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	22 in	22 in	55 gl	150						
Bicarbonate	17 in	full	25	25	.6	.6	.62	.62	2.48	2.48

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 59	gal water added: 95
Chemical Feed Off:	Time Stopped:	1155	Time Restarted: 1300
Filter check (Y/N): Y	oh		

Samples Collected: Organics found in IW wells (Both) - ?

Notes: System running fine, NO air bubbles in line

SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 10-24-06
Personnel JF. D.S.
Weather clear day

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	8.02	7.76	8.07	7.96	7.95	7.82	7.91					
DO, mg/L	* 0.82	0.93	1.03	1.06	1.0	~~3.07.0~~ ~~6.08~~	1.25					
pH	* 5.20	6.65	6.63	6.42	5.41	5.06 ~~5.44~~	4.81					
ORP, mV	* -164.8	-184.8	-173.5	-146.4	-100.6	-91.3 ~~-100.6~~	-89.3					
Spec. Cond., mS/cm	0.106	1.219	1.208	0.555	0.107	0.068 ~~0.107~~	0.045					
YSI stabilization time, minutes	15 min	15 min	15 min	15 min	15 min	15 min	15 min					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.27	0.106	10.1

Extraction Well flow rate		
Rate, gpm	2.5	2.5
Totalizer	556537	556612
Time of day	1013	1321

Run meter	
Reading	4132
Time of day	1013

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	13.5	11.0	9.9

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	~~0~~ 0.43	full	6	35						
Bicarbonate	~~0~~ 0.5	full	20	150	0.60	0.62	60	62	0.24	0.24
							60	62	2.4	2.4

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:			
	Lactate	gal solution added: ~~24~~ 4	gal water added: 25
	Bicarbonate	lb added: ~~99~~ ~~80.7~~ ~~80.7~~	gal water added: 130
Chemical Feed Off:	Time Stopped:	1020	Time Restarted: 1300
Filter check (Y/N):			

Samples Collected	

Notes:

SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 10-27-06 Weather Cloudy day 65°F

Personnel J. Foster

6.27

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	8.08	7.86	8.36	7.67	7.91	7.86	7.96					
DO, mg/L	1.59*	4.0	2.0	4.0	1.53	5.0	2.92					
pH	5.16*	6.61	6.54	6.65	5.76	5.43	5.33					
ORP, mV	-124.5*	-159.0	-155.3	-124.7	-140	-100.7	-89.8					
Spec. Cond., mS/cm	0.133	0.991	0.984	0.603	0.151	0.063	0.049					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.93	0.133	20.6

Extraction Well flow rate		
Rate, gpm	2.7	2.5
Totalizer	0567926	0568019
Time of day	0945	1340

Run meter	
Reading	04194.2
Time of day	0945

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	12.2	10.0	8.0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	2.75	2.75	35	35			60	60	0.252	0.252
Bicarbonate	1.75	3.75	65	150	60	60	62	62	2.48	2.48

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH

Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?: Yes	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 53	gal water added: 85
Chemical Feed Off:	Time Stopped:	0951	Time Restarted: 1310
Filter check (Y/N):	N		

Samples Collected	Chemets kit DO reading for MW-1A = 4.0 IW-2A = 2.0

Notes:

SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 10-31-06
Personnel WH, DS
Weather Clear, 70's

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	8.17	6.62	8.02	7.78	8.10	7.96	8.18					
DO, mg/L	1.25*	1.25	0.89	3.86	0.22	3.84	0.70					
pH	5.26*	5.94	6.07	6.57	5.85	5.13	5.49					
ORP, mV	-36.2*	-21.0	-24.7	-49.4	-90.0	69.1	64.0					
Spec. Cond., mS/cm	0.134	0.997	0.989	0.651	0.183	0.068	0.078					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	25.05	0.137	~~0.27~~ 3.1

Extraction Well flow rate		
Rate, gpm	2.9	2.35
Totalizer	584252.0	5842970
Time of day	0751	0910

Run meter		
Reading	4286.0	4286.9
Time of day	0749	0910

Pressure Gauges	PI-1 (filter influent)	[redacted]
[redacted]	9.5	[redacted] 3.5

Chemical	Tank level, feet		Tank level, gallons		[redacted]	Pump speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	
Lactate	[redacted]								
Bicarbonate	[redacted]								

Chemical tanks refilled?: Y	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 86.5	gal water added: 120
Chemical Feed Off:	Time Stopped:	0751	Time Restarted: 0900
Filter check (Y/N):	OK		

Samples Collected: No bubbles in line + system running well.
- Organics in IW wells

Notes: See Cal sheet from 36/37

SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 11-3 06

Personnel J Foster W. Harden

Weather Partly Cloudy 65°F windy

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006 078					
DTW, feet	8.23	5.40	7.45	7.87	8.06	8.02	8.23					
DO, mg/L	1.79*	0.48	0.89	7.45	0.75	4.84	0.79					
pH	5.38*	6.80	6.76	6.68	5.90	5.10	5.90					
ORP, mV	-150.7*	-141.8	-155.2	-127.1	-156.5	68.7	46.7					
Spec. Cond., mS/cm	0.137	1.242	1.264	0.635	0.201	0.067	0.091					
YSI stabilization time, minutes	15	15	15	15	15	15	15 min					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.66	9.137	21.3

Extraction Well flow rate		
Rate, gpm	1.8	2.8
Totalizer	0592810	0597849.8
Time of day	0820	1654

Run meter		
Reading	4358.5	04358.1
Time of day	1056	0820

Pressure Gauges	PI-1 (filter influent)		P1-2 (post-filter)		P1-3 (effluent)	
Reading, psig	12.0	140	9.5	130	8.0	11.0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	0.5	~~2.0~~	6	37	X	X	60	60	0.24	0.24
Bicarbonate	1.5	X	55	150	62	62	60	60	2.4	2.4

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH

Maximum pumps output capacities: Lactate pump = 0.4 GPH, Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:				
	Lactate	gal solution added: 4.12	gal water added:	30
	Bicarbonate	lb added: 55.9	gal water added:	90
Chemical Feed Off:	Time Stopped:	0825	Time Restarted	1035
Filter check (Y/N):	Y changed			

Samples Collected	

Notes: DO reading on NG-12I seems high. Use CHEMets to verify Value = 4.0 mg/L. For MW1A CHEMets value = 7.0 mg/L

FILTER CHANGED - with sediment. (a 'Gray' color of Filter).

SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 11-7-06
Personnel WH

Weather 70's, rain

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	8.04	7.00	6.59	7.76	7.89	7.85	7.95					
DO, mg/L	1.65*	3.08	4.06	6.01	1.98	4.10	1.22					
pH	5.36*	5.34	5.39	6.56	5.93	4.84	5.33					
ORP, mV	-204.1*	-148.0	-153.7	-90.4	-110.3	-88.0	-72.3					
Spec. Cond., mS/cm	0.168	0.165	0.181	0.678	0.298	0.074	0.079					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.81	0.168	21.4

Extraction Well flow rate		
Rate, gpm	2.8	2.5
Totalizer	[redacted]	
Time of day	[redacted]	

Run meter		
Reading	4454.8	4455.0
Time of day	1110	1500

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	12.5 / 11	10 / 8	8 / 16

Chemical [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	start [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]						
[redacted]	[redacted]						
[redacted]	[redacted]						1.46
[redacted]							

Chemical tanks refilled?: Y	Lactate	gal solution added: —	gal water added: —
	Bicarbonate	lb added: 94	gal water added: 140
Chemical Feed Off: Y	Time Stopped:	1105	Time Restarted: 1445
Filter check (Y/N): Y			

Samples Collected	

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 11-8-06 Weather clear, 70's
Personnel WH

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well flow rate		
Rate, gpm	2.4	2.4
Totalizer	617830.0	618020.7
Time of day	1218	1340

Run meter		
Reading	44729	044793
Time of day	1215	1338

Pressure Gauges	P1 (filter influent)		P2 (post-filter)		P3 (effluent)	
Reading, psig	13	13	10.5	10.5	9	9

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate			20	20	[redacted]		.6	.6		
Bicarbonate			120	150	.6	.6	.6	.65		

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?: Y	Lactate	gal solution added: —	gal water added: —
	Bicarbonate	lb added: 20	gal water added: 30
Chemical Feed Off: N	Time Stopped:	—	Time Restarted: —
Filter check (Y/N): N			

Samples Collected	

Notes: —

SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 11-10-06 Weather partly cloudy 80°F

Personnel J. Foster

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	8.13	6.89	7.24	7.92	7.91	7.87	8.02					
DO, mg/L	3.30*	0.20	0.25	5.20	0.22	1.35	0.75					
pH	5.49*	6.52	6.54	6.67	6.24	4.96	6.15					
ORP, mV	-151.5*	-97.2	-88.9	-12.3	-46.6	-113.4	57.1					
Spec. Cond., mS/cm	0.176	0.955	0.961	0.700	0.294	0.069	0.109					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	25.16	0.176	38.4

Extraction Well flow rate		
Rate, gpm	2.7	2.7
Totalizer	0624272	0624313
Time of day	1150	1358

Run meter	
Reading	04517.5
Time of day	1150

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	11.0*	9.0	7.0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	0.8	2.5	12.5	35			60	60	0.24	0.24
Bicarbonate	2.33	3.75	95	150	62	62	[redacted]		2.4	2.4

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH

Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 3.0	gal water added: 19.5
	Bicarbonate	lb added: 37	gal water added: 55
Chemical Feed Off:	Time Stopped:	1155	Time Restarted: 1358
Filter check (Y/N):	N		

Samples Collected	

Notes: & Chemets kit NG-12I DO = 5.0 mg/L
MW-1A DO = 5.0 mg/L
IW-1A DO = 0.5 mg/L

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 11-13-06 Weather Clear 75°F
Personnel Dave Siefker

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	8.19	6.72	6.11	7.62	8.07	8.00	8.23					
DO, mg/L	1.27*	0.98	2.98	1.68	2.83	3.42	5.58					
pH	5.35*	6.88	5.95	6.49	6.03	4.53	4.89					
ORP, mV	(-) 193*	(-) 184	(-) 175	(-) 180	(-) 174	(-) 147	(-) 142					
Spec. Cond., mS/cm	0.191	0.586	0.433	0.730	0.372	0.074	0.066					
YSI stabilization time, minutes	15	15	15	15	15	10	10					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.54	0.191	16.2

Extraction Well flow rate		
Rate, gpm	2.7	2.5
Totalizer	06356.00	06357.00
Time of day	1050	1235

Run meter		
Reading	45865	45869
Time of day	1050	1235

Pressure Gauges	PI-1 (filter influent)		P1-2 (post-filter)		P1-3 (effluent)	
Reading, psig	12.5	12.0	10.0	10.0	9.5	8.0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	22.5"	22.5"	3/4	3/4 Full	X	X	.6	.6		
Bicarbonate	30"	Full	50	Full	4.0	4.0	.65	.65		

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 67	gal water added: 100
Chemical Feed Off:	Time Stopped:		Time Restarted: 1235
Filter check (Y/N): ok	1051		

Samples Collected	

Notes: No air in line, system running ok.

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 11-15-06 Weather Clear 75°
Personnel Kara Winkle

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well flow rate		
Rate, gpm	2.6	
Totalizer	1043604.3	
Time of day	1040	

Run meter	
Reading	4633.1
Time of day	1044

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	15	12	10.5

[redacted]	[redacted]		[redacted]		[redacted]		[redacted]		[redacted]	
	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]		20	[redacted]						
[redacted]	[redacted]		[redacted]		[redacted]	X	[redacted]		[redacted]	
[redacted]										

Chemical tanks refilled?:	Lactate	gal solution added: NA	gal water added: NA
	Bicarbonate	lb added:	gal water added:
Chemical Feed Off:	Time Stopped: NA	Time Restarted: NA	
Filter check (Y/N):	NA		

Samples Collected	NA

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 11-17-06	Weather: Clear, 70's
Personnel: WH	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet	4.79	5.73	6.45	7.89	8.12	8.06	8.30					
DO, mg/L *	0.36	0.35	0.45	0.23	0.25	2.42	[redacted]					
pH *	5.60	6.38	6.39	6.70	6.[redacted]	5.03	[redacted]					
ORP, mV*	[redacted]				-106.4	[redacted]	2.5					
Spec. Cond., mS/cm *	0.222	0[redacted]	[redacted]	0.742	0.790	0.071	0.056					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.40	0.222	4.2

Extraction Well Flow Rate		
Rate, gpm	[redacted]	24
Totalizer	[redacted]	
Time of Day	1030	1225

Run Meter		
Reading	[redacted]	
Time of Day	1025	1[redacted]

[redacted] psig

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	9	93	X	X	.60	.60		
Bicarbonate	X	X	88	148	.60	.60	.65	.65		

Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH

Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled: Y	Lactate	gal solution added: 4.12	gal water added: 30
	Bicarbonate	lb added: 40.2	gal water added: 60
Chemical Feed Off:	Time Stopped: 1032	Time Restarted: 1224	
Filter Check (y/n): N			

Samples Collected	None

Notes	Tell me something about the site.

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 11-20-06 Weather clear day 65°F
Personnel J. Foster

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	8.25	7.55	6.95	7.90	8.10	8.05	8.16					
DO, mg/L	1.04*	0.21	2.41	4.23	0.10	0.32	0.28					
pH	5.83*	6.57	6.63	6.75	6.38	5.19	4.99					
ORP, mV	-104.7*	-187.5	-42.8	-52.0	-186.2	-49.6	39.2					
Spec. Cond., mS/cm	0.247	1.299	1.302	0.814	0.513	0.080	0.054					
YSI stabilization time, minutes	155	15	150	40	60	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	25.24	0.247	1.04 mg/L

Extraction Well flow rate		
Rate, gpm	2.7	2.7
Totalizer	662379	662383
Time of day	1120	1625

Run meter	
Reading	4747.1
Time of day	1120

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	16.5	13.9	12.0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	2.1	2.75	30	36	X	X	62	62	0.24	0.24
Bicarbonate	1.0	3.75	35	150	65	65	60	60	24.0	24.0

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

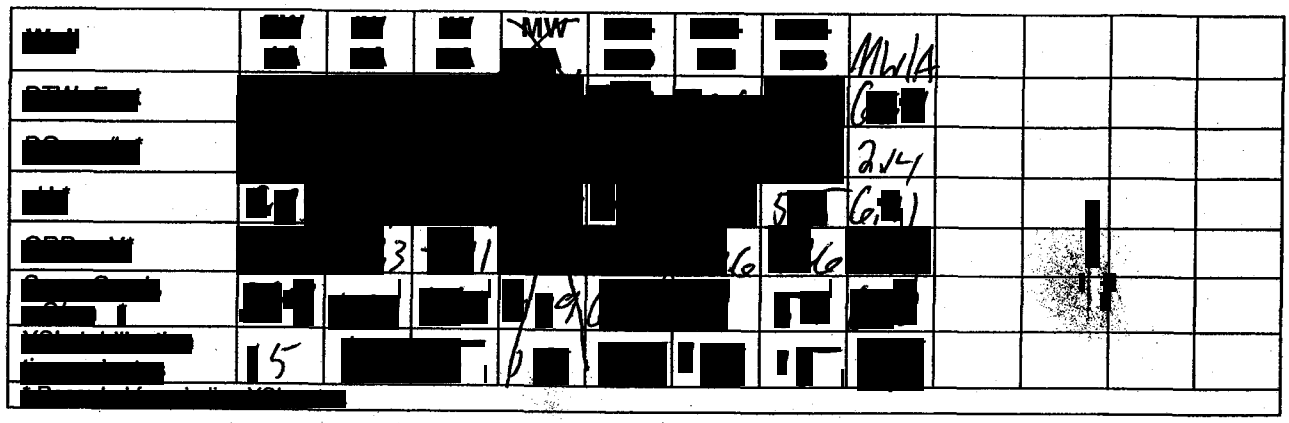
Chemical tanks refilled?:	Lactate	gal solution added: 0.7	gal water added: 2.6
	Bicarbonate	lb added: 80.5	gal water added: 120
Chemical Feed Off:	Time Stopped:	1125	Time Restarted: 1625
Filter check (Y/N):	N		

Samples Collected	

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 11-22-010	Weather: OVC, 087, SSS
Personnel: WH	



In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	22.12	2.64	4.3

Run Meter		
Reading	4791.3	4792.1
Time of Day	1236	1425

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	35	35	X	X	.60	.60		
Bicarbonate	X	X	60	150	.60	.60	.63	.63		
Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH										
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH										

Chemical tanks refilled: Y	Lactate	gal solution added:	gal water added:
	Bicarbonate	lb added: 46.9	gal water added: 70
Chemical Feed Off:	Time Stopped: 1240	Time Restarted: 1340	
Filter Check (y/n): N			

Samples Collected	None

Notes	Tell me something about the site.

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 11-24-08	Weather: Clear, 70's
Personnel: WH	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet												
DO, mg/L *												
pH *												
ORP, mV*												
Spec. Cond., mS/cm *												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well Flow Rate		
Rate, gpm	2.4	
Totalizer	6786743	
Time of Day	1210	

Run Meter	
Reading	4837.8
Time of Day	1212

Pressure Gauges	P1-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	17.5	14	12

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	27	27	X	X	.6	.6		
Bicarbonate	X	X	80	150	.6	.6	.65	.65		

Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled:	Lactate N	gal solution added:	gal water added:
	Bicarbonate Y	lb added: 466.9	gal water added: 78
Chemical Feed Off: N	Time Stopped:	Time Restarted:	
Filter Check (y/n):	N		

Samples Collected	None

Notes	Tell me something about the site.

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 11-27-06	Weather: clear, 70's
Personnel: WH	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet												
DO, mg/L *												
pH *												
ORP, mV*												
Spec. Cond., mS/cm *												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well Flow Rate		
Rate, gpm	2.4	
Totalizer	6906666.1	
Time of Day	1457	

Run Meter	
Reading	4912.6
Time of Day	1458

Pressure Gauges	P1-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	19	15	13.5

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	13	40	X	X	.6	.6	3.2	9-2
Bicarbonate	X	X	40	~~350~~	.6	.6	.65	.65	1.56	1-56

Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled: Y	Lactate	gal solution added: 3.4	gal water added: 25
	Bicarbonate	lb added: 73.7	gal water added: 110
Chemical Feed Off: N	Time Stopped:	Time Restarted:	
Filter Check (y/n): N			

Samples Collected	None

Notes	Tell me something about the site.

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 11-29-06	Weather: Clear, 20's
Personnel: WH	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet	8.38	6.60	6.20	7.35	8.19	8.15	8.36					
DO, mg/L *	0.27	0.13	0.23	0.20	0.30	0.32	0.26					
pH *	5.72	6.52	6.48	6.78	6.57	5.10	4.95					
ORP, mV*	-94.9	-168.6	-153.4	-123.8	-110.7	-54.1	97.5					
Spec. Cond., mS/cm *	0.284	1.175	1.067	0.736	0.654	0.085	0.051					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	25.31	0.284	3.1

Extraction Well Flow Rate		
Rate, gpm	2.4	2.4
Totalizer	6977203.6	6977241.5
Time of Day	1140	1325

Run Meter		
Reading	4957.3	4957.5
Time of Day	1143	1328

Pressure Gauges	P1-1 (filter influent)		P1-2 (post-filter)		P1-3 (effluent)	
Reading, psig	21	18.5	17	15	15	13

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	33	33	X	X	.60	.60	0.3	0.3
Bicarbonate	X	X	140	140	.60	.60	.605	.605	1.54	1.54

Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH

Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled: N	Lactate	gal solution added:	gal water added:
	Bicarbonate	lb added:	gal water added:
Chemical Feed Off: Y	Time Stopped: 1145	Time Restarted: 1320	
Filter Check (y/n): Y	Changed		

Samples Collected	None

Notes	Tell me something about the site.
	- Bicarbonate intake filter clogged. Mixed tank & unclogged filter.

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 12-1-06	Weather: Overcast, 60's
Personnel: AH	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet	8.38	8.83	5.51	7.98	8.22	8.19	8.42					
DO, mg/L *	0.35	0.10	0.29	0.24	0.40	0.26	0.30					
pH *	5.77	6.57	6.49	6.84	6.49	5.03	4.97					
ORP, mV*	-30.3	-152.4	-151.8	-76.3	-121.5	-41.9	75.8					
Spec. Cond., mS/cm *	0.2600	0.980	0.986	0.721	0.788	0.079	0.048					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.88	0.258	4.2

Extraction Well Flow Rate		
Rate, gpm	2.5	2.4
Totalizer	[redacted]	[redacted]
Time of Day	1220	1425

Run Meter		
Reading	5004.4	5004.7
Time of Day	1220	1425

Pressure Gauges	[redacted]
Reading, psig	[redacted]

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	[redacted]		X	X	[redacted]			
Bicarbonate	X	X								
Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH										
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH										

Chemical tanks refilled: Y	Lactate —	gal solution added: —	gal water added: —
Chemical Feed Off:	Bicarbonate	lb added: 60	gal water added: 90
Filter Check (y/n):	Time Stopped: 1222	Time Restarted: 1405	

Samples Collected	None

Notes	Tell me something about the site.

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 12-4-06	Weather: Clear, 60's
Personnel: LH	

Well	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]					
DTW, Feet	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]					
DO, mg/L *	[redacted]	0.52	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]					
pH *	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]					
ORP, mV*	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]					
Spec. Cond., [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	0.82	[redacted]	[redacted]					
YSI stabilization [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]					

[redacted] in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.66	0.288	5.8

Extraction Well Flow Rate		
Rate, gpm	2.6	2.5
Totalizer	7179[illegible]10.5	7179[illegible]0.5
Time of Day	1148	1412

Run Meter		
Reading	5074.2	5074.5
Time of Day	1150	1410

Pressure Gauge [redacted]	[redacted]	[redacted]
Reading, psig	[redacted]	[redacted]

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	[redacted]		X	X	6	6	.2	.2
Bicarbonate	X	X	[redacted]	154	.6	.6	[redacted]		[redacted]	

Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled:	Lactate	Y	gal solution added:	3.44	gal water added:	25
	Bicarbonate	Y	lb added:	6.7	gal water added:	100
Chemical Feed Off:	Time Stopped:	1151	Time Restarted:	1350		
Filter Check (y/n):	N					

Samples Collected	None

Notes	Tell me something about the site.

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: March-6-06	Weather: Clear, 60's
Personnel: LH	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet												
DO, mg/L *												
pH *												
ORP, mV*												
Spec. Cond., mS/cm *												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well Flow Rate		
Rate, gpm	3.5	
Totalizer	72102.8	
Time of Day	1057	

Run Meter	
Reading	5092.8
Time of Day	1058

Pressure Gauges	P1-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	11.0	8.5	6.0

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	32	32	X	X	.6	.6	.2	.2
Bicarbonate	X	X	110	110	.6	.6	.64	.65	.56	.56

Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled: N	Lactate	gal solution added:	gal water added:
	Bicarbonate	lb added:	gal water added:
Chemical Feed Off:	Time Stopped:	Time Restarted:	
Filter Check (y/n): N			

Samples Collected	None

Notes	Tell me something about the site.
	Switched out drums

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 12-8-06	Weather: Clear, 40s
Personnel: WH	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet	8.44	6.45	6.19	8.02	8.26	8.22	8.35					
DO, mg/L *	0.18	0.18	0.22	2.19	0.26	0.30	0.32					
pH *	5.80	6.9	[redacted]	6.69	6.58	6.05	4.90					
ORP, mV*	[redacted]	[redacted]	-170.8	-50.5	[redacted]	-67.8	51.6					
Spec. Cond., mS/cm *	0.297	1.015	1.012	0.822	0.779	0.081	0.048					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.81	0.297	1.2

Extraction Well Flow Rate		
Rate, gpm	3.0	2.5
Totalizer	7731455.4	7731559.3
Time of Day	1025	1324

Run Meter		
Reading	5740.3	5740.8
Time of Day	1026	1323

Pressure Gauges	P1-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	15 / 12.5	12 / 10	10 / 8

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	25	25	X	X	.6	.6	.2	.2
Bicarbonate	X	X	50	150	.6	.6	.65	.65	1.5	1.5

Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled: Y	Lactate N	gal solution added: —	gal water added: —
	Bicarbonate Y	lb added: 67	gal water added: 100
Chemical Feed Off:	Time Stopped: 1050	Time Restarted: 1250	
Filter Check (y/n):	N		

Samples Collected	None

Notes	Tell me something about the site.

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 12-11-06	Weather: Clear, 70s
Personnel: WH	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet	8.49	6.35	5.41	7.79	8.31	8.27	8.52					
DO, mg/L *	0.19	0.33	0.21	0.13	0.34	0.27	0.33					
pH *	5.91	6.56	6.56	6.80	6.70	5.23	4.90					
ORP, mV*	-88.8	~~-101.2~~	-150.8	-145.4	-145.4	-44.7	92.2					
Spec. Cond., mS/cm *	0.309	1.042	1.055	0.835	0.771	0.087	0.048					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

IW1A: -156.6

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.70	0.309	2.2

Extraction Well Flow Rate		
Rate, gpm	3.0	2.8
Totalizer	7453781	7454431.7
Time of Day	1230	1422

Run Meter		
Reading	5211.9	5212.3
Time of Day	1228	1423

Pressure Gauges	P1-1 (filter influent)		P1-2 (post-filter)		P1-3 (effluent)	
Reading, psig	12.5	14.5	14	11.5	12	9

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	12	40	X	X	.60	.60	.2	.2
Bicarbonate	X	X	40	150	.6	.6	.65	.65	1.5	1.5

Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled: Y	Lactate Y	gal solution added: 3.44	gal water added: 25
	Bicarbonate Y	lb added: 73	gal water added: 110
Chemical Feed Off:	Time Stopped: 1235	Time Restarted: 1405	
Filter Check (y/n):			

Samples Collected	None

Notes	Tell me something about the site. Need more lactate & bicarbonate

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 12-13-06	Weather: Overcast, 60's
Personnel: WT	

5.68

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet	8.53	6.09	~~8.68~~	8.06	8.37	8.31	8.55					
DO, mg/L *	0.74	0.21	0.20	0.13	0.30	0.24	0.38					
pH *	5.89	6.56	6.56	6.80	6.46	5.24	4.80					
ORP, mV*	-78.0	-154.8	-151.3	-134.0	-126.3	-30.8	93.4					
Spec. Cond., mS/cm *	0.311	1.019	1.019	0.818	0.852	0.087	0.048					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.83	0.311	10.4

[redacted]		
[redacted]	2.7	2.4
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Run Meter		
Reading	5256.1	5256.5
Time of Day	1013	1210

[redacted]				
[redacted]	[redacted]	121	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	11	[redacted]

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	33	33	X	X	.6	.6	.2	.2
Bicarbonate	X	X	90	150	.6	.6	.65	.65	1.5	1.5
Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH										
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH										

Chemical tanks refilled: Y	Lactate N	gal solution added: —	gal water added: —
	Bicarbonate Y	lb added: 40.2	gal water added: 60
Chemical Feed Off:	Time Stopped: 1617	Time Restarted: 1745	
Filter Check (y/n):			

Samples Collected	None

Notes	Tell me something about the site.

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 12-15-2006	Weather: Overcast, 60's
Personnel: WH	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet												
DO, mg/L *												
pH *												
ORP, mV*												
Spec. Cond., mS/cm *												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well Flow Rate		
Rate, gpm	2.0	2.7
Totalizer	7599916.4	7600007.4
Time of Day	1025	1220

Run Meter	
Reading	15303.0
Time of Day	1027

Pressure Gauges	P1-1 (filter influent)		P1-2 (post-filter)		P1-3 (effluent)	
Reading, psig	12	12	9	9	7.5	7.5

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	24	24	X	X	.6	.6	0.2	0.2
Bicarbonate	X	X	80	150	.6	.6	.65	.65	1.5	1.5

Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled:	Lactate N	gal solution added: -	gal water added: -
	Bicarbonate Y	lb added: 16.9	gal water added: 70
Chemical Feed Off: N	Time Stopped:	Time Restarted:	
Filter Check (y/n): N			

Samples Collected	None

Notes	Tell me something about the site.

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 12-18-06 Weather Clear 80°F
Personnel Dave Siefken

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	8.49	7.38	7.42	8.04	8.46	8.32	8.42					
DO, mg/L	* 0.26	0.07	0.08	0.19	0.27	0.64	0.63					
pH	* 5.95	6.68	6.68	6.79	6.45	5.26	4.82					
ORP, mV	(-) * 102.3	(-) 172.1	(-) 162.8	(-) 139.5	(-) 148.9	(+) 53.6	(+) 83.8					
Spec. Cond., mS/cm	0.307	1.268	1.267	0.770	0.798	0.088	0.059					
YSI stabilization time, minutes	7	15	14	15	15	10	10					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	25.14	0.307	3.0

Extraction Well flow rate		
Rate, gpm	2.4	2.4
Totalizer	76917	76987
Time of day	1240	1540

Run meter	
Reading 53767	53767
Time of day 1243	1540

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	15.1	13.0	11.0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	9"	full	~8	35			.6	.6		
Bicarbonate	14"	full	42	~~50~~ 45	.6	.6	.65	.65		

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 2.75	gal water added: 20
	Bicarbonate	lb added: 73.7	gal water added: 108
Chemical Feed Off:	Time Stopped:	1243	Time Restarted: 1540
Filter check (Y/N):	New filter		

Samples Collected	None

Notes: Replace filter, no bubble in line
Picked up 60% lactate today. (New 55 gl)

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 12-20-06	Weather: Pt Sunny 75°F
Personnel: Dave Siefken	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet												
DO, mg/L *												
pH *				DS								
ORP, mV*												
Spec. Cond., mS/cm *												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	—	—	—

Extraction Well Flow Rate		
Rate, gpm		2.6
Totalizer		7762
Time of Day		0948

Run Meter	
Reading	54191
Time of Day	0948

Pressure Gauges	P1-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	13	10.5	9.5

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	85	150	X	X	.6	.6		
Bicarbonate	X	X	29	29	.6	.6	.65	.65		
Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH										
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH										

Chemical tanks refilled:	Lactate 0	gal solution added: —	gal water added: 0
	Bicarbonate	lb added: 43.6	gal water added: 65
Chemical Feed Off:	Time Stopped:	Time Restarted: —	
Filter Check (y/n):	OK		

Samples Collected	None

Notes	~~Tell me something about the site.~~

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 12-22-06 Weather Cloudy 72°F
Personnel Dave SieFken

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	—	—	—

Extraction Well flow rate		
Rate, gpm		2.3
Totalizer		7829
Time of day		0911

Run meter	
Reading	54665
Time of day	0911

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	16.5	13	12

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	21	—	X	X	.6	.6		
Bicarbonate	X	X	80	150	.6	.6	.65	.65		

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 46.9	gal water added: ~~40~~ 0
	Bicarbonate	lb added: 46.9	gal water added: 0
Chemical Feed Off:	Time Stopped:	No	Time Restarted: —
Filter check (Y/N): Ok			

Samples Collected	None

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 12-26-06 Weather mostly clear 62°F
Personnel

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	8.32	7.41	7.45	8.18	8.42	8.28	8.50					
DO, mg/L	* .24	.27	.23	0.12	0.31	0.31	1.31					
pH	* 5.95	6.79	6.81	6.95	6.67	5.45	5.17					
ORP, mV	* − 111.9	− 173.3	− 170.2	− 135.3	− 153.5	− 95.9	+ 41.1					
Spec. Cond., mS/cm	0.424	1.091	1.098	0.742	.817	0.085	0.043					
YSI stabilization time, minutes	15	15	15	15	10	10	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.77	0.424	3.1

Extraction Well flow rate		
Rate, gpm		2.3
Totalizer		7969
Time of day		1340

Run meter	
Reading	55662
Time of day	1340

Pressure Gauges	[redacted]
Reading, psig	[redacted]

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	21	21	X	X	.6	.6		
Bicarbonate	X	X	150	150	.65	.65	.65	.65		

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 0	gal water added: 0
Chemical Feed Off:	Time Stopped:	1249	Time Restarted: 1340
Filter check (Y/N): ok			

Samples Collected	System running fine. No air bubbles in line

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 12-29-06	Weather: Clear 77°F
Personnel: DS	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet												
DO, mg/L *												
pH *			DS									
ORP, mV*												
Spec. Cond., mS/cm *												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	—	—	—

Extraction Well Flow Rate		
Rate, gpm		2.4
Totalizer		8070
Time of Day		0950

Run Meter	
Reading	56344
Time of Day	0951

Pressure Gauges	P1-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	17.5	12	11

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	12	32	X	X				
Bicarbonate	X	X	50	100						
Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH										
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH										

Chemical tanks refilled:	Lactate 20	gal solution added: 2.75	gal water added: 20
	Bicarbonate	lb added: 67	gal water added: 100
Chemical Feed Off:	Time Stopped: 0950	Time Restarted: —	
Filter Check (Y/N):	ok		

Samples Collected	None

Notes	Tell me something about the site.

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 01-02-07 Weather Pt Sunny 67°F
Personnel DS

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	8.31	7.03	6.83	8.02	8.24	8.14	8.20					
DO, mg/L	1.01*	0.52	0.48	0.33	0.15	0.14	0.61					
pH	6.14*	6.15	6.14	6.87	6.83	5.42	5.05					
ORP, mV	-89.2*	-78.9	-89.0	-133.2	-165.2	-93.7	21.9					
Spec. Cond., mS/cm	0.330	0348	.323	0.751	0.695	0.090	0.60					
YSI stabilization time, minutes	10	10	10	15	15	15	10					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.51	0.329	11.9

Extraction Well flow rate		
Rate, gpm	2.45	2.4
Totalizer	8213	8214
Time of day	0959	1110

Run meter		
Reading	57305	057312
Time of day	0959	1110

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	16.5 / 20.5	10.5 / 15.0	9.5 / 14

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	Full	Full	Full	Full			.6	.6		
Bicarbonate	Full	Full	Full	Full	.6	.6	.65	.65		

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 0	gal water added: 0
Chemical Feed Off:	Time Stopped:	Since Friday	Time Restarted:
Filter check (Y/N):	~~Since Friday~~ Yes -	OK	1020 Today

Samples Collected	None collected

Notes: Runing fine

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 1-5-07 Weather _____

Personnel Jon Foster _____

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well flow rate		
Rate, gpm		
Totalizer		
Time of day		

Run meter	
Reading	05802.5
Time of day	1028

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig			

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate			27	27	X	X	60	60		
Bicarbonate			150	150	62	62	60	60		

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH

Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added:	gal water added:
	Bicarbonate	lb added:	gal water added:
Chemical Feed Off:	Time Stopped:		Time Restarted:	
Filter check (Y/N):			

Samples Collected	

Notes: _____

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 1-8-07 Weather Partly cloudy/windy cool day ~60°F
Personnel Jon Foster

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	8.15	8.16	7.35	7.81	8.00	7.96	8.14					
DO, mg/L	*	0.5	0.6	3.0	0.24	0.20	0.45					
pH	*	6.99	7.23	7.99	7.58	6.48	5.43					
ORP, mV	*	-150.1	-132.4	-130.5	-176.2	-97.2	61.0					
Spec. Cond., mS/cm		0.390	0.388	0.858	0.900	0.096	0.048					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.33	0.382	44.3

Extraction Well flow rate		
Rate, gpm	3.0	3.0
Totalizer	846323	846372
Time of day	1210	1450

Run meter	
Reading	05876.2
Time of day	1210

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	16.5	10.0	9.0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate			~~27.0~~ 22.5	38	[redacted]		60	60	0	0.252
Bicarbonate			40	150	65	65	60	60	0	2.6

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 1.3	gal water added: 10
	Bicarbonate	lb added: 74.0	gal water added: 115
Chemical Feed Off:	Time Stopped:		Time Restarted: 1445
Filter check (Y/N):	changed		

Samples Collected	None.

Notes: Changed filter

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 1-10-07 Weather Clear 60°F
Personnel DS

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

DS

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well flow rate		
Rate, gpm		2.5
Totalizer		8555
Time of day		1321

Run meter	
Reading	59239
Time of day	1321

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	7	9	11

? Entry reversed?

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	x	x	27	27			.6	.6		
Bicarbonate	x	x	70	150	.6	.6	.65	.65		

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:			
	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 46.9	gal water added: 80 70
Chemical Feed Off:	Time Stopped:	—	Time Restarted: —
Filter check (Y/N):	ok		

Samples Collected	

Notes: System running fine.

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 01-12-07 Weather Clear 70°F
Personnel Dave Skehan

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	—	—	—

Extraction Well flow rate		
Rate, gpm		8615
Totalizer		2.4
Time of day		1039

Run meter	
Reading	59682
Time of day	1039

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	13	10	9

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	x	X	20	20			.6	.6		
Bicarbonate	X	x	80	150	.6	.6	.65	.65		

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:			
	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 46.9	gal water added: 70
Chemical Feed Off:	Time Stopped: —	Time Restarted: —	
Filter check (Y/N):	Oh		

Samples Collected	

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 1-15-07 Weather clear day ~70°F
Personnel J. Foster; D. Siefkas

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	8.21	7.21	5.55	7.73	8.07	7.95	7.94					
DO, mg/L	*	0.12	0.18	0.14	0.28	0.22	0.40					
pH *	*	5.74*	7.82	8.83	8.45	7.26	7.33					
ORP, mV	*	-189.3	-198.6	-183.4	-190.5	-135.0	-34.7					
Spec. Cond., mS/cm	0.381	0.251	0.436	0.807	0.864	0.100	0.045					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.63	0.381	8.3

Extraction Well flow rate		
Rate, gpm	1.95	2.65
Totalizer	870193	8702
Time of day	0920	1100

Run meter	
Reading	060389
Time of day	0920

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	14	11	10

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	9(in)	33 in.	10	40	X	[redacted]	65	65	0.273	0.273
Bicarbonate	6 (in.)	48 in.	15	150	65	[redacted]	60	60	2.4	2.4

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 3.44	gal water added: 25
	Bicarbonate	lb added: 87.1	gal water added: 130
Chemical Feed Off:	Time Stopped:	0920	Time Restarted: 1057
Filter check (Y/N):	Y		

Samples Collected	

Notes: * pH was not calibrating properly on YSI. Therefore, readings are not reliable.

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 01-17-07 Weather Cloudy 59°F
Personnel Dave Siefker

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm	*											
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	—	—	—

Extraction Well flow rate		
Rate, gpm		3 gpm
Totalizer		8792
Time of day		0941

Run meter	
Reading	60861
Time of day	0941

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	16	12	10

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	x	x	30	30			.6	.6		
Bicarbonate	x	x	60	60	.6	.6	.65	.65		

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:			
	Lactate	gal solution added: ~~90 gal~~	gal water added: ~~90 gal~~
	Bicarbonate	lb added: 60.3 lbs	gal water added: 90 gal
Chemical Feed Off:	Time Stopped:	—	Time Restarted: —
Filter check (Y/N):	OK		

Samples Collected	None taken

Notes: No airbubbles in filter or line
System running good.

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 1-19-07	Weather: Pt Sunny 68°F
Personnel: DS	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet												
DO, mg/L *												
pH *												
ORP, mV*												
Spec. Cond., mS/cm *												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	—	—	—

Extraction Well Flow Rate		
Rate, gpm		8958 ↑
Totalizer		2.4 ↓
Time of Day		1101

Run Meter	
Reading	6135.4
Time of Day	1101

Pressure Gauges	P1-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	15	11	10

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	22	22	X	X	.6	.6		
Bicarbonate	X	X	110	150	.6	.6	.65	.65		
Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH										
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH										

Chemical tanks refilled:	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 26.8	gal water added: 40
Chemical Feed Off:	Time Stopped:	Time Restarted:	
Filter Check (y/n):	oh		

Samples Collected	None

Notes	~~Tell me something about the site.~~ Bicarb injecto- clogged - fixed

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 1/22/07	Weather: 65°F, CLOUDY, 50% COR
Personnel: TERRY COTTENOIR	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet												
DO, mg/L *												
pH *												
ORP, mV*												
Spec. Cond., mS/cm *												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well Flow Rate		
Rate, gpm	2.0	2.4
Totalizer	[redacted]913	
Time of Day	1048	1147

Run Meter		
Reading	62071	62091
Time of Day	1047	1049

Pressure Gauges	P1-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	17 / 13	14.5 / 10	12 / 8

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	11	50	X	X	60	60		
Bicarbonate	X	X	0	130	70	70	65	65		

Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled:	Lactate	gal solution added: 5.50	gal water added: 40
	Bicarbonate	lb added: ~~50~~ 87.1	gal water added: 130
Chemical Feed Off:	Time Stopped: NA	Time Restarted: NA	
Filter Check (Y/N):	CHANGED @ 1130		

Samples Collected	None

Notes	Tell me something about the site.
	NO WELL READINGS TODAY. BATTERIES FOR YSI DEAD

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 1 / 24 / 2007	Weather: 58°F, PARTLY CLOUDY
Personnel: TERRY COTTENOIR	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet	8.17	6.09	6.95	7.98	7.93	7.98	8.15					
DO, mg/L *	0.28	0.36	0.23	1.82	0.29	0.27	0.66					
pH *	6.09	6.75	6.74	6.83	6.73	5.50	5.07					
ORP, mV*	-231.5	-251.6	-266.9	-133.6	-272.3	-177.8	-20.4					
Spec. Cond., mS/cm *	0.656	2.280	2.286	1.341	1.295	0.171	0.083					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.45	0.656	3.2

Extraction Well Flow Rate			
Rate, gpm	NOT RUNNING	2.8	2.3
Totalizer		901154.8	901205.9
Time of Day		0934	1239

Run Meter		
Reading	6248.0	6248.4
Time of Day	0932	1241

Pressure Gauges	P1-1 (filter influent)		P1-2 (post-filter)		P1-3 (effluent)	
Reading, psig	10.5	8.5	9.0	6.0	6.0	4.5

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	42	42	X	X	.60	.60		
Bicarbonate	X	X	45	140	.65	.65	.60	.60		
Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH										
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH										

Chemical tanks refilled:	Lactate	gal solution added: Ø	gal water added: Ø
	Bicarbonate	lb added: 63.7	gal water added: 95
Chemical Feed Off:	Time Stopped: 0936	Time Restarted: 1221	
Filter Check (y/n):			

Samples Collected	None

Notes	Tell me something about the site.
	SYSTEM RUNNING GOOD

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 1/26/07	Weather: 60°F, SUNNY
Personnel: TERRY COTTENOIR	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet												
DO, mg/L *												
pH *												
ORP, mV*												
Spec. Cond., mS/cm *												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well Flow Rate		
Rate, gpm	2.3	N/A
Totalizer	907051.7	N/A
Time of Day	1030	N/A

Run Meter	
Reading	6294.2
Time of Day	1028

Pressure Gauges	P1-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	11.0	8.5	7.0

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	34	N/A	X	X	0.60	N/A		N/A
Bicarbonate	X	X	43	N/A	0.65	N/A	0.60	N/A		N/A

Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled:	Lactate	gal solution added: Ø	gal water added: Ø
	Bicarbonate	lb added: Ø	gal water added: Ø
Chemical Feed Off:	Time Stopped:	Time Restarted:	
Filter Check (Y/n): Ø			

Samples Collected	None

Notes	Tell me something about the site.
	WILL ALLOW TANKS TO EMPTY. AFTER TANKS EMPTY, WILL RUN RECIRC. ONLY (NO CHEMICAL). WILL TAKE READINGS ONLY ONE TIME TODAY. NO CHEMICAL OR H_2O ADDED.

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 1-29-06 Weather 50°F Cold
Personnel DS

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	—	—	—

Extraction Well flow rate		
Rate, gpm		2.0
Totalizer		9158
Time of day		1103

Run meter	
Reading	63668
Time of day	1103

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	14	11	9

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	Stop	½ full	—	—			—	—	—	—
Bicarbonate	Empty	—	—	—	—	—	—	—	—	—

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 0	gal water added: 0
Chemical Feed Off:	Time Stopped:	1103	Time Restarted: +
Filter check (Y/N):	ok		

Samples Collected	

Notes: Stop chemical feed to system. ~ 1100

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 1-31-06	Weather: Clear 54°F
Personnel: DS	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet	8.04	5.77	5.71	6.68	7.98	7.88	7.99					
DO, mg/L *	0.21	0.29	0.30	0.21	0.49	0.32	0.98					
pH *	6.08	6.05	6.10	6.76	6.77	5.62	5.25					
ORP, mV*	(-) 2.11	(-) 213	(-) 206	(-) 214	(-) 225	(-) 156	[illegible]	(+) 24.1				
Spec. Cond., mS/cm *	0.462	0.449	0.459	0.902	0.935	0.116	0.057					
YSI stabilization time, minutes	15	15	15	8	15	11	9					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.74	0.462	2.4

Extraction Well Flow Rate		
Rate, gpm	2.0	2.7
Totalizer	9210	9211
Time of Day	1251	1414

Run Meter		
Reading	64166	64171
Time of Day	1251	1412

Pressure Gauges	P1-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig ~~15~~	15 / 16	12 / 13	10 / 10

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	—		X	X				
Bicarbonate	X	X	—			—				

Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled:	Lactate 0	gal solution added: 0	gal water added: 8
	Bicarbonate 0	lb added: 0	gal water added:
Chemical Feed Off:	Time Stopped: 1309	Time Restarted: 1400	
Filter Check (y/n):	yes - ok		

Samples Collected	None

Notes	~~Tell me something about the site.~~ No chemical injection

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 2-5-07	Weather: Mostly Clear 50°F
Personnel: DS	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet	7.99	5.87	5.82	7.46	7.86	[redacted]	7.72					
DO, mg/L *	0.18	0.94	0.43	3.95	0.40	[redacted]	1.5					
pH *	6.05	6.11	6.07	6.80	6.84	[redacted]	5.34					
ORP, mV*	(-) 150	(-) 182	(-) 189	(-) 81.1	(+) 245	[redacted]	(+) 61					
Spec. Cond., mS/cm *	0.374	0.557	0.550	1.084	1.092	0.140	0.071					
YSI stabilization time, minutes	15	15	15	10	15	15	10					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.35	0.574	2.2

Extraction Well Flow Rate		
Rate, gpm		2.2
Totalizer		9421
Time of Day		1138

Run Meter	
Reading	6533.6
Time of Day	1139

Pressure Gauges	P1-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig			

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	0	0	X	X	0	0	0	0
Bicarbonate	X	X	0	0	0	0	0	0	0	0
Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH										
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH										

Chemical tanks refilled:	Lactate 0	gal solution added: 0	gal water added: 0
	Bicarbonate 0	lb added: 0	gal water added: 0
Chemical Feed Off:	Time Stopped: 1032	Time Restarted:	
Filter Check (y/n):	yes - changed		

Samples Collected	None

Notes	~~Tell me something about the site.~~ System running fine. No chemical added. Change - Filter

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date:	2-15-07	Weather:	Pt Sunny 52°F
Personnel:	DS		

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet	7.08	4.57	4.46	7.34	7.62	7.57	7.59					
DO, mg/L *	0.36	0.64	0.61	0.28	0.78	0.53	0.63					
pH *	6.13	6.12	6.15	6.77	6.45	5.39	5.07					
ORP, mV*	179	154	151	149	179	147	143					
Spec. Cond., mS/cm *	478	454	465	872	850	94	49					
YSI stabilization time, minutes	15	10	10	15	15	10	12					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.40	478	4.2

Extraction Well Flow Rate		
Rate, gpm		2.5
Totalizer		9788
Time of Day		1122

Run Meter	
Reading	6772
Time of Day	1122

Pressure Gauges	P1-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	13	10	9

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	X	X	X	X	X	X	X	X
Bicarbonate	X	X	X	X		X	X	X	X	X

Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled:	Lactate	0	gal solution added:	0	gal water added: 0
	Bicarbonate	0	lb added:	0	gal water added: 0
Chemical Feed Off:	Time Stopped:	0	Time Restarted:	0	
Filter Check (y/n):					

Samples Collected	None —

Notes	~~Tell me something about the site.~~ System Running Fine

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 2-20-97	Weather: PrHy Cloudy 75°F
Personnel: Jon Foster	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet	7.73	6.09	6.42	9.21	7.58	7.52	7.64					
DO, mg/L *	0.23	1.03	0.24	0.48	0.32	0.73	1.25					
pH *	6.06	6.11	6.12	6.61	6.45	5.34	4.95					
ORP, mV*	-177.8	-141.2	-197.6	-159.6	-198.7	-116.5	55.5					
Spec. Cond., mS/cm *	0.519	0.501	0.578	1.069	1.330	0.120	0.064					
YSI stabilization time, minutes	15	15	15	15	15	15	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.55	0.519	0.23 mg/L

Extraction Well Flow Rate		
Rate, gpm	2.7	2.7
Totalizer	997206	997218
Time of Day	0915	1010

Run Meter	
Reading	68860
Time of Day	0915

Pressure Gauges	P1-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	11.00	8.0	6.0

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	NA		X	X	NA		NA	
Bicarbonate	X	X			NA					
Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH										
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH										

Chemical tanks refilled:	Lactate	gal solution added:	gal water added:
	Bicarbonate	lb added:	gal water added:
Chemical Feed Off:	Time Stopped:	Time Restarted:	
Filter Check (y/n):	N		

Samples Collected	None

Notes	Tell me something about the site.

NAS CECIL FIELD
SITE 59 PILOT STUDY NUMBER 2
DAILY LOG SHEET

Date: 3/7/07	Weather: Clear 72°F
Personnel: DS + SM	

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, Feet	9.72		6.60	7.00	7.51	7.49	7.49					
DO, mg/L *	0.24	0.75	0.32	0.29	0.19	0.13	0.31					
pH *	6.10	6.07	5.97	6.42	6.51	5.50	4.76					
ORP, mV*	(-) 174.3	-151.3	(-) 210.6	(-) 189.9	(-) 239.6	(-) 206.4	(-) 68.7					
Spec. Cond., mS/cm *	552	575	588	921	874	275	66					
YSI stabilization time, minutes	15+	10	15+	15+	15+	15+	15+					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	~~DO, %~~ mg/L
	24.75	552	0.24

Extraction Well Flow Rate			
Rate, gpm	2.3		
Totalizer	10563		
Time of Day	1020		

Run Meter	
Reading	7260.1
Time of Day	1021

Pressure Gauges	P1-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	12	7	4

Chemical Feed	Tank Level, feet		Tank Level, gallons		Pump Stroke Setting, %		Pump Speed, %		Pump Rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	0	0	X	X	0	0	0	0
Bicarbonate	X	X	0	0	0	0	0	0	0	0
Normal Settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 PGH										
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH										

Chemical tanks refilled:	Lactate 0	gal solution added:	gal water added:
	Bicarbonate 0	lb added:	gal water added:
Chemical Feed Off:	Time Stopped: 1025	Time Restarted:	
Filter Check (y/n):			

Samples Collected	~~None~~ Event 10 this week - USED DATA From field sheets for field parameters above.

Notes	~~Tell me something about the site.~~ Running fine

NAS CECIL FIELD
SITE 59 PILOT STUDY NO. 2
DAILY LOG SHEET

Date 3.12.07 Weather Clear 78°
Personnel DS

Well	EW 1A	IW 1A	IW 2A	MW 1A	NG-12D	NG-12I	006-078					
DTW, feet	7.65	4.82	4.91	7.46	7.64	7.49	7.60					
DO, mg/L	* 0.19	1.10	0.31	2.78	0.40	0.76	1.86					
pH	* 5.99	6.12	6.07	6.59	6.65	5.17	5.43					
ORP, mV	(-) * 165.5	(-) 144.6	(-) 156.0	(-) 63.4	(-) 196.4	(-) 8.4	(+) 73.4					
Spec. Cond., mS/cm	442	442	443	741	733	99	54					
YSI stabilization time, minutes	15	15	15	15	15	20	15					

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	25.43	442	2.1

Extraction Well flow rate		
Rate, gpm		2.4
Totalizer		10714
Time of day		1434

Run meter	
Reading	07357
Time of day	1434

Pressure Gauges	PI-1 (filter influent)	P1-2 (post-filter)	P1-3 (effluent)
Reading, psig	15.5	11.0	10.0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate					X	X				
Bicarbonate					X	X				

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 1.46 GPH
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 0	gal water added: 0
Chemical Feed Off:	Time Stopped:	1330	Time Restarted: 1420
Filter check (Y/N):	New		

Samples Collected	

Notes: New Filter, System running fine

APPENDIX C

OPERATOR LOG SUMMARY

SUMMARY OF OPERATOR LOG DATA
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	7/28/2006	8/23/2006	8/29/2006	9/1/2006	9/5/2006	9/8/2006	9/12/2006	9/15/2006	9/19/2006	9/22/2006	9/26/2006	9/29/2006	10/3/2006	10/6/2006	10/10/2006	10/17/2006
Time of Day	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**
Extraction Well																
DTW, feet	7.88	7.86	7.5	7.22	7.37	7.52	7.27	7.21	18.27	7.39	7.46	7.92	13.15	12.2	7.85	7.99
Groundwater Elevation, feet	67.92	67.94	68.3	68.58	68.43	68.28	68.53	68.59	57.53	68.41	68.34	67.88	62.65	63.6	67.95	67.81
DO, mg/L	0.28	0.54	1.43	2.26	1.25	1	0.41	0.35		0.26	1.75	1.23			1.53	
pH	5.52	5.25	6.61	6.47	5.42	5.15	5.68	4.56		5.1	6.01	7.01			5.94	6.22
ORP, mV	65.6	33.9	4.2	6.3	29.6	16.3	-0.1	-9.4		-45.2	-51.3	-98			-40.7	-109.9
Spec. Cond, uS/cm	0.081	0.58	0.345	0.217	0.06	0.057	0.065	0.07	0.06	0.064	0.171	1.1			0.252	0.249
Injection Well 1																
DTW, feet		3.97	1.62	2.84	6.78	3.17	6.89	4.49	4.84	7.12	7.37	6.67	5.11	6.31	6.78	6.39
Groundwater Elevation, feet	75.5	71.53	73.88	72.66	68.72	72.33	68.61	71.01	70.66	68.38	68.13	68.83	70.39	69.19	68.72	69.11
DO, mg/L		0.42	1.19	0.68	1.28	0.87	0.68	0.82	1.54	1.59	0.18	1.02	1.65	2.12	2.18	
pH		5.19	7.25	6.94	6.29	6.72	7.22	7.02	6.69	6.92	7.38	7.04	6.6	6.56	5.33	7.12
ORP, mV		-28	-38.5	-10.5	-23	-22.2	-152.3	-56	-35.1	-56.4	-144.2	-91.2	-98.8	-43.6	-32.3	-138.5
Spec. Cond, uS/cm		0.057	1.032	0.705	0.208	0.726	0.61	0.784	0.57	0.574	2.547	1.636	0.75	0.85	0.178	0.95
Injection Well 2																
DTW, feet	7.35	5.78	4.2	6.55	6.94	6.67	6.74	6.73	7.31	7.23	6.1	6.7	7.01	4.83	6.62	6.82
Groundwater Elevation, feet	68.13	69.7	71.28	68.93	68.54	68.81	68.74	68.75	68.17	68.25	69.38	68.78	68.47	70.65	68.86	68.66
DO, mg/L	0.53	0.59	0.96	0.7	0.66	0.8	0.54	1.15	1.81	1.01	0.24	1.25	1.71	1.99	1.62	
pH	5.81	5.31	6.71	7.01	6.1	6.76	6.64	6.99	6.5	6.82	7.35	7.01	6.63	6.6	5.3	6.91
ORP, mV	-56.5	27.8	36.1	-51.1	-26.7	-63	-114.1	-70.6	-13.6	-52.7	-148.6	-101.9	-95.6	-65.1	-27.2	-76.2
Spec. Cond, uS/cm	0.091	0.06	0.368	0.538	0.107	0.718	0.249	0.635	4.7	0.55	1.748	1.574	0.75	0.95	0.169	0.737
Monitoring Well 1																
DTW, feet	7.02	7.55	7.31	6.97	7.01	6.97	6.9	6.83	6.96	7.59	7.08	7.07	7.67	7.61	7.67	7.54
Groundwater Elevation, feet	68.42	67.89	68.13	68.47	68.43	68.47	68.54	68.61	68.48	67.85	68.36	68.37	67.77	67.83	67.77	67.9
DO, mg/L	0.38	0.55	1.73	1.49	3.3	1.67	2	2.51	0.77	0.47	0.45	0.88	1.78	1.1	2.31	
pH	6.65	7.2	6.84	6.96	7.23	6.61	6.91	6.71	6.39	6.7	6.38	6.34	6.44	6.43	6.5	6.72
ORP, mV	31	26.1	-1.1	7	56.3	47.3	-7.8	-28.8	-32.8	-92.4	-88.5	-107.2	-128	-117.7	-115.7	-82.4
Spec. Cond, uS/cm	0.509	0.253	0.326	0.341	0.384	0.453	0.421	0.403	0.4	0.403	0.503	0.478	0.531	0.513	0.491	0.443
Monitoring Well NG-12D																
DTW, feet	7.59	7.71	7.33	7.15	7.32	7.22	7.1	7.06	7.34	7.32	7.3	7.3	7.7	7.79	7.72	7.89
Groundwater Elevation, feet	68.07	67.95	68.33	68.51	68.34	68.44	68.56	68.6	68.32	68.34	68.36	68.36	67.96	67.87	67.94	67.77
DO, mg/L	0.44	0.33	0.25	0.33	1.49	0.43	1.73	1.63	0.47	1.27	0.47	0.93	0.72	0.51	1.81	
pH	4.62	6.07	5.43	5.98	6.18	4.75	5.72	4.94	4.91	5.38	4.82	5.14	5.6	5.16	5.35	5.59
ORP, mV	78	30.3	30.3	21.8	71	114.5	63	4.1	-35.7	-30.4	-55.5	-100	-94	-72	-40.2	-30.4
Spec. Cond, uS/cm	0.045	0.063	0.045	0.057	0.055	0.49	0.054	0.055	0.05	0.051	0.078	0.089	0.098	0.107	0.059	0.154
Monitoring Well NG-12I																
DTW, feet	7.54	7.65	7.36	7.1	7.17	7.18	7.06	7.03	7.13	7.27	7.26	7.28	7.48	7.67	7.69	7.85
Groundwater Elevation, feet	68.08	67.97	68.26	68.52	68.45	68.44	68.56	68.59	68.49	68.35	68.36	68.34	68.14	67.95	67.93	67.77
DO, mg/L	0.27	0.98	0.47	0.58	1.77	0.33	1.62	1.84	0.57	1.97	0.46	0.43	0.56	0.44	1.48	
pH	4.9	5.54	5.21	5.46	5.49	5.1	5.28	5.3	5.29	5.3	5.19	5.34	5.1	5.15	5.25	5.39
ORP, mV	61.9	39.6	61.4	41.6	70.9	72	68.1	7.5	-55.3	-32.2	-34.8	-86.7	-55.1	51	-11.8	-14.8
Spec. Cond, uS/cm	0.058	0.069	0.091	0.06	0.055	0.066	0.058	0.058	0.065	0.054	0.069	0.061	0.66	0.058	0.058	0.051
Monitoring Well 006-78																
DTW, feet	7.67	7.8	7.33	7.15	7.33	7.32	7.06	7.08	7.31	7.46	7.34	7.34	7.71	7.83	7.78	8.09
Groundwater Elevation, feet	68	67.87	68.34	68.52	68.34	68.35	68.61	68.59	68.36	68.21	68.33	68.33	67.96	67.84	67.89	67.58
DO, mg/L	0.27	0.34	0.61	0.45	0.41	0.28	0.23	0.42	0.44	0.52	0.32	0.39	0.61	0.4	1.35	
pH	6.27	5.4	5.89	5.53	5.51	5.2	5.46	5.43	5.17	5.37	4.9	5.24	5.5	5.45	5.28	5.6
ORP, mV	-0.8	-24.8	18.8	8.6	25.9	45.6	-19.2	-17.7	-54	-56.9	-32.4	-73.7	0.92	-82.6	-47.6	-44.3
Spec. Cond, uS/cm	0.052	0.045	0.032	0.044	0.041	0.047	0.046	0.048	0.47	0.041	0.046	0.046	0.47	0.066	0.043	0.037

SUMMARY OF OPERATOR LOG DATA
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	7/28/2006	8/23/2006	8/29/2006	9/1/2006	9/5/2006	9/8/2006	9/12/2006	9/15/2006	9/19/2006	9/22/2006	9/26/2006	9/29/2006	10/3/2006	10/6/2006	10/10/2006	10/17/2006
Time of Day	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**
System Parameters																
Groundwater Temp, °C			29.13	29.04	27.07	24.9	24.73	24.83	25.35	24.2	25.04	25.53	23.73	24.1	25.28	25.59
Extraction well rate gpm	base line	2.2	1.9	3.2	2.6		0	2.4	2.7	3.6	6.5	3	2.4	2.7	2.9	2
Run Meter (start of day), hours	base line	2823.3	2965.1	2991.1	3084.8	3159.2	3159.8	3227.6	3321.3	3395	3488.2	3558	3650.2	3721	3819	3969
P1 (filter influent), psig	base line	10	9.5	3.5	3	6	0	6	15	11	19	12	10	7	9	9.5
P2 (post-filter), psig	base line	7	3.5	2	2	3.8	0	2	2	8	0	0	2	4.5	7	7.5
P3 (effluent), psig	base line	5	0	1	5	2	0	0	0	4	0	0	0	4.5	5	6
Chemical Tank Data																
Tank level Lactate (start of day), gal	base line	40	29	36	20	30	38	27	18.5	26	17	17.5	16	24	5	23
Tank level Bicarb (start of day), gal	base line	150	5	115	0	50	150	110	15	26	13	50	37	40	0	10
Pump Rate Lactate (start of day),	base line	0.5	0.4	0.2	0.2		0.4	0.02		0.2	0.4	0.2				
Pump Rate bicarb (start of day),	base line	0.6	1.4	1.46	1.46		1.46	1.46		1.46	1.46	1.46				
Lactate tank refilling (sol), gal	base line	5.5	1.37	0	2.75	0.69	0	1.37	3	1.37	3.85	0	2.5	0	4.81	2.75
Lactate tank refilling (water), gal	base line	40	10	0	20	5	0	10	16.5	10	8.5	0	18	48.8	35	15
Bicarb tank refilling, lb	base line	78	78	0	78	52	0	20.8	63	62.4	73.2	54.2	12	0	65	101
Bicarb tank refilling (water), gal	base line	150	150	0	150	100	0	40	115	120	135	100	23	90	125	140

SUMMARY OF OPERATOR LOG DATA
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	10/20/2006	10/24/2006	10/27/2006	10/31/2006	11/3/2006	11/7/2006	11/10/2006	11/13/2006	11/17/2006	11/20/2006	11/22/2006	11/29/2006	12/4/2006	12/8/2006	12/11/2006	12/13/2006
Time of Day	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**
Extraction Well																
DTW, feet	8.06	8.02	8.08	8.17	8.23	8.04	8.13	8.19	8.29	8.25	8.24	8.38	8.39	8.44	8.49	8.53
Groundwater Elevation, feet	67.74	67.78	67.72	67.63	67.57	67.76	67.67	67.61	67.51	67.55	67.56	67.42	67.41	67.36	67.31	67.27
DO, mg/L	1.68	0.82	1.59	0.25	1.79	1.65	3.3	1.27	0.36	1.04	0.37	0.27	0.52	0.1	0.19	0.74
pH	5	5.2	5.16	5.26	5.38	5.36	5.49	5.35	5.6	5.83	5.85	5.72	5.93	5.8	5.91	5.89
ORP, mV	-90.4	-164.8	-124.5	-36.2	-150.7	-204.1	-151.5	-193	-126.7	-104.7	-147.9	-94.9	-102.8	-88.1	-88.8	-78
Spec. Cond, uS/cm	0.096	0.106	0.133	0.134	0.137	0.168	0.176	0.191	0.22	0.247	0.264	0.284	0.288	0.247	0.309	0.311
Injection Well 1																
DTW, feet	7.14	7.76	7.86	6.62	5.4	7	6.89	6.72	5.73	7.55	6.13	6.6	5.58	6.45	6.35	6.09
Groundwater Elevation, feet	68.36	67.74	67.64	68.88	70.1	68.5	68.61	68.78	69.77	67.95	69.37	68.9	69.92	69.05	69.15	69.41
DO, mg/L	0.56	0.93	4	1.25	0.48	3.08	0.2	0.98	0.35	0.21	0.24	0.23	0.66	0.18	0.33	0.21
pH	6.52	6.65	6.61	5.94	6.8	5.34	6.52	6.08	6.38	6.57	6.57	6.48	6.71	6.49	6.56	6.56
ORP, mV	-174	-184.8	-159	-21	-141.8	-148	-97.2	-184	-139.1	-187.5	-187.3	-153.4	-160.1	-176.3	-156.6	-154.8
Spec. Cond, uS/cm	1.016	1.219	0.991	0.997	1.242	0.165	0.955	0.586	0.871	1.299	1.079	1.067	1.136	1.015	1.042	1.019
Injection Well 2																
DTW, feet	7.1	8.07	8.36	8.02	7.45	6.59	7.24	6.11	6.45	6.95	5.82	6.2	5.59	6.19	5.4	5.68
Groundwater Elevation, feet	68.38	67.41	67.12	67.46	68.03	68.89	68.24	69.37	69.03	68.53	69.66	69.28	69.89	69.29	70.08	69.8
DO, mg/L	0.58	1.03	2	0.89	0.89	4.06	0.25	2.98	0.45	2.41	1.24	0.23	0.14	0.22	0.21	0.2
pH	6.51	6.63	6.54	6.07	6.76	5.39	6.54	5.95	6.39	6.63	6.62	6.48	6.75	6.55	6.56	6.56
ORP, mV	-170	-173.3	-155.3	-24.7	-155.2	-153.7	-88.9	-175	-159.7	-42.8	-164.1	-153.4	-171	-170.8	-150.8	-154.3
Spec. Cond, uS/cm	1.051	1.208	0.984	0.989	1.264	0.181	0.961	0.433	0.872	1.302	1.069	1.067	1.116	1.012	1.035	1.019
Monitoring Well 1																
DTW, feet	7.55	7.96	7.67	7.78	7.87	7.76	7.92	7.62	7.89	7.9	6.69	7.35	7.84	8.02	7.79	8.06
Groundwater Elevation, feet	67.89	67.48	67.77	67.66	67.57	67.68	67.52	67.82	67.55	67.54	68.75	68.13	67.64	67.46	67.69	67.42
DO, mg/L	5.44	1.06	4	3.86	1.45	6.01	5.2	1.68	0.23	4.23	2.14	0.2	0.16	2.19	0.13	0.13
pH	6.21	6.42	6.65	6.57	6.68	6.56	6.67	6.49	6.7	6.75	6.91	6.78	7.01	6.69	6.8	6.8
ORP, mV	-143.1	-146.4	-124.7	-49.4	-127.1	-90.4	-12.3	-180	-147	-52	-74.1	-123.8	-137.9	-50.5	-143.4	-134
Spec. Cond, uS/cm	0.519	0.555	0.603	0.651	0.635	0.678	0.7	0.73	0.742	0.814	0.69	0.736	0.803	0.822	0.835	0.818
Monitoring Well NG-12D																
DTW, feet	7.87	7.95	7.91	8.1	8.06	7.89	7.91	8.07	8.12	8.1	8.03	8.19	8.22	8.26	8.31	8.37
Groundwater Elevation, feet	67.79	67.71	67.75	67.56	67.6	67.77	67.75	67.59	67.54	67.56	67.63	67.25	67.22	67.18	67.13	67.07
DO, mg/L	0.57	1	1.53	0.22	0.75	1.98	0.22	2.83	0.25	0.1	0.13	0.3	0.36	0.26	0.34	0.3
pH	5.51	5.41	5.76	5.85	5.9	5.93	6.24	6.03	6.25	6.38	6.66	6.57	6.63	6.58	6.7	6.46
ORP, mV	-74	-100.6	-140	-90	-156.5	-110.3	-46.6	-174	-106.4	-186.2	-199.4	-110.7	-147.1	-162.1	-145.4	-126.3
Spec. Cond, uS/cm	0.244	0.107	0.151	0.183	0.201	0.298	0.294	0.372	0.79	0.513	0.629	0.654	0.827	0.779	0.771	0.852
Monitoring Well NG-12I																
DTW, feet	7.85	7.82	7.86	7.96	8.02	7.85	7.87	8	8.06	8.05	8.04	8.15	8.18	8.22	8.27	8.31
Groundwater Elevation, feet	67.77	67.8	67.76	67.66	67.6	67.77	67.75	67.62	67.56	67.57	67.58	67.47	67.44	67.4	67.35	67.31
DO, mg/L	0.86	5	5	3.84	4.84	4.1	1.35	3.42	2.42	0.32	0.17	0.32	0.34	0.3	0.27	0.24
pH	4.62	5.06	5.43	5.13	5.1	4.84	4.96	4.53	5.03	5.19	5.43	5.1	5.51	6.05	5.23	5.24
ORP, mV	-47.8	-91.3	-100.7	69.1	68.7	-88	-113.4	-147	-39.7	-49.6	-86.6	-54.1	-66.7	-67.8	-44.7	-30.8
Spec. Cond, uS/cm	0.059	0.068	0.063	0.068	0.067	0.034	0.069	0.074	0.071	0.08	0.08	0.085	0.085	0.081	0.087	0.087
Monitoring Well 006-78																
DTW, feet	8.06	7.91	7.96	8.18	8.23	7.95	8.02	8.23	8.3	8.16	8.14	8.36	8.31	8.35	8.52	8.55
Groundwater Elevation, feet	67.61	67.76	67.71	67.49	67.44	67.72	67.65	67.44	67.37	67.51	67.53	67.31	67.36	67.32	67.15	67.12
DO, mg/L	0.65	1.25	2.92	0.7	0.79	1.22	0.75	5.58	0.31	0.28	0.42	0.26	0.45	0.32	0.33	0.38
pH	4.48	4.81	5.33	5.49	5.9	5.33	6.15	4.89	5.15	4.99	5.25	4.95	5.07	4.9	4.9	4.8
ORP, mV	-59.4	-89.3	-89.8	64	46.7	-72.3	57.1	-142	2.5	39.2	58.6	97.5	68.2	51.6	92.2	93.4
Spec. Cond, uS/cm	0.041	0.045	0.049	0.078	0.091	0.074	0.109	0.066	0.056	0.054	0.054	0.051	0.05	0.048	0.048	0.048

SUMMARY OF OPERATOR LOG DATA
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	10/20/2006	10/24/2006	10/27/2006	10/31/2006	11/3/2006	11/7/2006	11/10/2006	11/13/2006	11/17/2006	11/20/2006	11/22/2006	11/29/2006	12/4/2006	12/8/2006	12/11/2006	12/13/2006
Time of Day	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**
System Parameters																
Groundwater Temp, °C	24.86	24.27	24.93	25.03	23.66	23.87	25.16	24.54	24.4	25.24	22.12	25.31	24.66	23.81	24.7	24.83
Extraction well rate gpm	2	2.5	2.7	2.9	1.8	2.8	2.7	2.7	3.1	2.7	2.6	2.4	2.6	3	3	2.7
Run Meter (start of day), hours	4043	4132	4194	4287	4358		4517	4586	4676	4741	4791	4957	5075	5140	5211	5256
P1 (filter influent), psig	11.5	13.5	12.2	9.5	12	10	11	12.5	13	16.5	16	21	19.5	15	17.5	18
P2 (post-filter), psig	9.5	11	10	7	9.5	8	9	10	10	13.9	13.5	17	16	12	14	14
P3 (effluent), psig	7	9.9	8	5	8	8	7	9.5	9.5	12	11	15	14.5	10	12	13
Chemical Tank Data																
Tank level Lactate (start of day), gal	55	6	35	22	6	25	12.5	3/4 full	9	30	35	33	12	25	12	33
Tank level Bicarb (start of day), gal	25	20	65	18	55	10	95	50	88	35	80	140	50	50	40	90
Pump Rate Lactate (start of day),	0.16	0.24	0.25	0.25	0.24	0.4	0.24			0.24		0.2	0.2	0.2	0.2	0.2
Pump Rate bicarb (start of day),	2.48	2.4	2.5	2.5	2.4	1.46	2.4			2.4		1.56	1.5	1.5	1.5	1.5
Lactate tank refilling (sol), gal	0	4	0	0	4.12	0	3	0	4.12	0.7	0	0	3.44	0	3.44	0
Lactate tank refilling (water), gal	0	25	0	0	30	0	19.5	0	30	2.6	0	0	25	0	25	0
Bicarb tank refilling, lb	59	94	53	86.5	55.9	94	37	67	40.2	80.5	46.9	0	67	67	73	40.2
Bicarb tank refilling (water), gal	95	130	85	120	90	140	55	100	60	120	70	0	100	100	110	60

SUMMARY OF OPERATOR LOG DATA
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	12/18/2006	12/26/2006	1/2/2007	1/8/2007	1/15/2007	1/24/2007	2/5/2007	2/15/2007	3/7/2007	3/12/2007
Time of Day	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**
Extraction Well										
DTW, feet	8.49	8.32	8.31	8.15	8.21	8.17	7.99	7.08	9.72	7.65
Groundwater Elevation, feet	67.31	67.48	67.49	67.65	67.59	67.63	67.81	68.72	66.08	68.15
DO, mg/L	0.26	0.24	1.01			0.28	0.18	0.36	0.24	0.19
pH	5.95	5.95	6.14			6.09	6.05	6.13	6.1	5.99
ORP, mV	-102.3	-111.9	-89.2			-231.5	-150	-179	-174.3	-165.5
Spec. Cond, uS/cm	0.307	0.424	0.33			0.656	0.374	0.478	0.552	0.442
Injection Well 1										
DTW, feet	7.38	7.41	7.03	8.16	7.21	6.09	5.87	4.57		4.82
Groundwater Elevation, feet	68.12	68.09	68.47	67.34	68.29	69.41	69.63	70.93		70.68
DO, mg/L	0.07	0.27	0.52	0.5	0.12	0.36	0.94	0.64	0.75	1.1
pH	6.68	6.79	6.15	6.99	5.74	6.75	6.11	6.12	6.07	6.12
ORP, mV	-172.1	-173.3	-78.9	-150.1	-189.3	-251.6	-182	-154	-151.3	-144.6
Spec. Cond, uS/cm	1.268	1.091	0.348	0.39	0.251	2.28	0.557	0.454	0.575	0.442
Injection Well 2										
DTW, feet	7.42	7.45	6.83	7.35	5.55	6.95	5.82	4.46	6.6	4.91
Groundwater Elevation, feet	68.06	68.03	68.65	68.13	69.93	68.53	69.66	71.02	68.88	70.57
DO, mg/L	0.08	0.23	0.48	0.6	0.18	0.23	0.43	0.61	0.32	0.31
pH	6.68	6.81	6.14	7.23	7.82	6.74	6.07	6.15	5.97	6.07
ORP, mV	-162.6	-170.2	-89	-132.4	-198.6	-266.9	-189	-151	-210.6	-156
Spec. Cond, uS/cm	1.267	1.098	0.323	0.388	0.436	2.286	0.55	0.465	0.588	0.443
Monitoring Well 1										
DTW, feet	8.04	8.18	8.02	7.81	7.73	7.98	7.46	7.34	7	7.46
Groundwater Elevation, feet	67.44	67.3	67.46	67.67	67.75	67.5	68.02	68.14	68.48	68.02
DO, mg/L	0.19	0.12	0.33	3	0.14	1.82	3.95	0.28	0.29	2.78
pH	6.79	6.95	6.87	7.99	8.83	6.83	6.8	6.77	6.42	6.59
ORP, mV	-139.5	-135.3	-133.2	-130.5	-183.4	-133.6	-81.1	-149	-189.9	-63.4
Spec. Cond, uS/cm	0.77	0.742	0.751	0.858	0.807	1.341	1.084	0.872	0.921	0.741
Monitoring Well NG-12D										
DTW, feet	8.46	8.42	8.24	8	8.07	7.93	7.86	7.62	7.51	7.64
Groundwater Elevation, feet	66.98	67.02	67.2	67.44	67.37	67.51	67.58	67.82	67.93	67.8
DO, mg/L	0.27	0.31	0.15	0.24	0.28	0.29	0.48	0.78	0.19	0.4
pH	6.45	6.67	6.83	7.58	8.45	6.73	6.86	6.45	6.51	6.65
ORP, mV	-148.9	-153.5	-165.2	-176.2	-190.5	-272.3	-245	-179	-239.6	-196.4
Spec. Cond, uS/cm	0.798	0.817	0.695	0.9	0.864	1.295	1.092	0.85	0.874	0.733
Monitoring Well NG-12I										
DTW, feet	8.32	8.28	8.14	7.96	7.95	7.98	7.69	7.57	7.49	7.49
Groundwater Elevation, feet	67.3	67.34	67.48	67.66	67.67	67.64	67.93	68.05	68.13	68.13
DO, mg/L	0.64	0.31	0.14	0.2	0.22	0.27	0.29	0.53	0.13	0.76
pH	5.26	5.45	5.42	6.48	7.26	5.5	5.54	5.39	5.5	5.17
ORP, mV	-53.6	-95.9	-93.7	-97.2	-135	-177.8	-134	-147	-206.4	-8.4
Spec. Cond, uS/cm	0.088	0.085	0.09	0.096	0.1	0.17	0.14	0.094	0.275	0.099
Monitoring Well 006-78										
DTW, feet	8.42	8.5	8.2	8.14	7.94	8.15	7.72	7.59	7.49	7.6
Groundwater Elevation, feet	67.25	67.17	67.47	67.53	67.73	67.52	67.95	68.08	68.18	68.07
DO, mg/L	0.63	1.31	0.61	0.45	0.4	0.66	1.5	0.63	0.31	1.86
pH	4.82	5.17	5.05	5.43	7.33	5.07	5.34	5.07	5.5	5.43
ORP, mV	83.2	41.1	21.9	61	-34.7	-20.4	-19	-43	-206.4	73.4
Spec. Cond, uS/cm	0.059	0.043	0.6	0.048	0.045	0.083	0.71	0.049	0.275	0.054

SUMMARY OF OPERATOR LOG DATA
SOUTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	12/18/2006	12/26/2006	1/2/2007	1/8/2007	1/15/2007	1/24/2007	2/5/2007	2/15/2007	3/7/2007	3/12/2007
Time of Day	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**	**start**
System Parameters										
Groundwater Temp, °C	25.14	24.77	24.51	23.33	24.63	24.45	24.35	24.4	24.75	25.43
Extraction well rate gpm	2.4	2.3	2.45	3	1.95	2.8	2.2	2.5	2.3	2.4
Run Meter (start of day), hours	5377	5566	5731	5876	6038	6248	6533	6772	7260	7357
P1 (filter influent), psig	15.1	17	16.5	16.5	14	10.5		13	12	15.5
P2 (post-filter), psig	13	12	10.5	10	11	9		10	7	11
P3 (effluent), psig	11	11	9.5	9	10	6		9	4	10
Chemical Tank Data										
Tank level Lactate (start of day), gal	8	21	full	28	10	42	0	0	0	0
Tank level Bicarb (start of day), gal	42	150	full	40	15	45	0	0	0	0
Pump Rate Lactate (start of day),	0.2	0.2		0.25	0.27		0	0	0	0
Pump Rate bicarb (start of day),	1.5	1.5		2.6	2.4		0	0	0	0
Lactate tank refilling (sol), gal	2.75	0	0	1.3	3.44	0	0	0	0	0
Lactate tank refilling (water), gal	20	0	0	10	25	0	0	0	0	0
Bicarb tank refilling, lb	73.7	0	0	74	87.1	63.7	0	0	0	0
Bicarb tank refilling (water), gal	108	0	0	115	130	95	0	0	0	0

APPENDIX D

FIELD GEOCHEMICAL PARAMETER FORMS

EVENT 1

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	NAS Cecil Field Site 59	Sample ID No.:	CEF-059-GW- IW2A-01B
Project No.:	112GN0039.DS010F200	Sample Location:	CEF-059-IW2A
Sampled By:	WH	Duplicate:	☒
Field Analyst:	WH	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):	DS		

SAMPLING DATA:

Date: 7.28.06 / Time: 1436	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	Clear	5.81	0.091	7.90	0.53	25.37	-56.5

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L Analysis Time: 1540

Concentration: 0.0 mg/L

Notes:

Alkalinity:

Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1544

CHEMetrics K-1910, K-1920, or K-1925. Concentration: 16 mg/L

Notes:

Carbon Dioxide:

Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1546

CHEMetrics K-9810, K-9815, or K-9820. Concentration: 90 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

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

Program/Module: 33 / 500nm Concentration: 0.5 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 1642

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

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

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

Multiplication is correct for each *Multiplier* table: ☒

Final concentration is within the appropriate *Range Used* block: ☒

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

Title block is initialized by person who performed the QA/QC Checklist: ☒

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW-~~IW2~~1W1A-03B**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-~~IW2A~~ 1W1A**
Sampled By: Kara Wimble
Duplicate: ☐
Field Analyst:
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): DX

SAMPLING DATA:

Date: 9-22-06	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	
Time: 1100	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)	
Method: (Peristaltic)	clear	6.92	0.574	—	1.59	—	-56.4	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or (K-7512) Range ☒ 0 - 1.0 mg/L ☒ 1 - 12 mg/L Analysis Time: 1115
Concentration: 2.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 50 to 500 mg/L) Analysis Time: 1120
CHEMetrics K-1910, K-1920, or K-1925 (K-9815) Concentration: 210 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1125
CHEMetrics K-9810, K-9815, or K-9820. (K-1910) Concentration: 80 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: (DR-890) IR-18C Color Wheel Analysis Time: 1105
Program/Module: 33 / 500nm Concentration: 1.32 mg/L
Filtered: N
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C Analysis Time: 1107
Exceeded 5.0 mg/L range on color chart: ■ Concentration: 0.1 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- MW1A-01B**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-MW1A**
Sampled By: WH
Duplicate: ☐
Field Analyst: WH
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): DS

SAMPLING DATA:

Date: 7-28-06 / Time: 1310 / Method: Peristaltic	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
	clear	6.65	0.509	8.60	0.38	26.78	71.0

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512
Range ☒ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1425
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 0 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1423
Concentration: 60 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1420
Concentration: 70 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1417
Concentration: 0.16 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1411
Concentration: 0.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒
Title block is initialized by person who performed the QA/QC Checklist: ☒

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **NG-12D-GW-01B**
Project No.: **112GN0039.DS010F200**
Sample Location: **NG-12D**
Sampled By: WH
Duplicate: ☐
Field Analyst: WH
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): DS

SAMPLING DATA:

Date: 7-31-06	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)
Time: 1103	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)
Method: Peristaltic	Clear	4.62	0.045	2.35	0.44	25.00	78

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☑ 1 - 12 mg/L
Analysis Time: 1145
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1140
Concentration: 40 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1135
Concentration: 105 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1138 ~~0.74~~ wH
Concentration: 0.74 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1133
Concentration: 0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒
Title block is initialized by person who performed the QA/QC Checklist: ☒

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- EWA-01B**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-EWA**
Sampled By: WH
Duplicate: ☐
Field Analyst: WH
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): DS

SAMPLING DATA:

Date: 7-31-06 / Time: 1230	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	Clear	5.58	0.081	8.8	0.28	25.24	65.6

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512
Range ☑ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1248
Concentration: 0.8 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1245
Concentration: 17 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1238
Concentration: 60 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: (DR-890) IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1235
Concentration: 0.84 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1239
Concentration: 0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒
Title block is initialized by person who performed the QA/QC Checklist: ☒

EVENT 2

EVENT 2

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

8/24 m25

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.:
Project No.: **112GN0039.DS010F200**
Sample Location: FL 12
Sampled By: WH
Field Analyst: WH
Duplicate: ☐
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials):

SAMPLING DATA:

Date: / Time:	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
NA		5.19	0.057		0.42		-28.0
Method: Peristaltic							

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☑ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 0802
Concentration: 0.8 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 0808
Concentration: <10 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 0755
Concentration: 60 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR/890
IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 0757
Concentration: 1.18 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 0753
Concentration: 0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

EVENT 2

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

8/24-25

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039.DS010F200**
Sampled By: LHF
Field Analyst: LHF
Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.:
Sample Location: EW2A
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: / Time: / Method:	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
N/A Peristaltic		5.31	0.0060		0.59		27.8

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☐ 0 - 1.0 mg/L ☑ 1 - 12 mg/L
Analysis Time: 0822
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 120 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 0818
Concentration: 110 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 60 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 0820
Concentration: 50 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890
Program/Module: 33 / 500nm
IR-18C Color Wheel
Analysis Time: 0817
Concentration: 1.02 mg/L
1.02
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 0815
Concentration: 0 mg/L
Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

Event 2

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

8/24 w 25

Project Site Name:	NAS Cecil Field Site 59	Sample ID No.:	
Project No.:	112GN0039.DS010F200	Sample Location:	MW1A
Sampled By:	WH	Duplicate:	☐
Field Analyst:	WH	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Date: NA							
Time:							
Method: Peristaltic		7.20	0.253		0.55		26.1

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L Analysis Time: 0853

Concentration: 0.8 mg/L

Notes:

Alkalinity:

Equipment: (Range: 50 to 500 mg/L) Analysis Time: 0842

CHEMetrics K-1910, K-1920, or K-1925. Concentration: 100 mg/L

Notes:

Carbon Dioxide:

Equipment: (Range: 10 to 100 mg/L) Analysis Time: 0840

CHEMetrics K-9810, K-9815, or K-9820. Concentration: 110 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 IR-18C Color Wheel Analysis Time: 0845

Program/Module: 33 / 500nm Concentration: 0.0 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 0840

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

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

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

Multiplication is correct for each *Multiplier* table: ☐

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

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

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

Event 2

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

8/24 or 25

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039.DS010F200**
Sampled By: WH
Field Analyst: WH
Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.:
Sample Location: NG-12D
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: NA / Time: NA / Method: Peristaltic	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
		6.07	0.063		0.33		30.3

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☑ 0 - 1.0 mg/L ☒ 1 - 12 mg/L Analysis Time: 1360
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 010 to 100 mg/L) Analysis Time: 1253
CHEMetrics K-1910, K-1920, or K-1925. Concentration: 19 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1305
CHEMetrics K-9810, K-9815, or K-9820. Concentration: 18 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: ~~DR-890~~ IR-18C Color Wheel Analysis Time: 1258
Program/Module: 33 / 500nm Concentration: 0.05 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C Analysis Time: 1257
Exceeded 5.0 mg/L range on color chart: ☐ Concentration: 0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

EVENT 2

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

8/24 w25

Project Site Name: **NAS Cecil Field Site 59** Sample ID No.:

Project No.: **112GN0039.DS010F200** Sample Location: EWA

Sampled By: WH Duplicate: ☐

Field Analyst: WH Blank: ☐

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

SAMPLING DATA:

Date: / Time: / Method:	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Peristaltic		5.25	0.058		0.54		33.9

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L Analysis Time: 0952

Concentration: 0.4 mg/L

Notes:

Alkalinity:

Equipment: (Range: 10 to 700 mg/L) Analysis Time: 0942

CHEMetrics K-1910, K-1920, or K-1925. Concentration: 560 mg/L

Notes:

Carbon Dioxide:

Equipment: (Range: 10 to 100 mg/L) Analysis Time: 0946

CHEMetrics K-9810, K-9815, or K-9820. Concentration: 70 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 IR-18C Color Wheel Analysis Time: 0950

Program/Module: 33 / 500nm Concentration: 1.19 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 0947

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

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

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

Multiplication is correct for each *Multiplier* table: ☐

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

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

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

Event 2

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

8/24 or 25

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039.DS010F200**
Sampled By: LH
Field Analyst: LH
Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.:
Sample Location: MW 12 I
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: / Time:	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic		6.54	0.069		0.98		39.6

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512
Range ☒ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1338
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: CHEMetrics K-1910, K-1920, or K-1925.
(Range: 10 to 100 mg/L)
Analysis Time: 1338
Concentration: 40 mg/L
Notes:

Carbon Dioxide:
Equipment: CHEMetrics K-9810, K-9815, or K-9820.
(Range: 10 to 100 mg/L)
Analysis Time: 50 1335
Concentration: 54 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890
IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1332
Concentration: 0.0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1328
Concentration: 0 mg/L
Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each Multiplier table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

EVENT 2

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

9/24 - 25

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039.DS010F200**
Sampled By: WH
Field Analyst: WH
Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.:
Sample Location: 006-78
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: / Time: / Method:	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Peristaltic		5.40	0.045		0.34		-24.8

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512
Range: ☑ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1508
Concentration: 0.8 mg/L
Notes:

Alkalinity:
Equipment: CHEMetrics K-1910, K-1920, or K-1925.
(Range: 10 to 100 mg/L)
Analysis Time: 1505
Concentration: 40 mg/L
Notes:

Carbon Dioxide:
Equipment: CHEMetrics K-9810, K-9815, or K-9820.
(Range: 10 to 100 mg/L)
Analysis Time: 1510
Concentration: 40 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: ~~DR-890~~ IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1502
Concentration: 0.81 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1455
Concentration: 0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

EVENT 3

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- IW2A-03B**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-IW2A**
Sampled By: WH
Duplicate: ☐
Field Analyst: WH
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): DS

SAMPLING DATA:

Date: 9-13-06 / Time: 1346	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	Cloudy	6.03	0.321	14	1.64	25.37	-80.7

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1551
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1557
Concentration: 40 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1600
Concentration: 70 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1554
Concentration: 1.47 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1550
Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- MW1A-03B**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-MW1A**
Sampled By: WH
Duplicate: ☐
Field Analyst: WH
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): RS

SAMPLING DATA:

Date: 9-13-06 / Time: 1621	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	Clear	6.67	0.721	3.7	3.70	26.14	-2.0

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512
Range ☒ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1745
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 50 to 500 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1750
Concentration: 125 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1753
Concentration: 100 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1747
Concentration: 0.47 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1746
Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ■
Title block is initialized by person who performed the QA/QC Checklist: ☑

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **NG-12D-GW-03B**
Project No.: **112GN0039.DS010F200**
Sample Location: **NG-12D**
Sampled By: WH
Duplicate: ☐
Field Analyst: WH
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): DS

SAMPLING DATA:

Date: 9-13-06 / Time: 1706 / Method: Peristaltic	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
	Clear	5.84	0.093	2.1	1.26	25.15	-14.1

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512
Range ☒ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1815
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: CHEMetrics K-1910, K-1920, or K-1925.
(Range: 10 to 100 mg/L)
Analysis Time: 1820
Concentration: 40 mg/L
Notes:

Carbon Dioxide:
Equipment: CHEMetrics K-9810, K-9815, or K-9820.
(Range: 10 to 100 mg/L)
Analysis Time: 1817
Concentration: 70 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890
IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1810
Concentration: 0.92 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1818
Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- EWA-03B**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-EWA**
Sampled By: LH
Duplicate: ☐
Field Analyst: LH
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): DS

SAMPLING DATA:

Date: 9-13-06 / Time: 1455	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	Cloudy	5.40	0.115	79	2.91	28.75	8.9

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1530
Concentration: 2.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1540
Concentration: 110 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1542
Concentration: 40 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1533
Concentration: 2.48 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1532
Concentration: 0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

EVENT 4

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	NAS Cecil Field Site 59	Sample ID No.:	CEF-059-GW- IW2A-04B
Project No.:	112GN0039.DS010F200	Sample Location:	CEF-059-IW2A
Sampled By:	J. Foster	Duplicate:	☐
Field Analyst:		Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):	JF		

SAMPLING DATA:

Date: 10-25-06 / Time: 1355	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)	
Method: Peristaltic	Clear	6.51	0.780		3.66	25.32	-106.8	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 Range ☐ 0 - 1.0 mg/L ☒ 1 - 12 mg/L Analysis Time: 1415

Concentration: 4 mg/L

Notes:

Alkalinity:

Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1420

CHEMetrics K-1910, K-1920, or K-1925. Concentration: <10 mg/L

Notes:

Carbon Dioxide:

Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1427

CHEMetrics K-9810, K-9815, or K-9820. Concentration: 11 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 IR-18C Color Wheel Analysis Time: 1435

Program/Module: 33 / 500nm Concentration: 0 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 1437

Exceeded 5.0 mg/L range on color chart: ☐ Concentration: 1.0 mg/L

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☑

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

Multiplication is correct for each *Multiplier* table: ☑

Final concentration is within the appropriate *Range Used* block: ☑

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

Title block is initialized by person who performed the QA/QC Checklist: ☑

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- MW1A-04B**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-MW1A**
Sampled By: J. Foster
Duplicate: ☐
Field Analyst:
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): JF

SAMPLING DATA:

Date: 10-25-06 / Time: 1108	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	clear	6.62	0.591	3.6	2.72	23.97	-117.5

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☐ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1130
Concentration: 3 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
Analysis Time: 1135
CHEMetrics K-1910, K-1920, or K-1925.
Concentration: < 10 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: ~~10~~ ~~100~~ to ~~100~~ ~~1000~~ mg/L)
Analysis Time: 1150
CHEMetrics K-9810, K-9815, or K-9820.
Concentration: ~~600~~ 13 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Analysis Time: 1159
Program/Module: 33 / 500nm
Concentration: 0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Analysis Time: 1201
Exceeded 5.0 mg/L range on color chart: ☐
Concentration: 0.5 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59** | Sample ID No.: **NG-12D-GW-04B**

Project No.: **112GN0039.DS010F200** | Sample Location: **NG-12D**

Sampled By: J. Foster | Duplicate: ☐

Field Analyst: | Blank: ☐

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

SAMPLING DATA:

Date: 10/25/06	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)
Time: 0945	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)
Method: Peristaltic	clear	5.58	0.097	1.98	1.67	24.58	-118.2

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 | Range ☒ 0 - 1.0 mg/L ☒ 1 - 12 mg/L | Analysis Time: 0950

Concentration: 1.0 mg/L

Notes:

Alkalinity:

Equipment: (Range: 10 to 100 mg/L) | Analysis Time: 1005

CHEMetrics K-1910, K-1920, or K-1925. | Concentration: 25 mg/L

Notes:

Carbon Dioxide:

Equipment: (Range: 10 to 100 mg/L) | Analysis Time: 1010

CHEMetrics K-9810, K-9815, or K-9820. | Concentration: 13 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 IR-18C Color Wheel | Analysis Time: 1017 ~~3 minutes~~

Program/Module: 33 / 500nm | Concentration: 0.0 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C | Analysis Time: 1029

Exceeded 5.0 mg/L range on color chart: ☐ | Concentration: 2.0 mg/L

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☑

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

Multiplication is correct for each *Multiplier* table: ☑

Final concentration is within the appropriate *Range Used* block: ☑

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

Title block is initialized by person who performed the QA/QC Checklist: ☑

0.816 gal

3089 mL

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- EWA-04B**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-EWA**
Sampled By: J. Foster
Duplicate: ☐
Field Analyst:
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): JF

SAMPLING DATA:

Date: 10-25-06 / Time: 1512	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: ~~Peristaltic~~	clear	5.15	0.108	81.7	1.83	24.34	-119.5

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1520
Concentration: 0.6 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1532
Concentration: 0 mg/L
Notes: Solution was pink upon adding A-9800 activator solution. Alkalinity is Zero

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1537
Concentration: 12 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1550
Concentration: 0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1552
Concentration: 1.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

EVENT 5

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- IW2A-05B**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-IW2A**
Sampled By: WHT
Duplicate: ☐
Field Analyst: WHT
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): ☐

SAMPLING DATA:

Date: 11-9-06 / Time: 1026 / Method: Peristaltic	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
	Clear	6.45	4173	9.8	1.53	24.25	-141.1

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☑ 0 - 1.0 mg/L ☑ 1 - 12 mg/L
Analysis Time: 1521
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1527
Concentration: 200 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1530
Concentration: 190 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 98 / 500nm
Analysis Time: 1520
Concentration: 1.12 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1525
Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	NAS Cecil Field Site 59	Sample ID No.:	CEF-059-GW- MW1A-05B
Project No.:	112GN0039.DS010F200	Sample Location:	CEF-059-MW1A
Sampled By:	WLF	Duplicate:	☐
Field Analyst:	WLF	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

Date: 11-9-06 / Time: 0915 / Method: Peristaltic	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
	Clear	6.52	0.718	8.1	3.63	23.04	-93.9

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 — Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L — Analysis Time: 1458 — Concentration: 1.0 mg/L

Notes:

Alkalinity:

Equipment: (Range: 250 to 2,500 mg/L) — Analysis Time: 1505

CHEMetrics K-1910, K-1920, or K-1925. — Concentration: 400 mg/L

Notes:

Carbon Dioxide:

Equipment: (Range: 100 to 1000 mg/L) — Analysis Time: 1508

CHEMetrics K-9810, K-9815, or K-9820. — Concentration: 500 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 — IR-18C Color Wheel — Analysis Time: 1455

Program/Module: 33 / 500nm — Concentration: 2.22 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C — Analysis Time: 1456

Exceeded 5.0 mg/L range on color chart: ☐ — Concentration: 2.0 mg/L

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

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

Multiplication is correct for each *Multiplier* table: ☐

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

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

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

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59** | Sample ID No.: **NG-12D-GW-05B**

Project No.: **112GN0039.DS010F200** | Sample Location: **NG-12D**

Sampled By: WH WH | Duplicate: ☐

Field Analyst: WH | Blank: ☐

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

SAMPLING DATA:

Date: 11-9-06 / Time: 1249	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	Clear	6.09	0.761	7.2	0.56	25.68	-155.2

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 | Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L | Analysis Time: 1404

Concentration: 0.9 mg/L

Notes:

Alkalinity:

Equipment: (Range: 50 to 500 mg/L) | Analysis Time: 1412

CHEMetrics K-1910, K-1920, or K-1925. | Concentration: 350 mg/L

Notes:

Carbon Dioxide:

Equipment: (Range: 100 to 1000 mg/L) | Analysis Time: 1409

CHEMetrics K-9810, K-9815, or K-9820. | Concentration: 200 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 | IR-18C Color Wheel | Analysis Time: 1405

Program/Module: 33 / 500nm | Concentration: 0.40 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C | Analysis Time: 1407

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

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

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

Multiplication is correct for each *Multiplier* table: ☐

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

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

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

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- EWA-05B**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-EWA**
Sampled By: WH
Duplicate: ☐
Field Analyst: WH
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials):

SAMPLING DATA:

Date: 11-9-06 / Time: 1226	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	Cloudy	5.33	0.183	45	0.53	24.66	-134.4

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1452
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: CHEMetrics K-1910, K-1920, or K-1925. (Range: 10 to 100 mg/L)
Analysis Time: 1436
Concentration: 50 mg/L
Notes:

Carbon Dioxide:
Equipment: CHEMetrics K-9810, K-9815, or K-9820. (Range: 100 to 1000 mg/L)
Analysis Time: ~~1450~~ 1440
Concentration: 150 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1430
Concentration: 1.60 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1435
Concentration: 50 mg/L
Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

EVENT 6

Event 6

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- IW2A-06B**
Project No.: **112GN0039**
Sample Location: **CEF-059-IW2A**
Sampled By: J. Foster
Duplicate: ☐
Field Analyst:
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): JF

SAMPLING DATA:

Date: 11-20-06 / Time: 1550	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	clear	6.63	1.302	20.0	2.41	24.42	-42.8

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512
Range ☐ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1552
Concentration: 3.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1556
Concentration: 11 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1602
Concentration: 13 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1555
Concentration: 0.0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1605
Concentration: 0.2 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒
Title block is initialized by person who performed the QA/QC Checklist: ☒

Event 6

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- MW1A-06B**
Project No.: **112GN0039**
Sample Location: **CEF-059-MW1A**
Sampled By: Jonathan Foster
Duplicate: ☐
Field Analyst:
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): JF

SAMPLING DATA:

Date: 11-20-06 / Time: 1438	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	clear	6.75	0.814	6.35	4.23	24.25	-52.0

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512
Range ☐ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1458
Concentration: 5 mg/L
Notes:

Alkalinity:
Equipment: CHEMetrics K-1910, K-1920, or K-1925.
(Range: 10 to 100 mg/L)
Analysis Time: 1502
Concentration: 11 mg/L
Notes:

Carbon Dioxide:
Equipment: CHEMetrics K-9810, K-9815, or K-9820.
(Range: 10 to 100 mg/L)
Analysis Time: 1455
Concentration: 13 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1450
Concentration: 0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1451
Concentration: 0.1 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒
Title block is initialized by person who performed the QA/QC Checklist: ☒

Event 6

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	NAS Cecil Field Site 59	Sample ID No.:	NG-12D-GW-06B
Project No.:	112GN0039	Sample Location:	NG-12D
Sampled By:	Jonathan Foster	Duplicate:	☐
Field Analyst:		Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):	J.F.		

SAMPLING DATA:

Date: 11-20-06 / Time: 1235	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	clear	6.38	0.513	6.10	0.10	25.25	-186.2

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 Range ☐ 0 - 1.0 mg/L ☒ 1 - 12 mg/L Analysis Time: 1257

Concentration: 1.0 mg/L

Notes:

Alkalinity:

Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1309

CHEMetrics K-1910, K-1920, or K-1925. Concentration: 11 mg/L

Notes:

Carbon Dioxide:

Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1305

CHEMetrics K-9810, K-9815, or K-9820. Concentration: 13 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 IR-18C Color Wheel Analysis Time: 1255

Program/Module: 33 / 500nm Concentration: 0 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 1245

Exceeded 5.0 mg/L range on color chart: ☐ Concentration: 2.0 mg/L

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

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

Multiplication is correct for each *Multiplier* table: ☒

Final concentration is within the appropriate *Range Used* block: ☒

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

Title block is initialized by person who performed the QA/QC Checklist: ☒

Event 6

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039**
Sampled By: Jonathan Foster
Field Analyst:
Field Form Checked as per QA/QC Checklist (initials): JF

Sample ID No.: **CEF-059-GW- EWA-06B**
Sample Location: **CEF-059-EWA**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: 11-20-06	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Time: ~~1328~~ 1428							
Method: Peristaltic	clear	5.83	0.247	6.86	1.04	25.24	-104.7

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☐ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1437
Concentration: 2.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1450
Concentration: 13 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1445
Concentration: 13 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1446
Concentration: 0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1440
Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ■
Title block is initialized by person who performed the QA/QC Checklist: ☒

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FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59** | Sample ID No.: **CEF-059-GW- IW2A-07B**

Project No.: **112GN0039** | Sample Location: **CEF-059-IW2A**

Sampled By: WH | Duplicate: ☐

Field Analyst: WH | Blank: ☐

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

SAMPLING DATA:

Date: 12.5.06 / Time: 1338	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	Clear	6.64	1.189	9.7	0.11	24.33	-217.0

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 | Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L | Analysis Time: 1615

Concentration: 0.4 mg/L

Notes:

Alkalinity:

Equipment: (Range: 100 to 1000 mg/L) | Analysis Time: 1621

CHEMetrics K-1910, K-1920, or K-1925. | Concentration: 500 mg/L

Notes:

Carbon Dioxide:

Equipment: (Range: 100 to 1000 mg/L) | Analysis Time: 1625

CHEMetrics K-9810, K-9815, or K-9820. | Concentration: 180 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 | IR-18C Color Wheel | Analysis Time: ~~1616~~ 1616

Program/Module: 33 / 500nm | Concentration: 0.46 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C | Analysis Time: 1617

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

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

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

Multiplication is correct for each *Multiplier* table: ☒

Final concentration is within the appropriate *Range Used* block: ☒

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

Title block is initialized by person who performed the QA/QC Checklist: ☒

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59** | Sample ID No.: **CEF-059-GW- MW1A-07B**

Project No.: **112GN0039** | Sample Location: **CEF-059-MW1A**

Sampled By: WH | Duplicate: ☐

Field Analyst: WH | Blank: ☐

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

SAMPLING DATA:

Date: 12-5-00	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	
Time: 0956	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)	
Method: Peristaltic	clear	6.80	0.963	7.8	0.23	23.76	-159.6	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 | Range ☐ 0 - 1.0 mg/L ☒ 1 - 12 mg/L | Analysis Time: 1555

Concentration: 3.0 mg/L

Notes:

Alkalinity:

Equipment: (Range: 150 to 500 mg/L) | Analysis Time: 1558

CHEMetrics K-1910, K-1920, or K-1925. | Concentration: 400 mg/L

Notes:

Carbon Dioxide:

Equipment: (Range: 100 to 1000 mg/L) | Analysis Time: 1600

CHEMetrics K-9810, K-9815, or K-9820. | Concentration: 170 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 | IR-18C Color Wheel | Analysis Time: 1552

Program/Module: 33 / 500nm | Concentration: 3.27 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C | Analysis Time: 1556

Exceeded 5.0 mg/L range on color chart: ☐ | Concentration: 2.0 mg/L

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

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

Multiplication is correct for each *Multiplier* table: ☒

Final concentration is within the appropriate *Range Used* block: ☒

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

Title block is initialized by person who performed the QA/QC Checklist: ☒

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **NG-12D-GW-07B**
Project No.: **112GN0039**
Sample Location: **NG-12D**
Sampled By: WH
Duplicate: ☐
Field Analyst: WH
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials):

SAMPLING DATA:

Date: 12-5-06	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)
Time: 1324	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)
Method: Peristaltic	Clear	6.55	1.006	30	0.11	24.94	-119.8

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1533
Concentration: 0.2 mg/L
Notes:

Alkalinity:
Equipment: CHEMetrics K-1910, K-1920, or K-1925. (Range: 100 400 to 1000 mg/L)
Analysis Time: 1536
Concentration: 400 mg/L
Notes:

Carbon Dioxide:
Equipment: CHEMetrics K-9810, K-9815, or K-9820. (Range: 100 to 1000 mg/L)
Analysis Time: 1540
Concentration: 160 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1532
Concentration: 0.18 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1534
Concentration: 5.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- EWA-07B**
Project No.: **112GN0039**
Sample Location: **CEF-059-EWA**
Sampled By: WH
Duplicate: ☐
Field Analyst: WH
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): DS

SAMPLING DATA:

Date: 12-5-02 / Time: 1418	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	Cloudy	5.93	0.305	101	0.08	25.19	-179.7

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 (circled) Range ☒ 0 - 1.0 mg/L ■ 1 - 12 mg/L
Analysis Time: 1514
Concentration: 0.3 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925. (circled)
Analysis Time: 1516
Concentration: 70 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-9810, K-9815, or K-9820. (circled)
Analysis Time: 1520
Concentration: 200 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 (circled) IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1518
Concentration: 2.46 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1511
Concentration: 5.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

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Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039**
Sampled By: J. Foster
Field Analyst: J. Foster
Field Form Checked as per QA/QC Checklist (initials): J. F.

Sample ID No.: **CEF-059-GW- IW2A-08B**
Sample Location: **CEF-059-IW2A**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: 1 / 23 / ~~2006~~ 2007	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	
Time: 1235	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)	
Method: Peristaltic	clear	6.79	2.045	36.2	0.31	23.76	-294.8	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1245
Concentration: 0.3 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1250
Concentration: <10 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1255
Concentration: 13 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1300
Concentration: 0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1305
Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒
Title block is initialized by person who performed the QA/QC Checklist: ☒

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039**
Sampled By: J. Foster
Field Analyst: J. Foster
Field Form Checked as per QA/QC Checklist (initials): J. F.

Sample ID No.: **CEF-059-GW- MW1A-08B**
Sample Location: **CEF-059-MW1A**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: 1 / 23 / ~~2006~~ 2007	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	
Time: 1010	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)	
Method: Peristaltic	clear	6.53	0.966	9.46	0.27	23.20	-268.4	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1050
Concentration: 0.4 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1055
Concentration: < 10 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1100
Concentration: 12 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1105
Concentration: 0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1110
Concentration: 1.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒
Title block is initialized by person who performed the QA/QC Checklist: ☒

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: **NAS Cecil Field Site 59** | Sample ID No.: **NG-12D-GW-08B**

Project No.: **112GN0039** | Sample Location: **NG-12D**

Sampled By: TERRY COTTENOIR | Duplicate: ☐

Field Analyst: TERRY COTTENOIR | Blank: ☐

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

SAMPLING DATA:

Date: 1/23/~~2006~~ 2007	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)
Time: 0955	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)
Method: Peristaltic	CLEAR	6.47	1.341	5.8	0.49	23.92	-236.5

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 | Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L | Analysis Time: 1115

Concentration: 0.6 mg/L

Notes:

Alkalinity:

Equipment: CHEMetrics K-1910, K-1920, or K-1925. | (Range: 100 to 1000 mg/L) | Analysis Time: 1120

Concentration: 120 mg/L

Notes:

Carbon Dioxide:

Equipment: CHEMetrics K-9810, K-9815, or K-9820. | (Range: 100 to 1000 mg/L) | Analysis Time: 1125

Concentration: 306 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 | IR-18C Color Wheel | Analysis Time: 1106

Program/Module: ~~337~~ 500nm | Concentration: 0.44* mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C | Analysis Time: 1110

Exceeded 5.0 mg/L range on color chart: ☐ | Concentration: 2.0 mg/L

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☑

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

Multiplication is correct for each *Multiplier* table: ☑

Final concentration is within the appropriate *Range Used* block: ☑

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

Title block is initialized by person who performed the QA/QC Checklist: ☑

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039**
Sampled By: TERRY COTTENOIR
Field Analyst: TERRY COTTENOIR
Field Form Checked as per QA/QC Checklist (initials): TC

Sample ID No.: **CEF-059-GW- EWA-08B**
Sample Location: **CEF-059-EWA**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: 1/23/~~2006~~ 2007 / Time: 1215	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	CLOUDY	6.02	0.550	140	0.32	24.05	-198.1

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 (circled) Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1228
Concentration: 0.2 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1239
Concentration: 70 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1235
Concentration: 180 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 (circled) IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1222
Concentration: 2.63 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C (circled)
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1225
Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

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FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039**
Sampled By: Jon Foster
Field Analyst: Jon Foster
Field Form Checked as per QA/QC Checklist (initials): J.F.

Sample ID No.: **CEF-059-GW- IW2A-09B**
Sample Location: **CEF-059-IW2A**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: ~~1/23/2006~~ 2/19/2007	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)	
Time: 1441								
Method: Peristaltic	Clear	6.12	0.578		0.24	24.28	-197.6	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☐ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1448
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1452
Concentration: 12 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1455
Concentration: 12 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1446
Concentration: 0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1446
Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒
Title block is initialized by person who performed the QA/QC Checklist: ☒

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- MW1A-09B**
Project No.: **112GN0039**
Sample Location: **CEF-059-MW1A**
Sampled By: Jon Foster
Duplicate: ☐
Field Analyst: Jon Foster
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): J. F.

SAMPLING DATA:

Date: ~~1/23/2006~~ 2/19/2007	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	
Time: 1346	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)	
Method: Peristaltic	clear	6.61	1.069		0.48	23.06	-159.6	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☐ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1357
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1401
Concentration: 11 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1402
Concentration: 14 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1356
Concentration: 0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1356
Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ■
Title block is initialized by person who performed the QA/QC Checklist: ☒

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039**
Sampled By: Jon Foster
Field Analyst: Jon Foster
Field Form Checked as per QA/QC Checklist (initials): J.F.

Sample ID No.: **NG-12D-GW-09B**
Sample Location: **NG-12D**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: ~~1/23/2006~~ 2/19/2007	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)
Time: 1122	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)
Method: Peristaltic	clear	6.45	1.330		0.32	24.37	-198.7

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L Analysis Time: 1125
Concentration: 0.2 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1128
CHEMetrics K-1910, K-1920, or K-1925. Concentration: 12 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1130
CHEMetrics K-9810, K-9815, or K-9820. Concentration: 13 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel Analysis Time: 1136
Program/Module: 33 / 500nm Concentration: 0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C Analysis Time: 1137
Exceeded 5.0 mg/L range on color chart: ☐ Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒
Title block is initialized by person who performed the QA/QC Checklist: ☒

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- EWA-09B**
Project No.: **112GN0039**
Sample Location: **CEF-059-EWA**
Sampled By: Jon Foster
Duplicate: ☐
Field Analyst: Jon Foster
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): J.F.

SAMPLING DATA:

Date: ~~1/23/2006~~ 2/19/2007	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	
Time: 1155	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)	
Method: Peristaltic	clear	6.06	0.519		0.23	24.55	-177.8	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1159
Concentration: 0.3 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1206
Concentration: 13 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1210
Concentration: 12 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1207
Concentration: 0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1207
Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒
Title block is initialized by person who performed the QA/QC Checklist: ☒

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Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: **NAS Cecil Field Site 59**
Project No.: ~~S. McGuire~~ **112GN0039**
Sampled By: S. McGuire
Field Analyst: S. McGuire
Field Form Checked as per QA/QC Checklist (initials): DS

Sample ID No.: **CEF-059-GW- IW2A-10B**
Sample Location: **CEF-059-IW2A**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: 3/7/2007 Time: 1240 Method: Peristaltic	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
	milky	5.97	588	37.4	0.32	24.41	-210.6

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☑ 0 - 1.0 mg/L ☐ 1 - 12 mg/L Analysis Time: 1316
Concentration: 0.4 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1321
CHEMetrics K-1910, K-1920, or K-1925. Concentration: < 10 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1326
CHEMetrics K-9810, K-9815, or K-9820. Concentration: 17 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel Analysis Time: 1331
Program/Module: 33 / 500nm Concentration: 0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C Analysis Time: 1335
Exceeded 5.0 mg/L range on color chart: ☐ Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate Range Used block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039**
Sampled By: S. McGuire
Field Analyst: S. McGuire
Field Form Checked as per QA/QC Checklist (initials): DS

Sample ID No.: **CEF-059-GW- MW1A-10B**
Sample Location: **CEF-059-MW1A**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: 3/7/2006	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Time: 0930							
Method: Peristaltic	Clear	6.42	921	6.80	0.29	23.05	-189.9

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☑ 0 - 1.0 mg/L ☑ 1 - 12 mg/L
Analysis Time: 1000
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1004
Concentration: 350 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1011
Concentration: 180 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Limit 3.30
Analysis Time: 1016
Concentration: 180 Sem mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1025
Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039**
Sampled By: S. McGuire
Field Analyst: S. McGuire
Field Form Checked as per QA/QC Checklist (initials): DS

Sample ID No.: **NG-12D-GW-10B**
Sample Location: **NG-12D**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: 3/7/2006 Time: 1130 Method: Peristaltic	Color (Visual)	pH (SU)	S.C. µS/cm (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
	Clear	6.51	874	3.01	0.19	23.62	-239.6

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☑ 0 - 1.0 mg/L ☑ 1 - 12 mg/L
Analysis Time: 1205
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1210
Concentration: 140 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1216
Concentration: 290 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1221
Concentration: 0.34 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1224
Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039**
Sampled By: S. McGuire
Field Analyst: S. McGuire
Field Form Checked as per QA/QC Checklist (initials): DS

Sample ID No.: **CEF-059-GW- EWA-10B**
Sample Location: **CEF-059-EWA**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: 3/6/2006 Time: 1310 Method: Peristaltic	Color (Visual)	pH (SU)	S.C. µS/cm (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
	Milky	6.10	552	136.0	0.24	24.75	-174.3

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☑ 0 - 1.0 mg/L ☑ 1 - 12 mg/L Analysis Time: 1311
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 100 to 1000 mg/L) Analysis Time: 1315
CHEMetrics K-1910, K-1920, or K-1925. Concentration: 110 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L) Analysis Time: 1319
CHEMetrics K-9810, K-9815, or K-9820. Concentration: 190 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel Analysis Time: 1322
Program/Module: 33 / 500nm Concentration: 1.66 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C Analysis Time: 1330
Exceeded 5.0 mg/L range on color chart: ☐ Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☑

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FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- IW2A-11B**
Project No.: **112GN0039**
Sample Location: **CEF-059-IW2A**
Sampled By: Mark Yarbrough
Duplicate: ☐
Field Analyst: Mark Yarbrough
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLING DATA:

Date: 5/8/2007	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	
Time: 1137	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)	
Method: Peristaltic	greenish	6.20	.656	14	2.10	24.82	-98.5/-99.0	-98.3

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512
Range ☑ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1260
Concentration: .6 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1210
Concentration: 10 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1220
Concentration: 12 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1225
Concentration: 0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1230
Concentration: 0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039**
Sampled By: Mark Yarbrough
Field Analyst: Mark Yarbrough
Field Form Checked as per QA/QC Checklist (initials): DS

Sample ID No.: **CEF-059-GW- MW1A-11B**
Sample Location: **CEF-059-MW1A**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: 5/8 / 2006	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	
Time: 1347	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(^{0}C)	(+/- mv)	
Method: Peristaltic	green-gy	6.71	.772	12	.50	25.81	-131.1/-136.8/142.1	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☑ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1400
Concentration: .80 mg/L
Notes:

Alkalinity:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1410
Concentration: 280 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1415
Concentration: 150 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1420
Concentration: 2.80 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1430
Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **NG-12D-GW-11B**
Project No.: **112GN0039**
Sample Location: **NG-12D**
Sampled By: Mark Yarbrough
Duplicate: ☐
Field Analyst: Mark Yarbrough
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): DS

SAMPLING DATA:

Date: 3 / / 2006	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)
Time: 1150	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)
Method: Peristaltic	clear	6.28	.517	2	.15	24.61	-77.7/-79.1/-80.9

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☑ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1200
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1210
Concentration: 100 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1220
Concentration: 160 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1230
Concentration: 0 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1240
Concentration: .3 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☑

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039**
Sampled By: Mark Yarbrough
Field Analyst: Mark Yarbrough
Field Form Checked as per QA/QC Checklist (initials): DS

Sample ID No.: **CEF-059-GW- EWA-11B**
Sample Location: **CEF-059-EWA**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: 5/ 8 / 2006	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	
Time: 1107	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)	
Method: Peristaltic	greenish	6.71	.772	12	.50	25.8	-131.1 / -136.8	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512
Range ☒ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1115
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1120
Concentration: 110 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1125
Concentration: 200 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1130
Concentration: 1.50 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1135
Concentration: 2.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒
Title block is initialized by person who performed the QA/QC Checklist: ☒

APPENDIX E

ANALYTICAL DATA REPORTS AND COCs

EVENT 1

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-01B		
Lab Sample ID:	F42552-1	Date Sampled:	07/28/06
Matrix:	AQ - Ground Water	Date Received:	07/29/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0014268.D	20	08/04/06	CS	n/a	n/a	VM592
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	10 U	20	10	ug/l	
75-25-2	Bromoform	10 U	20	10	ug/l	
108-90-7	Chlorobenzene	10 U	20	10	ug/l	
75-00-3	Chloroethane	20 U	40	20	ug/l	
67-66-3	Chloroform	10 U	20	10	ug/l	
110-75-8	2-Chloroethyl vinyl ether	50 U	100	50	ug/l	
56-23-5	Carbon tetrachloride	10 U	20	10	ug/l	
75-34-3	1,1-Dichloroethane	10 U	20	10	ug/l	
75-35-4	1,1-Dichloroethylene	10 U	20	10	ug/l	
107-06-2	1,2-Dichloroethane	10 U	20	10	ug/l	
78-87-5	1,2-Dichloropropane	10 U	20	10	ug/l	
124-48-1	Dibromochloromethane	8.0 U	20	8.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	10 U	20	10	ug/l	
10061-01-5	cis-1,3-Dichloropropene	6.0 U	20	6.0	ug/l	
541-73-1	m-Dichlorobenzene	10 U	20	10	ug/l	
95-50-1	o-Dichlorobenzene	10 U	20	10	ug/l	
106-46-7	p-Dichlorobenzene	10 U	20	10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	10 U	20	10	ug/l	
10061-02-6	trans-1,3-Dichloropropene	6.0 U	20	6.0	ug/l	
74-83-9	Methyl bromide	20 U	40	20	ug/l	
74-87-3	Methyl chloride	20 U	40	20	ug/l	
75-09-2	Methylene chloride	62.0	100	20	ug/l	IV
71-55-6	1,1,1-Trichloroethane	10 U	20	10	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	8.0 U	20	8.0	ug/l	
79-00-5	1,1,2-Trichloroethane	10 U	20	10	ug/l	
127-18-4	Tetrachloroethylene	11.4	20	10	ug/l	I
79-01-6	Trichloroethylene	1250	20	10	ug/l	
75-01-4	Vinyl chloride	10 U	20	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-01B		
Lab Sample ID:	F42552-1	Date Sampled:	07/28/06
Matrix:	AQ - Ground Water	Date Received:	07/29/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	105%		73-126%
2037-26-5	Toluene-D8	102%		86-112%
460-00-4	4-Bromofluorobenzene	101%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-01B		
Lab Sample ID:	F42552-1	Date Sampled:	07/28/06
Matrix:	AQ - Ground Water	Date Received:	07/29/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	80500	20000	1000	ug/l	2	08/07/06	08/09/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5154
(2) Prep QC Batch: MP10058

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-01B		
Lab Sample ID:	F42552-1	Date Sampled:	07/28/06
Matrix:	AQ - Ground Water	Date Received:	07/29/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	10.9	2.0	1.0	mg/l	1	07/29/06 10:35	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	07/29/06 10:35	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	07/29/06 10:35	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.049 I	0.10	0.020	mg/l	1	07/29/06 09:15	CP	EPA 365.3
Sulfate	64.7	2.0	1.0	mg/l	1	07/29/06 10:35	MP	EPA 300/SW846 9056
Sulfide	1.0 U	1.0	1.0	mg/l	1	08/02/06	LE	EPA 376.1
Total Organic Carbon	9.9	1.0	0.50	mg/l	1	08/02/06 11:54	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-01B		
Lab Sample ID:	F42552-1A	Date Sampled:	07/28/06
Matrix:	AQ - Groundwater Filtered	Date Received:	07/29/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	99.1 I	300	15	ug/l	1	08/07/06	08/08/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	321	15	1.5	ug/l	1	08/07/06	08/08/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5150
(2) Prep QC Batch: MP10058

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-01B		
Lab Sample ID:	F42552-2	Date Sampled:	07/28/06
Matrix:	AQ - Ground Water	Date Received:	07/29/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0014269.D	20	08/04/06	CS	n/a	n/a	VM592
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	10 U	20	10	ug/l	
75-25-2	Bromoform	10 U	20	10	ug/l	
108-90-7	Chlorobenzene	10 U	20	10	ug/l	
75-00-3	Chloroethane	20 U	40	20	ug/l	
67-66-3	Chloroform	10 U	20	10	ug/l	
110-75-8	2-Chloroethyl vinyl ether	50 U	100	50	ug/l	
56-23-5	Carbon tetrachloride	10 U	20	10	ug/l	
75-34-3	1,1-Dichloroethane	10 U	20	10	ug/l	
75-35-4	1,1-Dichloroethylene	10 U	20	10	ug/l	
107-06-2	1,2-Dichloroethane	10 U	20	10	ug/l	
78-87-5	1,2-Dichloropropane	10 U	20	10	ug/l	
124-48-1	Dibromochloromethane	8.0 U	20	8.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	10 U	20	10	ug/l	
10061-01-5	cis-1,3-Dichloropropene	6.0 U	20	6.0	ug/l	
541-73-1	m-Dichlorobenzene	10 U	20	10	ug/l	
95-50-1	o-Dichlorobenzene	10 U	20	10	ug/l	
106-46-7	p-Dichlorobenzene	10 U	20	10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	10 U	20	10	ug/l	
10061-02-6	trans-1,3-Dichloropropene	6.0 U	20	6.0	ug/l	
74-83-9	Methyl bromide	20 U	40	20	ug/l	
74-87-3	Methyl chloride	20 U	40	20	ug/l	
75-09-2	Methylene chloride	35.5	100	20	ug/l	IV
71-55-6	1,1,1-Trichloroethane	10 U	20	10	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	8.0 U	20	8.0	ug/l	
79-00-5	1,1,2-Trichloroethane	10 U	20	10	ug/l	
127-18-4	Tetrachloroethylene	10 U	20	10	ug/l	
79-01-6	Trichloroethylene	1180	20	10	ug/l	
75-01-4	Vinyl chloride	10 U	20	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-01B		
Lab Sample ID:	F42552-2	Date Sampled:	07/28/06
Matrix:	AQ - Ground Water	Date Received:	07/29/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	107%		73-126%
2037-26-5	Toluene-D8	102%		86-112%
460-00-4	4-Bromofluorobenzene	104%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-01B		
Lab Sample ID:	F42552-2	Date Sampled:	07/28/06
Matrix:	AQ - Ground Water	Date Received:	07/29/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	10600	10000	500	ug/l	1	08/07/06	08/08/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5150
(2) Prep QC Batch: MP10058

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-01B		
Lab Sample ID:	F42552-2	Date Sampled:	07/28/06
Matrix:	AQ - Ground Water	Date Received:	07/29/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.0	2.0	1.0	mg/l	1	07/29/06 10:52	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	07/29/06 10:52	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	07/29/06 10:52	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.029 I	0.10	0.020	mg/l	1	07/29/06 09:15	CP	EPA 365.3
Sulfate	17.3	2.0	1.0	mg/l	1	07/29/06 10:52	MP	EPA 300/SW846 9056
Sulfide	1.0 U	1.0	1.0	mg/l	1	08/02/06	LE	EPA 376.1
Total Organic Carbon	2.1	1.0	0.50	mg/l	1	08/02/06 12:40	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-01B		
Lab Sample ID:	F42552-2A	Date Sampled:	07/28/06
Matrix:	AQ - Groundwater Filtered	Date Received:	07/29/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	608	300	15	ug/l	1	08/07/06	08/08/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	87.2	15	1.5	ug/l	1	08/07/06	08/08/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5150
(2) Prep QC Batch: MP10058

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-DUP-01B		
Lab Sample ID:	F42552-3	Date Sampled:	07/28/06
Matrix:	AQ - Ground Water	Date Received:	07/29/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0014270.D	20	08/04/06	CS	n/a	n/a	VM592
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	10 U	20	10	ug/l	
75-25-2	Bromoform	10 U	20	10	ug/l	
108-90-7	Chlorobenzene	10 U	20	10	ug/l	
75-00-3	Chloroethane	20 U	40	20	ug/l	
67-66-3	Chloroform	10 U	20	10	ug/l	
110-75-8	2-Chloroethyl vinyl ether	50 U	100	50	ug/l	
56-23-5	Carbon tetrachloride	10 U	20	10	ug/l	
75-34-3	1,1-Dichloroethane	10 U	20	10	ug/l	
75-35-4	1,1-Dichloroethylene	10 U	20	10	ug/l	
107-06-2	1,2-Dichloroethane	10 U	20	10	ug/l	
78-87-5	1,2-Dichloropropane	10 U	20	10	ug/l	
124-48-1	Dibromochloromethane	8.0 U	20	8.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	10 U	20	10	ug/l	
10061-01-5	cis-1,3-Dichloropropene	6.0 U	20	6.0	ug/l	
541-73-1	m-Dichlorobenzene	10 U	20	10	ug/l	
95-50-1	o-Dichlorobenzene	10 U	20	10	ug/l	
106-46-7	p-Dichlorobenzene	10 U	20	10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	10 U	20	10	ug/l	
10061-02-6	trans-1,3-Dichloropropene	6.0 U	20	6.0	ug/l	
74-83-9	Methyl bromide	20 U	40	20	ug/l	
74-87-3	Methyl chloride	20 U	40	20	ug/l	
75-09-2	Methylene chloride	35.1	100	20	ug/l	IV
71-55-6	1,1,1-Trichloroethane	10 U	20	10	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	8.0 U	20	8.0	ug/l	
79-00-5	1,1,2-Trichloroethane	10 U	20	10	ug/l	
127-18-4	Tetrachloroethylene	10 U	20	10	ug/l	
79-01-6	Trichloroethylene	1200	20	10	ug/l	
75-01-4	Vinyl chloride	10 U	20	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-DUP-01B		
Lab Sample ID:	F42552-3	Date Sampled:	07/28/06
Matrix:	AQ - Ground Water	Date Received:	07/29/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	105%		73-126%
2037-26-5	Toluene-D8	103%		86-112%
460-00-4	4-Bromofluorobenzene	104%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-DUP-01B		
Lab Sample ID:	F42552-3	Date Sampled:	07/28/06
Matrix:	AQ - Ground Water	Date Received:	07/29/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	10700	10000	500	ug/l	1	08/07/06	08/08/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5150
(2) Prep QC Batch: MP10058

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-DUP-01B		
Lab Sample ID:	F42552-3	Date Sampled:	07/28/06
Matrix:	AQ - Ground Water	Date Received:	07/29/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.1	2.0	1.0	mg/l	1	07/29/06 11:09	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	07/29/06 11:09	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	07/29/06 11:09	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.020 U	0.10	0.020	mg/l	1	07/29/06 09:15	CP	EPA 365.3
Sulfate	18.0	2.0	1.0	mg/l	1	07/29/06 11:09	MP	EPA 300/SW846 9056
Sulfide	1.0 U	1.0	1.0	mg/l	1	08/02/06	LE	EPA 376.1
Total Organic Carbon	2.3	1.0	0.50	mg/l	1	08/02/06 12:55	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-DUP-01B		
Lab Sample ID:	F42552-3A	Date Sampled:	07/28/06
Matrix:	AQ - Groundwater Filtered	Date Received:	07/29/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	592	300	15	ug/l	1	08/07/06	08/08/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	88.3	15	1.5	ug/l	1	08/07/06	08/08/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5150
(2) Prep QC Batch: MP10058

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 3119 | PAGE 1 OF 2 | F42552

PROJECT NO: N0039	FACILITY: NAS CF	PROJECT MANAGER: Rob Simcik	PHONE NUMBER: 800-245-2730	LABORATORY NAME AND CONTACT: H Wandry / Accutest
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER: Wes Hayden	PHONE NUMBER: 904-636-6125	ADDRESS: 4405 Vineland Rd
		CARRIER/WAYBILL NUMBER		CITY, STATE: Orlando, FL

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

	DATE YEAR 2006	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	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: Chlorinated VOCs (8260B) HCl; Diss Fe & Mn (6010B) HNO3; Na (6010B) HNO3; Alk (310.1) Mod 2006 NP; Sulfate (375.4) NP; Sulfide (376.1) NaOH; Hardness (130.1) H2SO4; TOC (415.1) H2SO4	COMMENTS
1	7/28	1312	CEF-059-GW-MW16-01B				GW	G	11	G		X X X X X X	
2	7/28	1440	CEF-059-GW-TW24-01B									X	
3	7/28	0000	CEF-059-GW-DUP-01B				↓	↓	11	G		X	

	DATE	TIME
1. RELINQUISHED BY [redacted]		1605
[redacted]		
2. RECEIVED BY [redacted]		
3. RECEIVED BY		

	DATE	TIME
1. RECEIVED BY [redacted]		
	7/29/06	8500

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY) 4/02R FORM NO. TtNUS-001

2.4

F42552: Chain of Custody
Page 1 of 2

ACCUTEST Laboratories F42552

Report of Analysis

Client Sample ID:	NG-12D-GW-01B		
Lab Sample ID:	F42575-1	Date Sampled:	07/31/06
Matrix:	AQ - Ground Water	Date Received:	08/01/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B040470.D	50	08/08/06	KW	n/a	n/a	VB1709
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	25 U	50	25	ug/l	
75-25-2	Bromoform	25 U	50	25	ug/l	
108-90-7	Chlorobenzene	25 U	50	25	ug/l	
75-00-3	Chloroethane	50 U	100	50	ug/l	
67-66-3	Chloroform	25 U	50	25	ug/l	
110-75-8	2-Chloroethyl vinyl ether	130 U	250	130	ug/l	
56-23-5	Carbon tetrachloride	25 U	50	25	ug/l	
75-34-3	1,1-Dichloroethane	25 U	50	25	ug/l	
75-35-4	1,1-Dichloroethylene	25 U	50	25	ug/l	
107-06-2	1,2-Dichloroethane	25 U	50	25	ug/l	
78-87-5	1,2-Dichloropropane	25 U	50	25	ug/l	
124-48-1	Dibromochloromethane	20 U	50	20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	25 U	50	25	ug/l	
10061-01-5	cis-1,3-Dichloropropene	15 U	50	15	ug/l	
541-73-1	m-Dichlorobenzene	25 U	50	25	ug/l	
95-50-1	o-Dichlorobenzene	25 U	50	25	ug/l	
106-46-7	p-Dichlorobenzene	25 U	50	25	ug/l	
156-60-5	trans-1,2-Dichloroethylene	25 U	50	25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	15 U	50	15	ug/l	
74-83-9	Methyl bromide	50 U	100	50	ug/l	
74-87-3	Methyl chloride	50 U	100	50	ug/l	
75-09-2	Methylene chloride [a]	116	250	50	ug/l	IV
71-55-6	1,1,1-Trichloroethane	25 U	50	25	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	20 U	50	20	ug/l	
79-00-5	1,1,2-Trichloroethane	25 U	50	25	ug/l	
127-18-4	Tetrachloroethylene	25 U	50	25	ug/l	
79-01-6	Trichloroethylene	2160	50	25	ug/l	
75-01-4	Vinyl chloride	25 U	50	25	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-01B		
Lab Sample ID:	F42575-1	Date Sampled:	07/31/06
Matrix:	AQ - Ground Water	Date Received:	08/01/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	104%		73-126%
2037-26-5	Toluene-D8	98%		86-112%
460-00-4	4-Bromofluorobenzene	106%		83-119%

(a) Suspected laboratory contaminant.

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-01B		
Lab Sample ID:	F42575-1	Date Sampled:	07/31/06
Matrix:	AQ - Ground Water	Date Received:	08/01/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	4210 I	10000	500	ug/l	1	08/09/06	08/09/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5154
(2) Prep QC Batch: MP10070

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-01B		
Lab Sample ID:	F42575-1	Date Sampled:	07/31/06
Matrix:	AQ - Ground Water	Date Received:	08/01/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.9	2.0	1.0	mg/l	1	08/01/06 14:56	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	08/01/06 14:56	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	08/01/06 14:56	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.020 U	0.10	0.020	mg/l	1	08/01/06 14:35	LE	EPA 365.3
Sulfate	21.4	2.0	1.0	mg/l	1	08/01/06 14:56	MP	EPA 300/SW846 9056
Sulfide	1.0 U	1.0	1.0	mg/l	1	08/02/06	LE	EPA 376.1
Total Organic Carbon	1.1	1.0	0.50	mg/l	1	08/02/06 14:38	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-01B		
Lab Sample ID:	F42575-1A	Date Sampled:	07/31/06
Matrix:	AQ - Groundwater Filtered	Date Received:	08/01/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	796	300	15	ug/l	1	08/09/06	08/09/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	3.8 I	15	1.5	ug/l	1	08/09/06	08/09/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5154
(2) Prep QC Batch: MP10070

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12I-GW-01B		
Lab Sample ID:	F42575-2	Date Sampled:	07/31/06
Matrix:	AQ - Ground Water	Date Received:	08/01/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B040471.D	1	08/08/06	KW	n/a	n/a	VB1709
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.2	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	8.9	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12I-GW-01B		
Lab Sample ID:	F42575-2	Date Sampled:	07/31/06
Matrix:	AQ - Ground Water	Date Received:	08/01/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	105%		73-126%
2037-26-5	Toluene-D8	99%		86-112%
460-00-4	4-Bromofluorobenzene	103%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-EWA-01B		
Lab Sample ID:	F42575-3	Date Sampled:	07/31/06
Matrix:	AQ - Ground Water	Date Received:	08/01/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B040472.D	50	08/08/06	KW	n/a	n/a	VB1709
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	25 U	50	25	ug/l	
75-25-2	Bromoform	25 U	50	25	ug/l	
108-90-7	Chlorobenzene	25 U	50	25	ug/l	
75-00-3	Chloroethane	50 U	100	50	ug/l	
67-66-3	Chloroform	25 U	50	25	ug/l	
110-75-8	2-Chloroethyl vinyl ether	130 U	250	130	ug/l	
56-23-5	Carbon tetrachloride	25 U	50	25	ug/l	
75-34-3	1,1-Dichloroethane	25 U	50	25	ug/l	
75-35-4	1,1-Dichloroethylene	25 U	50	25	ug/l	
107-06-2	1,2-Dichloroethane	25 U	50	25	ug/l	
78-87-5	1,2-Dichloropropane	25 U	50	25	ug/l	
124-48-1	Dibromochloromethane	20 U	50	20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	25 U	50	25	ug/l	
10061-01-5	cis-1,3-Dichloropropene	15 U	50	15	ug/l	
541-73-1	m-Dichlorobenzene	25 U	50	25	ug/l	
95-50-1	o-Dichlorobenzene	25 U	50	25	ug/l	
106-46-7	p-Dichlorobenzene	25 U	50	25	ug/l	
156-60-5	trans-1,2-Dichloroethylene	25 U	50	25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	15 U	50	15	ug/l	
74-83-9	Methyl bromide	50 U	100	50	ug/l	
74-87-3	Methyl chloride	50 U	100	50	ug/l	
75-09-2	Methylene chloride [a]	117	250	50	ug/l	IV
71-55-6	1,1,1-Trichloroethane	25 U	50	25	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	20 U	50	20	ug/l	
79-00-5	1,1,2-Trichloroethane	25 U	50	25	ug/l	
127-18-4	Tetrachloroethylene	25 U	50	25	ug/l	
79-01-6	Trichloroethylene	2170	50	25	ug/l	
75-01-4	Vinyl chloride	25 U	50	25	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-EWA-01B		
Lab Sample ID:	F42575-3	Date Sampled:	07/31/06
Matrix:	AQ - Ground Water	Date Received:	08/01/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	103%		73-126%
2037-26-5	Toluene-D8	100%		86-112%
460-00-4	4-Bromofluorobenzene	106%		83-119%

(a) Suspected laboratory contaminant.

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW21-01B		
Lab Sample ID:	F42575-4	Date Sampled:	07/31/06
Matrix:	AQ - Ground Water	Date Received:	08/01/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B040473.D	1	08/08/06	KW	n/a	n/a	VB1709
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	2.4	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	18.1	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.69	1.0	0.40	ug/l	I
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	92.2	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW21-01B		
Lab Sample ID:	F42575-4	Date Sampled:	07/31/06
Matrix:	AQ - Ground Water	Date Received:	08/01/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	103%		73-126%
2037-26-5	Toluene-D8	98%		86-112%
460-00-4	4-Bromofluorobenzene	107%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-006-78-01B		
Lab Sample ID:	F42575-5	Date Sampled:	07/31/06
Matrix:	AQ - Ground Water	Date Received:	08/01/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B040474.D	1	08/08/06	KW	n/a	n/a	VB1709
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	0.50 U	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-006-78-01B		
Lab Sample ID:	F42575-5	Date Sampled:	07/31/06
Matrix:	AQ - Ground Water	Date Received:	08/01/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	104%		73-126%
2037-26-5	Toluene-D8	97%		86-112%
460-00-4	4-Bromofluorobenzene	105%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 3120 | PAGE 2 OF 5

F42575

PROJECT NO:	FACILITY:	PROJECT MANAGER:	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G-N0039	NAS CF Site 59	Rob Simcik	800-245-2730	A. Wandry / Accutest
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER: Wes Harden	PHONE NUMBER: 904-636-6125	ADDRESS: 1405 Vineland Rd C-15
		CARRIER/WAYBILL NUMBER		CITY, STATE: Orlando, FL

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

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

	DATE YEAR 2006	TIME	SAMPLE ID	LOCATION ID WH	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	Chlorinated VOCs (8260)	Diss Fe + Mn (6010B)	Na (6010B)	Sulfide (376.1)	*Anions (E.PA 300.0)	TOC (415.1)			COMMENTS
1	7-31	1105	NG+12D-GW-01B	~~HO~~			GW	G	11	X	X	X	X	X	X			cool to 4°C
2		1212	NG-12I-GW-01B						3	X	-	-	-	-	-			
3		1232	CEF-059-GW-EWA-01B						3	X	-	-	-	-	-			*Anions include
4		1308	CEF-059-GW-MW21-01B						3	X	-	-	-	-	-			sulfate, sulfide
5		1318	CEF-059-GW-006-76-01B						3	X	-	-	-	-	-			nitrate, nitrite
																		chloride, phosphate

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	7-31-06	1440	1. RECEIVED BY Luis Alse		
2. RELINQUISHED BY Luis Alse	7/31/6	1440	2. RECEIVED BY ALSE	8/1/06	8:00
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY) 2.4

4/02R
FORM NO. TtNUS-001

4.1 4

F42575: Chain of Custody
Page 1 of 2

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0608026
Report Date: 08/11/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
GW-MW1A-01B	Water	P0608026-01	28 Jul. 06 13:12	01 Aug. 06 14:38

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	8/10/06	rw
N Ethane		0.340	0.025	ug/L	AM20GAX	8/10/06	rw
N Ethene		0.460	0.025	ug/L	AM20GAX	8/10/06	rw
N Methane		190.000	0.100	ug/L	AM20GAX	8/10/06	rw
SemiVolatiles							
N Acetic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Butyric Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	8/8/06	jb
N i-Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	8/8/06	jb
N i-Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Lactic Acid and HIBA	U	< 0.10	0.10	mg/L	AM23G	8/8/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Propionic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Pyruvic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0608026
Report Date: 08/11/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
GW-IW2A-01B	Water	P0608026-02	28 Jul. 06 14:40	01 Aug. 06 14:38

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	8/10/06	rw
N Ethane		0.091	0.025	ug/L	AM20GAX	8/10/06	rw
N Ethene		0.210	0.025	ug/L	AM20GAX	8/10/06	rw
N Methane		350.000	0.100	ug/L	AM20GAX	8/10/06	rw
SemiVolatiles							
N Acetic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Butyric Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	8/8/06	jb
N i-Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	8/8/06	jb
N i-Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Lactic Acid and HIBA	U	< 0.10	0.10	mg/L	AM23G	8/8/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Propionic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Pyruvic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0608026
Report Date: 08/11/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
GW-DUP-01B	Water	P0608026-03	28 Jul. 06	01 Aug. 06 14:38

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	8/10/06	rw
N Ethane		0.084	0.025	ug/L	AM20GAX	8/10/06	rw
N Ethene		0.200	0.025	ug/L	AM20GAX	8/10/06	rw
N Methane		280.000	0.100	ug/L	AM20GAX	8/10/06	rw
SemiVolatiles							
N Acetic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Butyric Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	8/8/06	jb
N i-Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	8/8/06	jb
N i-Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Lactic Acid and HIBA	U	< 0.10	0.10	mg/L	AM23G	8/8/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Propionic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Pyruvic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0608026
Report Date: 08/11/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
NG-12D-GW-01B	Water	P0608026-04	31 Jul. 06 11:05	01 Aug. 06 14:38

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	8/10/06	rw
N Ethane		0.027	0.025	ug/L	AM20GAX	8/10/06	rw
N Ethene		0.067	0.025	ug/L	AM20GAX	8/10/06	rw
N Methane		270.000	0.100	ug/L	AM20GAX	8/10/06	rw
SemiVolatiles							
N Acetic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Butyric Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	8/8/06	jb
N i-Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	8/8/06	jb
N i-Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Lactic Acid and HIBA	U	< 0.10	0.10	mg/L	AM23G	8/8/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Propionic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb
N Pyruvic Acid	U	< 0.07	0.07	mg/L	AM23G	8/8/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

microbialinsights

2340 Stock Creek Blvd.
Rockford TN 37853-3044
Phone: (865) 573-8188
Fax: (865) 573-8133
Email: info@microbe.com

Analysis Report

Client: Mark Speranza
Tetra Tech , Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, PA 15220

Phone: (412) 921-8916

Fax: (412) 921-7276

MI Identifier: 004DH **Date Rec:** 08/01/2006 **Report Date:** 08/03/2006

Client Project #: 112GN0039 **Client Project Name:** Site 59 Pilot Study #2

Purchase Order #:

Analysis Requested: CENSUS (final), Chain of Custody, EDD (MI Standard EDD)

Comments:

All samples within this data package were analyzed under U.S. EPA Good Laboratory Practice Standards: Toxic Substances Control Act (40 CFR part 790). All samples were processed according to standard operating procedures. Test results submitted in this data package meet the quality assurance requirements established by Microbial Insights, Inc.

Reported By: Anita Biernacki

Reviewed By: Dora M Ogles

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MICROBIAL INSIGHTS, INC.

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel: (865) 573-8188; Fax: (865) 573-8133

Q Potential (DNA)

Client: **Tetra Tech , Inc.**
Project: Site 59 Pilot Study #2

MI Project Number: **004DH**
Date Received: 08/01/2006

Sample Information

Client Sample ID:	**NG-12D-GW-01 B**
Sample Date:	07/31/2006
Units:	cells/mL

Dechlorinating Bacteria

Dehalococcoides spp (1)	DHC	**1.34E+01**

Functional Genes

BAV1 VC R-Dase (1)	BVC	<6.67E-01
TCE R-Dase (1)	TCE	<6.67E-01
VC R-Dase	VCR	<6.67E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Notes:
1 Bio-Dechlor Census technology was developed by Dr. Loeffler and colleagues at Georgia Institute of Technology and was licensed for use through Regenesis.

microbialinsights

2340 Stock Creek Blvd.
Rockford TN 37853-3044
Phone: (865) 573-8188
Fax: (865) 573-8133
Email: info@microbe.com

Analysis Report

Client: Mark Speranza
Tetra Tech , Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, PA 15220

Phone: (412) 921-8916

Fax: (412) 921-7276

MI Identifier: 061DG **Date Rec:** 07/29/2006 **Report Date:** 08/01/2006

Client Project #: 112GN0039 **Client Project Name:** Site 59 Pilot Study #2

Purchase Order #:

Analysis Requested: CENSUS (final), Chain of Custody, EDD (MI Standard EDD)

Comments:

All samples within this data package were analyzed under U.S. EPA Good Laboratory Practice Standards: Toxic Substances Control Act (40 CFR part 790). All samples were processed according to standard operating procedures. Test results submitted in this data package meet the quality assurance requirements established by Microbial Insights, Inc.

Reported By: Anita Biernacki

Reviewed By: Dora M Ogle

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MICROBIAL INSIGHTS, INC.

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel: (865) 573-8188; Fax: (865) 573-8133

Q Potential (DNA)

Client: **Tetra Tech , Inc.**
Project: Site 59 Pilot Study #2

MI Project Number: **061DG**
Date Received: 07/29/2006

Sample Information

Client Sample ID:		CEF-059-GW-MW1A-01B	CEF-059-GW-IW2A-01B
Sample Date:		07/28/2006	07/28/2006
Units:		cells/mL	cells/mL

Dechlorinating Bacteria

Dehalococcoides spp (1)	DHC	<2.5E-01	<2.5E-01

Functional Genes

BAV1 VC R-Dase (1)	BVC	<2.5E-01	<2.5E-01
TCE R-Dase (1)	TCE	<2.5E-01	<2.5E-01
VC R-Dase	VCR	<2.5E-01	<2.5E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Notes:
1 Bio-Dechlor Census technology was developed by Dr. Loeffler and colleagues at Georgia Institute of Technology and was licensed for use through Regenesis.

EVENT 3

Report of Analysis

Client Sample ID:	CEF-059-GW-006-78-03B		
Lab Sample ID:	F43704-1	Date Sampled:	09/14/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0014960.D	1	09/19/06	CS	n/a	n/a	VM625
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	0.50 U	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-006-78-03B		
Lab Sample ID:	F43704-1	Date Sampled:	09/14/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	105%		73-126%
2037-26-5	Toluene-D8	100%		86-112%
460-00-4	4-Bromofluorobenzene	99%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12I-GW-03B		
Lab Sample ID:	F43704-2	Date Sampled:	09/14/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0014961.D	1	09/19/06	CS	n/a	n/a	VM625
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.8	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.52	1.0	0.50	ug/l	I
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	3.5	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12I-GW-03B		
Lab Sample ID:	F43704-2	Date Sampled:	09/14/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	105%		73-126%
2037-26-5	Toluene-D8	101%		86-112%
460-00-4	4-Bromofluorobenzene	97%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

TETRA TECH NUS, INC. CHAIN OF CUSTODY NUMBER 2466 PAGE 1 OF 1 F43704

PROJECT NO: 112G01003.4	FACILITY: NAS Cecil Field	PROJECT MANAGER Rob Sinclair	PHONE NUMBER 800-245-2730	LABORATORY NAME AND CONTACT: H. Wandy / Accutest
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER Wes Harden	PHONE NUMBER 904-636-6125	ADDRESS 4405 Vineland Rd C-15
		CARRIER/WAYBILL NUMBER fedex		CITY, STATE Orlando, FL

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

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

PRESERVATIVE USED: HCl

	DATE YEAR 2006	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: Chlorinated VOCs	COMMENTS
1	9/14	1105	CEF-DGG-GW-006-78-03B				GW	G	3	X	CG01 to
2	9/14	1130	NG-12I-GW-03B				⊥	⊥	3	X	04C

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	9-14-06	1420	1. RECEIVED BY FX		
2. RELINQUISHED BY FX	DATE	TIME	2. RECEIVED BY	9/15/06	9:00
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY) 1120 4/02R FORM NO. TtNUS-001

F43704: Chain of Custody
Page 1 of 2

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-03B		
Lab Sample ID:	F43679-1	Date Sampled:	09/13/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	40100	10000	500	ug/l	1	09/22/06	09/22/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5247
(2) Prep QC Batch: MP10358

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-03B		
Lab Sample ID:	F43679-1	Date Sampled:	09/13/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	10.4	2.0	1.0	mg/l	1	09/15/06 14:13	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	09/15/06 14:13	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	09/15/06 14:13	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.13	0.10	0.020	mg/l	1	09/15/06 09:40	LE	EPA 365.3
Sulfate	7.1	2.0	1.0	mg/l	1	09/15/06 14:13	MP	EPA 300/SW846 9056
Sulfide	5.5	1.0	1.0	mg/l	1	09/15/06	LE	EPA 376.1
Total Organic Carbon	31.9	2.0	1.0	mg/l	2	09/28/06 11:03	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-03B		
Lab Sample ID:	F43679-1A	Date Sampled:	09/13/06
Matrix:	AQ - Groundwater Filtered	Date Received:	09/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	1310	300	15	ug/l	1	09/26/06	09/26/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	12.6 I	15	1.5	ug/l	1	09/26/06	09/26/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5252
(2) Prep QC Batch: MP10375

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-03B		
Lab Sample ID:	F43679-1B	Date Sampled:	09/13/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0014967.D	10	09/19/06	CS	n/a	n/a	VM625
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	5.0 U	10	5.0	ug/l	
75-25-2	Bromoform	5.0 U	10	5.0	ug/l	
108-90-7	Chlorobenzene	5.0 U	10	5.0	ug/l	
75-00-3	Chloroethane	10 U	20	10	ug/l	
67-66-3	Chloroform	5.0 U	10	5.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	25 U	50	25	ug/l	
56-23-5	Carbon tetrachloride	5.0 U	10	5.0	ug/l	
75-34-3	1,1-Dichloroethane	5.0 U	10	5.0	ug/l	
75-35-4	1,1-Dichloroethylene	5.0 U	10	5.0	ug/l	
107-06-2	1,2-Dichloroethane	5.0 U	10	5.0	ug/l	
78-87-5	1,2-Dichloropropane	5.0 U	10	5.0	ug/l	
124-48-1	Dibromochloromethane	4.0 U	10	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
541-73-1	m-Dichlorobenzene	5.0 U	10	5.0	ug/l	
95-50-1	o-Dichlorobenzene	5.0 U	10	5.0	ug/l	
106-46-7	p-Dichlorobenzene	5.0 U	10	5.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
74-83-9	Methyl bromide	10 U	20	10	ug/l	
74-87-3	Methyl chloride	10 U	20	10	ug/l	
75-09-2	Methylene chloride	29.0	50	10	ug/l	IV
71-55-6	1,1,1-Trichloroethane	5.0 U	10	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	4.0 U	10	4.0	ug/l	
79-00-5	1,1,2-Trichloroethane	5.0 U	10	5.0	ug/l	
127-18-4	Tetrachloroethylene	5.0 U	10	5.0	ug/l	
79-01-6	Trichloroethylene	924	10	5.0	ug/l	
75-01-4	Vinyl chloride	5.0 U	10	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-03B		
Lab Sample ID:	F43679-1B	Date Sampled:	09/13/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	104%		73-126%
2037-26-5	Toluene-D8	102%		86-112%
460-00-4	4-Bromofluorobenzene	98%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-EWA-03B		
Lab Sample ID:	F43679-2	Date Sampled:	09/13/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0014968.D	10	09/19/06	CS	n/a	n/a	VM625
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	5.0 U	10	5.0	ug/l	
75-25-2	Bromoform	5.0 U	10	5.0	ug/l	
108-90-7	Chlorobenzene	5.0 U	10	5.0	ug/l	
75-00-3	Chloroethane	10 U	20	10	ug/l	
67-66-3	Chloroform	5.0 U	10	5.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	25 U	50	25	ug/l	
56-23-5	Carbon tetrachloride	5.0 U	10	5.0	ug/l	
75-34-3	1,1-Dichloroethane	5.0 U	10	5.0	ug/l	
75-35-4	1,1-Dichloroethylene	5.0 U	10	5.0	ug/l	
107-06-2	1,2-Dichloroethane	5.0 U	10	5.0	ug/l	
78-87-5	1,2-Dichloropropane	5.0 U	10	5.0	ug/l	
124-48-1	Dibromochloromethane	4.0 U	10	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
541-73-1	m-Dichlorobenzene	5.0 U	10	5.0	ug/l	
95-50-1	o-Dichlorobenzene	5.0 U	10	5.0	ug/l	
106-46-7	p-Dichlorobenzene	5.0 U	10	5.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
74-83-9	Methyl bromide	10 U	20	10	ug/l	
74-87-3	Methyl chloride	10 U	20	10	ug/l	
75-09-2	Methylene chloride	29.7	50	10	ug/l	IV
71-55-6	1,1,1-Trichloroethane	5.0 U	10	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	4.0 U	10	4.0	ug/l	
79-00-5	1,1,2-Trichloroethane	5.0 U	10	5.0	ug/l	
127-18-4	Tetrachloroethylene	5.0 U	10	5.0	ug/l	
79-01-6	Trichloroethylene	703	10	5.0	ug/l	
75-01-4	Vinyl chloride	5.0 U	10	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-EWA-03B		
Lab Sample ID:	F43679-2	Date Sampled:	09/13/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	104%		73-126%
2037-26-5	Toluene-D8	101%		86-112%
460-00-4	4-Bromofluorobenzene	98%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-03B		
Lab Sample ID:	F43679-3	Date Sampled:	09/13/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	55800	10000	500	ug/l	1	09/22/06	09/22/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5247
(2) Prep QC Batch: MP10358

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-03B		
Lab Sample ID:	F43679-3	Date Sampled:	09/13/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	10.5	2.0	1.0	mg/l	1	09/15/06 14:29	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	09/15/06 14:29	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	09/15/06 14:29	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.020 U	0.10	0.020	mg/l	1	09/15/06 09:40	LE	EPA 365.3
Sulfate	25.3	2.0	1.0	mg/l	1	09/15/06 14:29	MP	EPA 300/SW846 9056
Sulfide	1.2	1.0	1.0	mg/l	1	09/15/06	LE	EPA 376.1
Total Organic Carbon	11.8	1.0	0.50	mg/l	1	09/27/06 12:57	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-03B		
Lab Sample ID:	F43679-3A	Date Sampled:	09/13/06
Matrix:	AQ - Groundwater Filtered	Date Received:	09/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	516	300	15	ug/l	1	09/26/06	09/26/06 RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	814	15	1.5	ug/l	1	09/26/06	09/26/06 RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5252
(2) Prep QC Batch: MP10375

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-03B		
Lab Sample ID:	F43679-3B	Date Sampled:	09/13/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0014969.D	10	09/19/06	CS	n/a	n/a	VM625
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	5.0 U	10	5.0	ug/l	
75-25-2	Bromoform	5.0 U	10	5.0	ug/l	
108-90-7	Chlorobenzene	5.0 U	10	5.0	ug/l	
75-00-3	Chloroethane	10 U	20	10	ug/l	
67-66-3	Chloroform	5.0 U	10	5.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	25 U	50	25	ug/l	
56-23-5	Carbon tetrachloride	5.0 U	10	5.0	ug/l	
75-34-3	1,1-Dichloroethane	5.0 U	10	5.0	ug/l	
75-35-4	1,1-Dichloroethylene	5.0 U	10	5.0	ug/l	
107-06-2	1,2-Dichloroethane	5.0 U	10	5.0	ug/l	
78-87-5	1,2-Dichloropropane	5.0 U	10	5.0	ug/l	
124-48-1	Dibromochloromethane	4.0 U	10	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
541-73-1	m-Dichlorobenzene	5.0 U	10	5.0	ug/l	
95-50-1	o-Dichlorobenzene	5.0 U	10	5.0	ug/l	
106-46-7	p-Dichlorobenzene	5.0 U	10	5.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
74-83-9	Methyl bromide	10 U	20	10	ug/l	
74-87-3	Methyl chloride	10 U	20	10	ug/l	
75-09-2	Methylene chloride	27.4	50	10	ug/l	IV
71-55-6	1,1,1-Trichloroethane	5.0 U	10	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	4.0 U	10	4.0	ug/l	
79-00-5	1,1,2-Trichloroethane	5.0 U	10	5.0	ug/l	
127-18-4	Tetrachloroethylene	5.0 U	10	5.0	ug/l	
79-01-6	Trichloroethylene	907	10	5.0	ug/l	
75-01-4	Vinyl chloride	5.0 U	10	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-03B		
Lab Sample ID:	F43679-3B	Date Sampled:	09/13/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	103%		73-126%
2037-26-5	Toluene-D8	101%		86-112%
460-00-4	4-Bromofluorobenzene	98%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-03B		
Lab Sample ID:	F43679-4	Date Sampled:	09/13/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	5310 I	10000	500	ug/l	1	09/22/06	09/22/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5247
(2) Prep QC Batch: MP10358

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-03B		
Lab Sample ID:	F43679-4	Date Sampled:	09/13/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	10.8	2.0	1.0	mg/l	1	09/15/06 15:16	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	09/15/06 15:16	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	09/15/06 15:16	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.094 I	0.10	0.020	mg/l	1	09/15/06 09:40	LE	EPA 365.3
Sulfate	20.4	2.0	1.0	mg/l	1	09/15/06 15:16	MP	EPA 300/SW846 9056
Sulfide	1.1	1.0	1.0	mg/l	1	09/15/06	LE	EPA 376.1
Total Organic Carbon	5.6	1.0	0.50	mg/l	1	09/27/06 13:12	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-03B		
Lab Sample ID:	F43679-4A	Date Sampled:	09/13/06
Matrix:	AQ - Groundwater Filtered	Date Received:	09/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	898	300	15	ug/l	1	09/26/06	09/26/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	4.8 I	15	1.5	ug/l	1	09/26/06	09/26/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5252
(2) Prep QC Batch: MP10375

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-03B		
Lab Sample ID:	F43679-4B	Date Sampled:	09/13/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0014970.D	10	09/19/06	CS	n/a	n/a	VM625
Run #2	M0014990.D	20	09/20/06	CS	n/a	n/a	VM626

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	5.0 U	10	5.0	ug/l	
75-25-2	Bromoform	5.0 U	10	5.0	ug/l	
108-90-7	Chlorobenzene	5.0 U	10	5.0	ug/l	
75-00-3	Chloroethane	10 U	20	10	ug/l	
67-66-3	Chloroform	5.0 U	10	5.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	25 U	50	25	ug/l	
56-23-5	Carbon tetrachloride	5.0 U	10	5.0	ug/l	
75-34-3	1,1-Dichloroethane	5.0 U	10	5.0	ug/l	
75-35-4	1,1-Dichloroethylene	5.0 U	10	5.0	ug/l	
107-06-2	1,2-Dichloroethane	5.0 U	10	5.0	ug/l	
78-87-5	1,2-Dichloropropane	5.0 U	10	5.0	ug/l	
124-48-1	Dibromochloromethane	4.0 U	10	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
541-73-1	m-Dichlorobenzene	5.0 U	10	5.0	ug/l	
95-50-1	o-Dichlorobenzene	5.0 U	10	5.0	ug/l	
106-46-7	p-Dichlorobenzene	5.0 U	10	5.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
74-83-9	Methyl bromide	10 U	20	10	ug/l	
74-87-3	Methyl chloride	10 U	20	10	ug/l	
75-09-2	Methylene chloride	27.1	50	10	ug/l	IV
71-55-6	1,1,1-Trichloroethane	5.0 U	10	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	4.0 U	10	4.0	ug/l	
79-00-5	1,1,2-Trichloroethane	5.0 U	10	5.0	ug/l	
127-18-4	Tetrachloroethylene	5.0 U	10	5.0	ug/l	
79-01-6	Trichloroethylene	1570 [a]	20	10	ug/l	
75-01-4	Vinyl chloride	5.0 U	10	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%	106%	86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-03B		
Lab Sample ID:	F43679-4B	Date Sampled:	09/13/06
Matrix:	AQ - Ground Water	Date Received:	09/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	104%	103%	73-126%
2037-26-5	Toluene-D8	102%	99%	86-112%
460-00-4	4-Bromofluorobenzene	99%	95%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

TETRA TECH NUS, INC. F43679 CHAIN OF CUSTODY | NUMBER 2476 | PAGE 1 OF 1

PROJECT NO:	FACILITY	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112GN0039	NAS Cecil Field	Rob Simcik	800-245-2730	Alvandy / Accutest
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
		Wes Harden	904-636-6125	4405 Vineland Rd # C-15
		CARRIER/WAYBILL NUMBER		CITY, STATE
		Fedex		Orlando, FL

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

	DATE 2006	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: Chlorinated VOCs	diss Fe	diss Mn	total NA	Sulfide	Anions*	TOC	[redacted]	
1	9/5	1348	CEF-059-GW-IW2A-03B				[redacted]											
2	|	1500	CEF-059-GW-EWA-03B				|	|	[redacted]	—	—	—	—	—	—		
3	|	1623	CEF-059-GW-MW1A-03B				|	|	11	X	X	X	X	X	X	X	
4	↓	1710	NG-12D-GW-03B				↓	↓	11	[redacted]	X	X	X	X	X	X	

*Anions include sulfate, sulfide, nitrate, nitrite, Chloride, phosphate

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	9-17-06 1940	1940	1. RECEIVED BY ALSE		
2. RELINQUISHED BY ALSE	DATE	TIME	2. RECEIVED BY Jorge Cord	9-19-06	08:20
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY) 4/02R

3.8 FORM NO. TtNUS-001

4.1 4

F43679: Chain of Custody
Page 1 of 2

Client Name: TetraTech NUS Inc
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 2 of 8
Lab Proj #: P0609202
Report Date: 10/10/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
GW-IW2A-03B	Water	P0609202-01	13 Sep. 06 13:48	15 Sep. 06 10:37

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	J	0 150	0.500	ug/L	AM20GAX	9/20/06	rw
N Ethane		0 110	0.025	ug/L	AM20GAX	9/20/06	rw
N Ethene		0.220	0.025	ug/L	AM20GAX	9/20/06	rw
N Methane		350.000	0.100	ug/L	AM20GAX	9/20/06	rw
SemiVolatiles							
N Acetic Acid		12.00	0.70	mg/L	AM23G	10/7/06	jb
N Butyric Acid		0 56	0 07	mg/L	AM23G	10/6/06	jb
N Hexanoic Acid	U	< 0 10	0.1	mg/L	AM23G	10/6/06	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	10/6/06	jb
N i-Pentanoic Acid	U	< 0.07	0 07	mg/L	AM23G	10/6/06	jb
N Lactic Acid and HIBA		29.00	1.00	mg/L	AM23G	10/7/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	10/6/06	jb
N Propionic Acid		6.00	0.70	mg/L	AM23G	10/7/06	jb
N Pyruvic Acid	M	0.30	0.07	mg/L	AM23G	10/6/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD. SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0609202
Report Date: 10/10/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
GW-MW1A-03B	Water	P0609202-02	13 Sep. 06 16:23	15 Sep. 06 10:37

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	J	0.160	0 500	ug/L	AM20GAX	9/20/06	rw
N Ethane		0.210	0.025	ug/L	AM20GAX	9/20/06	rw
N Ethene		0.560	0 025	ug/L	AM20GAX	9/20/06	rw
N Methane		290.000	0.100	ug/L	AM20GAX	9/20/06	rw
SemiVolatiles							
N Acetic Acid		4.00	0.70	mg/L	AM23G	10/7/06	jb
N Butyric Acid		0.08	0 07	mg/L	AM23G	10/6/06	jb
N Hexanoic Acid	U	< 0.10	0 1	mg/L	AM23G	10/6/06	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	10/6/06	jb
N i-Pentanoic Acid	U	< 0.07	0 07	mg/L	AM23G	10/6/06	jb
N Lactic Acid and HIBA	M	0 88	0.1	mg/L	AM23G	10/6/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	10/6/06	jb
N Propionic Acid		11.00	0.70	mg/L	AM23G	10/7/06	jb
N Pyruvic Acid	UM	< 0.07	0 07	mg/L	AM23G	10/6/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD. SAMP/DUP, B - detected in blank, S - field sample as received *did not meet* NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 4 of 8
Lab Proj #: P0609202
Report Date: 10/10/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
NG-12D-GW-03B	Water	P0609202-03	13 Sep. 06 17:10	15 Sep. 06 10:37

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	9/20/06	rw
N Ethane		0.029	0.025	ug/L	AM20GAX	9/20/06	rw
N Ethene		0.120	0.025	ug/L	AM20GAX	9/20/06	rw
N Methane		300.000	0.100	ug/L	AM20GAX	9/20/06	rw
SemiVolatiles							
N Acetic Acid	M	2.40	0.07	mg/L	AM23G	10/6/06	jb
N Butyric Acid	U	< 0.07	0.07	mg/L	AM23G	10/6/06	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	10/6/06	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	10/6/06	jb
N i-Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	10/6/06	jb
N Lactic Acid and HIBA	M	0.25	0.1	mg/L	AM23G	10/6/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	10/6/06	jb
N Propionic Acid		5.80	0.70	mg/L	AM23G	10/7/06	jb
N Pyruvic Acid	UM	< 0.07	0.07	mg/L	AM23G	10/6/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

microbialinsights

2340 Stock Creek Blvd.
Rockford TN 37853-3044
Phone: (865) 573-8188
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Analysis Report

Client: Mark Speranza
Tetra Tech , Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, PA 15220

Phone: (412) 921-8916

Fax: (412) 921-7276

MI Identifier: 025DI **Date Rec:** 09/15/2006 **Report Date:** 09/18/2006

Client Project #: 112GN0039 **Client Project Name:** Site 59 Pilot Study #2

Purchase Order #:

Analysis Requested: CENSUS (final)

Comments:

All samples within this data package were analyzed under U.S. EPA Good Laboratory Practice Standards: Toxic Substances Control Act (40 CFR part 790). All samples were processed according to standard operating procedures. Test results submitted in this data package meet the quality assurance requirements established by Microbial Insights, Inc.

Reported By: Anita Biernacki

Reviewed By: Dora M Ogles

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MICROBIAL INSIGHTS, INC.

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel: (865) 573-8188; Fax: (865) 573-8133

Q Potential (DNA)

Client: **Tetra Tech , Inc.**
Project: Site 59 Pilot Study #2

MI Project Number: **025DI**
Date Received: 09/15/2006

Sample Information

Client Sample ID:		CEF-059-GW-IW 2A-03B	CEF-059-GW-M W1A-03B	NG-12D-GW-03B
Sample Date:		09/13/2006	09/13/2006	09/13/2006
Units:		cells/mL	cells/mL	cells/mL
Dechlorinating Bacteria				
Dehalococcoides spp (1)	DHC	<4.17E-01	**9.5E-01**	**9.08E-01**
Functional Genes				
TCE R-Dase (1)	TCE	<4.17E-01	<2.94E-01	<2.5E-01
BAV1 VC R-Dase (1)	BVC	<4.17E-01	<2.94E-01	<2.5E-01
VC R-Dase	VCR	<4.17E-01	<2.94E-01	<2.5E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Notes:
1 Bio-Dechlor Census technology was developed by Dr. Loeffler and colleagues at Georgia Institute of Technology and was licensed for use through Regenesis.

EVENT 4

Report of Analysis

Client Sample ID:	CEF-059-6W-IW2A-04B		
Lab Sample ID:	F44783-1	Date Sampled:	10/25/06
Matrix:	AQ - Ground Water	Date Received:	10/27/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0044178.D	1	11/01/06	KW	n/a	n/a	VC1786
Run #2	B042298.D	10	11/02/06	KW	n/a	n/a	VB1787

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	31.8	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	477 [a]	10	5.0	ug/l	
75-01-4	Vinyl chloride	0.52	1.0	0.50	ug/l	I

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%	99%	86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-6W-IW2A-04B		
Lab Sample ID:	F44783-1	Date Sampled:	10/25/06
Matrix:	AQ - Ground Water	Date Received:	10/27/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	98%	104%	73-126%
2037-26-5	Toluene-D8	105%	101%	86-112%
460-00-4	4-Bromofluorobenzene	98%	110%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-6W-MW1A-04B		
Lab Sample ID:	F44783-2	Date Sampled:	10/25/06
Matrix:	AQ - Ground Water	Date Received:	10/27/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0044179.D	1	11/01/06	KW	n/a	n/a	VC1786
Run #2	B042299.D	5	11/02/06	KW	n/a	n/a	VB1787

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	208 [a]	5.0	2.5	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.4	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.4	2.0	1.0	ug/l	I
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	191 [a]	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%	100%	86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-6W-MW1A-04B		
Lab Sample ID:	F44783-2	Date Sampled:	10/25/06
Matrix:	AQ - Ground Water	Date Received:	10/27/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	101%	113%	73-126%
2037-26-5	Toluene-D8	107%	101%	86-112%
460-00-4	4-Bromofluorobenzene	100%	103%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 3355 F44783 PAGE 1 OF 1

PROJECT NO: 112GN00103	FACILITY: Cecil, Site 59	PROJECT MANAGER Rob Sinclik	PHONE NUMBER 412/921-8163	LABORATORY NAME AND CONTACT: Accutest / Heather
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER John Foster	PHONE NUMBER 904.334.7260	ADDRESS 4405 Vineland Rd C-15
		CARRIER/WAYBILL NUMBER 8427 1827 1280		CITY, STATE Orlando, FL 32811

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

DATE YEAR 2006	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	CONTAINER TYPE PLASTIC (P) or GLASS (G): G	PRESERVATIVE USED: HCL	TYPE OF ANALYSIS: VOC 8260B (HCl)								COMMENTS
1 10/25	1400	CEF-059-GW-IW2A-04B				GW		3	3										Cool to 4°C
2 ↓	1113	CEF-059-GW-MW1A-04B				↓		3	3										

1. RELINQUISHED BY Jonathan Foster	DATE 10/26/06	TIME 1600	1. RECEIVED BY FX	DATE	TIME
2. RELINQUISHED BY FX	DATE	TIME	2. RECEIVED BY Yorge Corral	DATE 10-27-06	TIME 9:00
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

4.1 4

F44783: Chain of Custody
Page 1 of 2

ACCUTEST Laboratories
F44783

EVENT 5

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-05B		
Lab Sample ID:	F45151-1	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0016314.D	10	11/20/06	CS	n/a	n/a	VM677
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	5.0 U	10	5.0	ug/l	
75-25-2	Bromoform	5.0 U	10	5.0	ug/l	
108-90-7	Chlorobenzene	5.0 U	10	5.0	ug/l	
75-00-3	Chloroethane	10 U	20	10	ug/l	
67-66-3	Chloroform	5.0 U	10	5.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	25 U	50	25	ug/l	
56-23-5	Carbon tetrachloride	5.0 U	10	5.0	ug/l	
75-34-3	1,1-Dichloroethane	5.0 U	10	5.0	ug/l	
75-35-4	1,1-Dichloroethylene	5.0 U	10	5.0	ug/l	
107-06-2	1,2-Dichloroethane	5.0 U	10	5.0	ug/l	
78-87-5	1,2-Dichloropropane	5.0 U	10	5.0	ug/l	
124-48-1	Dibromochloromethane	4.0 U	10	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	630	10	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
541-73-1	m-Dichlorobenzene	5.0 U	10	5.0	ug/l	
95-50-1	o-Dichlorobenzene	5.0 U	10	5.0	ug/l	
106-46-7	p-Dichlorobenzene	5.0 U	10	5.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
74-83-9	Methyl bromide	10 U	20	10	ug/l	
74-87-3	Methyl chloride	10 U	20	10	ug/l	
75-09-2	Methylene chloride	10 U	50	10	ug/l	
71-55-6	1,1,1-Trichloroethane	5.0 U	10	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	4.0 U	10	4.0	ug/l	
79-00-5	1,1,2-Trichloroethane	5.0 U	10	5.0	ug/l	
127-18-4	Tetrachloroethylene	5.0 U	10	5.0	ug/l	
79-01-6	Trichloroethylene	20.5	10	5.0	ug/l	
75-01-4	Vinyl chloride	5.0 U	10	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-05B		
Lab Sample ID:	F45151-1	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	102%		73-126%
2037-26-5	Toluene-D8	96%		86-112%
460-00-4	4-Bromofluorobenzene	91%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-05B		
Lab Sample ID:	F45151-1	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	118000	50000	2500	ug/l	5	11/14/06	11/15/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5348
(2) Prep QC Batch: MP10690

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-05B		
Lab Sample ID:	F45151-1	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	10.8	2.0	1.0	mg/l	1	11/11/06 11:34	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	11/11/06 11:34	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	11/11/06 11:34	MP	EPA 300/SW846 9056
Phosphate, Ortho [a]	0.26	0.10	0.020	mg/l	1	11/13/06 12:00	JB	EPA 365.3
Sulfate	11.6	2.0	1.0	mg/l	1	11/11/06 11:34	MP	EPA 300/SW846 9056
Sulfide	1.0 U	1.0	1.0	mg/l	1	11/15/06	LE	EPA 376.1
Total Organic Carbon	39.8	2.0	1.0	mg/l	2	11/18/06 15:01	LE	EPA 415.1

(a) Exceeded holding time.

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-05B		
Lab Sample ID:	F45151-1A	Date Sampled:	11/09/06
Matrix:	AQ - Groundwater Filtered	Date Received:	11/11/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	1240	300	15	ug/l	1	11/14/06	11/14/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	1680	15	1.5	ug/l	1	11/14/06	11/14/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5344
(2) Prep QC Batch: MP10690

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-05B		
Lab Sample ID:	F45151-2	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0016322.D	10	11/20/06	CS	n/a	n/a	VM677
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	5.0 U	10	5.0	ug/l	
75-25-2	Bromoform	5.0 U	10	5.0	ug/l	
108-90-7	Chlorobenzene	5.0 U	10	5.0	ug/l	
75-00-3	Chloroethane	10 U	20	10	ug/l	
67-66-3	Chloroform	5.0 U	10	5.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	25 U	50	25	ug/l	
56-23-5	Carbon tetrachloride	5.0 U	10	5.0	ug/l	
75-34-3	1,1-Dichloroethane	5.0 U	10	5.0	ug/l	
75-35-4	1,1-Dichloroethylene	5.0 U	10	5.0	ug/l	
107-06-2	1,2-Dichloroethane	5.0 U	10	5.0	ug/l	
78-87-5	1,2-Dichloropropane	5.0 U	10	5.0	ug/l	
124-48-1	Dibromochloromethane	4.0 U	10	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	384	10	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
541-73-1	m-Dichlorobenzene	5.0 U	10	5.0	ug/l	
95-50-1	o-Dichlorobenzene	5.0 U	10	5.0	ug/l	
106-46-7	p-Dichlorobenzene	5.0 U	10	5.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
74-83-9	Methyl bromide	10 U	20	10	ug/l	
74-87-3	Methyl chloride	10 U	20	10	ug/l	
75-09-2	Methylene chloride	10 U	50	10	ug/l	
71-55-6	1,1,1-Trichloroethane	5.0 U	10	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	4.0 U	10	4.0	ug/l	
79-00-5	1,1,2-Trichloroethane	5.0 U	10	5.0	ug/l	
127-18-4	Tetrachloroethylene	5.0 U	10	5.0	ug/l	
79-01-6	Trichloroethylene	150	10	5.0	ug/l	
75-01-4	Vinyl chloride	25.2	10	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-05B		
Lab Sample ID:	F45151-2	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	104%		73-126%
2037-26-5	Toluene-D8	103%		86-112%
460-00-4	4-Bromofluorobenzene	91%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-05B		
Lab Sample ID:	F45151-2	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	233000	100000	5000	ug/l	10	11/14/06	11/15/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5348
(2) Prep QC Batch: MP10690

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-05B		
Lab Sample ID:	F45151-2	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	11.0	2.0	1.0	mg/l	1	11/11/06 11:50	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.10	0.10	0.050	mg/l	1	11/11/06 11:50	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	11/11/06 11:50	MP	EPA 300/SW846 9056
Phosphate, Ortho [a]	0.057 I	0.10	0.020	mg/l	1	11/13/06 12:00	JB	EPA 365.3
Sulfate	9.4	2.0	1.0	mg/l	1	11/11/06 11:50	MP	EPA 300/SW846 9056
Sulfide	2.9	1.0	1.0	mg/l	1	11/15/06	LE	EPA 376.1
Total Organic Carbon	53.0	2.0	1.0	mg/l	2	11/18/06 15:17	LE	EPA 415.1

(a) Exceeded holding time.

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-05B		
Lab Sample ID:	F45151-2A	Date Sampled:	11/09/06
Matrix:	AQ - Groundwater Filtered	Date Received:	11/11/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	988	300	15	ug/l	1	11/14/06	11/14/06 RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	10.2 I	15	1.5	ug/l	1	11/14/06	11/14/06 RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5344
(2) Prep QC Batch: MP10690

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12I-GW-05B		
Lab Sample ID:	F45151-3	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0016318.D	10	11/20/06	CS	n/a	n/a	VM677
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	5.0 U	10	5.0	ug/l	
75-25-2	Bromoform	5.0 U	10	5.0	ug/l	
108-90-7	Chlorobenzene	5.0 U	10	5.0	ug/l	
75-00-3	Chloroethane	10 U	20	10	ug/l	
67-66-3	Chloroform	5.0 U	10	5.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	25 U	50	25	ug/l	
56-23-5	Carbon tetrachloride	5.0 U	10	5.0	ug/l	
75-34-3	1,1-Dichloroethane	5.0 U	10	5.0	ug/l	
75-35-4	1,1-Dichloroethylene	5.0 U	10	5.0	ug/l	
107-06-2	1,2-Dichloroethane	5.0 U	10	5.0	ug/l	
78-87-5	1,2-Dichloropropane	5.0 U	10	5.0	ug/l	
124-48-1	Dibromochloromethane	4.0 U	10	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	5.6	10	5.0	ug/l	I
10061-01-5	cis-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
541-73-1	m-Dichlorobenzene	5.0 U	10	5.0	ug/l	
95-50-1	o-Dichlorobenzene	5.0 U	10	5.0	ug/l	
106-46-7	p-Dichlorobenzene	5.0 U	10	5.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
74-83-9	Methyl bromide	10 U	20	10	ug/l	
74-87-3	Methyl chloride	10 U	20	10	ug/l	
75-09-2	Methylene chloride	10 U	50	10	ug/l	
71-55-6	1,1,1-Trichloroethane	5.0 U	10	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	4.0 U	10	4.0	ug/l	
79-00-5	1,1,2-Trichloroethane	5.0 U	10	5.0	ug/l	
127-18-4	Tetrachloroethylene	5.0 U	10	5.0	ug/l	
79-01-6	Trichloroethylene	541	10	5.0	ug/l	
75-01-4	Vinyl chloride	5.0 U	10	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12I-GW-05B		
Lab Sample ID:	F45151-3	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	102%		73-126%
2037-26-5	Toluene-D8	96%		86-112%
460-00-4	4-Bromofluorobenzene	93%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-006-78-05B		
Lab Sample ID:	F45151-4	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N0015521.D	1	11/21/06	CS	n/a	n/a	VN660
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	0.50 U	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-006-78-05B		
Lab Sample ID:	F45151-4	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	103%		73-126%
2037-26-5	Toluene-D8	100%		86-112%
460-00-4	4-Bromofluorobenzene	105%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-EW1A-05B		
Lab Sample ID:	F45151-5	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N0015523.D	10	11/21/06	CS	n/a	n/a	VN660
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	5.0 U	10	5.0	ug/l	
75-25-2	Bromoform	5.0 U	10	5.0	ug/l	
108-90-7	Chlorobenzene	5.0 U	10	5.0	ug/l	
75-00-3	Chloroethane	10 U	20	10	ug/l	
67-66-3	Chloroform	5.0 U	10	5.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	25 U	50	25	ug/l	
56-23-5	Carbon tetrachloride	5.0 U	10	5.0	ug/l	
75-34-3	1,1-Dichloroethane	5.0 U	10	5.0	ug/l	
75-35-4	1,1-Dichloroethylene	5.0 U	10	5.0	ug/l	
107-06-2	1,2-Dichloroethane	5.0 U	10	5.0	ug/l	
78-87-5	1,2-Dichloropropane	5.0 U	10	5.0	ug/l	
124-48-1	Dibromochloromethane	4.0 U	10	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	62.8	10	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
541-73-1	m-Dichlorobenzene	5.0 U	10	5.0	ug/l	
95-50-1	o-Dichlorobenzene	5.0 U	10	5.0	ug/l	
106-46-7	p-Dichlorobenzene	5.0 U	10	5.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
74-83-9	Methyl bromide	10 U	20	10	ug/l	
74-87-3	Methyl chloride	10 U	20	10	ug/l	
75-09-2	Methylene chloride	10 U	50	10	ug/l	
71-55-6	1,1,1-Trichloroethane	5.0 U	10	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	4.0 U	10	4.0	ug/l	
79-00-5	1,1,2-Trichloroethane	5.0 U	10	5.0	ug/l	
127-18-4	Tetrachloroethylene	5.0 U	10	5.0	ug/l	
79-01-6	Trichloroethylene	740	10	5.0	ug/l	
75-01-4	Vinyl chloride	5.0 U	10	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-EW1A-05B		
Lab Sample ID:	F45151-5	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	103%		73-126%
2037-26-5	Toluene-D8	101%		86-112%
460-00-4	4-Bromofluorobenzene	103%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-05B		
Lab Sample ID:	F45151-6	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N0015524.D	10	11/21/06	CS	n/a	n/a	VN660
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	5.0 U	10	5.0	ug/l	
75-25-2	Bromoform	5.0 U	10	5.0	ug/l	
108-90-7	Chlorobenzene	5.0 U	10	5.0	ug/l	
75-00-3	Chloroethane	10 U	20	10	ug/l	
67-66-3	Chloroform	5.0 U	10	5.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	25 U	50	25	ug/l	
56-23-5	Carbon tetrachloride	5.0 U	10	5.0	ug/l	
75-34-3	1,1-Dichloroethane	5.0 U	10	5.0	ug/l	
75-35-4	1,1-Dichloroethylene	5.0 U	10	5.0	ug/l	
107-06-2	1,2-Dichloroethane	5.0 U	10	5.0	ug/l	
78-87-5	1,2-Dichloropropane	5.0 U	10	5.0	ug/l	
124-48-1	Dibromochloromethane	4.0 U	10	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	338	10	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
541-73-1	m-Dichlorobenzene	5.0 U	10	5.0	ug/l	
95-50-1	o-Dichlorobenzene	5.0 U	10	5.0	ug/l	
106-46-7	p-Dichlorobenzene	5.0 U	10	5.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
74-83-9	Methyl bromide	10 U	20	10	ug/l	
74-87-3	Methyl chloride	10 U	20	10	ug/l	
75-09-2	Methylene chloride	10 U	50	10	ug/l	
71-55-6	1,1,1-Trichloroethane	5.0 U	10	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	4.0 U	10	4.0	ug/l	
79-00-5	1,1,2-Trichloroethane	5.0 U	10	5.0	ug/l	
127-18-4	Tetrachloroethylene	5.0 U	10	5.0	ug/l	
79-01-6	Trichloroethylene	486	10	5.0	ug/l	
75-01-4	Vinyl chloride	5.0 U	10	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-05B		
Lab Sample ID:	F45151-6	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	102%		73-126%
2037-26-5	Toluene-D8	103%		86-112%
460-00-4	4-Bromofluorobenzene	103%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-05B		
Lab Sample ID:	F45151-6	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	145000	50000	2500	ug/l	5	11/14/06	11/15/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5348
(2) Prep QC Batch: MP10690

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-05B		
Lab Sample ID:	F45151-6	Date Sampled:	11/09/06
Matrix:	AQ - Ground Water	Date Received:	11/11/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	11.1	2.0	1.0	mg/l	1	11/11/06 12:07	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.080 I	0.10	0.050	mg/l	1	11/11/06 12:07	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	11/11/06 12:07	MP	EPA 300/SW846 9056
Phosphate, Ortho [a]	0.033 I	0.10	0.020	mg/l	1	11/13/06 12:00	JB	EPA 365.3
Sulfate	9.6	2.0	1.0	mg/l	1	11/11/06 12:07	MP	EPA 300/SW846 9056
Sulfide	3.8	1.0	1.0	mg/l	1	11/15/06	LE	EPA 376.1
Total Organic Carbon	43.0	2.0	1.0	mg/l	2	11/18/06 16:04	LE	EPA 415.1

(a) Exceeded holding time.

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

TETRA TECH NUS, INC. F45151 CHAIN OF CUSTODY | NUMBER 2464 | PAGE ___ OF ___

[redacted] NAS CF

[redacted]

Orlando [redacted]

	DATE / YEAR 2006	[redacted]	[redacted]	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	COMMENTS
1	11-9	[redacted]	CEF [redacted]				[redacted]	[redacted]	11	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
2		[redacted]	[redacted]						1	[redacted]					
3		1155	NG-12-[redacted]	[redacted]							-	-	-	-	-
4		1[redacted]	CEF-059 [redacted]	[redacted]							[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
5		1230	C[redacted]	[redacted]							-	-	-	-	-
6		[redacted]													

[redacted] HED BY [redacted] | DATE 11-9-06 | [redacted] | 11/[redacted]6 | 12:30

DATE 11-11-06 | [redacted]

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY) 4/02R

1.8 FORM NO. TtNUS-001

4.1 4

F45151: Chain of Custody
Page 1 of 2

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 2 of 8
Lab Proj #: P0611198
Report Date: 11/29/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
GW-MW1A-05B	Water	P0611198-01	09 Nov. 06 9:20	13 Nov. 06 12:34

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	11/22/06	rw
N Ethane		0.093	0.025	ug/L	AM20GAX	11/22/06	rw
N Ethene		0.420	0.025	ug/L	AM20GAX	11/22/06	rw
N Methane		290.000	0.100	ug/L	AM20GAX	11/22/06	rw
SemiVolatiles							
N Acetic Acid		28.00	0.70	mg/L	AM23G	11/22/06	jb
N Butyric Acid		0.74	0.07	mg/L	AM23G	11/21/06	jb
N Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	11/21/06	jb
N i-Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	11/21/06	jb
N i-Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	11/21/06	jb
N Lactic Acid and HIBA	J	1.00	1.00	mg/L	AM23G	11/22/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	11/21/06	jb
N Propionic Acid		46.00	0.70	mg/L	AM23G	11/22/06	jb
N Pyruvic Acid		0.15	0.07	mg/L	AM23G	11/21/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 3 of 8
Lab Proj #: P0611198
Report Date: 11/29/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
GW-IW2A-05B	Water	P0611198-02	09 Nov. 06 10:30	13 Nov. 06 12:34

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	11/22/06	rw
N Ethane		0.029	0.025	ug/L	AM20GAX	11/22/06	rw
N Ethene		3.100	0.025	ug/L	AM20GAX	11/22/06	rw
N Methane		580.000	0.100	ug/L	AM20GAX	11/22/06	rw
SemiVolatiles							
N Acetic Acid		40.00	0.70	mg/L	AM23G	11/22/06	jb
N Butyric Acid		2.00	0.07	mg/L	AM23G	11/21/06	jb
N Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	11/21/06	jb
N i-Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	11/21/06	jb
N i-Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	11/21/06	jb
N Lactic Acid and HIBA		1.70	1.00	mg/L	AM23G	11/22/06	jb
N Pentanoic Acid		0.18	0.07	mg/L	AM23G	11/21/06	jb
N Propionic Acid		61.00	0.70	mg/L	AM23G	11/22/06	jb
N Pyruvic Acid		0.26	0.07	mg/L	AM23G	11/21/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 4 of 8
Lab Proj #: P0611198
Report Date: 11/29/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
NG-12D-GW-05B	Water	P0611198-03	09 Nov. 06 12:50	13 Nov. 06 12:34

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	11/22/06	rw
N Ethane		0.037	0.025	ug/L	AM20GAX	11/22/06	rw
N Ethene		0.210	0.025	ug/L	AM20GAX	11/22/06	rw
N Methane		420.000	0.100	ug/L	AM20GAX	11/22/06	rw
SemiVolatiles							
N Acetic Acid		35.00	0.70	mg/L	AM23G	11/22/06	jb
N Butyric Acid		0.72	0.07	mg/L	AM23G	11/21/06	jb
N Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	11/21/06	jb
N i-Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	11/21/06	jb
N i-Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	11/21/06	jb
N Lactic Acid and HIBA	J	0.86	1.00	mg/L	AM23G	11/22/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	11/21/06	jb
N Propionic Acid		52.00	0.70	mg/L	AM23G	11/22/06	jb
N Pyruvic Acid		0.13	0.07	mg/L	AM23G	11/21/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

EVENT 7

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-07B		
Lab Sample ID:	F45697-1	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0016910.D	10	12/18/06	CS	n/a	n/a	VM700
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	5.0 U	10	5.0	ug/l	
75-25-2	Bromoform	5.0 U	10	5.0	ug/l	
108-90-7	Chlorobenzene	5.0 U	10	5.0	ug/l	
75-00-3	Chloroethane	10 U	20	10	ug/l	
67-66-3	Chloroform	5.0 U	10	5.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	25 U	50	25	ug/l	
56-23-5	Carbon tetrachloride	5.0 U	10	5.0	ug/l	
75-34-3	1,1-Dichloroethane	5.0 U	10	5.0	ug/l	
75-35-4	1,1-Dichloroethylene	5.0 U	10	5.0	ug/l	
107-06-2	1,2-Dichloroethane	5.0 U	10	5.0	ug/l	
78-87-5	1,2-Dichloropropane	5.0 U	10	5.0	ug/l	
124-48-1	Dibromochloromethane	4.0 U	10	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	350	10	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
541-73-1	m-Dichlorobenzene	5.0 U	10	5.0	ug/l	
95-50-1	o-Dichlorobenzene	5.0 U	10	5.0	ug/l	
106-46-7	p-Dichlorobenzene	5.0 U	10	5.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
74-83-9	Methyl bromide	10 U	20	10	ug/l	
74-87-3	Methyl chloride	10 U	20	10	ug/l	
75-09-2	Methylene chloride	10 U	50	10	ug/l	
71-55-6	1,1,1-Trichloroethane	5.0 U	10	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	4.0 U	10	4.0	ug/l	
79-00-5	1,1,2-Trichloroethane	5.0 U	10	5.0	ug/l	
127-18-4	Tetrachloroethylene	5.0 U	10	5.0	ug/l	
79-01-6	Trichloroethylene	5.0 U	10	5.0	ug/l	
75-01-4	Vinyl chloride	66.5	10	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-07B		
Lab Sample ID:	F45697-1	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	100%		73-126%
2037-26-5	Toluene-D8	104%		86-112%
460-00-4	4-Bromofluorobenzene	108%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-07B		
Lab Sample ID:	F45697-1	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	163000	50000	2500	ug/l	5	12/07/06	12/08/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5388
(2) Prep QC Batch: MP10812

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-07B		
Lab Sample ID:	F45697-1	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	14.4	2.0	1.0	mg/l	1	12/06/06 13:10	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	12/06/06 13:10	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	12/06/06 13:10	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.024 I	0.10	0.020	mg/l	1	12/06/06 13:25	LE	EPA 365.3
Sulfate	9.1	2.0	1.0	mg/l	1	12/06/06 13:10	MP	EPA 300/SW846 9056
Sulfide	1.6	1.0	1.0	mg/l	1	12/08/06	LE	EPA 376.1
Total Organic Carbon	41.0	2.0	1.0	mg/l	2	12/14/06 09:09	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-07B		
Lab Sample ID:	F45697-1A	Date Sampled:	12/05/06
Matrix:	AQ - Groundwater Filtered	Date Received:	12/06/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	3790	300	15	ug/l	1	12/07/06	12/07/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	1100	15	1.5	ug/l	1	12/07/06	12/07/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5385
(2) Prep QC Batch: MP10812

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-006-78-07B		
Lab Sample ID:	F45697-2	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0016912.D	1	12/18/06	CS	n/a	n/a	VM700
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	0.50 U	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-006-78-07B		
Lab Sample ID:	F45697-2	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	100%		73-126%
2037-26-5	Toluene-D8	104%		86-112%
460-00-4	4-Bromofluorobenzene	110%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12I-GW-07B		
Lab Sample ID:	F45697-3	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0016911.D	10	12/18/06	CS	n/a	n/a	VM700
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	5.0 U	10	5.0	ug/l	
75-25-2	Bromoform	5.0 U	10	5.0	ug/l	
108-90-7	Chlorobenzene	5.0 U	10	5.0	ug/l	
75-00-3	Chloroethane	10 U	20	10	ug/l	
67-66-3	Chloroform	5.0 U	10	5.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	25 U	50	25	ug/l	
56-23-5	Carbon tetrachloride	5.0 U	10	5.0	ug/l	
75-34-3	1,1-Dichloroethane	5.0 U	10	5.0	ug/l	
75-35-4	1,1-Dichloroethylene	5.0 U	10	5.0	ug/l	
107-06-2	1,2-Dichloroethane	5.0 U	10	5.0	ug/l	
78-87-5	1,2-Dichloropropane	5.0 U	10	5.0	ug/l	
124-48-1	Dibromochloromethane	4.0 U	10	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	205	10	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
541-73-1	m-Dichlorobenzene	5.0 U	10	5.0	ug/l	
95-50-1	o-Dichlorobenzene	5.0 U	10	5.0	ug/l	
106-46-7	p-Dichlorobenzene	5.0 U	10	5.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
74-83-9	Methyl bromide	10 U	20	10	ug/l	
74-87-3	Methyl chloride	10 U	20	10	ug/l	
75-09-2	Methylene chloride	10 U	50	10	ug/l	
71-55-6	1,1,1-Trichloroethane	5.0 U	10	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	4.0 U	10	4.0	ug/l	
79-00-5	1,1,2-Trichloroethane	5.0 U	10	5.0	ug/l	
127-18-4	Tetrachloroethylene	5.0 U	10	5.0	ug/l	
79-01-6	Trichloroethylene	370	10	5.0	ug/l	
75-01-4	Vinyl chloride	5.0 U	10	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12I-GW-07B		
Lab Sample ID:	F45697-3	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	100%		73-126%
2037-26-5	Toluene-D8	105%		86-112%
460-00-4	4-Bromofluorobenzene	112%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-07B		
Lab Sample ID:	F45697-4	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0016919.D	10	12/19/06	CS	n/a	n/a	VM702
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	5.0 U	10	5.0	ug/l	
75-25-2	Bromoform	5.0 U	10	5.0	ug/l	
108-90-7	Chlorobenzene	5.0 U	10	5.0	ug/l	
75-00-3	Chloroethane	10 U	20	10	ug/l	
67-66-3	Chloroform	5.0 U	10	5.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	25 U	50	25	ug/l	
56-23-5	Carbon tetrachloride	5.0 U	10	5.0	ug/l	
75-34-3	1,1-Dichloroethane	5.0 U	10	5.0	ug/l	
75-35-4	1,1-Dichloroethylene	5.0 U	10	5.0	ug/l	
107-06-2	1,2-Dichloroethane	5.0 U	10	5.0	ug/l	
78-87-5	1,2-Dichloropropane	5.0 U	10	5.0	ug/l	
124-48-1	Dibromochloromethane	4.0 U	10	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	492	10	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
541-73-1	m-Dichlorobenzene	5.0 U	10	5.0	ug/l	
95-50-1	o-Dichlorobenzene	5.0 U	10	5.0	ug/l	
106-46-7	p-Dichlorobenzene	5.0 U	10	5.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
74-83-9	Methyl bromide	10 U	20	10	ug/l	
74-87-3	Methyl chloride	10 U	20	10	ug/l	
75-09-2	Methylene chloride	10 U	50	10	ug/l	
71-55-6	1,1,1-Trichloroethane	5.0 U	10	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	4.0 U	10	4.0	ug/l	
79-00-5	1,1,2-Trichloroethane	5.0 U	10	5.0	ug/l	
127-18-4	Tetrachloroethylene	5.0 U	10	5.0	ug/l	
79-01-6	Trichloroethylene	5.0 U	10	5.0	ug/l	
75-01-4	Vinyl chloride	48.4	10	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-07B		
Lab Sample ID:	F45697-4	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	96%		73-126%
2037-26-5	Toluene-D8	104%		86-112%
460-00-4	4-Bromofluorobenzene	107%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-07B		
Lab Sample ID:	F45697-4	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	202000	50000	2500	ug/l	5	12/07/06	12/08/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5388
(2) Prep QC Batch: MP10812

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-07B		
Lab Sample ID:	F45697-4	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	15.2	2.0	1.0	mg/l	1	12/06/06 13:24	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	12/06/06 13:24	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	12/06/06 13:24	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.020 U	0.10	0.020	mg/l	1	12/06/06 13:25	LE	EPA 365.3
Sulfate	9.1	2.0	1.0	mg/l	1	12/06/06 13:24	MP	EPA 300/SW846 9056
Sulfide	5.5	1.0	1.0	mg/l	1	12/08/06	LE	EPA 376.1
Total Organic Carbon	45.4	2.0	1.0	mg/l	2	12/14/06 09:25	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-07B		
Lab Sample ID:	F45697-4A	Date Sampled:	12/05/06
Matrix:	AQ - Groundwater Filtered	Date Received:	12/06/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	184 I	300	15	ug/l	1	12/07/06	12/07/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	2.0 I	15	1.5	ug/l	1	12/07/06	12/07/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5385
(2) Prep QC Batch: MP10812

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-07B		
Lab Sample ID:	F45697-5	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0016920.D	5	12/19/06	CS	n/a	n/a	VM702
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	2.5 U	5.0	2.5	ug/l	
75-25-2	Bromoform	2.5 U	5.0	2.5	ug/l	
108-90-7	Chlorobenzene	2.5 U	5.0	2.5	ug/l	
75-00-3	Chloroethane	5.0 U	10	5.0	ug/l	
67-66-3	Chloroform	2.5 U	5.0	2.5	ug/l	
110-75-8	2-Chloroethyl vinyl ether	13 U	25	13	ug/l	
56-23-5	Carbon tetrachloride	2.5 U	5.0	2.5	ug/l	
75-34-3	1,1-Dichloroethane	2.5 U	5.0	2.5	ug/l	
75-35-4	1,1-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
107-06-2	1,2-Dichloroethane	2.5 U	5.0	2.5	ug/l	
78-87-5	1,2-Dichloropropane	2.5 U	5.0	2.5	ug/l	
124-48-1	Dibromochloromethane	2.0 U	5.0	2.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	332	5.0	2.5	ug/l	
10061-01-5	cis-1,3-Dichloropropene	1.5 U	5.0	1.5	ug/l	
541-73-1	m-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
95-50-1	o-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
106-46-7	p-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
156-60-5	trans-1,2-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
10061-02-6	trans-1,3-Dichloropropene	1.5 U	5.0	1.5	ug/l	
74-83-9	Methyl bromide	5.0 U	10	5.0	ug/l	
74-87-3	Methyl chloride	5.0 U	10	5.0	ug/l	
75-09-2	Methylene chloride	5.0 U	25	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	2.5 U	5.0	2.5	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	2.0 U	5.0	2.0	ug/l	
79-00-5	1,1,2-Trichloroethane	2.5 U	5.0	2.5	ug/l	
127-18-4	Tetrachloroethylene	2.5 U	5.0	2.5	ug/l	
79-01-6	Trichloroethylene	13.6	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	77.6	5.0	2.5	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-07B		
Lab Sample ID:	F45697-5	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	95%		73-126%
2037-26-5	Toluene-D8	105%		86-112%
460-00-4	4-Bromofluorobenzene	105%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-07B		
Lab Sample ID:	F45697-5	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	254000	50000	2500	ug/l	5	12/07/06	12/08/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5388
(2) Prep QC Batch: MP10812

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-07B		
Lab Sample ID:	F45697-5	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	16.2	2.0	1.0	mg/l	1	12/06/06 13:39	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	12/06/06 13:39	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	12/06/06 13:39	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.091 I	0.10	0.020	mg/l	1	12/06/06 13:25	LE	EPA 365.3
Sulfate	9.1	2.0	1.0	mg/l	1	12/06/06 13:39	MP	EPA 300/SW846 9056
Sulfide	5.0	1.0	1.0	mg/l	1	12/08/06	LE	EPA 376.1
Total Organic Carbon	49.3	2.0	1.0	mg/l	2	12/14/06 09:41	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-07B		
Lab Sample ID:	F45697-5A	Date Sampled:	12/05/06
Matrix:	AQ - Groundwater Filtered	Date Received:	12/06/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	884	300	15	ug/l	1	12/07/06	12/07/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	3.8 I	15	1.5	ug/l	1	12/07/06	12/07/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5385
(2) Prep QC Batch: MP10812

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-EW1A-07B		
Lab Sample ID:	F45697-6	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0016921.D	10	12/19/06	CS	n/a	n/a	VM702
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	5.0 U	10	5.0	ug/l	
75-25-2	Bromoform	5.0 U	10	5.0	ug/l	
108-90-7	Chlorobenzene	5.0 U	10	5.0	ug/l	
75-00-3	Chloroethane	10 U	20	10	ug/l	
67-66-3	Chloroform	5.0 U	10	5.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	25 U	50	25	ug/l	
56-23-5	Carbon tetrachloride	5.0 U	10	5.0	ug/l	
75-34-3	1,1-Dichloroethane	5.0 U	10	5.0	ug/l	
75-35-4	1,1-Dichloroethylene	5.0 U	10	5.0	ug/l	
107-06-2	1,2-Dichloroethane	5.0 U	10	5.0	ug/l	
78-87-5	1,2-Dichloropropane	5.0 U	10	5.0	ug/l	
124-48-1	Dibromochloromethane	4.0 U	10	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	146	10	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
541-73-1	m-Dichlorobenzene	5.0 U	10	5.0	ug/l	
95-50-1	o-Dichlorobenzene	5.0 U	10	5.0	ug/l	
106-46-7	p-Dichlorobenzene	5.0 U	10	5.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
74-83-9	Methyl bromide	10 U	20	10	ug/l	
74-87-3	Methyl chloride	10 U	20	10	ug/l	
75-09-2	Methylene chloride	10 U	50	10	ug/l	
71-55-6	1,1,1-Trichloroethane	5.0 U	10	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	4.0 U	10	4.0	ug/l	
79-00-5	1,1,2-Trichloroethane	5.0 U	10	5.0	ug/l	
127-18-4	Tetrachloroethylene	5.0 U	10	5.0	ug/l	
79-01-6	Trichloroethylene	420	10	5.0	ug/l	
75-01-4	Vinyl chloride	14.9	10	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-EW1A-07B		
Lab Sample ID:	F45697-6	Date Sampled:	12/05/06
Matrix:	AQ - Ground Water	Date Received:	12/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	94%		73-126%
2037-26-5	Toluene-D8	103%		86-112%
460-00-4	4-Bromofluorobenzene	105%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 2467 F45697 PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G-NC0039	NAS Cecil Field	Bob Simcik	800-245-2730	H. Wandy Accutest
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
		Wes Harden	904-636-6125	4405 Vineland Rd C-15
		CARRIER/WAYBILL NUMBER		CITY, STATE
		Fedex		Orlando, FL

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

	DATE (YEAR 2006)	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	CONTAINER TYPE PLASTIC (P) or GLASS (G)	TYPE OF ANALYSIS: chlorinated VOCs	dissolved Fe + Mn	total Na	sulfide	Anions*	TOC	COMMENTS
1	12-5	0958	CEF-059-GW-MW1A-07B				GW	G	11	[redacted]	X	X	X	X	X	X	
2		1148	CEF-059-GW-006-78-07B						3		X	-	-	-	-	-	COOL to 4°C
3		1220	NG-12I-GW-07B														
4		1325	NG-12D-GW-07B														* Anions include sulfate, sulfide nitrate, nitrite chloride & phosphate
5		1340	CEF-059-GW-IW2A-07B											X	X	X	
6		1420	CEF-059-GW-EW1A-07B						3		X						

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	12-5-06	1705	1. RECEIVED BY Jorge Corral	12-6-06	9:00
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

0.8

4.1 4

F45697: Chain of Custody
Page 1 of 2

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 2 of 8
Lab Proj #: P0612087
Report Date: 12/19/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
GW-MW1A-07B	Water	P0612087-01	05 Dec. 06 9:58	06 Dec. 06 13:57

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	12/16/06	rw
N Ethane		0.065	0.025	ug/L	AM20GAX	12/16/06	rw
N Ethene		17.000	0.025	ug/L	AM20GAX	12/16/06	rw
N Methane		670.000	0.100	ug/L	AM20GAX	12/16/06	rw
SemiVolatiles							
N Acetic Acid		29.00	0.70	mg/L	AM23G	12/14/06	jb
N Butyric Acid	M	0.72	0.07	mg/L	AM23G	12/14/06	jb
N Hexanoic Acid		5.70	0.1	mg/L	AM23G	12/14/06	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	12/14/06	jb
N i-Pentanoic Acid		0.08	0.07	mg/L	AM23G	12/14/06	jb
N Lactic Acid and HIBA		2.30	1.00	mg/L	AM23G	12/14/06	jb
N Pentanoic Acid	M	0.10	0.07	mg/L	AM23G	12/14/06	jb
N Propionic Acid		43.00	0.70	mg/L	AM23G	12/14/06	jb
N Pyruvic Acid		0.15	0.07	mg/L	AM23G	12/14/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0612087
Report Date: 12/19/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
NG-12G-GW-07B	Water	P0612087-02	05 Dec. 06 13:25	06 Dec. 06 13:57

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	12/16/06	rw
N Ethane		0.042	0.025	ug/L	AM20GAX	12/16/06	rw
N Ethene		3.200	0.025	ug/L	AM20GAX	12/16/06	rw
N Methane		620.000	0.100	ug/L	AM20GAX	12/16/06	rw
SemiVolatiles							
N Acetic Acid		32.00	0.70	mg/L	AM23G	12/14/06	jb
N Butyric Acid	M	0.88	0.07	mg/L	AM23G	12/14/06	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	12/14/06	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	12/14/06	jb
N i-Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	12/14/06	jb
N Lactic Acid and HIBA		1.30	1.00	mg/L	AM23G	12/14/06	jb
N Pentanoic Acid	M	0.12	0.07	mg/L	AM23G	12/14/06	jb
N Propionic Acid		47.00	0.70	mg/L	AM23G	12/14/06	jb
N Pyruvic Acid		0.15	0.07	mg/L	AM23G	12/14/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 4 of 8
Lab Proj #: P0612087
Report Date: 12/19/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
GW-IW2A-07B	Water	P0612087-03	05 Dec. 06 13:40	06 Dec. 06 13:57

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	12/16/06	rw
N Ethane		0.034	0.025	ug/L	AM20GAX	12/16/06	rw
N Ethene		25.000	0.025	ug/L	AM20GAX	12/16/06	rw
N Methane		1300.000	0.100	ug/L	AM20GAX	12/16/06	rw
SemiVolatiles							
N Acetic Acid		39.00	0.70	mg/L	AM23G	12/14/06	jb
N Butyric Acid	M	0.59	0.07	mg/L	AM23G	12/14/06	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	12/14/06	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	12/14/06	jb
N i-Pentanoic Acid		0.24	0.07	mg/L	AM23G	12/14/06	jb
N Lactic Acid and HIBA		1.50	1.00	mg/L	AM23G	12/14/06	jb
N Pentanoic Acid	M	0.20	0.07	mg/L	AM23G	12/14/06	jb
N Propionic Acid		51.00	0.70	mg/L	AM23G	12/14/06	jb
N Pyruvic Acid		0.37	0.07	mg/L	AM23G	12/14/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

microbialinsights

2340 Stock Creek Blvd.
Rockford TN 37853-3044
Phone: (865) 573-8188
Fax: (865) 573-8133
Email: info@microbe.com

Analysis Report

Client: Mark Speranza
Tetra Tech , Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, PA 15220

Phone: (412) 921-8916

Fax: (412) 921-7276

MI Identifier: 020DL **Date Rec:** 12/06/2006 **Report Date:** 12/08/2006

Client Project #: 112GNO039 **Client Project Name:** Site 59

Purchase Order #:

Analysis Requested: CENSUS (final)

Comments:

All samples within this data package were analyzed under U.S. EPA Good Laboratory Practice Standards: Toxic Substances Control Act (40 CFR part 790). All samples were processed according to standard operating procedures. Test results submitted in this data package meet the quality assurance requirements established by Microbial Insights, Inc.

Reported By: Anita Biernacki

Reviewed By: Dora M Ogles

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

MICROBIAL INSIGHTS, INC.

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel: (865) 573-8188; Fax: (865) 573-8133

Q Potential (DNA)

Client: **Tetra Tech , Inc.**
Project: Site 59

MI Project Number: **020DL**
Date Received: 12/06/2006

Sample Information

Client Sample ID:		CEF-059-GW-MW1A-07B	NG-12D-GW-07B	CEF-059-GW-EW1A-07B
Sample Date:		12/05/2006	12/05/2006	12/05/2006
Units:		cells/mL	cells/mL	cells/mL
Dechlorinating Bacteria				
Dehalococcoides spp (1)	DHC	**7.15E+04**	**2.84E+04**	**7.03E+04**
Functional Genes				
TCE R-Dase (1)	TCE	<3.33E-01	<5E-01	<5E-01
BAV1 VC R-Dase (1)	BVC	**1.68E+02**	**3.68E-01 (J)**	**1.32E+01**
VC R-Dase	VCR	**1.83E+05**	**8.84E+04**	**2.13E+05**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Notes:
1 Bio-Dechlor Census technology was developed by Dr. Loeffler and colleagues at Georgia Institute of Technology and was licensed for use through Regenesis.

SiREM
Site Recovery & Management

130 Research Lane, Suite 2
Guelph, Ontario N1G 5G3
Phone: (519) 822-2265
Fax: (519) 822-3151
www.siremlab.com

Certificate of Analysis:
Gene-Trac-VC, Vinyl Chloride Reductase Assay

Customer: Rob Simcih, Tetra Tech NUS

Project: Cecil Field (Site 59)

Customer Reference #: 112GN0039

Date Sampled: 5 December 2006

SiREM Reference #: S-0909/KB-1-057

Report Issued: 15 December 2006

Data Files: VC-QPCR-0061,
VC-QPCR-check-gel-0070

Test Results

Customer Sample ID	SiREM ID	Sample Matrix	Vinyl Chloride Reductase Gene Copies
LEF-059-GW-IW2A-07B	VCR-0371	Groundwater	9×10^7/liter

Analyst: J. Wilkinson
Jennifer Wilkinson
Biotechnology Technologist

Reviewed by: P. Dennis
Philip Dennis, M.A.Sc.
Technology Manager

EVENT 8

Report of Analysis

Client Sample ID:	NG-12D-GW-08B		
Lab Sample ID:	F46766-1	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0017658.D	1	01/26/07	CS	n/a	n/a	VM732
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	58.0	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.4	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	0.81	1.0	0.50	ug/l	I
75-01-4	Vinyl chloride	75.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-08B		
Lab Sample ID:	F46766-1	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	95%		76-127%
2037-26-5	Toluene-D8	100%		86-112%
460-00-4	4-Bromofluorobenzene	112%		84-120%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-08B		
Lab Sample ID:	F46766-1	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	208000	100000	5000	ug/l	10	01/26/07	01/30/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5475
(2) Prep QC Batch: MP11116

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-08B		
Lab Sample ID:	F46766-1	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	14.8	2.0	1.0	mg/l	1	01/25/07 18:30	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	01/25/07 11:05	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	01/25/07 11:05	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.17	0.10	0.020	mg/l	1	01/25/07 09:55	LE	EPA 365.3
Sulfate	9.1	2.0	1.0	mg/l	1	01/25/07 11:05	MP	EPA 300/SW846 9056
Sulfide	5.1	1.0	1.0	mg/l	1	01/26/07	LE	EPA 376.1
Total Organic Carbon	41.6	2.0	1.0	mg/l	2	02/12/07 14:47	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-08B		
Lab Sample ID:	F46766-1A	Date Sampled:	01/23/07
Matrix:	AQ - Groundwater Filtered	Date Received:	01/25/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	115 I	300	15	ug/l	1	01/30/07	01/31/07	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	1.7 I	15	1.5	ug/l	1	01/30/07	01/31/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5475
(2) Prep QC Batch: MP11146

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-08B		
Lab Sample ID:	F46766-2	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0017659.D	1	01/26/07	CS	n/a	n/a	VM732
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	31.3	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.4	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	0.50 U	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	32.8	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-08B		
Lab Sample ID:	F46766-2	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	96%		76-127%
2037-26-5	Toluene-D8	102%		86-112%
460-00-4	4-Bromofluorobenzene	109%		84-120%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-08B		
Lab Sample ID:	F46766-2	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	192000	50000	2500	ug/l	5	01/26/07	01/30/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5475
(2) Prep QC Batch: MP11116

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-08B		
Lab Sample ID:	F46766-2	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	14.1	2.0	1.0	mg/l	1	01/25/07 19:14	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	01/25/07 11:19	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	01/25/07 11:19	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.057 I	0.10	0.020	mg/l	1	01/25/07 09:55	LE	EPA 365.3
Sulfate	8.6	2.0	1.0	mg/l	1	01/25/07 11:19	MP	EPA 300/SW846 9056
Sulfide	3.6	1.0	1.0	mg/l	1	01/26/07	LE	EPA 376.1
Total Organic Carbon	39.2	2.0	1.0	mg/l	2	02/12/07 15:03	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-08B		
Lab Sample ID:	F46766-2A	Date Sampled:	01/23/07
Matrix:	AQ - Groundwater Filtered	Date Received:	01/25/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	3730	300	15	ug/l	1	01/30/07	01/31/07	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	710	15	1.5	ug/l	1	01/30/07	01/31/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5475
(2) Prep QC Batch: MP11146

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-EWA-08B		
Lab Sample ID:	F46766-3	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0017660.D	5	01/26/07	CS	n/a	n/a	VM732
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	2.5 U	5.0	2.5	ug/l	
75-25-2	Bromoform	2.5 U	5.0	2.5	ug/l	
108-90-7	Chlorobenzene	2.5 U	5.0	2.5	ug/l	
75-00-3	Chloroethane	5.0 U	10	5.0	ug/l	
67-66-3	Chloroform	2.5 U	5.0	2.5	ug/l	
110-75-8	2-Chloroethyl vinyl ether	13 U	25	13	ug/l	
56-23-5	Carbon tetrachloride	2.5 U	5.0	2.5	ug/l	
75-34-3	1,1-Dichloroethane	2.5 U	5.0	2.5	ug/l	
75-35-4	1,1-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
107-06-2	1,2-Dichloroethane	2.5 U	5.0	2.5	ug/l	
78-87-5	1,2-Dichloropropane	2.5 U	5.0	2.5	ug/l	
124-48-1	Dibromochloromethane	2.0 U	5.0	2.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	92.2	5.0	2.5	ug/l	
10061-01-5	cis-1,3-Dichloropropene	1.5 U	5.0	1.5	ug/l	
541-73-1	m-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
95-50-1	o-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
106-46-7	p-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
156-60-5	trans-1,2-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
10061-02-6	trans-1,3-Dichloropropene	1.5 U	5.0	1.5	ug/l	
74-83-9	Methyl bromide	5.0 U	10	5.0	ug/l	
74-87-3	Methyl chloride	5.0 U	10	5.0	ug/l	
75-09-2	Methylene chloride	15.4	25	5.0	ug/l	I
71-55-6	1,1,1-Trichloroethane	2.5 U	5.0	2.5	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	2.0 U	5.0	2.0	ug/l	
79-00-5	1,1,2-Trichloroethane	2.5 U	5.0	2.5	ug/l	
127-18-4	Tetrachloroethylene	2.5 U	5.0	2.5	ug/l	
79-01-6	Trichloroethylene	291	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	34.4	5.0	2.5	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-EWA-08B		
Lab Sample ID:	F46766-3	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	95%		76-127%
2037-26-5	Toluene-D8	103%		86-112%
460-00-4	4-Bromofluorobenzene	111%		84-120%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-08B		
Lab Sample ID:	F46766-4	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0017656.D	1	01/26/07	CS	n/a	n/a	VM732
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	22.6	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.2	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	0.85	1.0	0.50	ug/l	I
75-01-4	Vinyl chloride	26.7	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-08B		
Lab Sample ID:	F46766-4	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	94%		76-127%
2037-26-5	Toluene-D8	102%		86-112%
460-00-4	4-Bromofluorobenzene	106%		84-120%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-08B		
Lab Sample ID:	F46766-4	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	435000	200000	10000	ug/l	20	01/26/07	01/30/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5475
(2) Prep QC Batch: MP11116

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-08B		
Lab Sample ID:	F46766-4	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	16.9	2.0	1.0	mg/l	1	01/25/07 19:29	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	01/25/07 11:34	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	01/25/07 11:34	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.19	0.10	0.020	mg/l	1	01/25/07 09:55	LE	EPA 365.3
Sulfate	9.0	2.0	1.0	mg/l	1	01/25/07 11:34	MP	EPA 300/SW846 9056
Sulfide	2.4	1.0	1.0	mg/l	1	01/26/07	LE	EPA 376.1
Total Organic Carbon	67.2	5.0	2.5	mg/l	5	02/12/07 15:19	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2A-08B		
Lab Sample ID:	F46766-4A	Date Sampled:	01/23/07
Matrix:	AQ - Groundwater Filtered	Date Received:	01/25/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	851	300	15	ug/l	1	01/30/07	01/31/07	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	4.1 I	15	1.5	ug/l	1	01/30/07	01/31/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5475
(2) Prep QC Batch: MP11146

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12I-GW-08B		
Lab Sample ID:	F46766-5	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0017661.D	2	01/26/07	CS	n/a	n/a	VM732
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	1.0 U	2.0	1.0	ug/l	
75-25-2	Bromoform	1.0 U	2.0	1.0	ug/l	
108-90-7	Chlorobenzene	1.0 U	2.0	1.0	ug/l	
75-00-3	Chloroethane	2.0 U	4.0	2.0	ug/l	
67-66-3	Chloroform	1.0 U	2.0	1.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	5.0 U	10	5.0	ug/l	
56-23-5	Carbon tetrachloride	1.0 U	2.0	1.0	ug/l	
75-34-3	1,1-Dichloroethane	1.0 U	2.0	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
107-06-2	1,2-Dichloroethane	1.0 U	2.0	1.0	ug/l	
78-87-5	1,2-Dichloropropane	1.0 U	2.0	1.0	ug/l	
124-48-1	Dibromochloromethane	0.80 U	2.0	0.80	ug/l	
156-59-2	cis-1,2-Dichloroethylene	194	2.0	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.60 U	2.0	0.60	ug/l	
541-73-1	m-Dichlorobenzene	1.0 U	2.0	1.0	ug/l	
95-50-1	o-Dichlorobenzene	1.0 U	2.0	1.0	ug/l	
106-46-7	p-Dichlorobenzene	1.0 U	2.0	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.60 U	2.0	0.60	ug/l	
74-83-9	Methyl bromide	2.0 U	4.0	2.0	ug/l	
74-87-3	Methyl chloride	2.0 U	4.0	2.0	ug/l	
75-09-2	Methylene chloride	2.0 U	10	2.0	ug/l	
71-55-6	1,1,1-Trichloroethane	1.0 U	2.0	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.80 U	2.0	0.80	ug/l	
79-00-5	1,1,2-Trichloroethane	1.0 U	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	1.0 U	2.0	1.0	ug/l	
79-01-6	Trichloroethylene	198	2.0	1.0	ug/l	
75-01-4	Vinyl chloride	22.0	2.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12I-GW-08B		
Lab Sample ID:	F46766-5	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	94%		76-127%
2037-26-5	Toluene-D8	103%		86-112%
460-00-4	4-Bromofluorobenzene	109%		84-120%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-006-078-08B		
Lab Sample ID:	F46766-6	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0017655.D	1	01/26/07	CS	n/a	n/a	VM732
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	0.50 U	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-006-078-08B		
Lab Sample ID:	F46766-6	Date Sampled:	01/23/07
Matrix:	AQ - Ground Water	Date Received:	01/25/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	93%		76-127%
2037-26-5	Toluene-D8	103%		86-112%
460-00-4	4-Bromofluorobenzene	111%		84-120%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 2503 F46766 PAGE 1 OF 1

PROJECT NO: 112GN0039	FACILITY: NAS Cecil Field, Site 59	PROJECT MANAGER Rob Simcik	PHONE NUMBER (412)921-8163	LABORATORY NAME AND CONTACT: Accutest / H. Wandrey
SAMPLERS (SIGNATURE) Terry Cottenoir		FIELD OPERATIONS LEADER Terry Cottenoir	PHONE NUMBER (904)636-6125	ADDRESS 4405 Vineland Rd C-15
		CARRIER/WAYBILL NUMBER Courier Pick-Up		CITY, STATE Orlando, FL

STANDARD TAT [X]
RUSH TAT [ ] 24 hr. [ ] 48 hr. [ ] 72 hr. [ ] 7 day [ ] 14 day

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

	DATE (YEAR 2007)	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: Chlorinated VOCs	Diss. Fe, Mn *	Total Mn	Sulfide	Anions *	TOC		COMMENTS
1	1/23	0955	NG-12D-GW-08B				GW	G	11	X	X	X	X	X	X		Cool to 4°C
2		1010	CEF-059-GW-MW1A-08B						11	X	X	X	X	X	X		
3		1215	CEF-059-GW-EWA-08B						3	X							* Diss. Fe, Mn were
4		1235	CEF-059-GW-IWZA-08B						11	X	X	X	X	X	X		FIELD FILTERED
5		1315	NG-12I-GW-08B						3	X							
6		1350	CEF-059-GW-006-078-08B						3	X							* Anions include
7		0000	CEF-059-TRIPBLANK				QC		2	X							Sulfate, Sulfide,
																	Nitrate, Nitrite,
																	Chloride, &
																	Phosphate.

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY: Dave Siefken	1-24-07	1415	1. RECEIVED BY:	01-24-07	1415
2. RELINQUISHED BY: ALSE	DATE	TIME	2. RECEIVED BY: J. Corne	DATE 01-25-07	TIME 0800
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

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

2-8 4/02R FORM NO. TtNUS-001

4.1 4

F46766: Chain of Custody
Page 1 of 2

ACCUTEST Laboratories
F46766

CASE NARRATIVE
Client: TetraTech NUS
Project Name: NAS Cecil Field CTO 78
SDG: CEF-059-GW-IW2A-08B
Microseeps Project No.: P0701313

Sample Receipt

Microseeps, Inc. received the sample shipment on1/24/2007. There were no problems noted with the sample shipment. Copies of the laboratory's cooler receipt forms and shipping air bills are enclosed. There were 3 aqueous samples included, NG-12D-GW-08B, CEF-059-GW-MW1A-08B, and CEF-059-GW-IW2A-08B. These were given laboratory identifications P0701313-01, P0701313-02 and P0701313-03, respectively.

A copy of all communications concerning this project has been enclosed.

Sample Analyses

The sample analyses were performed in accordance with Microseeps routine Standard Operating procedures. The percent recovery for pyruvic acid was outside of control limits for the batch MS/MSD analyses. The percent RPD and all other QC analyses were acceptable. The percent recovery for the batch MSD analysis for i-pentanoic acid was outside of control limits. The percent RPD and all other QC analyses were acceptable. The percent recoveries for the batch MS/MSD analyses could not be calculated for acetic, lactic, and propionic acids because of the sample matrix

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 1 of 8
Lab Proj #: P0701313
Report Date: 02/06/07
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Laboratory Results

Lab Sample #	Client Sample ID
P0701313-01	NG-12D-GW-08B
P0701313-02	CEF-059-GW-MW1A-08B
P0701313-03	CEF-059-GW-IW2A-08B

Total pages in data package: 114

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

Approved By: Debbie Hallo

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

As a valued client we would appreciate your comments on our service.
Please call customer service at (412)826-5245 or email customerservice@microseeps.com.

Case Narrative The percent recovery for pyruvic acid was outside of control limits for the batch MS/MSD analyses. The percent RPD and all other QC analyses were acceptable. The percent recovery for the batch MSD analysis for i-pentanoic acid was outside of control limits. The percent RPD and all other QC analyses were acceptable. The percent recoveries for the batch MS/MSD analyses could not be calculated for acetic, lactic, and propionic acids because of the sample matrix

Client Name: TetraTech NUS Inc
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 2 of 8
Lab Proj #: P0701313
Report Date: 02/06/07
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
NG-12D-GW-08B	Water	P0701313-01	23 Jan. 07 9:55	24 Jan. 07 13:49

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	1/26/07	mm
N Ethane		0.110	0.025	ug/L	AM20GAX	1/26/07	mm
N Ethene		84.000	0.025	ug/L	AM20GAX	1/26/07	mm
N Methane		1200.000	0.100	ug/L	AM20GAX	1/26/07	mm
SemiVolatiles							
N Acetic Acid		40.00	0.70	mg/L	AM23G	2/2/07	jb
N Butyric Acid		1.60	0.07	mg/L	AM23G	2/1/07	jb
N Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	2/1/07	jb
N i-Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	2/1/07	jb
N i-Pentanoic Acid	M	0.18	0.07	mg/L	AM23G	2/1/07	jb
N Lactic Acid and HIBA		1.40	1.00	mg/L	AM23G	2/2/07	jb
N Pentanoic Acid		0.13	0.07	mg/L	AM23G	2/1/07	jb
N Propionic Acid		47.00	0.70	mg/L	AM23G	2/2/07	jb
N Pyruvic Acid	M	0.34	0.07	mg/L	AM23G	2/1/07	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 3 of 8
Lab Proj #: P0701313
Report Date: 02/06/07
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW1A-08B	Water	P0701313-02	23 Jan. 07 10:10	24 Jan. 07 13:49

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	1/26/07	mm
N Ethane		0.034	0.025	ug/L	AM20GAX	1/26/07	mm
N Ethene		92.000	0.025	ug/L	AM20GAX	1/26/07	mm
N Methane		1100.000	0.100	ug/L	AM20GAX	1/26/07	mm
SemiVolatiles							
N Acetic Acid		35.00	0.70	mg/L	AM23G	2/2/07	jb
N Butyric Acid		1.10	0.07	mg/L	AM23G	2/1/07	jb
N Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	2/1/07	jb
N i-Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	2/1/07	jb
N i-Pentanoic Acid	M	0.14	0.07	mg/L	AM23G	2/1/07	jb
N Lactic Acid and HIBA		1.10	1.00	mg/L	AM23G	2/2/07	jb
N Pentanoic Acid		0.11	0.07	mg/L	AM23G	2/1/07	jb
N Propionic Acid		36.00	0.70	mg/L	AM23G	2/2/07	jb
N Pyruvic Acid	M	0.31	0.07	mg/L	AM23G	2/1/07	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 4 of 8
Lab Proj #: P0701313
Report Date: 02/06/07
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-IW2A-08B	Water	P0701313-03	23 Jan. 07 12:35	24 Jan. 07 13:49

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	1/26/07	mm
N Ethane	U	< 0.025	0.025	ug/L	AM20GAX	1/26/07	mm
N Ethene		91.000	0.025	ug/L	AM20GAX	1/26/07	mm
N Methane		2600.000	0.100	ug/L	AM20GAX	1/26/07	mm
SemiVolatiles							
N Acetic Acid		72.00	0.70	mg/L	AM23G	2/2/07	jb
N Butyric Acid		3.20	0.07	mg/L	AM23G	2/1/07	jb
N Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	2/1/07	jb
N i-Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	2/1/07	jb
N i-Pentanoic Acid	M	0.61	0.07	mg/L	AM23G	2/1/07	jb
N Lactic Acid and HIBA		1.30	1.00	mg/L	AM23G	2/2/07	jb
N Pentanoic Acid		0.17	0.07	mg/L	AM23G	2/1/07	jb
N Propionic Acid		76.00	0.70	mg/L	AM23G	2/2/07	jb
N Pyruvic Acid	M	0.78	0.07	mg/L	AM23G	2/1/07	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

EVENT 10

Report of Analysis

Client Sample ID:	CEF-059-GW-006-78-10B		
Lab Sample ID:	F47783-1	Date Sampled:	03/06/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N0017635.D	1	03/09/07	CS	n/a	n/a	VN750
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	0.50 U	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-006-78-10B		
Lab Sample ID:	F47783-1	Date Sampled:	03/06/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	92%		76-127%
2037-26-5	Toluene-D8	109%		86-112%
460-00-4	4-Bromofluorobenzene	98%		84-120%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12I-GW-10B		
Lab Sample ID:	F47783-2	Date Sampled:	03/06/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N0017651.D	1	03/12/07	CS	n/a	n/a	VN751
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	91.4	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.87	1.0	0.50	ug/l	I
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	96.9	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	47.3	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12I-GW-10B		
Lab Sample ID:	F47783-2	Date Sampled:	03/06/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	98%		76-127%
2037-26-5	Toluene-D8	108%		86-112%
460-00-4	4-Bromofluorobenzene	101%		84-120%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-EWA-10B		
Lab Sample ID:	F47783-3	Date Sampled:	03/06/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N0017658.D	1	03/12/07	CS	n/a	n/a	VN751
Run #2	N0017637.D	10	03/09/07	CS	n/a	n/a	VN750

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	85.9	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.0	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	191 [a]	10	5.0	ug/l	
75-01-4	Vinyl chloride	53.9	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%	93%	87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-EWA-10B		
Lab Sample ID:	F47783-3	Date Sampled:	03/06/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	97%	95%	76-127%
2037-26-5	Toluene-D8	109%	109%	86-112%
460-00-4	4-Bromofluorobenzene	102%	99%	84-120%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-1W2A-10B		
Lab Sample ID:	F47783-4	Date Sampled:	03/07/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N0017653.D	1	03/12/07	CS	n/a	n/a	VN751
Run #2	N0017638.D	20	03/09/07	CS	n/a	n/a	VN750

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	144 [a]	20	10	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.4	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	1.6	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	80.7 [a]	20	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%	93%	87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-1W2A-10B		
Lab Sample ID:	F47783-4	Date Sampled:	03/07/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	97%	93%	76-127%
2037-26-5	Toluene-D8	109%	108%	86-112%
460-00-4	4-Bromofluorobenzene	101%	96%	84-120%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-1W2A-10B		
Lab Sample ID:	F47783-4	Date Sampled:	03/07/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	104000	20000	1000	ug/l	2	03/09/07	03/12/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5558
(2) Prep QC Batch: MP11444

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-1W2A-10B		
Lab Sample ID:	F47783-4	Date Sampled:	03/07/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	6.8	2.0	1.0	mg/l	1	03/08/07 16:01	KG	EPA 300/SW846 9056
Fluoride	2.2	0.20	0.10	mg/l	1	03/08/07 16:01	KG	EPA 300/SW846 9056
Nitrogen, Nitrate	0.090 I	0.10	0.050	mg/l	1	03/08/07 16:01	KG	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	03/08/07 16:01	KG	EPA 300/SW846 9056
Phosphate, Ortho	0.020 U	0.10	0.020	mg/l	1	03/08/07 11:30	LE	EPA 365.3
Sulfate	8.2	2.0	1.0	mg/l	1	03/08/07 16:01	KG	EPA 300/SW846 9056
Sulfide	4.5	1.0	1.0	mg/l	1	03/10/07	LE	EPA 376.1
Total Organic Carbon	26.6	1.0	0.50	mg/l	1	03/15/07 10:48	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-1W2A-10B		
Lab Sample ID:	F47783-4A	Date Sampled:	03/07/07
Matrix:	AQ - Groundwater Filtered	Date Received:	03/08/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	751	300	15	ug/l	1	03/09/07	03/09/07	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	3.4 I	15	1.5	ug/l	1	03/09/07	03/09/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5557
(2) Prep QC Batch: MP11444

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-10B		
Lab Sample ID:	F47783-5	Date Sampled:	03/07/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N0017654.D	1	03/12/07	CS	n/a	n/a	VN751
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	86.4	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.1	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	13.0	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	66.8	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-10B		
Lab Sample ID:	F47783-5	Date Sampled:	03/07/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	94%		76-127%
2037-26-5	Toluene-D8	108%		86-112%
460-00-4	4-Bromofluorobenzene	100%		84-120%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-10B		
Lab Sample ID:	F47783-5	Date Sampled:	03/07/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	143000	50000	2500	ug/l	5	03/09/07	03/12/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5558
(2) Prep QC Batch: MP11444

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-10B		
Lab Sample ID:	F47783-5	Date Sampled:	03/07/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	12.8	2.0	1.0	mg/l	1	03/08/07 16:18	KG	EPA 300/SW846 9056
Fluoride	0.15 I	0.20	0.10	mg/l	1	03/08/07 16:18	KG	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	03/08/07 16:18	KG	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	03/08/07 16:18	KG	EPA 300/SW846 9056
Phosphate, Ortho	0.064 I	0.10	0.020	mg/l	1	03/08/07 11:30	LE	EPA 365.3
Sulfate	7.9	2.0	1.0	mg/l	1	03/08/07 16:18	KG	EPA 300/SW846 9056
Sulfide	2.9	1.0	1.0	mg/l	1	03/10/07	LE	EPA 376.1
Total Organic Carbon	34.0	2.0	1.0	mg/l	2	03/22/07 22:41	CP	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-10B		
Lab Sample ID:	F47783-5A	Date Sampled:	03/07/07
Matrix:	AQ - Groundwater Filtered	Date Received:	03/08/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	3600	300	15	ug/l	1	03/09/07	03/09/07	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	636	15	1.5	ug/l	1	03/09/07	03/09/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5557
(2) Prep QC Batch: MP11444

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-10B		
Lab Sample ID:	F47783-6	Date Sampled:	03/07/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	N0017655.D	1	03/12/07	CS	n/a	n/a	VN751
Run #2	N0017668.D	2	03/12/07	CS	n/a	n/a	VN751

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	123 [a]	2.0	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.3	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	28.1	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	74.1 [a]	2.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%	98%	87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-10B		
Lab Sample ID:	F47783-6	Date Sampled:	03/07/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	95%	98%	76-127%
2037-26-5	Toluene-D8	108%	107%	86-112%
460-00-4	4-Bromofluorobenzene	98%	102%	84-120%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-10B		
Lab Sample ID:	F47783-6	Date Sampled:	03/07/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	166000	50000	2500	ug/l	5	03/09/07	03/12/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5558
(2) Prep QC Batch: MP11444

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-10B		
Lab Sample ID:	F47783-6	Date Sampled:	03/07/07
Matrix:	AQ - Ground Water	Date Received:	03/08/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	10.5	2.0	1.0	mg/l	1	03/08/07 16:36	KG	EPA 300/SW846 9056
Fluoride	2.7	0.20	0.10	mg/l	1	03/08/07 16:36	KG	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	03/08/07 16:36	KG	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	03/08/07 16:36	KG	EPA 300/SW846 9056
Phosphate, Ortho	0.029 I	0.10	0.020	mg/l	1	03/08/07 11:30	LE	EPA 365.3
Sulfate	8.2	2.0	1.0	mg/l	1	03/08/07 16:36	KG	EPA 300/SW846 9056
Sulfide	3.0	1.0	1.0	mg/l	1	03/10/07	LE	EPA 376.1
Total Organic Carbon	30.0	1.0	0.50	mg/l	1	03/15/07 11:48	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-10B		
Lab Sample ID:	F47783-6A	Date Sampled:	03/07/07
Matrix:	AQ - Groundwater Filtered	Date Received:	03/08/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	79.4 I	300	15	ug/l	1	03/09/07	03/09/07	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	1.7 I	15	1.5	ug/l	1	03/09/07	03/09/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5557
(2) Prep QC Batch: MP11444

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result >= MDL but < RL

TETRA TECH NUS, INC.

21070 CHAIN OF CUSTODY F47783 NUMBER 2589 PAGE 1 OF 1

PROJECT NO: 112GN0039	FACILITY: Site 59 NASCF	PROJECT MANAGER Dave Sieffken	PHONE NUMBER 904-636-6125	LABORATORY NAME AND CONTACT: Accutest
SAMPLERS (SIGNATURE) Scott R. McGuire		FIELD OPERATIONS LEADER Scott McGuire	PHONE NUMBER 813-434-6382	ADDRESS 4405 Vineland Rd Ste C-15
STANDARD TAT ☒ RUSH TAT ☐ ☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☒ 14 day		CARRIER/WAYBILL NUMBER		CITY, STATE Orlando, FL 32811

	DATE YEAR 2007	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: Chlorinated Vocs	Diss Iron + Manganese	Sodium	Sulfide	Anions	TOC			COMMENTS
1	3/6	1155	CEF-054-GW-006-78-10B				GW	G	3	x								Cool to 4°C
2	3/6	1255	NG-12I-GW-10B				GW	G	3	x								
3	3/6	1310	CEF-059-GW-EWA-10B				GW	G	3	x								
4	3/7	1240	CEF-059-GW-1W2A-10B				GW	G	11	x	x	x	x	x	x			
5	3/7	0930	CEF-059-GW-MW1A-10B				GW	G	11	x	x	x	x	x	x			
6	3/7	1130	NG-12D-GW-10B				GW	G	11	x	x	x	x	x	x			

1. RELINQUISHED BY Scott R. McGuire	DATE 3/7/07	TIME 1530	1. RECEIVED BY Fed Ex	DATE	TIME
2. RELINQUISHED BY FX	DATE 03.08.07	TIME 09:00	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) 1.8° 4/02R FORM NO. TtNUS-001

4.1

F47783: Chain of Custody
Page 1 of 2

CASE NARRATIVE
Client: TetraTech NUS
Project Name: NAS Cecil Field
SDG: GW-IW2A-10B
Microseeps Project No.: P0703129

Sample Receipt

Microseeps, Inc. received the sample shipment on 3/8/2007. There were no problems noted with the sample shipment. Copies of the laboratory's cooler receipt forms are enclosed. A summary of the field and laboratory identifications is presented below.

FIELD IDENTIFICATION	LAB IDENTIFICATION
CEF-059-GW-MW1A-10B	P0703129-01
NG-12D-GW-10B	P0703129-02
CEF-059-GW-IW2A-10B	P0703129-03

A copy of all communications concerning this project has been enclosed.

Sample Analyses

The sample analyses were performed in accordance with Microseeps routine Standard Operating procedures. The percent recoveries for the batch MS/MSD analyses for butyric and pyruvic acids were outside of control limits. The percent RPDs and all other QC analyses were acceptable. The percent recoveries for the batch MS/MSD analyses for acetic, lactic and propionic acids could not be quantitated because of the concentrations present in the unspiked sample.

Client Name: TetraTech NUS Inc
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 1 of 8
Lab Proj #: P0703129
Report Date: 03/23/07
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Laboratory Results

Lab Sample #	Client Sample ID
P0703129-01	CEF-059-GW-MW1A-10B
P0703129-02	NG-12D-GW-10B
P0703129-03	CEF-059-GW-IW2A-10B

Total pages in data package: 107

Microseeps test results meet all the requirements of the NELAC standards

Approved By: Debbie Halko

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

As a valued client we would appreciate your comments on our service.
Please call customer service at (412)826-5245 or email customerservice@microseeps.com.

Case Narrative The percent recoveries for the batch MS/MSD analyses for butyric and pyruvic acids were outside of control limits. The percent RPDs and all other QC analyses were acceptable. The percent recoveries for the batch MS/MSD analyses for acetic, lactic and propionic acids could not be quantitated because of the concentrations present in the unspiked sample.

Client Name: TetraTech NUS Inc
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 2 of 8
Lab Proj #: P0703129
Report Date: 03/23/07
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW1A-10B	Water	P0703129-01	07 Mar. 07 9:30	08 Mar. 07 12:41

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	3/19/07	sl
N Ethane		0.034	0.025	ug/L	AM20GAX	3/19/07	sl
N Ethene		81.000	0.025	ug/L	AM20GAX	3/19/07	sl
N Methane		1800.000	0.100	ug/L	AM20GAX	3/19/07	sl
SemiVolatiles							
N Acetic Acid		26.00	0.70	mg/L	AM23G	3/20/07	jb
N Butyric Acid	M	1.30	0.07	mg/L	AM23G	3/19/07	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	3/19/07	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	3/19/07	jb
N i-Pentanoic Acid		0.14	0.07	mg/L	AM23G	3/19/07	jb
N Lactic Acid and HIBA		1.90	1.00	mg/L	AM23G	3/20/07	jb
N Pentanoic Acid		0.11	0.07	mg/L	AM23G	3/19/07	jb
N Propionic Acid		18.00	0.70	mg/L	AM23G	3/20/07	jb
N Pyruvic Acid	M	0.32	0.07	mg/L	AM23G	3/19/07	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 3 of 8
Lab Proj #: P0703129
Report Date: 03/23/07
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
NG-12D-GW-10B	Water	P0703129-02	07 Mar. 07 11:30	08 Mar. 07 12:41

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	3/19/07	sl
N Ethane		0.034	0.025	ug/L	AM20GAX	3/19/07	sl
N Ethene		53.000	0.025	ug/L	AM20GAX	3/19/07	sl
N Methane		1400.000	0.100	ug/L	AM20GAX	3/19/07	sl
SemiVolatiles							
N Acetic Acid		30.00	0.70	mg/L	AM23G	3/20/07	jb
N Butyric Acid	M	0.77	0.07	mg/L	AM23G	3/19/07	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	3/19/07	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	3/19/07	jb
N i-Pentanoic Acid		0.08	0.07	mg/L	AM23G	3/19/07	jb
N Lactic Acid and HIBA		1.80	1.00	mg/L	AM23G	3/20/07	jb
N Pentanoic Acid		0.12	0.07	mg/L	AM23G	3/19/07	jb
N Propionic Acid		23.00	0.70	mg/L	AM23G	3/20/07	jb
N Pyruvic Acid	M	0.14	0.07	mg/L	AM23G	3/19/07	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 4 of 8
Lab Proj #: P0703129
Report Date: 03/23/07
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-IW2A-10B	Water	P0703129-03	07 Mar. 07 12:40	08 Mar. 07 12:41

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	3/19/07	sl
N Ethane	J	0.014	0.025	ug/L	AM20GAX	3/19/07	sl
N Ethene		54.000	0.025	ug/L	AM20GAX	3/19/07	sl
N Methane		1500.000	0.100	ug/L	AM20GAX	3/19/07	sl
SemiVolatiles							
N Acetic Acid		24.00	0.70	mg/L	AM23G	3/20/07	jb
N Butyric Acid	M	0.76	0.07	mg/L	AM23G	3/19/07	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	3/19/07	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	3/19/07	jb
N i-Pentanoic Acid		0.17	0.07	mg/L	AM23G	3/19/07	jb
N Lactic Acid and HIBA		1.70	1.00	mg/L	AM23G	3/20/07	jb
N Pentanoic Acid		0.1	0.07	mg/L	AM23G	3/19/07	jb
N Propionic Acid		19.00	0.70	mg/L	AM23G	3/20/07	jb
N Pyruvic Acid	M	0.25	0.07	mg/L	AM23G	3/19/07	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

SiREM
Site Recovery & Management

130 Research Lane, Suite 2
Guelph, Ontario N1G 5G3
Phone: (519) 822-2265
Fax: (519) 822-3151
www.siremlab.com

Certificate of Analysis:
Gene-Trac-VC, Vinyl Chloride Reductase Assay

Customer: Rob Simcik, Tetra Tech NUS

Project: NASCF Site 59

Customer Reference #: 112GN0039

Date Sampled: 8 March 2007

SiREM Reference #: S-0969/KB-1-057

Report Issued: 16 March 2007

Data Files: VC-QPCR-0070, VC-QPCR-check-gel-0079

Test Results

Customer Sample ID	SiREM ID	Sample Matrix	Vinyl Chloride Reductase Gene Copies
CEF-059-GW-MW1A-10B	VCR-0409	Groundwater	3×10^7/liter

Analyst: J. Wilkinson
Jennifer Wilkinson
Biotechnology Technologist

Reviewed by: Ximena Druar
Ximena Druar, B.Sc.
Molecular Biology Coordinator

Leading Science. Lasting Solutions

Case Narrative

SiREM received one groundwater sample from the NASCF site on 8 March 2007. The sample arrived in good condition in a cooler with a measured temperature of 14.4 °C, and was stored at 4°C until DNA extraction. Genomic DNA was extracted from the sample on 14 March 2007. The suitability of extracted DNA for testing using universal bacterial primers was determined on 15 March 2007. The sample was determined to contain PCR–Testable DNA suitable for vinyl chloride reductase (VCR) gene testing. Quantitative VCR testing was performed on 16 March 2007; positive controls were within laboratory control limits, however; the DNA extraction blank (negative control) exhibited a minor positive reaction corresponding to 1×10^3 gene copies/L which was within laboratory control limits due to the fact that the test result obtained for sample CEF-059-GW-MW1A-10B was greater than two orders of magnitude above that of the DNA extraction blank.

Chain-of-Custody Form

SiREM Site Recovery & Management

130 Research Lane, Suite 2 ⊂ Guelph, Ontario, Canada N1G 5G3 ⊂ Phone (519) 822-2265 or toll free 1-866-251-1747 Fax (519) 822-3151

www.siremlab.com

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Page 1 of 1

Lab # S-0969

Project Name	NASCF Site 59
Project #	112GN0039
Project Manager	Rob Simcik
Email Address	Rob.Simcik@ttnus.com
Company	Tetra Tech NUS
Address	Foster Plaza VII, 661 Anderson Dr, Pittsburg, PA 15220
Phone #	412 921-7090
Fax #	
Sampler's Signature	Scott R. McGuire
Sampler's Printed Name	SCOTT R. McGUIRE

Analysis

Preservative

Gene-Trac VC Testing

Gene-Trac Voc

Preservative Key
0. None
1. HCL
2. Other
3. Other
4. Other
5. Other
6. Other

Client Sample ID	Lab ID	Sampling Date	Sampling Time	Matrix	# of Containers			Other Information
CEF-059-GW-MW1A-10B		3/7/07	0930	GW	2	1	1	Cool To 4°C

Sample Receipt

Cooler Condition: Good

Cooler Temperature: 14.4°C

Custody Seals: Yes ☐ No ☒

Invoice Information

P.O. #

Bill To:

Quotation #

For Lab Use Only

B3-4

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature: IAcheson	Signature	Signature	Signature	Signature
Printed Name: SCOTT R. McGUIRE	Printed Name: Ian Acheson	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Tetra Tech NUS	Firm: SiREM	Firm	Firm	Firm	Firm
Date/Time: 3/7/07 - 1530	Date/Time: 3/8/07	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Return to Originator: Yellow - Lab Copy: Pink - Retained by Client

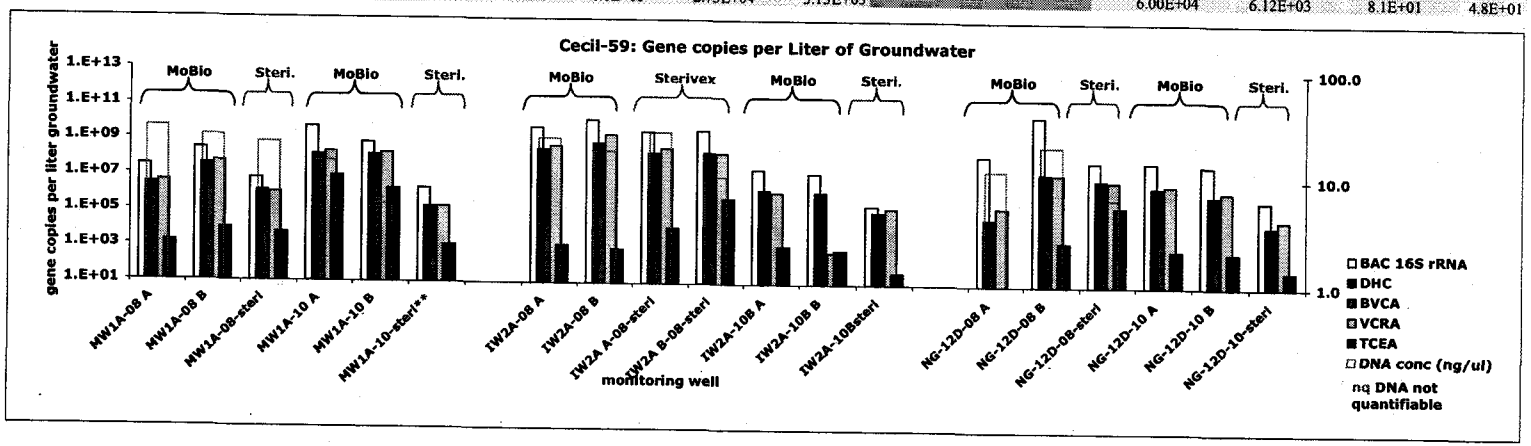
In the absence of an executed agreement, submission of samples to SiREM implies consent for performance of analyses specified on this Chain-of-Custody form and agreement with the terms and conditions of the SiREM Laboratory Services Agreement. The entity submitting samples shall be responsible for payment in full for said analyses.

Cecil-59

gene copies per Liter GW

Positive and quantifiable in both dilutions
Positive and quantifiable in one or both dilutions, one used for ave.
Only sporadic samples tested positive (sg or IW) PCR positive
PCR done, no samples tested positive/ DNA not quantifiable

			GENE COPIES PER LITER											
	DNA conc (ng/ul)	stdev	BAC 16S rRNA	stdev	DHC	stdev	BVCA	stdev	VCRA	stdev	TCEA	stdev	date	vol (ml)
MW1A-08 A	27.8	2.26	2.93E+07	1.52E+07	2.79E+06	1.20E+05	3.48E+05	3.67E+04	4.03E+06	3.89E+05	1.62E+03	1.57E+03	23 Jan 07	500
MW1A-08 B	23.1	4.14	2.67E+08	1.67E+08	3.53E+07	1.24E+06	4.66E+06	2.28E+05	5.29E+07	5.95E+06	9.38E+03	2.66E+03	23 Jan 07	500
MW1A-08-steri	20.0	1.66	5.87E+06	4.57E+06	1.22E+06	4.08E+04	1.74E+04	1.10E+03	9.28E+05	1.15E+05	5.28E+03	3.22E+03	23 Jan 07	2000
MW1A-10 A	13.4	11.77	4.77E+09	5.69E+08	1.35E+08	1.82E+07	4.81E+07	1.50E+06	1.91E+08	7.44E+06	8.28E+06	1.08E+06	07 Mar 07	475
MW1A-10 B	5.3	0.95	6.63E+08	2.10E+08	1.30E+08	4.21E+07	6.56E+06	1.19E+06	1.70E+08	7.81E+06	1.69E+06	9.14E+04	07 Mar 07	475
MW1A-10-steri**			1.74E+06	1.66E+05	1.68E+05	2.47E+04	8.48E+03	1.82E+03	1.70E+05	8.45E+03	1.19E+03	4.98E+02	07 Mar 07	3000
IW2A-08 A	22.4	4.07	5.31E+09	1.97E+09	3.09E+08	8.20E+07	2.34E+04	1.05E+04	4.82E+08	4.87E+07	1.31E+03	1.16E+03	23 Jan 07	250
IW2A-08 B	17.1	3.78	1.46E+10	5.37E+09	7.12E+08	4.00E+07	6.29E+04	2.03E+04	2.11E+09	1.76E+08	7.93E+02	1.37E+03	23 Jan 07	250
IW2A A-08-steri	26.1	4.45	3.32E+09	1.12E+09	2.06E+08	3.43E+07	8.53E+02	9.47E+02	3.82E+08	2.10E+08	1.29E+04	8.88E+03	23 Jan 07	250
IW2A B-08-steri	10.1	0.64	3.95E+09	1.91E+09	2.28E+08	9.23E+07	2.20E+02	2.09E+02	2.19E+08	3.37E+07	5.89E+05	5.01E+04	23 Jan 07	250
IW2A-10B A			2.67E+07	1.29E+07	1.84E+06	2.18E+05			1.28E+06	4.38E+04	1.31E+03	1.16E+03	07 Mar 07	200
IW2A-10B B			1.66E+07	9.32E+06	1.42E+06	6.08E+04			6.16E+02	5.85E+02	7.93E+02	1.37E+03	07 Mar 07	250
IW2A-10Bsteri			2.43E+05	1.76E+04	1.18E+05	1.78E+04			1.77E+05	1.48E+04	4.63E+01	3.30E+01	07 Mar 07	3000
NG-12D-08 A	11.9	1.84	1.76E+08	6.01E+07	5.24E+04	7.69E+03	8.45E+02	7.35E+02	2.32E+05	3.13E+04			23 Jan 07	350
NG-12D-08 B	20.4	0.42	3.18E+10	3.10E+10	2.00E+07	6.21E+06	3.93E+03	4.65E+03	1.89E+07	2.60E+05	2.87E+03	4.65E+02	23 Jan 07	350
NG-12D-08-steri	6.6	1.03	9.78E+07	4.52E+07	9.13E+06	1.11E+05	7.73E+01	8.30E+01	7.66E+06	9.46E+05	2.98E+05	1.79E+04	23 Jan 07	1000
NG-12D-10 A			9.72E+07	7.82E+06	3.88E+06	1.01E+06	2.93E+03	1.08E+03	5.00E+06	3.57E+05	1.10E+03	4.55E+02	07 Mar 07	460
NG-12D-10 B			6.79E+07	8.08E+06	1.41E+06	4.60E+04	1.77E+03	1.53E+03	2.22E+06	2.80E+05	8.82E+02	2.47E+02	07 Mar 07	350
NG-12D-10-steri			6.8E+05	1.6E+05	2.73E+04	3.13E+03			6.00E+04	6.12E+03	8.1E+01	4.8E+01	07 Mar 07	3000



EVENT 11

Report of Analysis

Client Sample ID:	NG-12D-GW-11B		
Lab Sample ID:	F49348-1	Date Sampled:	05/07/07
Matrix:	AQ - Ground Water	Date Received:	05/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0048400.D	1	05/18/07	KW	n/a	n/a	VC1955
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	84.7	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.4	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	4.5	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	61.9	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-11B		
Lab Sample ID:	F49348-1	Date Sampled:	05/07/07
Matrix:	AQ - Ground Water	Date Received:	05/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	95%		76-127%
2037-26-5	Toluene-D8	100%		86-112%
460-00-4	4-Bromofluorobenzene	100%		84-120%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12D-GW-11B		
Lab Sample ID:	F49348-1	Date Sampled:	05/07/07
Matrix:	AQ - Ground Water	Date Received:	05/08/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	118000	20000	1000	ug/l	2	05/22/07	05/24/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5736
(2) Prep QC Batch: MP12051

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-11B		
Lab Sample ID:	F49348-1	Date Sampled:	05/07/07
Matrix:	AQ - Ground Water	Date Received:	05/08/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	13.3	2.0	1.0	mg/l	1	05/10/07 10:59	LM	EPA 300/SW846 9056
Nitrogen, Nitrate [a]	0.12	0.10	0.050	mg/l	1	05/10/07 10:59	LM	EPA 300/SW846 9056
Nitrogen, Nitrite [b]	0.050 U	0.10	0.050	mg/l	1	05/10/07 10:59	LM	EPA 300/SW846 9056
Phosphate, Ortho [c]	0.020 U	0.10	0.020	mg/l	1	05/10/07 08:00	LM	EPA 365.3
Sulfate	9.3	2.0	1.0	mg/l	1	05/10/07 10:59	LM	EPA 300/SW846 9056
Sulfide	5.2	1.0	1.0	mg/l	1	05/11/07	LE	EPA 376.1
Total Organic Carbon	24.4	1.0	0.50	mg/l	1	05/09/07 16:14	LE	EPA 415.1

(a) Originally ran on 05-08-07. Re-run due to instrument failure.
(b) Originally ran on 05-08-07. Re-run due to instrument failure.
(c) Exceeded holding time.

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-11B		
Lab Sample ID:	F49348-1A	Date Sampled:	05/07/07
Matrix:	AQ - Groundwater Filtered	Date Received:	05/08/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	432	300	15	ug/l	1	05/22/07	05/23/07	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	2.2 I	15	1.5	ug/l	1	05/22/07	05/23/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5732
(2) Prep QC Batch: MP12051

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	NG-12D-GW-11B		
Lab Sample ID:	F49348-1A	Date Sampled:	05/07/07
Matrix:	AQ - Groundwater Filtered	Date Received:	05/08/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Sulfide	3.8	1.0	1.0	mg/l	1	05/12/07	LE	EPA 376.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	NG-12I-GW-11B		
Lab Sample ID:	F49348-2	Date Sampled:	05/07/07
Matrix:	AQ - Ground Water	Date Received:	05/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0048401.D	1	05/18/07	KW	n/a	n/a	VC1955
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	74.9	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.2	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	66.3	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	44.5	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NG-12I-GW-11B		
Lab Sample ID:	F49348-2	Date Sampled:	05/07/07
Matrix:	AQ - Ground Water	Date Received:	05/08/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	93%		76-127%
2037-26-5	Toluene-D8	102%		86-112%
460-00-4	4-Bromofluorobenzene	100%		84-120%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

TETRA TECH NUS, INC. CHAIN OF CUSTODY NUMBER 2482 F49348 PAGE 1 OF 1

PROJECT NO: 112GN0039DS010F200	FACILITY: Nas Cecil Field Site 59	PROJECT MANAGER: Dave Siefken	PHONE NUMBER: 904-638-6125
SAMPLERS (SIGNATURE): [signature]		FIELD OPERATIONS LEADER: Mark Yarbrough	PHONE NUMBER: 904-303-3133
		CARRIER/WAYBILL NUMBER	

LABORATORY NAME AND CONTACT: Acutest / Jean Smith
ADDRESS: 4405 Vineland RD Suite 5
CITY, STATE: Orlando Fl 32811

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

CONTAINER TYPE PLASTIC (P) or GLASS (G): G P P P P G P
[redacted]

	DATE YEAR 2007	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: Chlorinated VOC's	Dissolved Iron	Dissolved Manganese	Dissolved Selfide	Anions	TOC	Sodium		COMMENTS
①	5/7	1150	NG-12D-GW-11B				GW	G	12	/	/	/	/	/	/	/		Cool @ 4°C
②	5/7	1050	NG-12I-GW-11B				GW	G	3	/								

1. RELINQUISHED BY: [signature]	DATE: 5/7/07	TIME: 1620	1. RECEIVED BY: FX	DATE	TIME
2. RELINQUISHED BY: FX	DATE	TIME	2. RECEIVED BY: J. Corne	DATE: 5-8-07	TIME: 09:30
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY) 2-4

4/02R
FORM NO. TtNUS-001

4.1 4

F49348: Chain of Custody
Page 1 of 2

Report of Analysis

Client Sample ID:	CEF-059-GW-EWA-11B		
Lab Sample ID:	F49372-1	Date Sampled:	05/08/07
Matrix:	AQ - Ground Water	Date Received:	05/09/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	C0048535.D	1	05/23/07	KW	n/a	n/a	VC1960
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	56.8	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.64	1.0	0.50	ug/l	I
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	88.3	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	35.4	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-EWA-11B		
Lab Sample ID:	F49372-1	Date Sampled:	05/08/07
Matrix:	AQ - Ground Water	Date Received:	05/09/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	104%		76-127%
2037-26-5	Toluene-D8	101%		86-112%
460-00-4	4-Bromofluorobenzene	106%		84-120%

(a) Sample was not preserved to a pH < 2. Sample was treated with an anti-foaming agent. Sample analyzed beyond hold time; reported results are considered minimum values

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-11B		
Lab Sample ID:	F49372-2	Date Sampled:	05/08/07
Matrix:	AQ - Ground Water	Date Received:	05/09/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	C0048536.D	1	05/23/07	KW	n/a	n/a	VC1960
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	23.2	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.69	1.0	0.50	ug/l	I
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	0.50 U	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	15.8	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-11B		
Lab Sample ID:	F49372-2	Date Sampled:	05/08/07
Matrix:	AQ - Ground Water	Date Received:	05/09/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	106%		76-127%
2037-26-5	Toluene-D8	100%		86-112%
460-00-4	4-Bromofluorobenzene	103%		84-120%

(a) Sample analyzed beyond hold time; reported results are considered minimum values. Sample was treated with an anti-foaming agent.

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-11B		
Lab Sample ID:	F49372-2	Date Sampled:	05/08/07
Matrix:	AQ - Ground Water	Date Received:	05/09/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	108000	50000	2500	ug/l	5	05/22/07	05/23/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5734
(2) Prep QC Batch: MP12051

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-11B		
Lab Sample ID:	F49372-2	Date Sampled:	05/08/07
Matrix:	AQ - Ground Water	Date Received:	05/09/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	12.3	2.0	1.0	mg/l	1	05/09/07 16:08	LM	EPA 300/SW846 9056
Nitrogen, Nitrate	0.12	0.10	0.050	mg/l	1	05/09/07 16:08	LM	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	05/09/07 16:08	LM	EPA 300/SW846 9056
Phosphate, Ortho	0.020 U	0.10	0.020	mg/l	1	05/10/07 08:00	LM	EPA 365.3
Sulfate	9.7	2.0	1.0	mg/l	1	05/09/07 16:08	LM	EPA 300/SW846 9056
Sulfide	1.2	1.0	1.0	mg/l	1	05/11/07	LE	EPA 376.1
Total Organic Carbon	27.3	1.0	0.50	mg/l	1	05/12/07 20:42	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1A-11B		
Lab Sample ID:	F49372-2A	Date Sampled:	05/08/07
Matrix:	AQ - Groundwater Filtered	Date Received:	05/09/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	4500	300	15	ug/l	1	05/22/07	05/23/07	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	727	15	1.5	ug/l	1	05/22/07	05/23/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5732
(2) Prep QC Batch: MP12051

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-006-078-11B		
Lab Sample ID:	F49372-3	Date Sampled:	05/08/07
Matrix:	AQ - Ground Water	Date Received:	05/09/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	C0048537.D	1	05/23/07	KW	n/a	n/a	VC1960
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	0.50 U	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-006-078-11B		
Lab Sample ID:	F49372-3	Date Sampled:	05/08/07
Matrix:	AQ - Ground Water	Date Received:	05/09/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	104%		76-127%
2037-26-5	Toluene-D8	101%		86-112%
460-00-4	4-Bromofluorobenzene	99%		84-120%

(a) Sample analyzed beyond hold time; reported results are considered minimum values.

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-1W2A-11B		
Lab Sample ID:	F49372-4	Date Sampled:	05/08/07
Matrix:	AQ - Ground Water	Date Received:	05/09/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	C0048538.D	1	05/23/07	KW	n/a	n/a	VC1960
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	56.5	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.7	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	0.69	1.0	0.50	ug/l	I
75-01-4	Vinyl chloride	13.8	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		87-116%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-1W2A-11B		
Lab Sample ID:	F49372-4	Date Sampled:	05/08/07
Matrix:	AQ - Ground Water	Date Received:	05/09/07
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field, Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	101%		76-127%
2037-26-5	Toluene-D8	102%		86-112%
460-00-4	4-Bromofluorobenzene	103%		84-120%

(a) Sample analyzed beyond hold time; reported results are considered minimum values. Sample was treated with an anti-foaming agent.

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-1W2A-11B		
Lab Sample ID:	F49372-4	Date Sampled:	05/08/07
Matrix:	AQ - Ground Water	Date Received:	05/09/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	104000	20000	1000	ug/l	2	05/22/07	05/24/07	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5736
(2) Prep QC Batch: MP12051

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-1W2A-11B		
Lab Sample ID:	F49372-4	Date Sampled:	05/08/07
Matrix:	AQ - Ground Water	Date Received:	05/09/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	12.4	2.0	1.0	mg/l	1	05/09/07 16:23	LM	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	05/09/07 16:23	LM	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	05/09/07 16:23	LM	EPA 300/SW846 9056
Phosphate, Ortho [a]	0.045 I	0.10	0.020	mg/l	1	05/10/07 08:00	LM	EPA 365.3
Sulfate	9.1	2.0	1.0	mg/l	1	05/09/07 16:23	LM	EPA 300/SW846 9056
Sulfide	2.6	1.0	1.0	mg/l	1	05/11/07	LE	EPA 376.1
Total Organic Carbon	31.7	2.0	1.0	mg/l	2	05/14/07 22:41	LE	EPA 415.1

(a) Dilution required due to matrix interference.

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-1W2A-11B		
Lab Sample ID:	F49372-4A	Date Sampled:	05/08/07
Matrix:	AQ - Groundwater Filtered	Date Received:	05/09/07
		Percent Solids:	n/a
Project:	Cecil Field, Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	1580	300	15	ug/l	1	05/22/07	05/23/07	RS	SW846 6010B [2]	SW846 3010A [3]
Manganese	10.6 I	15	1.5	ug/l	1	05/22/07	05/23/07	RS	SW846 6010B [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA5732
(2) Instrument QC Batch: MA5734
(3) Prep QC Batch: MP12051

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

TETRA TECH NUS, INC. F49372 CHAIN OF CUSTODY | NUMBER 2483 | PAGE 1 OF 1

PROJECT NO: 112GN0039.DS01 OF 200	FACILITY: NAS CF 59	PROJECT MANAGER Rob Smith	PHONE NUMBER 412-921-7080	LABORATORY NAME AND CONTACT: Accutest
SAMPLERS (SIGNATURE) Mark Yarbrough		FIELD OPERATIONS LEADER Mark Yarbrough	PHONE NUMBER 904-303-3137	ADDRESS 4405 Vineland Rd
		CARRIER/WAYBILL NUMBER		CITY, STATE Orlando FL 32811

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

	DATE YEAR 2007	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: Chlorinated VOC's (Ethene)	Dissolved Iron	Dissolved Manganese	Total Sodium	Alkalinity	TOC	Sulfide	2nd Preserved	COMMENTS
1	5/4/07	1107	C6F-059-GW-EW4-11B				GW	G	3	/								Cool @ 4°C
2	↓	1347	C6F-059-GW-MW1A-11B				↓	↓	12	/	/	/	[redacted]	/	/	/		
3		1420	C6F-059-GW-006-078-11B						3	/								
4	↓	1137	C6F-059-GW-1W2A-11B				↓	↓	12	/	/	/	/	/	/	/		

1. RELINQUISHED BY Mark Yarbrough FX	DATE 5/4/07	TIME 1630	1. RECEIVED BY FX	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY J Cooper	DATE 5-9-07	TIME 09:00
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

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

1.8 FORM NO. TINUS-001 4/02R

4.1

F49372: Chain of Custody
Page 1 of 2

ACCUTEST Laboratories
F49372

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0705168
Report Date: 05/29/07
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Laboratory Results

Lab Sample #	Client Sample ID
P0705168-01	CEF-059-GW-IW2A-11B
P0705168-02	CEF-059-GW-MW1A-11B
P0705168-03	NG-12D-GW-11B

Total pages in data package: _____

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

Approved By: _____

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

As a valued client we would appreciate your comments on our service.
Please call customer service at (412)826-5245 or email customerservice@microseeps.com.

Case Narrative

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0705168
Report Date: 05/29/07
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-IW2A-11B	Water	P0705168-01	08 May. 07 11:37	09 May. 07 13:30

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	5/17/07	rw
N Ethane		0.064	0.025	ug/L	AM20GAX	5/17/07	rw
N Ethene		53.000	0.025	ug/L	AM20GAX	5/17/07	rw
N Methane		19000.000	0.100	ug/L	AM20GAX	5/17/07	rw
SemiVolatiles							
N Acetic Acid		21.00	0.70	mg/L	AM23G	5/25/07	jb
N Butyric Acid		0.57	0.07	mg/L	AM23G	5/25/07	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	5/25/07	jb
N i-Hexanoic Acid		0.13	0.1	mg/L	AM23G	5/25/07	jb
N i-Pentanoic Acid		3.80	0.07	mg/L	AM23G	5/25/07	jb
N Lactic Acid and HIBA		1.30	1.00	mg/L	AM23G	5/25/07	jb
N Pentanoic Acid		0.14	0.07	mg/L	AM23G	5/25/07	jb
N Propionic Acid		4.20	0.07	mg/L	AM23G	5/25/07	jb
N Pyruvic Acid		0.40	0.07	mg/L	AM23G	5/25/07	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0705168
Report Date: 05/29/07
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW1A-11B	Water	P0705168-02	08 May. 07 13:47	09 May. 07 13:30

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	5/17/07	rw
N Ethane		0.880	0.025	ug/L	AM20GAX	5/17/07	rw
N Ethene		92.000	0.025	ug/L	AM20GAX	5/17/07	rw
N Methane		4700.000	0.100	ug/L	AM20GAX	5/17/07	rw
SemiVolatiles							
N Acetic Acid		12.00	0.70	mg/L	AM23G	5/25/07	jb
N Butyric Acid	U	< 0.07	0.07	mg/L	AM23G	5/25/07	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	5/25/07	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	5/25/07	jb
N i-Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	5/25/07	jb
N Lactic Acid and HIBA		1.80	1.00	mg/L	AM23G	5/25/07	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	5/25/07	jb
N Propionic Acid		4.90	0.07	mg/L	AM23G	5/25/07	jb
N Pyruvic Acid	U	< 0.07	0.07	mg/L	AM23G	5/25/07	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0705168
Report Date: 05/29/07
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
NG-12D-GW-11B	Water	P0705168-03	07 May. 07 11:50	09 May. 07 13:30

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	5/17/07	rw
N Ethane		0.120	0.025	ug/L	AM20GAX	5/17/07	rw
N Ethene		90.000	0.025	ug/L	AM20GAX	5/17/07	rw
N Methane		2700.000	0.100	ug/L	AM20GAX	5/17/07	rw
SemiVolatiles							
N Acetic Acid		0.38	0.07	mg/L	AM23G	5/25/07	jb
N Butyric Acid	U	< 0.07	0.07	mg/L	AM23G	5/25/07	jb
N Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	5/25/07	jb
N i-Hexanoic Acid	U	< 0.10	0.10	mg/L	AM23G	5/25/07	jb
N i-Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	5/25/07	jb
N Lactic Acid and HIBA	J	0.09	0.10	mg/L	AM23G	5/25/07	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	5/25/07	jb
N Propionic Acid		0.15	0.07	mg/L	AM23G	5/25/07	jb
N Pyruvic Acid	U	< 0.07	0.07	mg/L	AM23G	5/25/07	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

APPENDIX F

NORTHERN PILOT STUDY REPORT

Comprehensive **L**ong-term **E**nvironmental **A**ction **N**avy

CONTRACT NUMBER N62467-94-D-0888

11/08

Northern Pilot Study Report
for
In Situ Bioremediation
at
Operable Unit 9, Site 59

Naval Air Station Cecil Field
Jacksonville, Florida

Contract Task Order 0078

November 2008

NAVFAC
Naval Facilities Engineering Command
NAVFAC SOUTHEAST
NAS Jacksonville
Jacksonville, Florida 32212-0030

TETRA TECH NUS, Inc.

010706/P

NORTHERN PILOT STUDY REPORT
FOR
IN SITU BIOREMEDIATION
AT
OPERABLE UNIT 9, SITE 59

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Naval Facilities Engineering Command
Southeast
NAS Jacksonville
Jacksonville, Florida 32212-0030

Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0078

NOVEMBER 2008

PREPARED UNDER THE SUPERVISION OF:

MARK SPERANZA, P.E.
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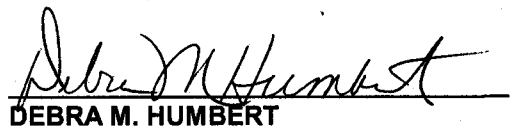
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

APPROVED FOR SUBMITTAL BY:



DEBRA M. HUMBERT
PROGRAM MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

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ACRONYMS

bgs	Below ground surface
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
CSSI	Compound Specific Stable Isotope
CTO	Contract Task Order
DHC	*Dehalococcoides*
DO	Dissolved Oxygen
DCE	Dichloroethene
FDEP	Florida Department of Environmental Protection
GPH	Gallons per hour
gpm	Gallons per minute
ID	Inside diameter
IR	Installation Restoration
MNA	Monitored Natural Attenuation
mV	Millivolt
NA-DV	Natural Attenuation Default Value
NAS	Naval Air Station
NAVFAC SE	Naval Facilities Engineering Command Southeast
ORP	Oxidation-reduction potential
OU	Operable Unit
PCE	Tetrachloroethene
PCR	polymerase chain reaction
PVC	Polyvinyl chloride
P&ID	Piping and instrumentation diagram
RI	Remedial Investigation
TCE	Trichloroethene
TOC	Total organic carbon
TtNUS	Tetra Tech NUS, Inc.
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

1.0 INTRODUCTION

1.1 PURPOSE OF REPORT

This report for the Site 59 Northern Pilot Study at Naval Air Station (NAS) Cecil Field, Jacksonville, Florida has been prepared by Tetra Tech NUS, Inc. (TtNUS) for Naval Facilities Engineering Command Southeast (NAVFAC SE) under the Navy Comprehensive Long-Term Environmental Action Navy (CLEAN) Program, Contract Number N62467-94-D-0888, Contract Task Order (CTO) 0078. This Report describes the activities and results of a pilot study conducted in the northern portion of Site 59 to determine the feasibility and effectiveness of in-situ bioremediation to treat part of the contaminated groundwater plume at Site 59. The pilot study was conducted according to the Pilot Study Work Plan for In Situ Bioremediation at Operable Unit 9, Site 59, Buildings 324/1845 (TtNUS, 2006).

1.2 SITE DESCRIPTION

Groundwater sampling conducted around Buildings 324/1845 under the Base Realignment and Closure (BRAC) program identified trichloroethene (TCE) contamination, and the area was designated Site 59 under Operable Unit (OU) 9 (see Figure 1-1). The groundwater contamination was originally discovered during a Due-Diligence investigation in 2003. Based on follow up analyses of the groundwater, Site 59 was being investigated under the Installation Restoration (IR) program as governed by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The TCE plume is over 1,000 feet long and reaches the full depth of the surficial aquifer, about 100 to 115 feet below ground surface (bgs). A Remedial Investigation (RI) was performed for the site, and a pilot-scale treatability study was proposed to address biological treatment. The treatability study was implemented at the northern end of the plume in the vicinity of well cluster CEF-59-003 where relatively high concentrations of TCE (1,100 µg/L) had been measured during the RI.

At Site 59, the majority of unconsolidated materials are fine to very fine sands with varying amounts of silt. Isolated discontinuous relatively thin clay layers were encountered to approximately 40 feet bgs, and clay content increases significantly at approximately 90 feet bgs. The groundwater flow is to the southwest.

1.3 EXTENT OF CONTAMINATION

Figure 1-1 shows a tag map of TCE concentrations at Site 59 based on groundwater results from the RI. As shown in Figure 1-1, the “hot spots,” as defined by TCE concentrations greater than the Florida Department of Environmental Protection (FDEP) Natural Attenuation Default Value (NA-DV) of 300 µg/L, are located at CEF-059-003-73, CEF-059-004-73, and CEF-59-NG-12D. In the vicinity of

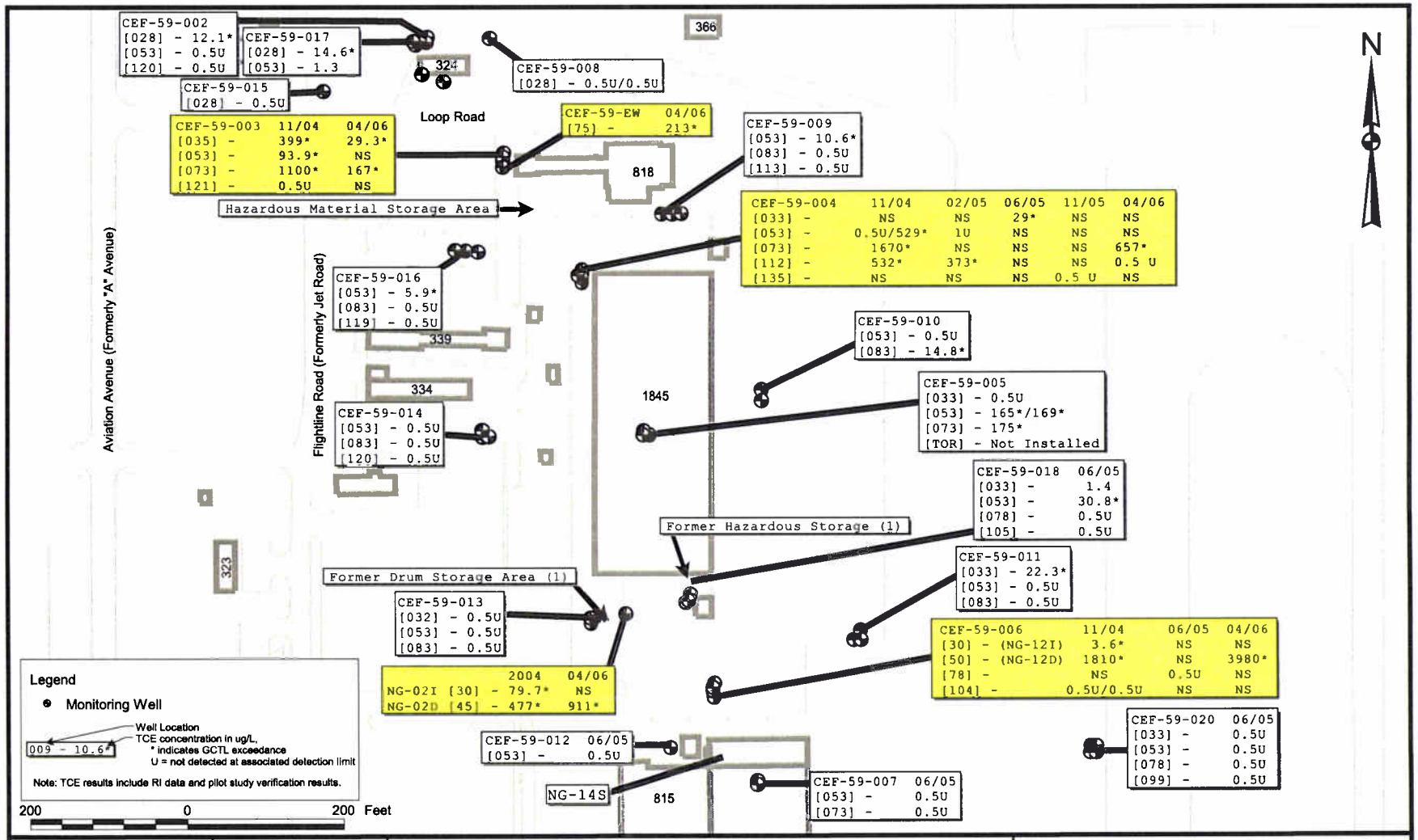
CEF-059-003-73, TCE was detected in wells screened at 35 feet, 53 feet, and 73 feet, with the highest concentration, 1,100 µg/L, in the 73-foot well. The TCE concentrations in the 35-foot and 53-foot wells were 399 µg/L and 93.9 µg/L, respectively.

1.4 PILOT STUDY SYSTEM

In the pilot study system, sodium lactate and sodium bicarbonate were injected into the subsurface of Site 59 via a groundwater recirculation application to promote anaerobic degradation of TCE. Once target geochemical conditions (dissolved oxygen, pH, oxidation-reduction potential) of the injection wells were established as identified in the Work Plan, a microbial inoculum was to have been injected to enhance in situ bioremediation. The baseline sampling showed that the TCE concentration had dropped considerably prior to the startup of the pilot system, such that the injection of microorganisms was no needed, and the study was terminated early. Based on the observed favorable changes in the geochemical conditions, the BCT decided to relocate the pilot study to a location to the south where TCE concentrations were greater than the monitored natural attenuation default concentrations.

1.5 DOCUMENT ORGANIZATION

This report describes the activities, evaluation, and conclusions and recommendations for the Site 59 Northern Pilot Study in the vicinity of well cluster 59-003. This study has been occasionally referred to as Pilot Study No. 1. Section 1.0 is the introduction which summarizes Site 59 background information and describes the document organization. Section 2.0 provides a description of the design and operation of the pilot study system. Section 3.0 provides results and observations made during the study. Section 4.0 discusses the results of the study. Section 5.0 provides conclusions and recommendations.



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C. MILLER	06/23/06
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SCALE	AS NOTED

NAVFAC

MONITORING WELL LOCATIONS AND TCE CONCENTRATIONS
NORTHERN PILOT STUDY REPORT
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NUMBER	0039
APPROVED BY	DATE 11/07/08
APPROVED BY	DATE
DRAWING NO.	FIGURE 1-1
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2.0 PILOT STUDY SYSTEM DESIGN AND OPERATION

2.1 GENERAL DESCRIPTION

The pilot study system consisted of the following components as shown on Figure 2-1:

- Extraction well (EW)
- Extraction well pump (P-1)
- Sodium lactate feed pump (P-2) and solution tank (T-1)
- Sodium bicarbonate feed pump (P-3) and solution tank (T-2)
- In-line static mixer (SM-1)
- Two injection wells (IW1, IW2)
- Recirculation flow meter (FQI-1,and FI-1)
- Monitoring wells (MW1, MW2, MW3, MW4, and MW5)
- Flow control valves

The pilot study equipment and chemical feed systems were housed in a trailer. Groundwater was pumped by the extraction well pump to the treatment system. The flow rate was controlled by manual flow control valves. Sodium lactate and sodium bicarbonate were injected into the piping and subsequently mixed in the in-line static mixer. The mixture then flowed into the two injection wells located 30 feet upgradient of the extraction well. Operation and maintenance of the system was conducted twice per week and chemical solution tanks were refilled, as needed. The target recirculation rate was 3 gallons per minute (gpm) and the system was constructed to treat contaminated groundwater identified at a nominal depth of 75 feet bgs.

Figure 2-1 is a piping and instrumentation diagram (P&ID) of the pilot study system. Figure 2-2 shows the layout of the treatment system and the wells. The trailer was installed outside the flightline fence, just west of Building 818. Most of the wells were installed on the east (flightline) side of the fence; injection well IW1 and monitoring well MW3 were located west of the fence.

2.2 WELL INSTALLATION

Two injection wells (IW1 and IW2), one extraction well (EW), and five monitoring wells (MW1 through MW5) were installed for the pilot study. Existing monitoring well CEF-59-003-73 was also used in the pilot study system. Another existing monitoring well in the vicinity [CEF-59-003-53 (53 feet deep)] was used to monitoring the groundwater above the pilot study interval.

The new wells were installed using hollow stem auger methods. IW1, IW2, and EW were all installed to a depth of 75 feet bgs with 10-foot long 0.02-inch slotted screens. Screen and riser piping was 4-inch diameter threaded Schedule 40 PVC. MW1 through MW5 were installed to depths of 73 feet bgs with 5-foot long 0.01-inch slotted screens. Screen and riser piping was 2-inch diameter threaded Schedule 40 polyvinyl chloride PVC. All wells were installed with flush-mounted casings. Well construction logs are included in Attachment A. After installation, the wells were developed to remove fines.

2.3 PROCESS DESCRIPTION

Figure 2-1 is a P&ID of the system, and Figure 2-2 shows the physical arrangement of the system. Groundwater was extracted from extraction well (EW) with a Grundfos SQ pump (P-1) at approximately 3 gpm. The water flowed through PVC hose to the treatment system in the trailer. Inside the trailer, the hose was connected to the 1-inch schedule 80 PVC system piping.

Inside the trailer, the flow rate was controlled with a manually-adjusted globe valve at the upstream end of the system and a manually-adjusted ball valve at the downstream end of the system. The ball valve was used to create the largest pressure drop and to maintain a positive pressure within the system. The globe valve was used for finer adjustments to the flow rate.

A cartridge filter and sampling port were located after the globe valve. A 5-micron filter disposable element was used in the early operation of the system to capture particles from the extraction well to minimize the potential for plugging in the injection wells. Pressure gauges were located upstream (PI-1) and downstream (PI-2) of the filter.

A paddle wheel flow meter (FQI-1) was used to measure the flow rate and adjust the control valves. The flow meter did not have a direct read-out of the flow rate, but did indicate the volume that passed through the meter. The flow rate was measured using a timer and observing the volume of a timed period. The valves were adjusted according to these readings.

The injection points for the sodium lactate solution and the sodium bicarbonate solution were downstream of the flow meter. The injection points had spring loaded check valves to prevent flow of groundwater if the chemical feed pumps were taken off line. The chemical feed systems are described further below.

The in-line static mixer (SM-1) followed the injection points. The mixer was a 1-inch, clear PVC, 6-element Koflo Model 328. Downstream of the static mixer was a pressure gauge (PI-3) and a sampling port.

After the static mixer, the water flowed through the ball valve and through PVC piping to the injection wells. The flow was split between the injection wells, although there was no means of measuring or balancing the flow rates. The well heads were open to the atmosphere and high level switches were installed in each well to shut off the system to prevent groundwater from overflowing onto the ground.

Sodium lactate was prepared in a 40-gallon polyethylene tank (T-1). A 1/20 hp mixer on the tank was used to mix the stock solution with water. The 60 percent sodium lactate solution was diluted to 0.83 lb/gallon (about 10 percent) and injected at 0.2 gallons per hour (GPH) using an LMI P031 metering pump (P-2) (maximum output of 0.42 GPH). At this rate, the sodium lactate tank was refilled about once per week, although typically the tank was topped off each time the operator inspected the system.

Sodium bicarbonate was prepared in a 150-gallon polyethylene tank (T-2). A 1/3 hp mixer on the tank was used to mix the solid sodium bicarbonate with water. The solid sodium bicarbonate in 50-lb bags was used to make the 0.52 lb/gallon (about 6 percent) solution and injected at 1.46 gallons GPH using an LMI C121 metering pump (P-3) (maximum output of 4.0 GPH). At this rate, the sodium bicarbonate tank was refilled twice per week, each time the operator inspected the system. This concentration of sodium bicarbonate is close to saturation, and the low solubility limited the amount of sodium bicarbonate that could be injected.

The ball valve and globe valves were adjusted such that a positive pressure was observed on all three pressure gauges. Under uncontrolled operating conditions, sub-atmospheric pressures are created allowing air to leak in at some seals and gaskets.

A run time meter was included for the extraction well pump to confirm operating durations.

2.4 STARTUP

Prior to startup, baseline samples (Event 1) were collected from wells IW2, MW1, MW2, MW3, MW4, MW5, 003-73, 003-53, 001-83, and 002-30 on March 14 and 15, 2006. Monitoring well sampling and analysis is discussed further in Section 2.8. On March 16, 2006, the system was started up in recirculation mode only. Chemical solutions were prepared and the injection pumps were tested, but no chemicals were injected. During this period, the flow rate was maintained at 3 gpm.

The recirculation system operation was satisfactory for a week, so the chemical feed pumps were activated on March 22, 2006. The chemical feed pumps operated properly, and the system began normal operations.

2.5 OPERATIONS

Figure 2-3 is a timeline that summarizes the major events of the pilot study. TtNUS personnel visited the system twice per week to make routine measurements and to check and refill the chemical solutions. A daily log sheet was filled out for each visit. Operating information such as well pH, dissolved oxygen (DO), and oxidation-reduction potential (ORP); chemical use, and recirculation rate were recorded on the log sheets. Copies of the log sheets are included in Attachment B. The log sheet entries were later transposed to a spreadsheet (see Attachment C) for tracking and comparing data.

The recirculation rate was initially targeted at 3 gpm until October 11, 2006 when the target flow rate was reduced to 2.5 gpm to try to raise the pH by minimizing the amount of low pH water being recirculated to the injection wells.

Fine material was captured by the cartridge filter and the filter element was replaced often, particularly in the beginning of the operation until April 11, when system was operated without ah element.

System shutdowns occurred for various reasons and are noted as follows:

- April 27, 2006 – flowmeter clogged with fines (meter cleaned and filter cartridge replaced).
- April 28 through May 1, 2006 – Extraction well pump became stuck in well during inspection of low flow rate and fines in system. The pump was able to be dislodged.
- April 11, 2006 – Injection well high level switch turned off system.
- April 14 to April 15, 2006 – Injection well high level switch turned off system.

The results of the baseline samples collected prior to system startup showed that the TCE concentration had decreased to less than 200 µg/L. These results were confirmed by resampling CEF-59-003-53 and CEF-59-003-73 on April 4 2006, along with sampling of other wells that had been sampled during the RI that showed TCE concentrations greater than 300 µg/L (CEF-59-004-73, CEF-59-004-112, CEF-59-006-50, and NG-2D) on April 7, 2006. The extraction well (EW) was also sampled on April 7.

Based on the results, the decision was made to cancel the *Dehalococcoides* (DHC) injection because these concentrations were less than the FDEP default concentrations for natural attenuation. However, the system would continue to be operated with sodium lactate and sodium bicarbonate injection to provide a carbon source for the reductive dechlorination of TCE.

Because of the low levels of TCE and the cancellation of the DHC injection, the sampling schedule in the Work Plan (TtNUS, 2006) was modified. Specifically, Event 3 samples were collected on April 10 through

12, 2006. Samples were collected for volatile organic compound (VOC) analysis only from MW3, MW1, 003-73, and EW on May 16. The last sampling event was performed as Event 7 on July 19 through 21.

The sodium lactate supply was used up by June 14, 2006, and the system was operated in recirculation only mode for another week. The system was shut down on July 14, 2006.

2.6 CHEMICAL ADDITIONS

Based on calculations in the Work Plan, the entire contents of a drum of 60 percent sodium lactate was to be added. This was completed by June 14, 2006. The time to feed the entire contents of the drum was lengthened because of the shutdowns noted above. In addition, the sodium lactate was routinely shut off for several hours a week to minimize biological growth in the immediate vicinity of the injection wells to minimize clogging.

Sodium bicarbonate was added as needed to maintain the pH between 6.5 and 8. The quantity of bicarbonate was estimated from a field test performed as part of the Work Plan preparation. The pH in the injection wells was greater than 6.5 by March 29, 2006 and was consistently less than 7. The feed rate was adjusted as needed based on the results of the routine pH measurements. These results are discussed further in Section 3.

Over the course of the study, 360 pounds of sodium lactate and 950 pounds of sodium bicarbonate were added.

2.7 DHC ADDITION

Because the TCE concentration in the northern pilot study wells was observed and confirmed to be less than 300 µg/L during the baseline sampling and verification sampling, the decision was made not to inject DHC. At this concentration, natural attenuation is expected to further reduce TCE concentrations.

2.8 SUMMARY OF MONITORING EVENTS

Samples were collected for analysis according to a schedule included in the Work Plan. Table 2-1 summarizes the samples that were collected. Because there was no DHC injection, the analytical program was modified. There were three sampling events as described in the Work Plan: Event 1, Event 3, and Event 7. Event 7 was substituted as a final sampling event. A field decision was made to operate the system in recirculation mode for only one week, so Event 2 was canceled. There were two other limited verification sampling events for VOCs only to verify preceding results, one on April 5 and 7, 2006, and a second on May 16, 2006.

Routine environmental analyses were performed by Accutest Laboratories. These analyses included VOCs, iron, manganese, sodium, total organic carbon (TOC), sulfate, sulfide, nitrate, nitrite, chloride, and phosphate.

Dissolved gases (methane, ethane, ethane, and acetylene) and metabolic acids (lactic, pyruvic, acetic, propionic, and butyric) analyses were performed by Microseeps, Inc.

Polymerase chain reactions (PCR) and functional gene analysis was performed by Microbial Insights, Inc. Compound Specific Stable Isotope (CSSI) analysis was performed through Microbial Insights, Inc.

Field analyses were also performed using field instruments and field kits. These analyses were performed by TtNUS personnel and included temperature, pH, specific conductivity, ORP, dissolved carbon dioxide, dissolved oxygen, alkalinity, ferrous iron, and hydrogen sulfide.

2.9 SYSTEM SHUTDOWN

On July 14, 2006, the recirculation system was shut down. The shut down was based primarily on the completion of the sodium lactate drum. The sodium lactate supply was exhausted on June 14 and the system was operated in a recirculation mode only for an additional four weeks.

2.10 SUMMARY OF SYSTEM OPERATION

The operators log sheet entries were complied into a single spreadsheet. This table is provided in Attachment C. The spreadsheet was used to generate graphs for tracking trends and comparing data.

System operation: March 16, 2006 through July 14, 2006
Periods of downtime: April 11, 2006 (well high level); April 14 to April 15, 2006 (well high level); April 27, 2006 (flowmeter clogged); April 28 through May 1, 2006 (Extraction well pump stuck);
Sodium lactate added: 360 lb
Sodium bicarbonate added: 950 lb
Recirculation rate: Approximately 3 gpm

TABLE 2-1

GROUNDWATER SAMPLING AND ANALYSIS SUMMARY
NORTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 1 OF 2

Location	Sample Designation	Screen Depth (feet bgs)	LABORATORY ANALYSES										FIELD TESTS									
			Chlorinated VOCs	Dissolved Gases[1]	Iron (Dissolved)	Manganese (Dissolved)	Sulfide	Miscellaneous Anions[2]	Metabolic Acids[3]	TOC	PCR and functional genes[4]	CSSI	Temperature	pH	Specific Conductivity	Oxidation / Reduction Potential	Dissolved CO_2	Alkalinity as ($CaCO_3$)	Dissolved Oxygen	Iron (Ferrous)	Hydrogen Sulfide	Water Level
Event 1 - Baseline - March 14 and 15, 2006																						
059-IW2	CEF-059-GW-IW2-01A	65-75	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•
059-MW1	CEF-059-GW-MW1-01A	68-73	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
059-MW2	CEF-059-GW-MW2-01A	68-73	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
059-003-73	CEF-059-GW-003-73-01A	68-73	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•
059-003-53	CEF-059-GW-003-53-01A	48-53	•																			
059-MW3	CEF-059-GW-MW3-01A	68-73	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•
059-MW4	CEF-059-GW-MW4-01A	68-73	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•
059-MW5	CEF-059-GW-MW5-01A	68-73	•																			
059-001-083	CEF-059-GW-001-83-01A	78-83									•											
059-002-30	CEF-059-GW-002-30-01A	25-30	•									•										
Verification Sampling - April 5 - 7, 2006																						
004-73	CEF-059-GW-004-73-VS	68-73	•																			
004-112	CEF-059-GW-004-112-VS	105-112	•																			
006-50	CEF-059-GW-006-50-VS	45-50	•																			
NG-2D	CEF-059-GW-NG-2D-VS	40-45	•																			
EW	CEF-059-GW-EW-VS	65-75	•																			
003-73	CEF-059-GW-003-73-VS	68-73	•																			
003-35	CEF-059-GW-003-35-VS	30-35	•																			
Event 3 - April 10 - 12, 2006																						
059-IW2	CEF-059-GW-IW2-03A	65-75	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
059-MW1	CEF-059-GW-MW1-03A	68-73	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
059-MW2	CEF-059-GW-MW2-03A	68-73	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
059-003-73	CEF-059-GW-003-73-03A	68-73	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•
059-003-53	CEF-059-GW-003-53-03A	48-53	•																			
059-MW3	CEF-059-GW-MW3-03A	68-73	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•
059-MW4	CEF-059-GW-MW4-03A	68-73	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•
059-MW5	CEF-059-GW-MW5-03A	68-73	•																			
059-001-083	CEF-059-GW-001-83-03A	78-83									•											

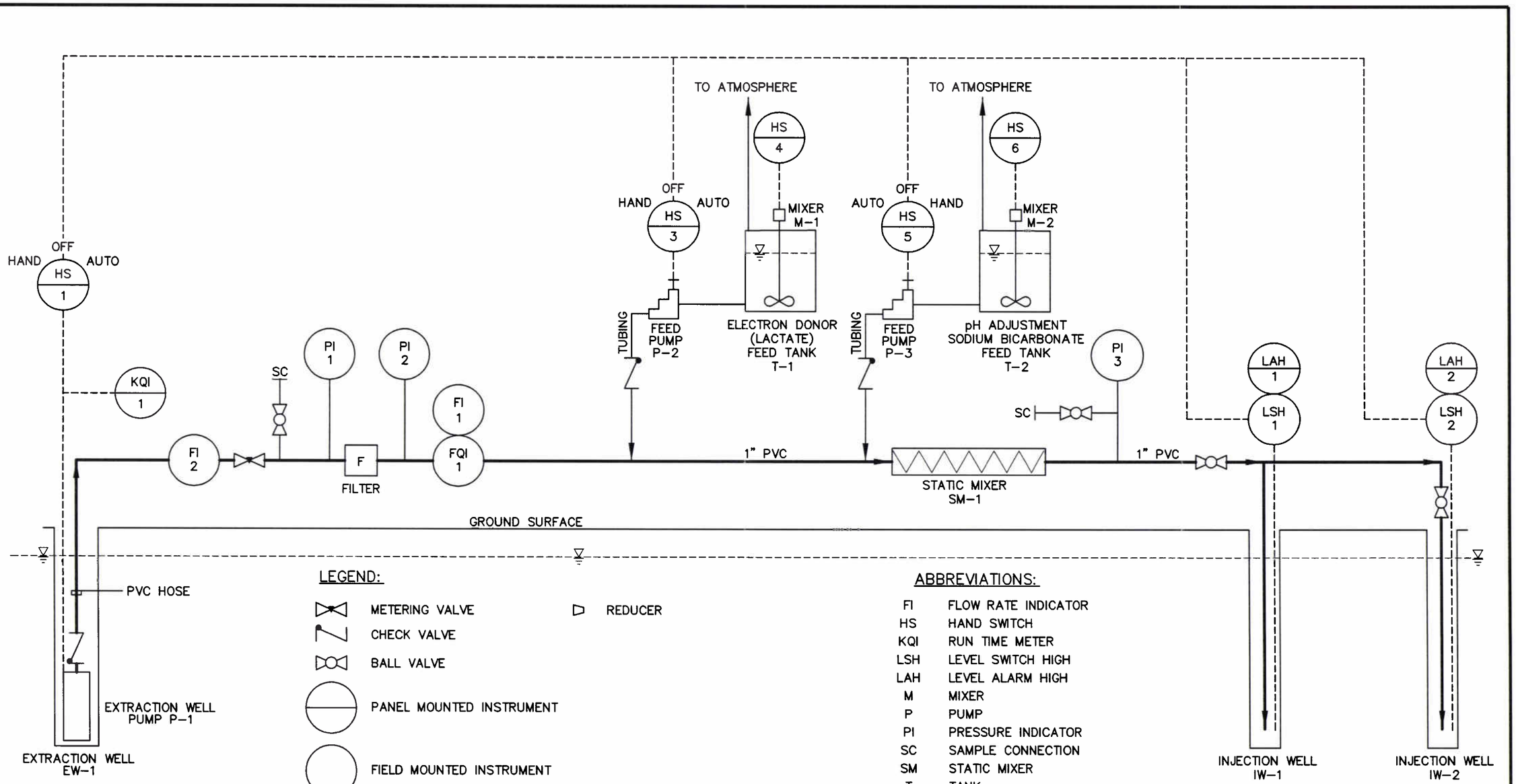
TABLE 2-1

GROUNDWATER SAMPLING AND ANALYSIS SUMMARY
NORTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Location	Sample Designation	Screen Depth (feet bgs)	LABORATORY ANALYSES										FIELD TESTS									
			Chlorinated VOCs	Dissolved Gases[1]	Iron (Dissolved)	Manganese (Dissolved)	Sulfide	Miscellaneous Anions[2]	Metabolic Acids[3]	TOC	PCR and functional genes[4]	CSSI	Temperature	pH	Specific Conductivity	Oxidation / Reduction Potential	Dissolved CO_2	Alkalinity as ($CaCO_3$)	Dissolved Oxygen	Iron (Ferrous)	Hydrogen Sulfide	Water Level
Second Verification Sampling - May 16, 2006																						
059-MW1	CEF-059-MW1-VS1	68-73	•																			
059-003-73	CEF-059-003-73-VS1	68-73	•																			
059-MW3	CEF-059-MW3-VS1	68-73	•																			
EW	CEF-059-MW5-VS1	65-75	•																			
Event 7 - July 19 - 21, 2006																						
059-IW2	CEF-059-GW-IW2-07A	65-75	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
059-MW1	CEF-059-GW-MW1-07A	68-73	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
059-MW2	CEF-059-GW-MW2-07A	68-73	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
059-003-73	CEF-059-GW-003-73-07A	68-73	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•
059-003-53	CEF-059-GW-003-53-07A	48-53	•																			
059-MW3	CEF-059-GW-MW3-07A	68-73	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•
059-MW4	CEF-059-GW-MW4-07A	68-73	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•
059-MW5	CEF-059-GW-MW5-07A	68-73	•																			

1 Dissolved gases include ethane, ethene, methane, and acetylene.
2 Miscellaneous anions include sulfate, sulfide, nitrate, nitrite, chloride, phosphate.
3 Metabolic Acids include lactic, pyruvic, acetic, propionic, and butyric.
4 Functional genes include TCE reductase, BAV1 VC reductase, and VC reductase.
bgs = Below ground surface.
CSSI = Compound Specific Stable Isotope.
Ex = Existing.
PCR = Polymerase chain reaction.
VOC = Volatile organic compounds.

ACAD: 0039PF20.dwg 11/14/06 DT PIT



LEGEND:

- METERING VALVE
- CHECK VALVE
- BALL VALVE
- PANEL MOUNTED INSTRUMENT
- FIELD MOUNTED INSTRUMENT
- WATER LEVEL
- METERING PUMP
- ELECTRICAL CONNECTION
- REDUCER

ABBREVIATIONS:

FI	FLOW RATE INDICATOR
HS	HAND SWITCH
KQI	RUN TIME METER
LSH	LEVEL SWITCH HIGH
LAH	LEVEL ALARM HIGH
M	MIXER
P	PUMP
PI	PRESSURE INDICATOR
SC	SAMPLE CONNECTION
SM	STATIC MIXER
T	TANK

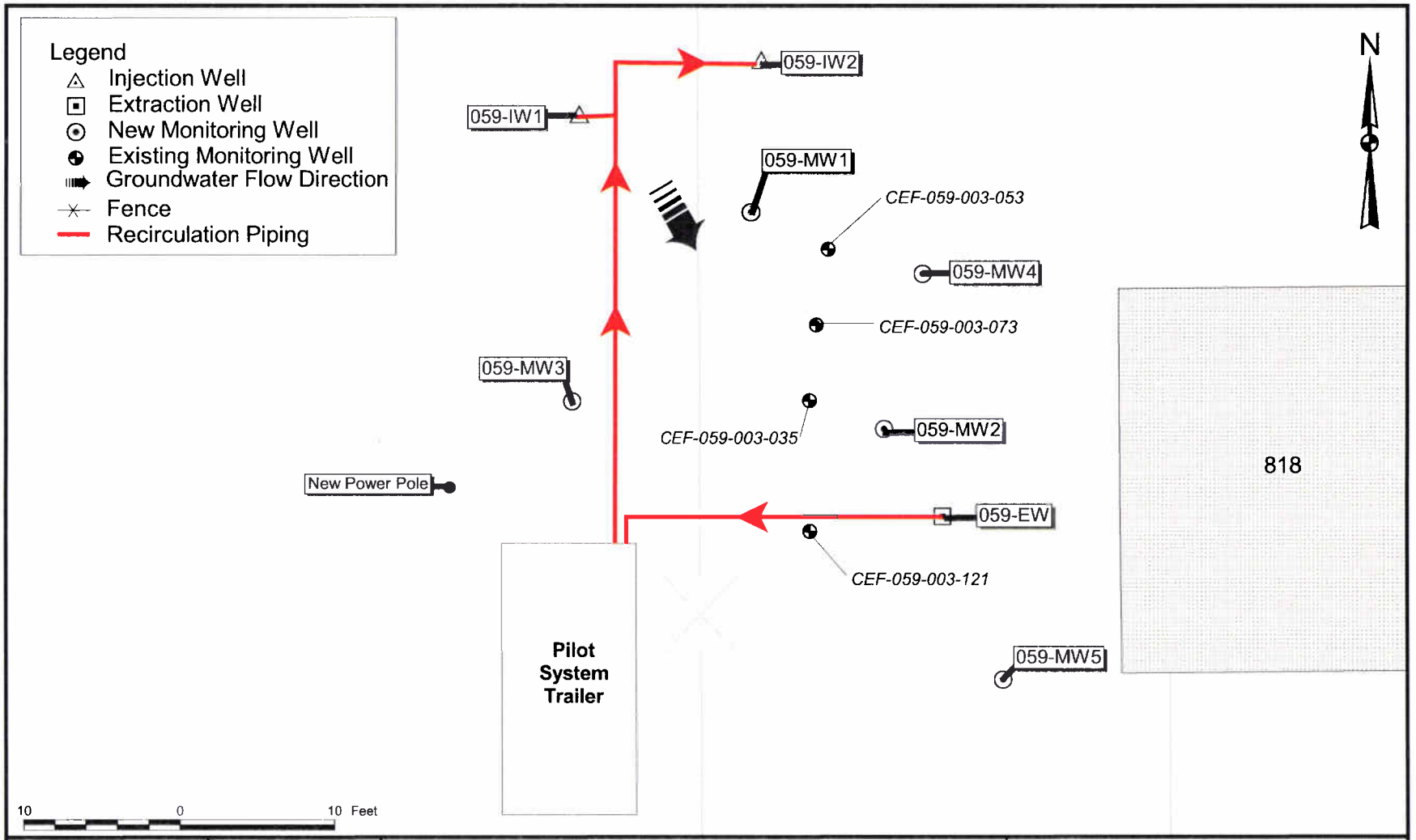
DRAWN BY: DT	DATE: 11/14/06
CHECKED BY:	DATE:
REVISED BY:	DATE:
SCALE: AS NOTED	

NAVFAC

PIPING AND INSTRUMENTATION DIAGRAM
NORTHERN PILOT STUDY
OU 9, SITE 59
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NO. 0039	
OWNER NO.	
APPROVED BY:	DATE: 11/07/06
DRAWING NO. FIGURE 2-1	REV. 0

FORM CADD NO. SDIV-AHDWG - REV 1 - 9/10/98

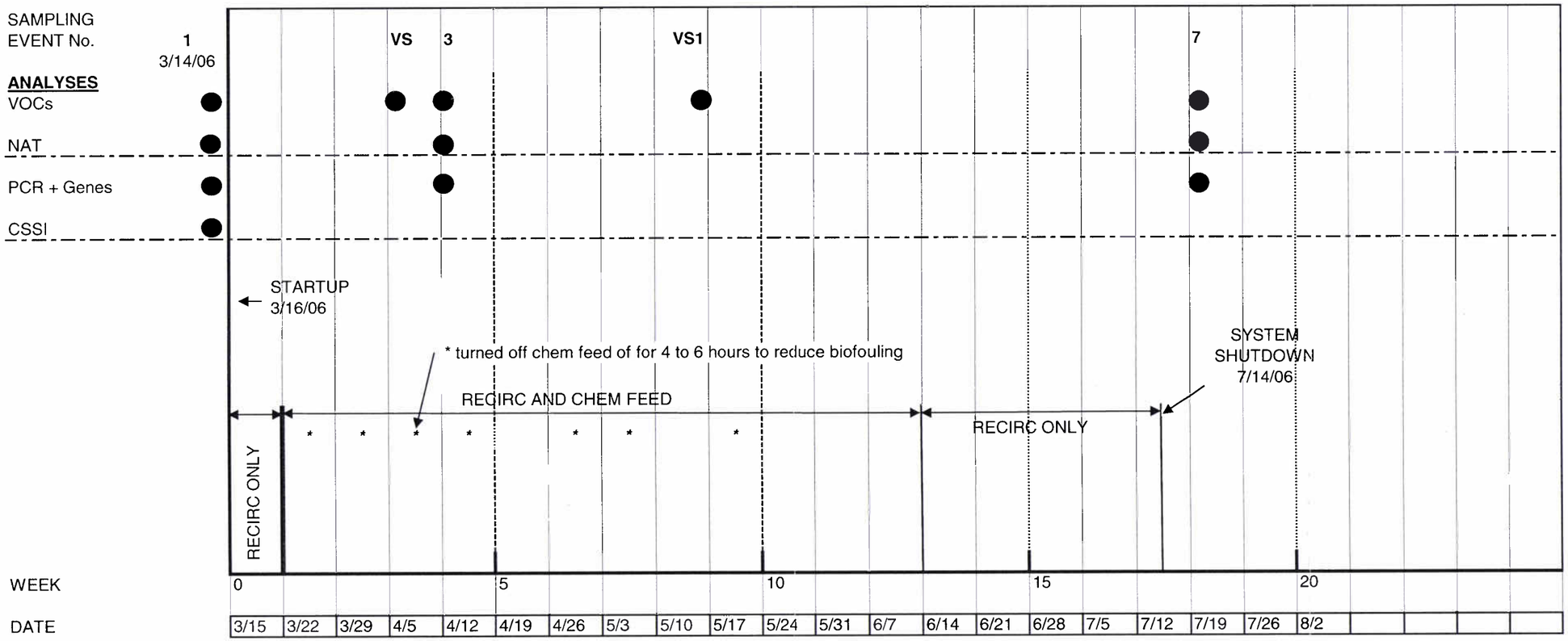


DRAWN BY: MJJ — DATE: 12Nov06 CHECKED BY: J. LOGAN — DATE: 10/26/05 COST/SCHEDULE-AREA SCALE: AS NOTED	NAVFAC	PILOT SYSTEM SITE PLAN NORTHERN PILOT STUDY OPERABLE UNIT 9, SITE 59 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER: 0039 APPROVED BY — DATE: 11/07/08 APPROVED BY — DATE DRAWING NO: FIGURE 2-2 — REV: 0

P:\GIS\NAS_CecilField\Site-59_20050616 apr 12Nov06 MJJ Layout03_200611

FIGURE 2-3

TIMELINE OF ACTIVITIES
NORTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 1 OF 1



Notes
DATE is the start of the week.
● Parameters analyzed for the sampling event shown.
Event 1 is the baseline event and was performed prior to startup.
This figure only shows major events. Refer to the report and operator logs for details.
NAT = Natural attenuation parameters.

3.0 RESULTS

3.1 OPERATOR LOG ROUTINE MEASUREMENTS

Measurements regarding system operation and groundwater geochemistry were recorded on the operators log sheets. The most significant parameters to determine the anaerobic reductive dechlorination process are DO, pH, and ORP. These results are summarized on Table 3-1.

Dissolved oxygen concentrations in each well varied over the course of the study. The DO levels decreased below 1 mg/L in the injection wells by March 29, 2006 following the initial injection of the sodium lactate and sodium bicarbonate on March 22, 2006, and remained less than 1 mg/L throughout the operation. The system was operated at a positive pressure to minimize vacuum conditions that could draw air into the system.

ORP values varied over the course of the study. The ORP values in the injection wells gradually decreased to less than -100 millivolts (mV) by April 7, 2006, and remained in the -100 to -200 mV range until May 23, 2006. From then on, the ORP levels were generally in the -50 to -100 mV range. The cause of the increase could not be confirmed. By that time, the decision had been made not to inject the DHC, so no actions were taken to address the increase in the ORP values.

pH values in the injection wells increased to greater than 6.5 by March 29, 2006, but fell into the range of 6 to 6.5 around April 21, 2006. By the end of the operation, the pH was around 6 in both wells. By that time, the decision had been made not to inject the DHC, so no actions were taken to adjust the pH.

In the nearest well downgradient from the injection wells (MW1), the DO concentration was typically less than 1 mg/l throughout the pilot study. The ORP was initially in the range of 80 to 100 mV prior to chemical injection and reached -100 mV by April 5, 2006. Like the injection wells, the ORP increased later in the study and by May 23, 2006 was in the -80 to -90 mV range. The pH was initially in the range of 4.8 to 5 and increased to greater than 6 on April 10, 2006. From then on, the pH was in the range of 6 to 6.5.

In the next well downgradient from the injection wells (CEF-59-003-073), the DO concentration was typically greater than 1 mg/l throughout the pilot study. The ORP was initially in the range of 80 to 100 mV prior to chemical injection and was consistently in the negative range after April 14, 2006. From then until the end of the operation, the ORP range was approximately -50 to -100 mV. The pH was initially in the range of 4.8 to 5 and increased to greater than 6 on May 4, 2006. From then on, the pH was in the range of 6 to 6.4.

In the next well downgradient from the injection wells (MW2), the DO concentration was initially greater than 1 mg/L at the start of the pilot study until April 12, 2006. From then until April 21, 2006, the DO was less than 1 mg/L. Then the DO concentration increased to greater than 1 mg/L until the end of the operations. The ORP was initially in the range of 80 to 100 mV prior to chemical injection and was consistently in the negative range after April 14, 2006. From then until the end of the operation, the ORP range was approximately -50 to -100 mV. The pH was initially in the range of 4.8 to 5 and increased gradually over the course of the operation, but never was greater than 5.9.

In sidegradient well MW3, the DO concentration was initially less than 1 mg/L at the start of the pilot study until April 3, 2006. From then until April 21, 2006, the DO was greater than 1 mg/L. Then the DO concentration decreased to less than 1 mg/L until the end of the operations. The ORP was initially in the range of 50 to 100 mV prior to chemical injection and reached -100 mV by April 21, 2006. Like the injection wells, the ORP increased later in the study and by May 4, 2006 was in the -30 to -80 mV range. The pH was initially in the range of 4.8 to 5 and increased gradually over the course of the operation, but never was greater than 5.4.

In the other sidegradient well MW4, the DO concentration was initially less than 1 mg/L at the start of the pilot study until April 7, 2006. From then until April 17, 2006, the DO was greater than 1 mg/L. Then the DO concentration decreased to less than 1 mg/L until the end of the operations. The ORP was initially in the range of 80 to 100 mV prior to chemical injection and reached -100 mV by April 21, 2006. Like the injection wells, the ORP increased later in the study and by May 23, 2006 was in the -80 to -90 mV range. The pH was initially in the range of 4.8 to 5 and increased gradually over the course of the operation, but never was greater than 6.3.

In the well downgradient of the extraction well (MW5), the DO concentration was usually less than 1 mg/L from the start of the pilot study until May 15, 2006. From then until the end of the operation, the DO was greater than 1 mg/L. The ORP was initially in the range of 30 to 80 mV prior to chemical injection. During most of the study, the ORP was in the range of 50 to 100 mV, but on May 23, 2006, the ORP dropped sharply into the -80 to -100 mV range. The pH was initially in the range of 5 to 5.2 and was typically in the range of 4.6 to 4.9 over the course of the operation; the pH never was greater than 4.9.

In the extraction well (EW), the DO concentration was usually less than 1 mg/L from the start of the pilot study until May 23, 2006. From then until the end of the operation, the DO was greater than 1 mg/L. The ORP was initially in the range of 70 to 80 mV prior to chemical injection. The ORP gradually decreased and from April 14, 2006, the ORP was in the range of -50 to -100 mV. The pH was initially in the range of 4.6 to 4.9 and gradually increased to a pH of 5.6 by the end of the operation.

3.2 LABORATORY RESULTS – CONTAMINANTS

The results of the laboratory TCE analyses are summarized on Table 3-2. The RI data showed a TCE concentration in CEF-59-003-73 of 1,100 µg/L. Baseline sampling (Event 1) identified CEF-59-003-73 at 56 µg/L TCE and provided results that were all less than 150 µg/L and most were less than 50 µg/L in the other wells that were sampled. The low concentrations resulted in a decision to conduct verification sampling, which confirmed the low TCE concentrations in CEF-59-003-73. Subsequent sampling (1 month and 4 months later) showed that the TCE concentrations increased to a range of 150 to 250 µg/L, but these results were less than the default level for monitored natural attenuation. Based on these results, the planned DHC injection was cancelled.

The results of the final sampling event (Event 7) in July 2006 showed that the TCE concentration range was 130 to 323 µg/L, still well below the concentration observed in the RI.

No other contaminants, such as cis-1,2-dichloroethene (DCE), were detected in any of the wells.

3.3 LABORATORY RESULTS – BIOLOGICAL ACTIVITY INDICATOR PARAMETERS

In addition to the routine pH, DO, and ORP measurements, several other measurements and analyses were performed to monitor indications of biological activity. (These measurements and analyses are the same as those used to monitor natural attenuation.) These results are summarized on Table 3-3. However, because the pilot study was ended prior to what was scheduled in the Work Plan, only three sets of parameters were collected (Events 1, 3, and 7). Metabolic acids, methane, and carbon dioxide concentrations showed increasing trends during the study, while total iron and sulfate showed decreasing trends. There was no trend in the data for ethane, ethane, and chloride which were generally unchanged. The alkalinity concentrations were not consistent with decreases in some wells and essentially no change in other wells.

3.4 LABORATORY RESULTS – PCR

The results of the laboratory PCR and functional gene analyses are summarized on Table 3-3. There were very few dechlorinating microorganisms or functional genes present in any of the wells sampled. All results were less than 10 cells/mL. In the final event, no functional genes were detected and no DHC were detected in IW2. The DHC concentration in MW1 and MW2 in Event 7 were slightly greater than 1 cell/mL.

3.5 WATER LEVELS

The depths to groundwater in the pilot study wells were routinely measured during the operation. Table 3-4 summarizes the water level elevations in EW, IW1, IW2, MW1, MW2, MW3, MW4, MW5, and CEF-59-003-73 over the course of the pilot study. This table also includes the daily elevations relative to the elevation in EW. After a few days of pumping the levels had stabilized and the expected progression of water levels from lowest to highest can be seen in EW, MW2, CEF-59-003-73, and MW1.

In addition, the water level elevations in MW3 and MW4 are higher than MW 2 and usually higher than CEF-59-003-73. Similarly, the groundwater level elevations in MW3 and MW4 are usually lower than MW1, particularly late in the study. The water level in MW5 is very similar to MW2.

TABLE 3-1

SUMMARY OF DO, pH, AND ORP DATA
NORTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	3/15/06	3/16/06	3/17/06	3/20/06	3/22/06	3/23/06	3/24/06	3/27/06	3/29/06	3/31/06	4/3/06	4/5/06	4/7/06	4/10/06	4/12/06	4/14/06	4/17/06	4/21/06	5/4/06	5/8/06	5/15/06	5/23/06	5/25/06	6/14/06
Extraction Well																								
DO, mg/L	0.31	2.5	1.21		3.5	0.69	0.4	0.79	0.65	0.74	0.21	0.87	0.75	0.52	1.22	0.88	0.6	0.69	0.81	0.23	0.6	2.1	0.72	1.34
pH	4.91	4.48	4.86		4.74	4.6	4.73	4.73	4.79	4.53	4.65	4.69	4.55	4.63	4.64	4.71	4.7	4.89	5.07	5.07	5.19	5.72	5.53	5.63
ORP, mV	-30.9	10.1	11		31.7	87.1	81.4	73.3	86.8	75.2	1.8	30.4	46.4	-92.3	-6.2	-78	-63.2	-115.6	-91.4	-65.3	-122.1	-58.5	-28.4	-36.2
Injection Well 1																								
DO, mg/L			1.39	1.43	1.7	2.04	2.2	1.16	0.31	0.18	0.25	0.17	0.34	0.28	0.83	0.93	0.39	0.19	0.55	0.2	0.29	0.7	0.82	0.84
pH			5.9	5.84	5.55	5.82	6.48	6.57	6.7	6.7	6.76	6.85	6.78	6.72	6.57	6.56	6.49	6.23	6.16	6.01	6.01	6.16	6.16	6.11
ORP, mV			67.2	69.4	114.2	70.9	13.2	-18.9	-27.9	-32.5	-47.6	-52	-148.2	-194.2	-171.9	-186.8	-185.4	-194.5	-142	-108.6	-138	-36.7	-6.31	-43.4
Injection Well 2																								
DO, mg/L	0.15	0.36	0.89	1.13	0.28	0.38	0.73	0.41	0.47	0.21	0.27	0.26	0.41	0.39	0.12	0.69	0.25	0.21	0.71	0.18	0.25	0.68	0.43	0.54
pH	5.8	4.79	4.85	4.76	6.93	6.4	6.26	5.84	6.72	6.73	4.82	6.83	6.66	4.81	6.48	7.1	6.85	6.55	6.64	5.21	6.44	6.4	5.67	5.93
ORP, mV	-39.2	5.6	58	77.2	-80.2	-1.5	-29.4	-79.7	-83.8	-93.1	-1.8	-123.5	-126.4	-79.2	-167.2	-186.8	-228.1	-238.7	-151.3	-112.8	-207.3	-88.8	-90.3	-87.5
Monitoring Well 1																								
DO, mg/L	0.31	0.27	0.68	0.91	0.46	0.43	0.98	1.06	1.24	1.9	2.22	0.29	0.31	0.34	0.08	0.83	0.24	0.13	0.59	0.24	0.25	0.5	0.4	0.45
pH	5.32	4.9	4.87	4.79	5.28	5.06	5.34	5.14	5.46	5.58	5.63	5.87	5.95	6.08	6.35	6.17	6.31	6.41	6.65	6.43	6.45	6.4	6.42	6.44
ORP, mV	8.6	8.6	107.8	121.3	84.8	104.6	65.1	64.4	15.8	-19.7	-18.4	-107.4	-100.1	-136.5	-140.4	-128.3	-158.5	-219.4	-174.4	-124.2	-131.3	-87.4	-97.9	-87.6
Monitoring Well 2																								
DO, mg/L	0.22	0.16	0.69	0.89	0.29	0.2	0.48	0.48	0.49	0.63	1.81	1.87	2.29	3.76	0.69	2.76	1.89	0.65	0.36	0.21	0.51	0.52	0.56	0.62
pH	5.42	4.78	4.94	5.02	4.92	4.68	5.16	5	4.84	5.05	5.07	5.14	5.06	5.03	4.74	5.04	5.05	5.24	5.54	5.58	5.68	5.93	5.73	5.61
ORP, mV	-29.1	8.5	86.4	101.8	61.3	43.9	51.2	68.9	111.7	102	104.8	0.8	5.7	7.2	-79.5	-22.7	-23.8	-50.1	-67.5	-56.9	-46.8	-99.6	-83.3	-77.1
Monitoring Well 3																								
DO, mg/L	0.5	0.49	0.65	0.09	0.65	0.59	1.44	0.91	0.68	0.63	1.12	1.23	1.83	2.6	3.04	3.17	1.13	0.22	0.64	0.18	0.27	0.98	0.65	0.73
pH	5.3	4.44	5.07	5.11	4.93	4.98	5.34	5.02	4.86	4.79	4.88	5.11	4.97	5.01	4.93	4.98	4.87	4.75	5.02	5.08	5.11	5.1	5.16	5.42
ORP, mV	31.5	12.1	50.2	71.6	105.4	71.7	96.2	11.1	105.7	65..1	47.1	13.6	4.7	-56.8	-13.2	-57.4	-86.7	-124.4	-106.9	-56.9	-114.5	11	-32.1	-44.2
Monitoring Well 4																								
DO, mg/L	0.46	0.29	0.61	0.78	0.26	0.31	0.78	0.45	0.5	0.26	0.86	0.85	1.38	1.14	0.73	1.02	0.19	0.13	0.41	0.23	0.21	0.36	0.63	0.58
pH	5.16	5.05	4.85	4.92	4.85	4.77	4.97	4.77	4.69	4.71	4.71	4.99	4.96	5.4	5.45	5.54	5.55	5.63	6.05	5.97	6.12	6.16	6.27	6.23
ORP, mV	19.4	8.7	93	113.6	87.2	100.9	116.4	70.3	81.2	73.9	92.1	-24.4	-39.5	-14.9	-55.2	-108.5	-84.1	-110.4	-151.1	-118.7	-134.6	-78.4	-88.3	-92.1
Monitoring Well 5																								
DO, mg/L	0.58	0.16	0.8	1.01	0.28	0.39	0.51	0.47	0.36	0.41	0.59	0.41	1.09	0.77	0.63	1.44	0.62	0.73	1.49	0.76	1.62	1.87	2.26	2.18
pH	5.05	5.14	5.24	5.19	5.03	4.87	5.12	4.98	4.86	4.81	4.71	4.81	4.79	4.77	4.73	4.75	4.64	4.65	4.7	4.62	4.47	4.24	5.18	4.83
ORP, mV	54.5	0.9	55	81.5	37.5	32.3	33.8	50.7	42.3	51.1	92.1	52.3	85.2	91.8	-58.1	103.8	91.2	96.3	54	73.4	94.1	-27.6	-21.2	-101.2
Monitoring Well 003-35																								
DO, mg/L		0.98	0.96	1.08	3.88	0.36	4.96	4.34	2.9	3.38	3.69	0.43	3.7	4.81	3.66	6.43	4.73	4.53	4.89	4.16	4.67	0.47	0.45	0.43
pH		5.09	5.27	5.12	5.19	4.54	5.04	4.75	4.63	4.55	4.54	4.44	4.61	4.85	4.83	4.78	4.48	4.47	4.47	4.49	4.51	5.42	5.45	5.47
ORP, mV		10.1	106.8	130.1	169.6	188.2	135.4	160.9	187.8	169.5	176.1	51.7	129	146.7	49.5	94.4	105	116	27	8	49.5	-94	-86	-79.3
Monitoring Well 003-53																								
DO, mg/L	0.45	0.23	0.92	1.1	2.7	2.39	4.55	3.89	2.56	2.79	3.09	2.31	3.39	0.47	4.44	5.61	3.86	5.36	5.12	3.83	4.77	0.65	0.78	0.81
pH	4.49	5.21	5.29	5.25	5.13	5.13	5.09	4.99	4.98	4.86	4.81	4.87	4.76	4.54	5.31	4.77	4.75	4.76	4.75	4.65	4.61	5.19	5.87	5.93
ORP, mV	91.2	3.3	103.1	128.3	115.7	106	116.5	113.1	131.1	100	107.3	77.1	91.7	27.6	-19.1	56.5	39.8	3.8	-23	-7.8	4	-61	-90.2	-88.8
Monitoring Well 003-73																								
DO, mg/L	0.45	0.3	0.69	0.97	1.46	1.87	4.83	3.8	2.78	2.84	3.57	0.75	2.39	4.82	4.89	5.31	2.41	2.26	2.12	2.31	3.93	0.36	0.91	0.79
pH	4.54	4.76	5.17	5.03	4.94	4.91	4.91	4.86	4.86	4.73	4.75	4.85	4.87	5.06	4.78	5.4	5.49	5.83	6.3	6.18	6.34	6.33	6.37	6.35
ORP, mV	78.2	7.1	94.8	119.6	144.6	131.7	149.8	152.6	152.1	104.2	38.2	-68.5	7.7	-20.4	61.1	-26.6	-33.5	-60.8	-110.7	-78.6	-73.2	-99.6	-71.2	-64.2
Monitoring Well 003-121																								
DO, mg/L		0.16	0.71	0.92	0.26	0.33	0.39	0.44	0.46	0.29	0.47	0.46	0.64	1.22	1.66	2.44	1.92	1.9	1.99	1.85	2.32	1.6	1.14	0.92
pH		8.7	8.01	8.23	9.34	8.17	9.35	9.19	8.71	9.09	8.95	8.8	8.85	8.85	8.69	8.8	8.62	8.51	8.55	8.13	8.31	6.9	6.85	6.81
ORP, mV		-7.9	-83.4	-114.3	-139.2	-55.6	-106.3	-110.3	-121.1	-103.5	-92.7	-70.1	-135.9	-80.9	-71.9	143	9.1	-55.5	49	80.6	-9.4	1.5	-64.5	-79.6

Blank indicates no measurement recorded.
Data is from Operator Log Sheets.

TABLE 3-2

SUMMARY OF TCE CONCENTRATIONS
NORTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	3/14/2006	4/5/2006	4/13/2006	5/16/2006	7/21/2006
Sampling Event Number	**1**	**VS**	**3**	**Second VS**	**7**
IW2					
TCE, µg/L	15.2		173		138
MW1					
TCE, µg/L	18.8		175	187	150
MW2					
TCE, µg/L	15.4		169		161
003-73					
TCE, µg/L	56	167	187	188	151
MW3					
TCE, µg/L	128		248	193	177
MW4					
TCE, µg/L	19.5		196		134
MW5					
TCE, µg/L	126		196		323
003-53					
TCE, µg/L	10.9		11.8		11.1
EW					
TCE, µg/L		213		172	
003-35					
TCE, µg/L		29.3			

Blanks indicate no analysis was performed.

TABLE 3-3

SUMMARY OF GEOCHEMICAL AND BIOLOGICAL INDICATOR CONCENTRATIONS
NORTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Location	**Injection Well 2 (IW2)**			**Monitoring Well 1 (MW1)**		
Date	**3/14/2006**	**4/13/2006**	**7/21/2006**	**3/14/2006**	**4/13/2006**	**7/21/2006**
Event Number	**1**	**3**	**7**	**1**	**3**	**7**
Lactic Acid, mg/L	<0.1	97.4	> 10	<0.1	< 10.0	< 10.0
Propionic Acid, mg/L	<0.07	6.27	30	<0.07	54.4	34
Acetic Acid, mg/L	<0.07	8.46	33	<0.07	45.6	35
Ethene, µg/L	0.17	0.04	0.16	0.079	0.036	0.11
Ethane, µg/L	0.019	0.022	0.025	0.014	0.018	0.028
Methane, µg/L	4.8	5.7	550	2.7	7.5	130
Field CO2, mg/L	50	140	100	52	110	100
Field DO, mg/L	0.6	0.8	0.3	1	0.4	0.4
Field Alkalinity, mg/L	40	300	< 10	< 10.0	225	< 10
Field Ferrous Iron, mg/L	0.66	0.1	0.32	0.58	0.16	0.2
Iron Filtered (Lab), µg/L	393	440	378	361	198	25.1
Sulfate, mg/L	27.9	11	6.1	39.5	7.3	6.4
Field Hydrogen Sulfide, mg/L	NM	> 5	> 5	0.5	> 5	> 5
Chloride, mg/L	9.6	10.6	9.1	9.4	12.3	8.9
Sodium, µg/L	16,800	146,000	NM	17,700	111,600	NM
PCR, cells/mL	NM	2.8	< 1	2.7	7.53	12.1
BAV1 VC Reductase, cells/mL	NM	0.107 J	< 1	< 0.714	0.453 J	< 0.769
TCE Reductase, cells/mL	NM	< 0.333	< 1	1.16	< 1.67	< 0.769
VC Reductase, cells/mL	NM	0.247 J	< 1	NM	1.2 J	< 0.769

TABLE 3-3

SUMMARY OF GEOCHEMICAL AND BIOLOGICAL INDICATOR CONCENTRATIONS
NORTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Location	**Monitoring Well 2 (MW2)**			**Monitoring Well 003-73**		
Date	**3/14/2006**	**4/13/2006**	**7/21/2006**	**3/14/2006**	**4/13/2006**	**7/21/2006**
Event Number	**1**	**3**	**7**	**1**	**3**	**7**
Lactic Acid, mg/L	0.074	< 10.0	< 10.0	<0.1	< 10.0	< 10.0
Propionic Acid, mg/L	<.07	34.9	43	<0.07	39.4	38
Acetic Acid, mg/L	0.056	39.9	38	<0.07	39.5	36
Ethene, µg/L	0.043	0.026	0.077	0.047	0.042	0.066
Ethane, µg/L	0.009	0.014	0.024	0.012	0.021	0.025
Methane, µg/L	7.2	6.7	140	5.2	8.3	130
Field CO2, mg/L	65	250	160	47	230	140
Field DO, mg/L	0.8	0.8	0.8	0.8	0.8	0.8
Field Alkalinity, mg/L	30	< 10.0	< 10	< 10	< 10	< 10
Field Ferrous Iron, mg/L	0.92	0.28	0.2	0.51	0.08	0.2
Iron Filtered (Lab), µg/L	406	377	34.5	535	63.5	39.3
Sulfate, mg/L	24.3	8	15.3	22.1	7.1	14.2
Field Hydrogen Sulfide, mg/L	0.5	5	> 5	0.7	5	> 5
Chloride, mg/L	9.9	11.4	8.9	9.5	11.4	9
Sodium, µg/L	11,300	14,200	NM	4,810	36,000	NM
PCR, cells/mL	17.7	2.82	1.49	NM	NM	NM
BAV1 VC Reductase, cells/mL	7.64	< 0.333	< 1	NM	NM	NM
TCE Reductase, cells/mL	8.27	< 0.333	< 1	NM	NM	NM
VC Reductase, cells/mL	NM	0.122 J	< 1	NM	NM	NM

TABLE 3-3

SUMMARY OF GEOCHEMICAL AND BIOLOGICAL INDICATOR CONCENTRATIONS
NORTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Location	**Monitoring Well 3 (MW3)**			**Monitoring Well 4 (MW4)**		
Date	**3/14/2006**	**4/13/2006**	**7/21/2006**	**3/14/2006**	**4/13/2006**	**7/21/2006**
Event Number	**1**	**3**	**7**	**1**	**3**	**7**
Lactic Acid, mg/L	<0.1	< 10.0	< 10.0	<0.1	< 10.0	<10.0
Propionic Acid, mg/L	<0.07	14.2	73	<.07	40.1	42
Acetic Acid, mg/L	<0.07	20.3	60	0.067	40.4	38
Ethene, µg/L	0.043	0.04	0.09	0.09	0.036	0.091
Ethane, µg/L	0.009	0.022	0.028	0.014	0.023	0.024
Methane, µg/L	4.6	5.7	250	6.7	7.2	210
Field CO2, mg/L	40	70	95	55	80	100
Field DO, mg/L	0.8	0.6	0.6	1	0.6	0.8
Field Alkalinity, mg/L	11.2	< 10	12	40	< 10.0	< 10.0
Field Ferrous Iron, mg/L	0.68	1.88	0.23	0.76	0.42	0.2
Iron Filtered (Lab), µg/L	713	1,620	57	653	319	188
Sulfate, mg/L	50.5	15.6	15.8	32.3	7.1	14.5
Field Hydrogen Sulfide, mg/L	1	5	> 5	0.3	2	> 5
Chloride, mg/L	9	11.2	9.1	10	11.5	8.9
Sodium, µg/L	19,800	8,840	NM	14,200	39,990	NM
PCR, cells/mL	NM	NM	NM	NM	NM	NM
BAV1 VC Reductase, cells/mL	NM	NM	NM	NM	NM	NM
TCE Reductase, cells/mL	NM	NM	NM	NM	NM	NM
VC Reductase, cells/mL	NM	NM	NM	NM	NM	NM

NM - Not measured.
Event 1 was the baseline event.
J - Estimated value less than the detection limit.

TABLE 3-4

SUMMARY OF WATER LEVEL ELEVATIONS
NORTHERN PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date	3/15/06	3/16/06	3/17/06	3/20/06	3/22/06	3/23/06	3/24/06	3/27/06	3/29/06	3/31/06	4/3/06	4/5/06	4/7/06	4/10/06	4/12/06	4/14/06	4/17/06	4/21/06	5/4/06	5/8/06	5/15/06	5/23/06	5/25/06	6/14/06
Water Level Elevation (Feet NGVD)																								
EW	68.86	69.69	69.87	69.81	69.79	69.69	69.72	69.38	69.20	69.19	69.25	69.23	68.97	70.44	68.74	69.07	68.39	67.78	68.15	68.06	67.74	65.15	67.90	68.10
MW2	71.36	70.90	71.15	71.08	70.94	70.92	70.88	70.51	70.44	70.38	70.39	70.35	70.20	70.48	70.01	69.74	69.51	69.41	69.35	69.19	68.91	69.31	68.89	68.96
003-73	71.34	71.33	71.42	71.38	71.21	71.15	71.14	70.76	70.72	70.65	70.66	70.63	70.51	70.43	70.30	69.84	69.65	69.66	69.53	69.43	69.17	69.57	69.16	69.33
MW1	71.29	71.53	71.72	71.69	71.51	71.43	71.40	71.01	71.06	70.95	70.94	70.91	70.83	70.49	70.57	70.07	69.84	69.95	69.82	69.70	69.44	69.86	69.41	69.47
IW1	78.54	71.70	71.82	71.77	71.59	73.49	73.33	73.20	71.17	71.01	71.54	71.02	72.02	71.61	71.78	71.30	72.46	75.01	71.06	70.91	74.54	76.86	70.73	70.20
IW2	70.82	74.13	74.62	74.49	77.12	70.52	70.45	70.06	72.74	72.50	72.66	72.63	72.66	69.40	72.72	71.17	68.84	69.05	72.58	75.66	68.37	68.78	73.38	68.21
MW3	71.00	70.77	71.50	71.60	71.33	71.40	71.34	70.96	70.88	70.74	70.69	70.74	70.63	70.54	70.41	69.99	69.85	69.90	69.80	69.52	69.40	69.83	69.30	69.29
MW4	71.40	71.25	71.49	71.33	71.27	71.19	71.14	70.75	70.79	70.69	70.71	70.64	70.54	70.48	70.33	69.89	69.67	69.68	69.59	69.51	69.19	69.62	69.19	69.38
MW5	71.31	70.86	71.13	71.01	70.90	70.88	70.88	70.51	70.40	70.33	70.36	70.32	70.17	70.43	69.95	69.69	69.47	69.39	69.21	69.14	68.92	69.25	68.89	69.15
Water Level Elevations Relative to EW (well el - EW el) (Feet)																								
EW	0	0	0	0	0	0	0	0	0	0	0	0	0	*0*	0	0	0	0	0	0	0	*0*	0	0
MW2	2.50	1.21	1.28	1.27	1.15	1.23	1.16	1.13	1.24	1.19	1.14	1.12	1.23	*0.04*	1.27	0.67	1.12	1.63	1.20	1.13	1.17	*4.16*	0.99	0.86
003-73	2.48	1.64	1.55	1.57	1.42	1.46	1.42	1.38	1.52	1.46	1.41	1.40	1.54	*-0.01*	1.56	0.77	1.26	1.88	1.38	1.37	1.43	*4.42*	1.26	1.23
MW1	2.43	1.84	1.85	1.88	1.72	1.74	1.68	1.63	1.86	1.76	1.69	1.68	1.86	*0.05*	1.83	1.00	1.45	2.17	1.67	1.64	1.70	*4.71*	1.51	1.37
IW1	9.68	2.01	1.95	1.96	1.80	3.80	3.61	3.82	1.97	1.82	2.29	1.79	3.05	*1.17*	3.04	2.23	4.07	7.23	2.91	2.85	6.80	*11.71*	2.83	2.10
IW2	1.96	4.44	4.75	4.68	7.33	0.83	0.73	0.68	3.54	3.31	3.41	3.40	3.69	*-1.04*	3.98	2.10	0.45	1.27	4.43	7.60	0.63	*3.63*	5.48	0.11
MW3	2.14	1.08	1.63	1.79	1.54	1.71	1.62	1.58	1.68	1.55	1.44	1.51	1.66	*0.10*	1.67	0.92	1.46	2.12	1.65	1.46	1.66	*4.68*	1.40	1.19
MW4	2.54	1.56	1.62	1.52	1.48	1.50	1.42	1.37	1.59	1.50	1.46	1.41	1.57	*0.04*	1.59	0.82	1.28	1.90	1.44	1.45	1.45	*4.47*	1.29	1.28
MW5	2.45	1.17	1.26	1.20	1.11	1.19	1.16	1.13	1.20	1.14	1.11	1.09	1.20	*-0.01*	1.21	0.62	1.08	1.61	1.06	1.08	1.18	*4.10*	0.99	1.05

Water level measurements were made during operation.
Wells are shown in order from extraction to injection. MW3 and MW4 are sidegradient, and MW5 is downgradient of the extraction well.

4.0 DISCUSSION

4.1 REDUCTIONS IN CONTAMINANTS

Laboratory results prior to the pilot study showed that the primary contaminant in the groundwater in the area of the northern pilot study was TCE. The concentration of TCE was 1,100 µg/L, and the concentration of cis-1,2-DCE was 6.1 µg/L in well CEF-59-003-73 during the RI. This RI data had been used to select the location of the pilot study. The observation of little or no cis-1,2-DCE is typical throughout Site 59. In the baseline sampling prior to the startup of the pilot system (Event 1), the TCE concentrations in the pilot study wells ranged from 15.2 to 128 µg/L. The TCE concentrations in samples collected one month later increased to 173 to 248 µg/L. No cis-1,2-DCE was detected. In the final sampling event, the TCE concentrations in all but one (MW5) well decreased. The initial low concentrations in the baseline samples may be attributable to a dilution effect from the water used in the well installation. Subsequent increases in TCE concentrations are from groundwater flowing in from adjacent areas. However, TCE concentrations were never observed as high as those in the RI. Verification sampling of CEF-59-003-73 confirmed the low TCE concentrations. It is assumed that a spike was measured during the RI and subsequent sampling is this area may have been diluted by the recirculation system.

The reason for the decreased in TCE concentrations in most of the wells between Event 3 and Event 7 is uncertain. The general reduction in concentrations could be the result of biological degradation. However, the absence of cis-1,2-DCE suggests that there is little biological degradation of TCE, although the generation of metabolic acids and increase in carbon dioxide and methane suggests that there is biological activity. The increase in the TCE concentration in MW5 could be the result of the extraction well pulling contaminated water in from a downgradient location.

4.2 CHANGES IN NATURAL ATTENUATION PARAMETERS

DO, pH, and ORP were routinely measured as part of the routine inspection and were the primary means of monitoring the condition of the pilot system. DO concentrations were usually less than 1 mg/L, indicating anaerobic conditions. At most wells, there was an occasional instance where the DO was greater than 1 mg/L. There were several weeks in the middle of the study when the DO concentrations in MW2 and MW3 were greater than 1 mg/L. Similarly, during the last few measurements made during the study, the DO concentrations in MW5 and EW were greater than 1 mg/L. The reasons for the high DO concentrations are uncertain. During the first few weeks of operation, air was leaking into the system because of subatmospheric pressures in the system. Valve settings were adjusted to maintain a positive pressure in most of the system. Another explanation of elevated DO measurements could be error in the

performance of the DO analysis and sample collection. However, this is difficult to clarify. DO in the IWs and monitoring wells was probably consumed by aerobic activity after the sodium lactate was added. Elevated DO concentrations may also be the result of the extraction well pulling in groundwater with relatively high DO concentrations.

The negative ORP values appear to be consistent with the DO levels. ORP values in most of the pilot area encompassed by IW1, IW2, MW1, MW2, MW3, and MW4 decreased well into the negative range after 4 to 6 weeks on sodium lactate injection. The ORP levels did increase slightly toward the end of the operation. The reason for this increase is uncertain.

The pH reached the minimum target value of 6 in the injection wells in about 1 week and in a space of 4 to 6 weeks, the pH in most of the downgradient wells had reached 6 to 6.5. The pH of the sidegradient wells (MW3 and MW4) gradually increased, although the study was stopped before the pH of MW3 reached 6. The bicarbonate feed rate was sufficient to raise the pH of the groundwater into the target range.

Ferrous iron - Prior to the pilot study, the ferrous iron concentrations were 0.5 to 0.9 mg/L. During the course of the study, the ferrous iron concentrations decreased. This result is unusual in that the observed anaerobic conditions favor the reduction of iron and an increase in ferrous iron concentrations. The filtered iron concentrations also decreased over the course of the study.

Alkalinity – Prior to the pilot study, alkalinity concentrations were less than 10 mg/L to 40 mg/L. By Event 3, alkalinity in the IW2 and MW1 had risen to 225 to 300 mg/L, but then decreased to less than 10 in the final sampling event. There was little or no change in the alkalinity of the other wells. The natural alkalinity demand of the aquifer probably consumed the bicarbonate alkalinity before it could travel too far from the injection wells.

Carbon dioxide – Prior to the pilot study, carbon dioxide concentrations were 40 mg/L to 65 mg/L. By Event 3, the carbon dioxide concentrations in IW2, MW1, MW2, and CEF-59-003-73 were in the range of 110 to 250 mg/L, but decreased to a range of 100 to 160 mg/L by the last sampling event. In the sidegradient wells MW3 and MW4, the carbon dioxide concentrations were in the range of 70 to 80 mg/L at Event 3, but decreased to a range of 95 to 100 mg/L by the last sampling event. The increase in the carbon dioxide concentrations is probably the result of biological activity from the degradation of the sodium lactate and the conversion of bicarbonate to carbon dioxide.

Methane concentrations changed very little between the baseline and Event 3. However, in the final sampling event, the methane concentration in the injection well had increase by approximately a factor of

100, and in the other wells including the sidegradient wells, the increase was approximately a factor of 10. Ethane and ethane concentrations were very low at the start and increased slightly. The increase in methane concentrations is attributable to anaerobic degradation of the sodium lactate. The minor increases in ethene could be attributable to degradation of TCE.

Metabolic acids – No metabolic acids were detected during the baseline sampling. However, in the Event 3 samples, the concentrations of acetic acid and propionic acid increased significantly. Lactic acid was detected only in the injection well in Event 3 and Event 7. These results indicate biological activity from the addition of the sodium lactate.

Sulfate – Prior to the pilot study, the sulfate concentration range was 20 to 50 mg/L. During Event 3, the sulfate concentration range decreased to 7 and 15 mg/L. This decrease is typical of anaerobic degradation.

Sulfide – Prior to the pilot study, sulfide concentrations were less than 1 mg/L. Over the course of the study, the field sulfide concentrations increase to greater than 5 mg/L. The increase in sulfide concentrations is consistent with the decrease in sulfate concentrations.

Chloride – Prior to the pilot study, the chloride concentration range was 9 to 10 mg/L. There was very little change in chloride concentrations during the study, which is consistent with the low concentrations of TCE.

Overall, the trends of the geochemical parameters suggest conditions favorable to anaerobic biological activity.

4.3 PCR INTERPRETATION

PCR analyses were performed at the baseline, three weeks after the start of the sodium lactate injection, and during the final sampling event. The PCR analysis included TCE reductase, BAV1 VC reductase, and VC reductase functional genes. In the baseline, DHC and functional genes were measured at trace levels in the three wells sampled. In the subsequent sampling events, DHC and functional genes were measured at trace levels or were undetected in the three wells sampled. The population of DHC was not significant.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

There is no naturally occurring population of microorganisms at Site 59 that promote the reductive dechlorination of TCE. This is indicated by laboratory analyses and by the absence of degradation of TCE after the sodium lactate was been injected.

There is insufficient organic material in the Site 59 plume to promote reductive dechlorination.

Conditions favorable to anaerobic biological degradation of contaminants can be developed by the addition of sodium lactate and sodium bicarbonate.

5.2 RECOMMENDATION

The loadings and circulations rates used in the northern pilot study are sufficient for the distribution of chemicals to enhance bioremediation. The system design needs to include sufficient additional capacity to address uncertainties in the electron donor mass loading requirements and buffering requirements.

REFERENCES

TtNUS, 2004. Remedial Investigation Work Plan, Site Operable Unit 9, Site 59 - Buildings 324/1845 Area, Naval Air Station Cecil Field, Jacksonville, Florida, August 2004.

TtNUS, 2006. Pilot Study Work Plan for In Situ Bioremediation, Site Operable Unit 9, Site 59 - Buildings 324/1845 Area, Naval Air Station Cecil Field, Jacksonville, Florida, January 2006.

ATTACHMENT A

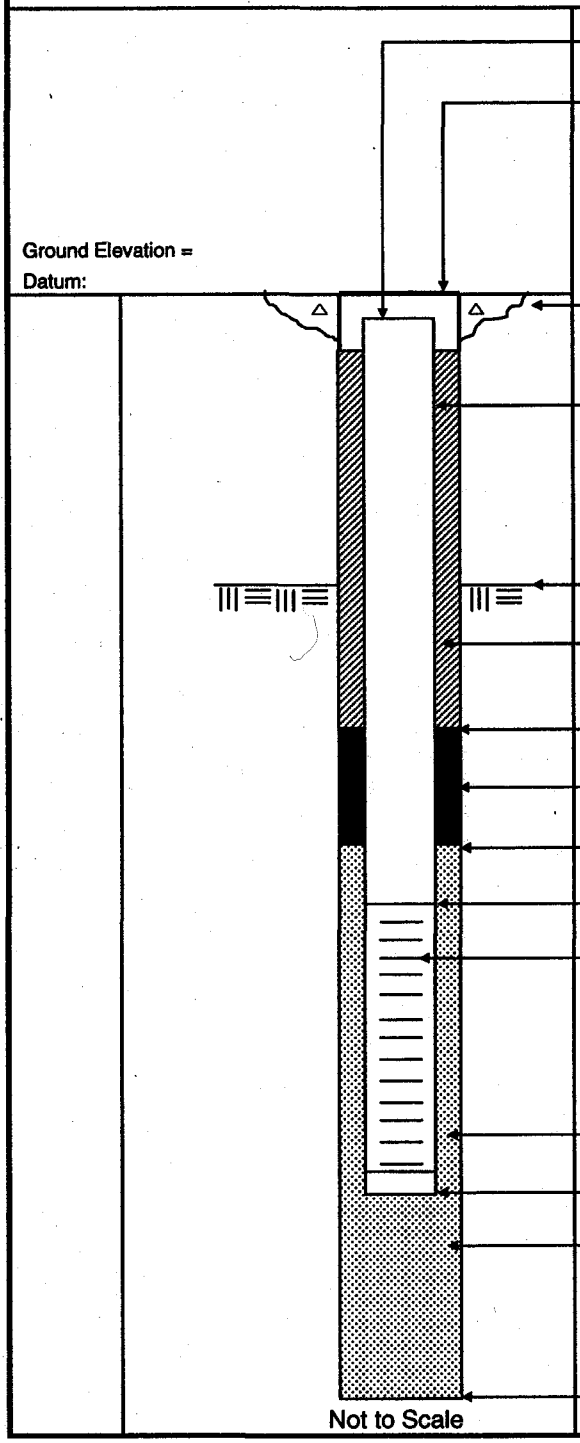
MONITORING WELL CONSTRUCTION SHEETS AND MONITORING WELL DEVELOPMENT RECORDS

Tetra Tech NUS, Inc.

WELL No.: CEF-059-IW1

MONITORING WELL SHEET

PROJECT:	Site 59	DRILLING Co.:	Miller Drilling	BORING No.:	059-IW-1
PROJECT No.:	N8925	DRILLER:	Harlen Upchurch	DATE COMPLETED:	2/22/06
SITE:	Site 59	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	Pete Leverette	DEV. METHOD:	Pump	EASTING:	



- Elevation / Depth of Top of Riser: 1 3"
- Elevation / Height of Top of Surface Casing: 1 Land Surface
- I.D. of Surface Casing: 12"
- Type of Surface Casing: Steel Manhole
- Type of Surface Seal:
- I.D. of Riser: 4"
- Type of Riser: Sch 40 PVC
- Borehole Diameter: 6 1/4"
- Elevation / Depth Top of Rock: 1 NA
- Type of Backfill: Grout
- Elevation / Depth of Seal: 162'
- Type of Seal: Bentonite
- Elevation / Depth of Top of Filter Pack: 164'
- Elevation / Depth of Top of Screen: 165'
- Type of Screen: Sch. 40 PVC
- Slot Size x Length: 0.020" x 10'
- I.D. of Screen: 4"
- Type of Filter Pack: 20/30 Sand
- Elevation / Depth of Bottom of Screen: 175'
- Elevation / Depth of Bottom of Filter Pack: 175'
- Type of Backfill Below Well: Natural Sand
- Elevation / Total Depth of Borehole: 176.0'

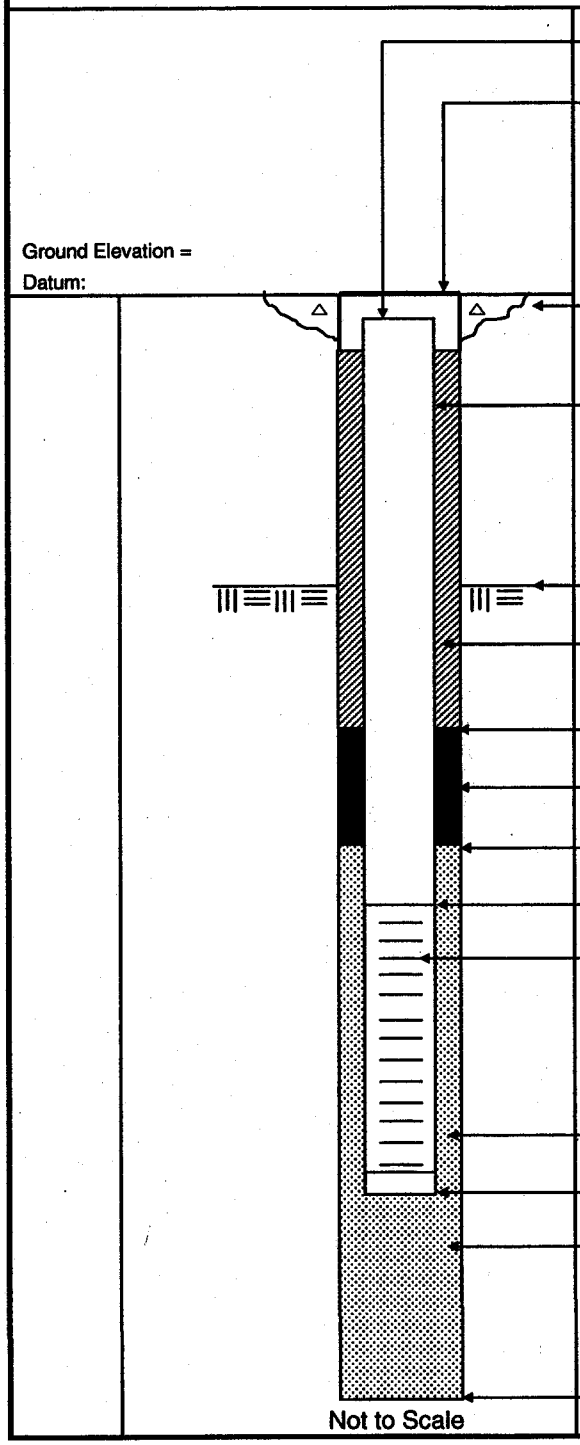
1

Tetra Tech NUS, Inc.

WELL No.: CEF-059-IW2

MONITORING WELL SHEET

PROJECT:	Site 59	DRILLING Co.:	Miller Drilling	BORING No.:	059-IW2
PROJECT No.:	N8925	DRILLER:	Harley Underwood	DATE COMPLETED:	2/24/06
SITE:	Site 59	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	Pete Leverette	DEV. METHOD:	Pump	EASTING:	



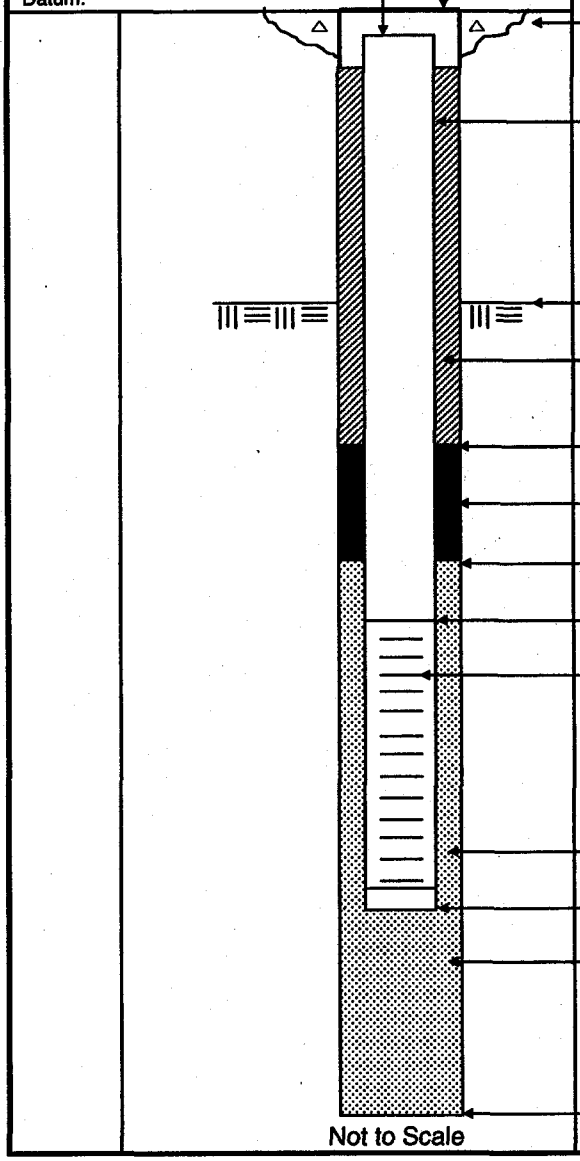
- Elevation / Depth of Top of Riser: 1 3"
- Elevation / Height of Top of Surface Casing: 1 Land Surface
- I.D. of Surface Casing: 12"
- Type of Surface Casing: Steel Manhole
- Type of Surface Seal:
- I.D. of Riser: 4"
- Type of Riser: Sch. 40 PVC
- Borehole Diameter: 6 1/4"
- Elevation / Depth Top of Rock: 1 NA
- Type of Backfill: Grout
- Elevation / Depth of Seal: 1 62'
- Type of Seal: Bentonite
- Elevation / Depth of Top of Filter Pack: 1 64'
- Elevation / Depth of Top of Screen: 1 65'
- Type of Screen: Sch. 40 PVC
- Slot Size x Length: 0.020" x 10'
- I.D. of Screen: 4"
- Type of Filter Pack: 20/30 Sand
- Elevation / Depth of Bottom of Screen: 1 75'
- Elevation / Depth of Bottom of Filter Pack: 1 75'
- Type of Backfill Below Well: Natural Sand
- Elevation / Total Depth of Borehole: 1 76'

Tetra Tech NUS, Inc.

WELL No.: CEF-059-MW1

MONITORING WELL SHEET

PROJECT:	Site 59	DRILLING Co.:	Miller Drilling	BORING No.:	059-MW1
PROJECT No.:	N8925	DRILLER:	Harley Hathaway	DATE COMPLETED:	2/25/06
SITE:	Site 59	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	Pete Leverette	DEV. METHOD:	Pump	EASTING:	



Elevation / Depth of Top of Riser: 1 3"

Elevation / Height of Top of Surface Casing: 1 Land Surface

I.D. of Surface Casing: 8"

Type of Surface Casing: Steel Manhole

Type of Surface Seal: Cement

I.D. of Riser: 2"

Type of Riser: Sch. 40 PVC

Borehole Diameter: 4 1/4"

Elevation / Depth Top of Rock: 1 NA

Type of Backfill: Grout

Elevation / Depth of Seal: 165'

Type of Seal: Bentonite

Elevation / Depth of Top of Filter Pack: 167'

Elevation / Depth of Top of Screen: 168'

Type of Screen: Sch. 40 PVC

Slot Size x Length: 0.010" x 5'

I.D. of Screen: 2"

Type of Filter Pack: 20/30 Sand

Elevation / Depth of Bottom of Screen: 173'

Elevation / Depth of Bottom of Filter Pack: 173'

Type of Backfill Below Well: Natural Sand

Elevation / Total Depth of Borehole: 174'

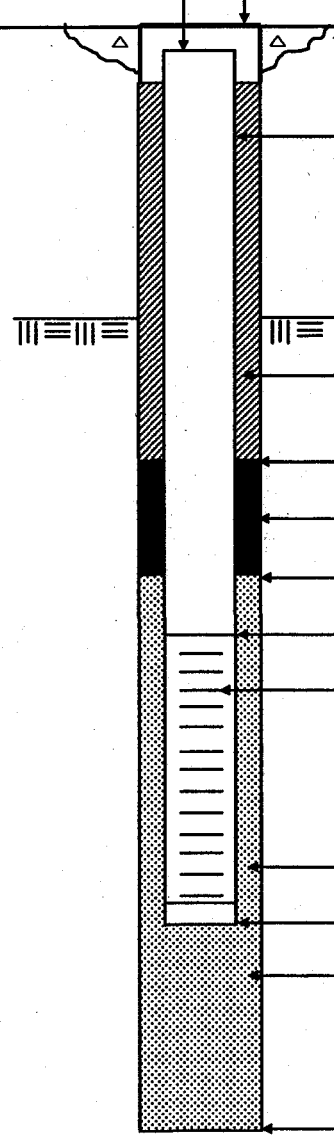
[redacted] Tetra Tech NUS, Inc.

WELL No.: CEF-059-MW2

MONITORING WELL SHEET

PROJECT:	Site 59	DRILLING Co.:	Miller Drilling	BORING No.:	059-MW2
PROJECT No.:	N8925	DRILLER:	Harley Urchurch	DATE COMPLETED:	2/26/06
SITE:	Site 59	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	Pete Leverette	DEV. METHOD:	Pump	EASTING:	

Ground Elevation =
Datum:



Not to Scale

Elevation / Depth of Top of Riser: 1 3"

Elevation / Height of Top of Surface Casing: 1 Land Surface

I.D. of Surface Casing: 8"

Type of Surface Casing: Steel Manhole

Type of Surface Seal: Cement

I.D. of Riser: 2"

Type of Riser: Sch. 40 PVC

Borehole Diameter: 4 1/4"

Elevation / Depth Top of Rock: 1 NA

Type of Backfill: Grout

Elevation / Depth of Seal: 1 65'

Type of Seal: Bentonite

Elevation / Depth of Top of Filter Pack: 1 67'

Elevation / Depth of Top of Screen: 1 68'

Type of Screen: Sch. 40 PVC

Slot Size x Length: 0.010" x ~~10~~ 5'

I.D. of Screen: 2"

Type of Filter Pack: 20/30 Sand

Elevation / Depth of Bottom of Screen: 1 73'

Elevation / Depth of Bottom of Filter Pack: 1 73'

Type of Backfill Below Well: Natural Sand

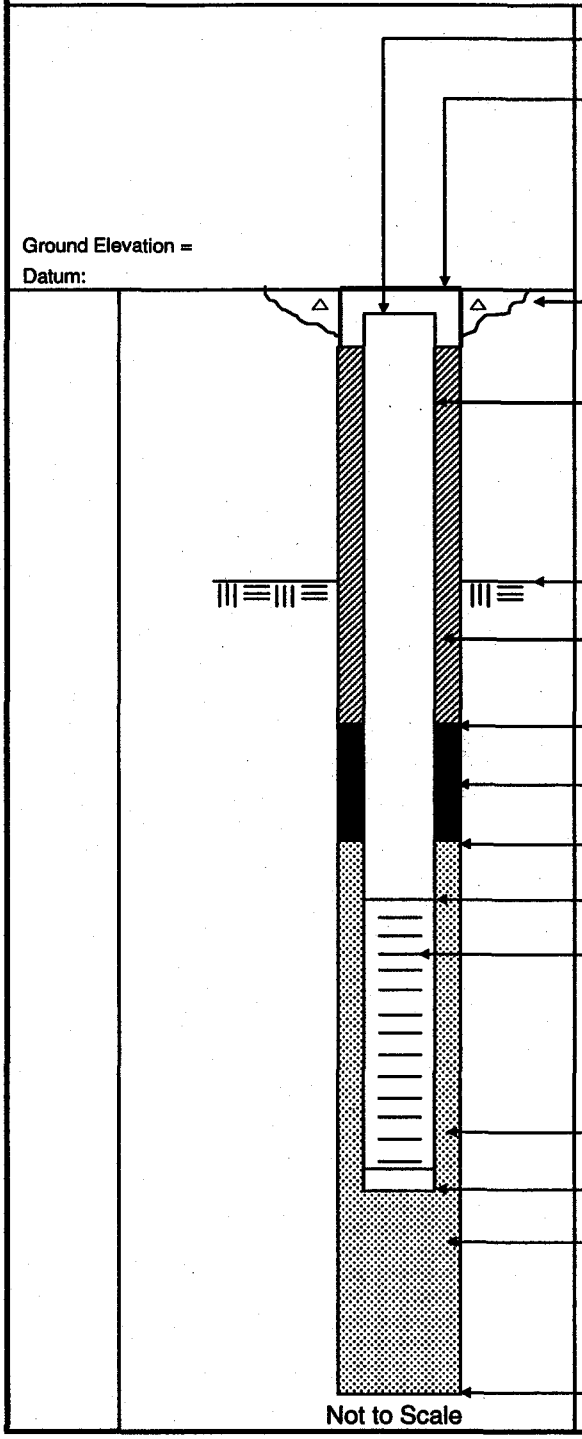
Elevation / Total Depth of Borehole: 1 74'

Tetra Tech NUS, Inc.

WELL No.: KEF-059-MW3

MONITORING WELL SHEET

PROJECT:	Site 59	DRILLING Co.:	Miller Drilling	BORING No.:	059-MW3
PROJECT No.:	N8925	DRILLER:	Harley Upchurch	DATE COMPLETED:	2/23/06
SITE:	Site 59	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	Pete Leverette	DEV. METHOD:	Pump	EASTING:	



Elevation / Depth of Top of Riser: 1 3"

Elevation / Height of Top of Surface Casing: 1 Land Surface

I.D. of Surface Casing: 8"

Type of Surface Casing: Steel Manhole

Type of Surface Seal: Cement

I.D. of Riser: 2"

Type of Riser: Sch. 40 PVC

Borehole Diameter: 4 1/4"

Elevation / Depth Top of Rock: 1 NA

Type of Backfill: Grout

Elevation / Depth of Seal: 165'

Type of Seal: Bentonite

Elevation / Depth of Top of Filter Pack: 167'

Elevation / Depth of Top of Screen: 168'

Type of Screen: Sch. 40 PVC

Slot Size x Length: 0.010" x 5'

I.D. of Screen: 2"

Type of Filter Pack: 20/30 Sand

Elevation / Depth of Bottom of Screen: 173'

Elevation / Depth of Bottom of Filter Pack: 173'

Type of Backfill Below Well: Natural Sand

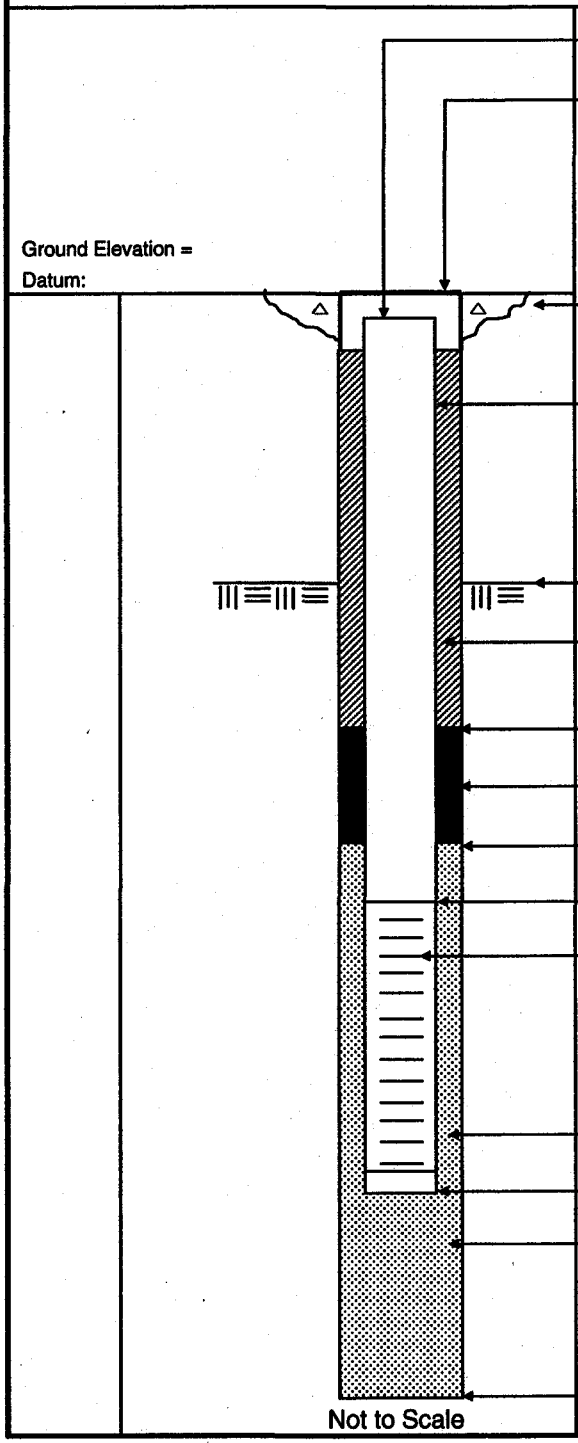
Elevation / Total Depth of Borehole: 174'

Tetra Tech NUS, Inc.

WELL No.: CEF-059-MW4

MONITORING WELL SHEET

PROJECT:	Site 59	DRILLING Co.:	Miller Drilling	BORING No.:	059-MW4
PROJECT No.:	N8925	DRILLER:	Harley Hemphill	DATE COMPLETED:	2/26/06
SITE:	Site 59	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	Pete Leverette	DEV. METHOD:	Pump	EASTING:	



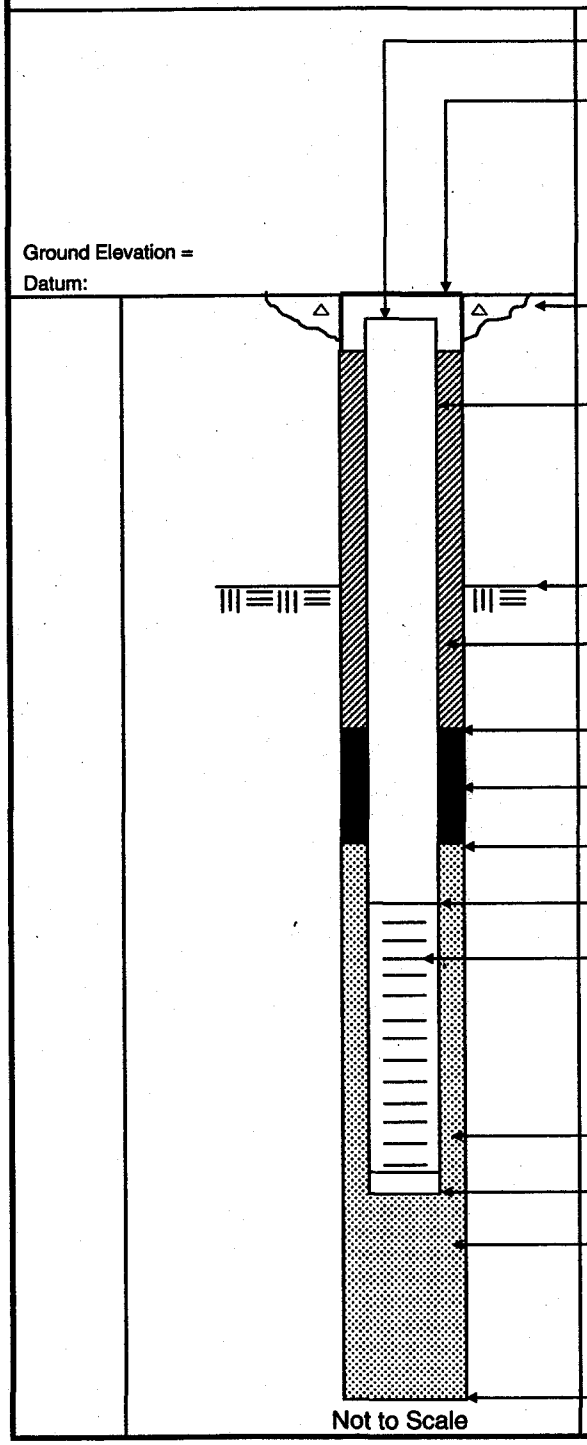
- Elevation / Depth of Top of Riser: 1 3"
- Elevation / Height of Top of Surface Casing: 1 Land Surface
- I.D. of Surface Casing: 8"
- Type of Surface Casing: Steel Manhole
- Type of Surface Seal: Cement
- I.D. of Riser: 2"
- Type of Riser: Sch. 40 PVC
- Borehole Diameter: 4 1/4"
- Elevation / Depth Top of Rock: 1 NA
- Type of Backfill: Grout
- Elevation / Depth of Seal: 1 65'
- Type of Seal: Bentonite
- Elevation / Depth of Top of Filter Pack: 1 67'
- Elevation / Depth of Top of Screen: 1 68'
- Type of Screen: Sch. 40 PVC
- Slot Size x Length: 0.010" x 5'
- I.D. of Screen: 2"
- Type of Filter Pack: 20/30 Sand
- Elevation / Depth of Bottom of Screen: 1 73'
- Elevation / Depth of Bottom of Filter Pack: 1 73'
- Type of Backfill Below Well: Natural Sand
- Elevation / Total Depth of Borehole: 1 74'

Tetra Tech NUS, Inc.

WELL No.: CEF-059-MW5

MONITORING WELL SHEET

PROJECT:	Site 59	DRILLING Co.:	Miller Drilling	BORING No.:	059-MW5
PROJECT No.:	N8925	DRILLER:	Harley Upchurch	DATE COMPLETED:	2/28/06
SITE:	Site 59	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	Pete Leverette	DEV. METHOD:	Pump	EASTING:	



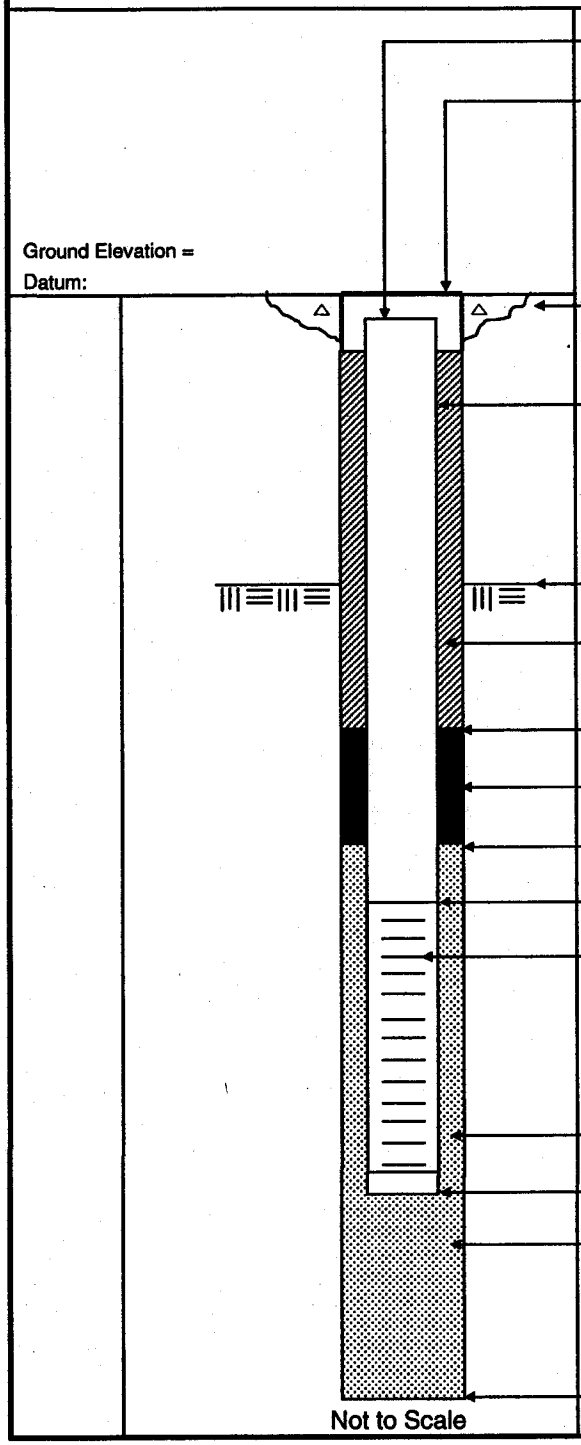
- Elevation / Depth of Top of Riser: 1.3'
- Elevation / Height of Top of Surface Casing: 1 (And Surface)
- I.D. of Surface Casing: 8"
- Type of Surface Casing: Steel Manhole
- Type of Surface Seal: Cement
- I.D. of Riser: 2"
- Type of Riser: Sch. 40 PVC
- Borehole Diameter: 4 1/4"
- Elevation / Depth Top of Rock: 1 NA
- Type of Backfill: Grout
- Elevation / Depth of Seal: 1 65'
- Type of Seal: Bentonite
- Elevation / Depth of Top of Filter Pack: 1 67'
- Elevation / Depth of Top of Screen: 1 68'
- Type of Screen: Sch. 40 PVC
- Slot Size x Length: 0.010 x 10' (10)
- I.D. of Screen: 2"
- Type of Filter Pack: 20/30 Sand
- Elevation / Depth of Bottom of Screen: 1 73'
- Elevation / Depth of Bottom of Filter Pack: 1 73'
- Type of Backfill Below Well: Natural Sand
- Elevation / Total Depth of Borehole: 1 74'

Tetra Tech NUS, Inc.

WELL No.: CEF-059-EW

MONITORING WELL SHEET

PROJECT:	Site 59	DRILLING Co.:	Miller Drilling	BORING No.:	059-EW
PROJECT No.:	N8925	DRILLER:	Harley Upchurch	DATE COMPLETED:	2/27/06
SITE:	Site 59	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	Pete Leverette	DEV. METHOD:	Pump	EASTING:	



Elevation / Depth of Top of Riser: 1 3"

Elevation / Height of Top of Surface Casing: 1 (AND SURFACE

I.D. of Surface Casing: 12"

Type of Surface Casing: STEEL MANHOLE

Type of Surface Seal:

I.D. of Riser: 4"

Type of Riser: SCH. 40 PVC

Borehole Diameter: 6 1/4"

Elevation / Depth Top of Rock: 1 NA

Type of Backfill: GROUT

Elevation / Depth of Seal: 1 62'

Type of Seal: BENTONITE

Elevation / Depth of Top of Filter Pack: 1 64'

Elevation / Depth of Top of Screen: 1 65'

Type of Screen: SCH. 40 PVC

Slot Size x Length: 0.020 X 10'

I.D. of Screen: 4"

Type of Filter Pack: 20/30 SAND

Elevation / Depth of Bottom of Screen: 1 75'

Elevation / Depth of Bottom of Filter Pack: 1 75'

Type of Backfill Below Well: NATURAL SAND

Elevation / Total Depth of Borehole: 1 76'

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: CEF-059-TW1
Site: 59
Date Installed: 2/22/06
Date Developed: 3/1/06
Dev. Method: Pump
Pump Type: Twister

Depth to Bottom (ft.): 75'
Static Water Level Before (ft.): 7.69
Static Water Level After (ft.): 8.11
Screen Length (ft.): 10'
Specific Capacity: NA
Casing ID (in.): 4"

Responsible Personnel: Pete leverette
Drilling Co.: Miller Drilling
Project Name: Site 59 Pilot Study
Project Number: 112GN0039

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units: mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1034	5"	–	7.69	–	–	–	–	START DEV.
1044	–	18	9.13	22.74	5.01	0.118		BRN
1054	–	37	9.59	22.66	5.45	0.115		"
1104	–	55	9.63	22.66	5.14	0.114		LT. BRN
1114	–	74	9.64	22.66	5.09	0.109		"
1124	–	91	9.64	22.65	5.01	0.103		CLEAR
1134	–	110	9.64	22.65	5.00	0.101		STOP CLEAR

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: CEF-059-IW2
Site: 59
Date Installed: 2/24/06
Date Developed: 3/1/06
Dev. Method: Pump
Pump Type: Twister

Depth to Bottom (ft.): 75'
Static Water Level Before (ft.): 5.95
Static Water Level After (ft.): 6.13
Screen Length (ft.): 10'
Specific Capacity: NA
Casing ID (in.): 4"

Responsible Personnel: Pete leverette
Drilling Co.: Miller Drilling
Project Name: Site 59 Pilot Study
Project Number: 112GN0039

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units: mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1225	4"	–	5.95	–	–	–	–	START DEV.
1235	–	22	~~5.23~~ 7.85	22.56	5.54	0.199		BRN
1245	–	44	~~5.43~~ 7.86	22.62	5.23	0.127		"
1255	–	66	~~5.17~~ 7.87	22.56	5.17	0.110		LT. BRN
1305	–	88	~~6.03~~ 7.87	22.60	5.08	0.096		CLEAR
1315	–	110	7.87	22.58	5.03	0.091		CLEAR STOP

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: CEF-059-MW1
Site: 59
Date Installed: 2/25/06
Date Developed: 3/1/06
Dev. Method: Pump
Pump Type: Twister

Depth to Bottom (ft.): 73'
Static Water Level Before (ft.): 7.42
Static Water Level After (ft.): 7.92
Screen Length (ft.): 5'
Specific Capacity: NA
Casing ID (in.): 2"

Responsible Personnel: Pete leverette
Drilling Co.: Miller Drilling
Project Name: Site 59 Pilot Study
Project Number: 112GN0039

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units: mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1330	3"	—	7.42	—	—	—	—	START DEV.
1335	—	10	8.11	22.68	5.38	0.132		BRN
1340	—	19	8.76	22.69	5.29	0.165		"
1345	—	28	8.76	22.72	5.11	0.122		LT. BRN
1350	—	37	8.76	22.70	5.02	0.117		"
1355	—	46	8.76	22.71	4.96	0.101		CLEAR
1400	—	55	8.76	22.72	4.93	0.100		STOP CLEAR

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: CEF-059-MW2
Site: 59
Date Installed: 2/24/06
Date Developed: 3/2/06
Dev. Method: Pump
Pump Type: Twister

Depth to Bottom (ft.): 73'
Static Water Level Before (ft.): 5.28
Static Water Level After (ft.): 5.73
Screen Length (ft.): 5'
Specific Capacity: NA
Casing ID (in.): 2"

Responsible Personnel: Pete leverette
Drilling Co.: Miller Drilling
Project Name: Site 59 Pilot Study
Project Number: 112GN0039

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units: mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
0757	3"	—	5.28	—	—	—	—	START DEV.
0807	—	12	6.52	22.44	5.84	0.146		CLOUDY BROWN
0817	—	24	6.47	22.45	5.65	0.116		"
0827	—	37	6.47	22.47	5.55	0.107		"
0837	—	50	6.47	22.48	5.49	0.100		"
0847	—	62	6.47	22.49	5.44	0.096		LIGHT BRN
0857	—	74	6.47	22.49	5.40	0.092		LIGHT BRN
0907	—	86	6.47	22.49	5.38	0.089		LIGHT BROWN
0917	—	98	6.47	22.49	5.35	0.086		CLEAR
0925	—	110	6.47	22.49	5.32	0.084		CLEAR STOP DEV.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: CEF-059-MW3
Site: 59
Date Installed: 2/23/06
Date Developed: 3/1/06
Dev. Method: Pump
Pump Type: Twister

Depth to Bottom (ft.): 73'
Static Water Level Before (ft.): 8.78
Static Water Level After (ft.): 9.02
Screen Length (ft.): 5'
Specific Capacity: NA
Casing ID (in.): 2"

Responsible Personnel: Pete leverette
Drilling Co.: Miller Drilling
Project Name: Site 59 Pilot Study
Project Number: 112GN0039

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units: mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
0925	4"	—	8.78	—	—	—	—	START DEV.
0935	—	22	11.18	22.68	4.92	0.107		BRN
0945	—	44	11.24	22.69	4.79	0.093		"
0955	—	66	11.24	22.71	4.70	0.087		LT. BRN
1005	—	88	11.24	22.72	4.60	0.080		CLEAR
1015	—	110	11.24	22.72	4.56	0.072		STOP CLEAR

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: CEF-059-MW4
Site: 59
Date Installed: 2/24/06
Date Developed: 3/1/06
Dev. Method: Pump
Pump Type: Twister

Depth to Bottom (ft.): 73'
Static Water Level Before (ft.): 7.68
Static Water Level After (ft.): 8.11
Screen Length (ft.): 5'
Specific Capacity: NA
Casing ID (in.): 2"

Responsible Personnel: Pete leverette
Drilling Co.: Miller Drilling
Project Name: Site 59 Pilot Study
Project Number: 112GN0039

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units: mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1410	2"	–	7.68	–	–	–	–	START DEV.
1415	–	12	8.08	22.53	5.61	0.132		STOP FUSE BLEW
1425	–	24	7.75	-	–	–	–	START
1427	-	-		22.52	5.58	0.126		STOP FUSE BLEW
1452	-	27		-	-	–	–	START
1457	–	-		22.50	5.55	0.113		STOP FUSE BRN
1514	-	35	7.72	–	-	–	-	START
1521	-	44	8.05	22.51	5.43	0.108		BRN
1526	–	53	8.63	22.50	5.26	0.097		"
1536	–	60	8.85	22.49	5.17	0.091		LT. BRN
1546	-	66	8.95	22.48	5.14	0.085		LT. BRN
1554	-	73	8.95	22.48	5.10	0.083		CLEAR
1600	-	80	8.95	22.47	5.07	0.082		STOP CLEAR

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: CEF-059-MW5
Site: 59
Date Installed: 2/28/06
Date Developed: 3/2/06
Dev. Method: Pump
Pump Type: Twister

Depth to Bottom (ft.): 73'
Static Water Level Before (ft.): 5.15
Static Water Level After (ft.): 5.38
Screen Length (ft.): 5'
Specific Capacity: NA
Casing ID (in.): 2"

Responsible Personnel: Pete leverette
Drilling Co.: Miller Drilling
Project Name: Site 59 Pilot Study
Project Number: 112GN0039

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units: mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
0937	3"	-	5.15	-	-	-	-	START DEV.
0947	-	11	6.09	22.98	5.11	0.073		CLOUDY BRN
0957	-	21	5.98	22.91	5.10	0.071		"
1007	-	31	5.81	23.01	5.07	0.069		"
1017	-	42	6.20	23.31	5.01	0.068		"
1027	-	51	6.20	22.81	4.85	0.063		LT. BRN
1037	-	62	~~6.25~~ 6.25	22.81	4.82	0.061		LT. BRN
1047	-	71	6.25	22.83	4.70	0.059		LT. BRN
1057	-	83	6.25	22.83	4.68	0.058		CLEAR
1107	-	95	6.25	22.84	4.67	0.057		CLEAR
1115	-	110	6.25	22.83	4.67	0.056		CLEAR STOP DEV.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: CEF-059-EW
Site: 59
Date Installed: 2/27/06
Date Developed: 3/2/06
Dev. Method: Pump
Pump Type: Twister

Depth to Bottom (ft.): 75'
Static Water Level Before (ft.): 5.33
Static Water Level After (ft.): 5.87
Screen Length (ft.): 10'
Specific Capacity: NA
Casing ID (in.): 4"

Responsible Personnel: Pete leverette
Drilling Co.: Miller Drilling
Project Name: Site 59 Pilot Study
Project Number: 112GN0039

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units: mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1127	4"	11	5.33	~~22.87~~	—	—	—	START DEV.
1137	—	22	6.28	22.86	5.66	0.160		CLOUDY BRN
1147	—	33	6.32	22.84	5.68	0.47		"
1157	—	44	6.39	22.81	5.45	0.128		"
1207	—	55	6.47	22.78	5.26	0.109		"
1217	—	68	6.45	22.80	5.09	0.094		"
1227	—	82	6.45	22.80	5.04	0.086		"
1237	—	95	6.45	22.79	4.98	0.080		"
1247	—	110	6.45	22.86	4.95	0.077		"
1257	—	122	6.45	22.84	4.91	0.073		"
1307	—	137	6.45	22.85	4.91	0.074		"
1317	—	152	6.45	22.87	4.90	0.071		"
1322	—	165	6.45	22.88	4.89	0.070		" END DEV.

ATTACHMENT B

OPERATOR LOG SHEETS

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 3/15/06 Weather 80°F Sunny
Personnel RS, PL, TC BASELINE

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	8.43	~~6.68~~	6.68	6.33	5.98	7.49	5.81	5.77	✓	5.57	6.08	✓
DO, mg/L	0.31*	~~0.15~~	0.15	0.31	0.22	0.50	0.46	0.58	✓	0.45	0.45	✓
pH	4.91*	~~5.80~~	5.80	5.32	5.42	5.70	5.16	5.05	✓	4.49	4.54	✓
ORP, mV	-30.9*	~~-39.2~~	-39.2	8.6	-29.1	31.5	19.4	54.5	✓	91.2	78.2	✓
YSI stabilization time, minutes	—	—	—	—	—	—	—	—	—	—	—	—

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., uS/cm	DO, % mg/L
	22.67	73	3.8% / 0.31 mg/L

Extraction Well flow rate	
Rate, gpm	BASELINE
Time of day	

Run meter	
Reading	—
Time of day	—

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	—	—	—

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump frequency, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	BASELINE									
Bicarbonate										

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added:	gal water added:
	Bicarbonate	lb added:	gal water added:
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N):			

Samples Collected

Notes: EW Prior to start up elev: 6.39' after start 8.60'

RS - Rob Simcik
PL - Pete Leverette
TC - Terry Cottenoir

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 3/16/06 Weather 70°F Sunny

Personnel Terry Cottenoir Pump Rate YSI reading @ 700 mL/min

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	7.60	6.84	3.37	6.09	6.44	7.12	5.96	6.22	5.33	6.03	6.09	7.08
DO, mg/L	2.5*	—	0.36	0.27	0.16	0.49	0.29	0.16	0.98	0.23	0.30	0.16
pH	4.48*	—	4.79	4.90	4.78	4.44	5.05	5.14	5.09	5.21	4.76	8.70
ORP, mV	10.1*	—	5.6	8.6	8.5	12.1	8.7	6.9	10.1	3.3	7.1	-7.9
YSI stabilization time, minutes	—	—	15 min	15	15	15	15	15	15	15	15	15 min

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., uS/cm	DO, %
	23.02	66	1.9

Extraction Well flow rate		
Rate, gpm	3.0	3.2
Time of day	0848	1050

Run meter	
Reading	16.4
Time of day	0848

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	—	—	—

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump frequency, %		Pump rate, GPH	
	start of day	end of day	[redacted]	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate										
Bicarbonate	Recirc. Only									

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)

Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added:	gal water added:
	Bicarbonate	lb added:	gal water added:
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N):			

Samples Collected	

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 3/17/06 Weather 75°F Sunny

Personnel Terry Cottenoir

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	7.42	6.72	2.88	5.90	6.19	6.99	5.72	5.95	5.37	5.58	6.00	6.54
DO, mg/L	1.21*	1.39	0.89	0.68	0.69	0.65	0.61	0.80	0.96	0.92	0.69	0.71
pH	4.86*	5.90	4.85	4.87	4.94	5.07	4.85	5.24	5.27	5.29	5.17	8.01
ORP, mV	11.0*	67.2	58.0	107.8	86.4	50.2	93.0	55.0	106.8	103.1	94.6	-83.4
YSI stabilization time, minutes	—	15m	15	15	15	15	15	15	15	15	15	15 min

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., uS/cm	DO, %
	22.5	0.065	12.9

TOTAL FLOW ~ 6,500 gal

	Extraction Well flow rate	
Rate, gpm	2.85	3.1
Time of day	0730	0800

Run meter	
Reading	38.9
Time of day	0730

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	1.5 psi	0 psi	0 psi

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump frequency, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate										
Bicarbonate	RECIRC Only									

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)

Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added:	gal water added:
	Bicarbonate	lb added:	gal water added:
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N):			

Samples Collected

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 3/20/06 Weather 70° F, Sunny
Personnel Terry Cottenior

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	7.48	6.77	3.01	5.93	6.26	6.89	5.88	6.07	5.39	5.83	6.04	6.82
DO, mg/L	NC*	1.43	1.13	0.91	0.89	0.69	0.78	1.01	1.08	1.10	0.97	0.96
pH	NC*	5.84	4.76	4.79	5.02	5.11	4.92	5.19	5.12	5.25	5.03	8.23
ORP, mV	NC*	69.4	77.2	121.3	101.8	71.6	113.6	81.5	130.1	128.6	119.6	-114.3
YSI stabilization time, minutes	—	15min	15	15	15	15	15	15	15	15	15	15 min

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., uS/cm	DO, %
	NC	NC	NC

Couldn't find key to trailer.

Extraction Well flow rate		
Rate, gpm	NC	NC
Time of day	NC	NC

Run meter	
Reading	NC
Time of day	NC

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	NC	NC	NC

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump frequency, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	Recirc Only									
Bicarbonate										

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added:	gal water added:
	Bicarbonate	lb added:	gal water added:
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N):			

Samples Collected	

Notes: Unable to gain access into System Trailer.

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 3/22/06 Weather Sunny 70s
Personnel P. Levasseur

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	7.50	6.95	0.38	6.11	6.40	7.16	5.94	6.18	5.28	5.72	6.21	6.85
DO, mg/L	3.5*	1.70	0.28	0.46	0.29	0.65	0.26	0.28	3.88	2.70	1.46	0.26
pH	4.74*	5.55	6.93	5.28	4.92	4.93	4.85	5.03	5.19	5.13	4.94	9.34
ORP, mV	31.7*	114.2	-80.2	84.8	61.3	105.4	87.2	37.5	169.6	115.7	144.6	-139.2
YSI stabilization time, minutes	10	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., uS/cm	DO, %
	22.97	0.065	3.9

Flow totalizer 22,380.5 gal 0853

Extraction Well flow rate			
Rate, gpm	2.7	3.0	3.0
Time of day	0902	1340	1555

Run meter		
Reading	135.7	142.25
Time of day	0904	1551555

Pressure Gauges	P1 (filter influent)		P2 (post-filter)		P3 (effluent)	
Reading, psig	1.3	<1 1555	<1	<1 1555	<1	<1 1555

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump frequency, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate			40	37.3	NA	NA	0.48	✓	0.19	Same
Bicarbonate			132	120	0.77	✓	0.7	✓	2.16	Same

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:			
	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 6	gal water added: 0
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N):			

Samples Collected	

Notes:

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NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 3/23/06 Weather 60°F CLOUDY & RAINY
Personnel P. LENERETTE → NEW T.O.C.

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	7.60	5.05	6.98	6.19	6.42	7.09	6.02	6.20	5.40	5.69	6.27	6.80
DO, mg/L	0.69*	2.04	0.38	0.43	0.20	0.59	0.31	0.39	0.36	2.39 ~~5.13~~	1.87	0.33
pH	4.60*	5.82	6.40	5.06	4.68	4.98	4.77	4.87	4.54	5.13	4.91	8.17
ORP, mV	87.1*	70.9	-1.5	104.6	43.9	71.7	100.9	32.3	188.2	106.0	131.7	-55.6
YSI stabilization time, minutes	15	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., uS/cm	DO, %
	22.80	0.072	8.3

→ FLOW TOTALIZER 26421.1 gal 0836

Extraction Well flow rate		
Rate, gpm	2.9	2.9
Time of day	0835	1414

Run meter		
Reading	158.85	164.5
Time of day	0837	1415

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	<1 0839	<1 0839	<1 0839

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump frequency, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate			35	34	NA	NA	0.45	0.45	0.18	0.18
Bicarbonate			80	67	0.75	0.75	0.70	0.70	2.1	2.1

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 0	gal water added: 0
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N):			

Samples Collected	

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 3/24/05 Weather overcast, 60s
Personnel WA, PL

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	7.57	6.21	7.05	6.22	6.46	7.15	6.07	6.20	5.43	5.72	6.28	6.74
DO, mg/L	0.40*	2.20	0.73	0.98	0.48	1.44	0.78	0.51	~~4.96~~ 0.39	4.55	4.83	~~9.35~~
pH	4.73*	6.48	6.26	5.34	5.16	5.34	4.97	5.12	5.04	5.09	4.91	9.35
ORP, mV	81.4*	13.2	-29.4	65.1	51.2	96.2	116.4	33.8	135.4	116.5	149.8	-106.3
YSI stabilization time, minutes	15	15	16	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., uS/cm	DO, %
	22.81	0.073	5.4

flow totalizer 30489.1 08:32

Extraction Well flow rate		
Rate, gpm	2.8	2.9
Time of day	08:35	13:57

Run meter		
Reading	182.8	188.2
Time of day	08:35	13:55

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	<1	<1	<1

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump frequency, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	—	—	28	27	—	—	.45	~~2.45~~	0.18	0.18
Bicarbonate	—	—	22	130	.75	.75	.70	.70	2.10	2.10

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 43.0	gal water added: 120
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N):	N		

Samples Collected	

Notes:

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NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 3-27-06 Weather Clear, 70's
Personnel LH

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	7.91	5.34	7.44	6.61	6.83	7.53	6.46	6.57	5.68	6.00	6.66	7.32
DO, mg/L	0.79*	1.16	0.41	1.06	0.48	0.91	0.45	0.47	4.34	3.89	3.80	0.44
pH	4.73*	6.57	5.84	5.14	6.00	5.02	4.77	4.98	4.75	4.99	4.86	9.19
ORP, mV	73.3*	-18.9	-79.7	64.4	68.9	11.1	70.3	50.7	160.9	113.1	152.6	-10.3
YSI stabilization time, minutes	15	15	15	15	15	15	15[2]	15	15	15	15	15
* Recorded from in-line YSI meter.				1.0	0.4	1.0	0.4	0.6	4.5	4.8	4.0	0.5

00 Field hit - 0.8 1.20

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., uS/cm	DO, %
	23.00	0.088	8.9

totalizer = 42197.9
10:20

Extraction Well flow rate		
Rate, gpm	2.7	
Time of day	1020	

Run meter		
Reading	256.7	
Time of day	1020	

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	L/	L/	L/

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump frequency, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate			13		-	-	0.415	0.416	0.18	0.18
Bicarbonate			20		0.7	0.7	0.75	~~2.0~~ 0.5	2.1	2.1
Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)										
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH										

Chemical tanks refilled?:			
	Lactate	gal solution added: 2.75 ~~2.06~~	gal water added: ~~15~~ 20
	Bicarbonate	lb added: 4/6.6	gal water added: 130
Chemical Feed Off:	Time Stopped: 0905	Time Restarted:	~~1505~~ 1546
Filter check (Y/N):	N		

Samples Collected	

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 3/29/06 Weather 75°F Sunny
Personnel P. LEVELETTE

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	8.09	7.37	4.76	6.56	6.90	7.61	6.42	6.68	5.85	6.15	6.70	7.42
DO, mg/L TEST KIT	0.65*	0.31 0.3	0.47 0.4	(1.0) 1.24	0.49	0.68	0.50	0.36	2.90	2.56	2.78	0.46
pH	4.79*	6.70	6.72	5.46	4.84	4.86	4.69	4.86	4.63	4.98	4.86	8.71
ORP, mV	86.8*	-27.9	-83.8	15.8	111.7	105.7	81.2	42.3	187.8	131.1	152.1	-121.1
YSI stabilization time, minutes	15	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., uS/cm	DO, %
	23.05	0.068	7.7

Flow Totalizer
49092.9
0845

Extraction Well flow rate		
Rate, gpm	2.5	2.9
Time of day	0840	1500

Run meter		
Reading	303.0	309.1
Time of day	0847	1458

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	<1	<1	<1

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump frequency, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate			32	31	NA	NA	45	0.45	0.18	0.18
Bicarbonate			50	119	0.75	0.75	0.70	0.70	2.1	2.1

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:			
	Lactate	gal solution added: 1.0	gal water added: 0
	Bicarbonate	lb added: 29	gal water added: 80
Chemical Feed Off:	Time Stopped: 0857	Time Restarted: 0905	
Filter check (Y/N):	Y		

Samples Collected	

Notes: CHANGED FILTER & PUT A BALL VALVE IN PLACE OF THE CHECK VALVE

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 3-31-06 Weather Clear, 70's
Personnel WH

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	6.67	6.96	[redacted]75	[redacted]	6.55	5.94	[redacted]	[redacted]	[redacted]2
[redacted]	0.74	[redacted]	[redacted]21	[redacted]								[redacted] 0.29
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]58	[redacted]				[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]*	[redacted]5	[redacted]	-19.7	[redacted]		[redacted]3	[redacted]		[redacted]0	[redacted]	[redacted]5
[redacted]	[redacted]5	[redacted]5	[redacted]	[redacted]	[redacted]5	[redacted]	[redacted]5	15	[redacted]	[redacted]	[redacted]	[redacted]

* [redacted]

0.2 0.2 0.3

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., uS/cm	DO, %
	23.08	0.060	8.5

totalizer = 56954.4
0930

Extraction Well flow rate		
Rate, gpm	2.8	2.9
Time of day	0925	1435

Run meter		
Reading	351.5	356.6
Time of day	0920	1430

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	3.5	<1	<1

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump frequency, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate		[redacted]				—	.45	[redacted]	0.18	0.18
Bicarbonate			[redacted]							2.1

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate N	gal solution added: —	gal water added: —
	Bicarbonate	lb added: 43	gal water added: 120
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N):	N		

Samples Collected	

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 4 ~~3~~ 06 Weather Overcast, 70's
Personnel WH

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	8.04	7.00	7.84	6.68	6.95	7.80	6.50	6.72	6.09	6.32	6.70	7.32
DO, mg/L	0.21	0.25	0.27	2.22	1.81	1.12	0.86	0.59	3.69	3.09	3.57	0.47
pH	4.65*	6.76	4.82	5.63	5.07	4.88	4.85	4.71	4.54	4.81	4.75	8.95
ORP, mV	1.8*	-17.6	-1.8	-18.4	107.8	47.1	47.8	92.1	178.1	107.3	38.2	-92.7
YSI stabilization time, minutes	15	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

00 RF 10.2 | 0.2 | 2.0 1

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., uS/cm	DO, %
	23.13	59480	2.4

totalizer 68238.9
0830

Extraction Well flow rate		
Rate, gpm	2.9	2.9
Time of day	0835	1455

Run meter		
Reading	421.6	428.1
Time of day	0825	1500

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	5	L1	L1

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump frequency, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	—	—	15		-	-	0.45	0.45	0.18	0.18
Bicarbonate	—	—	0	150	0.7	0.7	0.75	0.75	2.1	2.1

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:				
	Lactate	gal solution added: 2.44 ~~6~~ 4.81	gal water added: ~~35~~ 25	
	Bicarbonate	lb added: 150	gal water added: 53.8	
Chemical Feed Off:	Time Stopped:	0825	Time Restarted:	1500
Filter check (Y/N):	N			

Samples Collected	

Notes: Bicarbonate tank empty on arrival

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 4/5/06 Weather 75°F SUNNY
Personnel WES HARDEN & TERRY COTTENOIR

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	8.06	7.52	4.87	6.71	6.99	7.75	6.57	6.76	6.15	6.38	6.79	7.26
DO, mg/L	0.87*	0.17	0.76	0.29	1.87	1.23	0.85	0.41	0.43	2.31	0.75	3.46
pH	4.69*	6.85	6.83	5.87	5.14	5.11	4.99	4.81	4.44	4.87	4.85	8.80
ORP, mV	30.4*	-58.0	-123.5	-107.4	0.8	13.6	-24.4	52.3	51.7	77.1	-68.5	-70.1
YSI stabilization time, minutes	15	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., uS/cm	DO, %
	23.00	73	10.8

10.2 10.2

totalizer 75851.9

Extraction Well flow rate		
Rate, gpm	2.7	2.7
Time of day	0832	1526

Run meter		
Reading	4769.6	476.5
Time of day	0830	1524

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	6.5	4.1	4.1

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump frequency, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate			35	35	—	—	.415	.415	0.18	0.18
Bicarbonate			148	130	.7	.7	.75	.75	2.1	2.1

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:			
	Lactate	gal solution added: —	gal water added: —
	Bicarbonate	lb added: 35.8	gal water added: 100.0
Chemical Feed Off:	Time Stopped: —	Time Restarted: —	
Filter check (Y/N):	N		

Samples Collected	CEF-059-003-73 & CEF-059-003-35 FOR Verification of BASELINE SAMPLING (VOCs)

Notes:
LACTATE PUMP WAS AIR BOUND AND NO OPERATING.

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 4/7/06 Weather 80°F SUNNY

Personnel WES HARDEN & TERRY COTTENOIR

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	8.32	7.62	4.84	6.79	7.14	7.86	6.67	6.41	6.25	6.48	6.91	7.30
DO, mg/L	0.75*	0.34	0.41	0.31	2.29	1.83	1.38	1.09	3.70	3.39	2.59	0.64
pH	4.55*	6.78	6.66	5.95	5.06	4.97	4.96	4.79	4.61	4.76	4.87	8.85
ORP, mV	46.4* ~~0.067~~	-148.2	-126.1	-100.1	5.7	4.7	-39.5	85.2	122.0	91.7	7.7	-135.9
Spec. Cond., mS/cm	0.067	0.544	0.711	0.203	0.079	0.081	0.080	0.081	0.081	0.076	0.098	0.405
YSI stabilization time, minutes	15	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

DO KIT 10.3 10.3 10.3

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.20	0.067	7.2

[redacted]

Extraction Well flow rate		
Rate, gpm	2.8	2.0
Totalizer	[redacted]	89.1
Time of day	[redacted]	0152D

Run meter		
Reading	517.8	524.4
Time of day	0825	1515

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	3.5	L1	L1

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	L	-	23	39	X	X	.45	.45	0.18	0.18
Bicarbonate	-	-	30	138	.75	.75	.7	.7	2.1	2.1

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:					
	Lactate	gal solution added: ~~1.37~~ 2.06		gal water added: ~~10~~ 15	
	Bicarbonate	lb added:	45.0	gal water added:	120
Chemical Feed Off:	Time Stopped:	0825	Time Restarted:	0840	
Filter check (Y/N):	Y				

Samples Collected	CEF-059-GW-004-73-VS, CEF-059-GW-004-112-VS, CEF-059-GW-006-50-VS, CEF-059-GW-NG-020-VS, & CEF-059-GW-EW-VS FOR VERIFICATION OF BASELINE SAMPLES. (VOCs)

Notes: Changed 5 micron filter for 10 micron filter. Used filter appears grey & dirty.

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 4-10-06 Weather Clear, 70's
Personnel WH

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	6.85	8.03	8.10	7.13	6.86	7.95	6.73	6.65	6.33	6.59	6.99	7.64
DO, mg/L	* 0.52	0.28	0.39	0.54	3.76	2.60	[redacted]		4.81	[redacted]	[redacted]	[redacted]
pH	* 4.63	6.72	[redacted]	6.08	5.03	5.01	5.40	4.77	4.85	[redacted]	5.06	[redacted]
ORP, mV	* -91.3	-194.2	-79.2	-156.5	7.2	-58.8	-41.9	91.8	146.7	27.6	-20.4	-80.9
Spec. Cond., mS/cm	0.076	0.572	0.079	0.266	0.086	[redacted]	[redacted]		0.090	0.076	0.112	0.448
YSI stabilization time, minutes	15	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

10-3 10-3 10.31

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	22.41	0.076	18.2

Extraction Well flow rate		
Rate, gpm	2.5	3.0
Totalizer	94163.0	95261.6
Time of day	0815	1500

Run meter		
Reading	589.1	592.6
Time of day	0810	1500

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	11	21	21

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	–	–	25	42	X	X	.215	.215	0.18	0.18
Bicarbonate	–	–	20	150	.7	.7	.75	.75	2.1	2.1

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:				
	Lactate	gal solution added: 2 ctr	gal water added: 15	
	Bicarbonate	lb added: 46.6	gal water added: 130	
Chemical Feed Off:	Time Stopped:	0820	Time Restarted:	1500
Filter check (Y/N):	N			

Samples Collected	

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 4-12-06 Weather Clear, 70's
Personnel WH, RL

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	8.55	7.86	4.78	7.05	7.33	8.08	6.88	7.13	6.41	6.66	7.12	7.77
DO, mg/L	1.22*	0.83	0.12	0.08	0.69	3.04	0.73	0.63	3.66	4.44	4.89	1.66
pH	4.69*	6.57	6.48	6.35	4.74	4.93	5.45	4.73	4.83	5.31	4.78	8.69
ORP, mV	-6.2*	-171.9	-167.2	-140.4	-79.5	-13.2	-55.2	-58.1	49.5	-19.1	61.1	-71.9
Spec. Cond., mS/cm	0.071	0.438	0.816	0.628	0.106	0.080	0.150	0.058	0.083	0.133	0.075	0.414
YSI stabilization time, minutes	15	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

D.O. Kit | NA | 10.2 | 10.8 | 10.4 | 10.8 | 12.0 | 10.2 | 10.6 | 12.0 | 13.8 | 14.0 | 11.0 |

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	22.89	0.071	14.6

Extraction Well flow rate		
Rate, gpm	2.9	2.9
Totalizer	101352.3	1024 21.4
Time of day	0815	0825

Run meter		
Reading	630.8	637.0
Time of day	0815	1425

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	3.5	2	2

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	–	–	34	833	X	X	.45	.45	.18	.18
Bicarbonate	–	–	65	132	.95	.95	.7	.7	2.1	2.1

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?: Y	Lactate	gal solution added: –	gal water added: –
	Bicarbonate	lb added: 28.5	gal water added: 80
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N):	Y		

Samples Collected	

Notes:

C:\Documents and Settings\wes.harden\Local Settings\Temporary Internet Files\OLK17\log sheet5.doc

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 4-14-06 Weather clear, 70s
Personnel WH

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	8.22	8.34	6.33	7.55	7.60	8.50	7.32	7.39	6.52	6.92	7.58	7.85
DO, mg/L	0.88*	0.93	0.69	0.83	2.76	3.17	1.02	1.44	6.43	5.61	5.31	2.44
pH	4.71*	6.56	7.10	6.17	5.64	4.98	5.54	4.75	4.78	4.77	5.40	8.88
ORP, mV	-78.0	-186.8	-186.8	-128.3	-22.7	-57.9	-108.5	103.8	94.4	56.5	-26.6	14.3
Spec. Cond., mS/cm	0.071	0.400	2.267	0.267	0.083	0.062	0.264	0.079	0.078	0.076	0.464	0.400
YSI stabilization time, minutes	15	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.84	0.071	104.5

Extraction Well flow rate		
Rate, gpm	1.4	3.2
Totalizer	109413.1	109781.3
Time of day	0735	1140

Run meter		
Reading	678.1	682.3
Time of day	0738	1140

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	L1	L1	L1

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	-	-	24	44	X	X	.45	.45	0.18	0.18
Bicarbonate	-	✓	34	130	.75	.75	.70	.70	2.1	2.1

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?: Y	Lactate	gal solution added: 5.77	gal water added: 15
	Bicarbonate	lb added: 59.6	gal water added: 10
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y/N):	N		

Samples Collected	

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 4/17/06 Weather 85°F, PARTLY CLOUDY
Personnel T. COTTENDIR

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	8.90	7.18	8.66	7.78	7.83	8.64	7.54	7.61	6.75	7.10	7.77	8.56
DO, mg/L	0.60*	0.39	0.25	0.24	1.89	1.13	0.19	0.62	4.73	3.86	2.41	1.92
pH	4.70*	6.49	6.85	6.31	5.05	4.87	5.55	4.64	4.48	4.75	5.49	8.62
ORP, mV	-63.2*	-185.4	-228.1	-158.5	-23.8	-86.7	-84.7	91.2	105.0	39.8	-33.5	9.1
Spec. Cond., mS/cm	0.063	0.350	1.381	0.277	0.077	0.073	0.136	0.050	0.069	0.063	0.161	0.350
YSI stabilization time, minutes	15	15	15	15	15	15	15	15	15	15	15	15
* Recorded from in-line YSI meter.												
DO(Kit), mg/L		<0.6	0.4	0.2								

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.33	0.063	6.9

Extraction Well flow rate		
Rate, gpm	1.9	3.0
Totalizer	117816.4	118356.3
Time of day	0830	1302

Run meter		
Reading	751.1	755.4
Time of day	0832	1254

Pressure Gauges	P1 (filter influent)		P2 (post-filter)		P3 (effluent)	
Reading, psig	<1	6.0	<1	5.5	<1	5.0
TIME	0831	1300	0831	1300	0831	1300

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate			30	30			.45	.45	0.18	0.18
Bicarbonate			0	70	.75	.60	.70	.60	2.1	1.44
Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)										
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH										

Chemical tanks refilled?:			
	Lactate	gal solution added: –	gal water added: –
	Bicarbonate	lb added: 38	gal water added: 70
Chemical Feed Off:	Time Stopped:	0842	Time Restarted: 1303
Filter check (Y/N):	N		

Samples Collected	

Notes: ONLY ADDED 38 lbs of BICARBONATE AND 70 GAL of H_2O BECAUSE WE ONLY HAD 38 lbs of BICARB. MORE IS SUPPOSED TO ARRIVE Wed. 4/19/06.

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 4-19-06 Weather Sunny / 68°F
Personnel Chuck Metz

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %

Extraction Well flow rate		
Rate, gpm	1.8	3.0
Totalizer	123328.3	123570.1
Time of day	0825	1010

Run meter	
Reading	0799.2
Time of day	0830

Pressure Gauges	P1 (filter influent)		P2 (post-filter)		P3 (effluent)	
Reading, psig	<1	6.5	<1	6.5	<1	6
Time	0845	1010	0845	1010	0845	1010

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate			27	27			.45	.45	0.18	0.18
Bicarbonate			9	109	.6	.6	.6	.6	1.44	1.44

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:				
	Lactate	gal solution added: —	gal water added: —	
	Bicarbonate	lb added: 35.8	gal water added: 100	
Chemical Feed Off:	Time Stopped: —		Time Restarted: —	
Filter check (Y/N):	No			

Samples Collected	
	None

Notes: *Lactate pump doesn't appear to be pumping even though it's making pumping noise. Turned pump speed up and opened valve to get it going. Seems to be working now.

* Pressure had dropped to <1 psi and had to be increased again

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 4-21-06 Weather Cloudy, 70's
Personnel MH

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	9.51	4.63	8.45	7.67	7.93	8.59	7.53	7.69	6.94	7.16	7.76	8.39
DO, mg/L *	0.09	0.19	0.21	0.13	0.65	0.22	0.13	0.73	4.53	5.34	2.26	1.90
pH *	4.89	6.23	6.55	6.41	5.24	4.75	5.63	4.65	4.47	4.76	5.83	8.51
ORP, mV *	-115.6	-194.5	-238.7	-219.4	-50.1	-24.4	-110.4	96.3	116.0	[redacted]		-55.5
Spec. Cond., mS/cm	0.089	0.295	0.703	0.366	0.115	0.083	[redacted]		0.071	[redacted]	0.257	0.359
YSI stabilization time, minutes	15	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.28	0.089	7.4

Extraction Well flow rate	
Rate, gpm	[redacted] 3.0
Totalizer	[redacted] 19[redacted]
Time of day	[redacted] 420

Run meter		
Reading	848.0	852.8
Time of day	0920	1415

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	61	61	61

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	-	-	15	42	X	X	0.45	0.45	0.18	0.18
Bicarbonate	-	-	25	10	0.60	0.60	0.60	0.60	1.44	1.44

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?: Y	Lactate	gal solution added: 3.44	gal water added: 25
	Bicarbonate	lb added: ~~63~~ 36.1	gal water added: ~~125~~ 85
Chemical Feed Off: N	Time Stopped:		Time Restarted:
Filter check (Y/N): N			

Samples Collected	

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 4-27-06 Weather Sunny / 78° F, breezy
Personnel Chuck Metz

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	X	X	Y

Extraction Well flow rate		
Rate, gpm		2.7
Totalizer		134174.1
Time of day		1520

Run meter	
Reading	993.6
Time of day	1105

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	2 / 5 (1120 / 1520)	2 / 5 (1120 / 1520)	2 / 5 (1120 / 1520)

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	X	X	42	130	X	X	.45	.45	0.18	0.18
Bicarbonate	X	X	21	35	0.6	0.6	0.6	0.6	1.44	1.44

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?: Yes			
	Lactate	gal solution added: 1.92	gal water added: 14
	Bicarbonate	lb added: 31.7	gal water added: 88
Chemical Feed Off:	Time Stopped: 1105	Time Restarted: 1515	
Filter check (Y/N):	* Added filter		

Samples Collected	

Notes: See log book for details
(1) Added filter back on system
(2) Added new flow meter
(3) Took old flowmeter off and cleaned it.

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 5/4/06 Weather 90°F, SUNNY
Personnel T. COTTENOIR

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	9.14	8.58	4.92	7.80	7.99	8.69	7.62	7.87	7.42	7.57	7.89	7.97
DO, mg/L	0.81*	0.55	0.71 ~~0.78~~	0.59	0.36	0.64	0.41	1.49	4.89	5.12	2.12	1.99
pH	5.07*	6.16	6.64	6.65	5.54	5.02	6.05	4.70	4.47	4.75	6.30	8.55
ORP, mV	-91.9*	-142.0	-151.3	-174.4	-63.5	-106.9	-151.1	54.0	27.0	-23.0	-110.7	49.0
Spec. Cond., mS/cm	0.088	0.267	0.745	0.443	0.123	0.082	0.219	0.051	0.071	0.068	0.525	0.364
YSI stabilization time, minutes	15	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

DO KIT, mg/L | X | 0.1 | 0.6 | 0.3 |

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.18	0.088	9.5

Extraction Well flow rate		
Rate, gpm	2.8	2.9
Totalizer	147571.1	148460.9
Time of day	0835	1358

Run meter		
Reading	1079.3	1084.7
Time of day	0830	1356

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	4.0	2.5	< 1

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	-	-	20	44	X	X	0.45	0.45	0.18	0.18
Bicarbonate	-	-	0	133	0.60	0.60	0.60	0.60	1.44	1.44

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?: Y	Lactate	gal solution added: 3.44	gal water added: 25
	Bicarbonate	lb added: 76	gal water added: 140
Chemical Feed Off: N	Time Stopped:	-	Time Restarted: -
Filter check (Y/N):	N		

Samples Collected	

Notes:

Flow Rate Before P1, gpm :	3.0	3.0
Time of Day :	0836	1357

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 5/8/06 Weather 80°F, PARTLY CLOUDY
Personnel T. COTTENOIR

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	9.23	8.73	1.63	7.92	8.15	8.97	7.70	7.94	7.53	7.68	7.99	8.27
DO, mg/L	* 0.23	0.20	0.18	0.24	0.21	0.18	0.23	0.76	4.16	3.83	2.31	1.85
pH	* 5.07	6.01	5.21	6.43	5.58	5.08	5.97	4.62	4.49	4.65	6.18	8.13
ORP, mV	* -66.3	-108.6	-112.8	-124.2	-56.9	-75.7	-118.7	73.4	8.0	-7.8	-78.6	80.6
Spec. Cond., mS/cm	0.109	0.255	0.116	0.443	0.141	0.075	0.252	0.048	0.072	0.064	0.558	0.354
YSI stabilization time, minutes	15	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

DO KIT, mg/L	[illegible]	0.2	0.3	0.2

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.23	0.109	2.7

Extraction Well flow rate		
Rate, gpm	2.7	2.9
Totalizer	163146.2	164076.9
Time of day	0853	1440

Run meter		
Reading	1175.6	1181.4
Time of day	0851	1441

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	6.0	3.0	2.5

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	–	–	17	40	[illegible]	[illegible]	0.45	0.45	0.18	0.18
Bicarbonate	–	–	0	140	0.60	0.60	0.60	0.60	1.44	1.44

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 3.2	gal water added: 23
	Bicarbonate	lb added: 75.9	gal water added: 140
Chemical Feed Off: ✓	Time Stopped:	0954	Time Restarted: 1443
Filter check (Y/N):	N		

Samples Collected	

Notes:			
	FLOW RATE BEFORE P1, gpm	2.8	2.9
	TIME OF DAY	0854	1442

YSI DEAD WHEN CALIBRATION ATTEMPTED. REPLACED BATTERIES & YSI WORKED.

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 5-11-06 Weather Cloudy/rainy, 70°F
Personnel C. MeTz

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	X	X	X

Extraction Well flow rate		
Rate, gpm	2.1	2.9
Totalizer	170749.8	
Time of day	0820	0850

Run meter	
Reading	1226.9
Time of day	0822

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	4.5 / 6	0 / 5.5	0 / 5
	0825 / 0845	0825 / 0845	0825 / 0845

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	~~2.8~~	~~2.5~~	25	25	X	X	0.45	0.45	0.18	0.18
Bicarbonate	~~70~~	~~X~~	70	140	0.60	0.60	0.60	0.60	1.44	1.44

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: 0	gal water added: 0
	Bicarbonate	lb added: 25.2	gal water added: 70
Chemical Feed Off: N	Time Stopped:		Time Restarted:
Filter check (Y/N): Y	changed		

Samples Collected	

Notes: System Alarm had been tripped and IW pumps needed reset. System wasn't operating

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 5/16/06 Weather p. cloudy, 80s
Personnel WH

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	9.55	5.10	8.92	8.18	8.43	9.09	8.02	8.16	7.67	7.76	8.25	8.65
DO, mg/L	0.60*	0.29	0.25	0.25	0.51	0.27	0.21	1.62	4.67	4.77	3.93	2.32
pH	5.19*	6.01	6.44	6.45	5.68	5.11	6.12	4.47	4.51	4.61	6.34	8.31
ORP, mV	-122.1*	-138.0	-202.3	-131.3	-46.8	-144.5	-134.6	94.1	49.8	4.0	-73.2	-94
Spec. Cond., mS/cm	0.131	0.273	0.734	0.406	0.183	0.81	0.284	0.50	0.065	0.066	0.662	0.360
YSI stabilization time, minutes	15	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

10.3 | 10.2 | 10.2

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.22	0.131	6.3

Extraction Well flow rate		
Rate, gpm	2.6	3.0
Totalizer	178237.2	179202.0
Time of day	0840	~~1500~~ 1400

Run meter		
Reading	[redacted]	
Time of day	0844	~~1500~~ 1400

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	4	3	3

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	-	-	18	39	X	X	0.45	0.45	0.18	0.18
Bicarbonate	-	-	68	139	10.6	0.6	0.02	0.16	1.44	1.44

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:			
	Lactate	gal solution added: 2.75	gal water added: 20
	Bicarbonate	lb added: 43.4	gal water added: 80
Chemical Feed Off: N	Time Stopped:		Time Restarted:
Filter check (Y/N): N			

Samples Collected	

Notes: In alarm tripped on arrival. Reset @ 0830

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 5/18/06 Weather 80°F, SUNNY
Personnel T. COTTENOIR

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet												
DO, mg/L	*											
pH	*											
ORP, mV	*											
Spec. Cond., mS/cm												
YSI stabilization time, minutes												

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	X	X	X

Extraction Well flow rate		
Rate, gpm	2.8	2.8
Totalizer	190644.8	190873.4
Time of day	0918	1043

Run meter		
Reading	1345.3	1346.7
Time of day	0915	1040

Pressure Gauges	P1 (filter influent)		P2 (post-filter)		P3 (effluent)	
Reading, psig	2.5	2.5	<2	<2	<2	<2
TIME OF DAY	0916	1041	0916	1041	0916	1041

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	—	—	27	39	X	X	0.45	0.45	0.18	0.18
Bicarbonate	—	—	32	136	0.6	0.6	0.6	0.6	1.44	1.44

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:			
	Lactate	gal solution added: 1.6	gal water added: 12
	Bicarbonate	lb added: 56.7	gal water added: 105
Chemical Feed Off: N	Time Stopped:		Time Restarted:
Filter check (Y/N): N			

Samples Collected	
	~~FB~~

Notes:			
	FLOW BEFORE P1; gpm	3.0	3.0
	TIME OF DAY	0920	1045

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 5-23-06 Weather warm + clear
Personnel Skip K

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	12.14	2.18	8.51	7.76	8.03	8.66	7.59	7.83	7.81	7.66	7.85	7.90
DO, mg/L *	2.10	.70	.68	.50	.52	.98	.36	1.87	.47	.65	.36	1.60
pH *	5.72	6.16	6.40	6.40	5.93	5.10	6.11	4.37	5.42	5.19	6.33	6.90
ORP, mV *	-58.5	-36.7	-88.8	-87.4	-94.6 -88.4	11.0	-78.4	-27.6	-94.5	-61.0	-99.6	1.5
Spec. Cond., mS/cm	.19	.46	.76	.83	.42	.21	.42	.06	.18	.24	.29	.43
YSI stabilization time, minutes	[illegible]	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	24.13	.20	29.3

Extraction Well flow rate		
Rate, gpm	2.8	2.95
Totalizer	210300	211703
Time of day	0715	1430

Run meter	
Reading	14634
Time of day	0715

Pressure Gauges	P1 (filter influent)		P2 (post-filter)		P3 (effluent)	
Reading, psig	3.5	2.0	-0-	-0-	-0-	-0-

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	—	—	16.0	35	X	X	45	47	.18	.18
Bicarbonate	—	—	26.0	71	60	60	62	60	1.44	1.44

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:			
	Lactate	gal solution added: 2.25	gal water added: 20
	Bicarbonate	lb added: 24 15s	gal water added: 45
Chemical Feed Off: —	Time Stopped:		Time Restarted:
Filter check (Y/N): backflush			

Samples Collected	

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 5-25-06 Weather Fog & Cool
Personnel Skip K

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	9.39	8.91	3.91	8.21	8.41	9.14	8.02	8.14	7.88	7.94	8.26	8.90
DO, mg/L	.72*	.82	.43	.40	.56	.65	.63	2.26	.45	.78	.91	1.14
pH	5.5*	6.12	5.67	6.42	5.73	5.16	6.27	5.18	5.45	5.87	6.37	6.85
ORP, mV	-28.4 ~~-38~~*	-63.1	-90.3	-97.9	-83.3	-32.1	-88.3	-21.6	~~-82.0~~	~~-90.2~~ -90.2	-71.2	-64.5
Spec. Cond., mS/cm	.18	.45	.29	.63	.40	.25	.74	.05	.10	.13	.77	.44
YSI stabilization time, minutes	-	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.47	.18	8.5

Extraction Well flow rate		
Rate, gpm	2.7	2.7
Totalizer	217100	
Time of day	0630	

Run meter	
Reading	1504.6
Time of day	0630

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	1.0 / 1.5	-0- / 0	-0- / 0

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	-	-	29	~~35~~ 40	X	X	45	45	.18	.18
Bicarbonate	-	-	0	0	60	0	60	0	1.44	0

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: ~~7~~ 6.5	gal water added: ~~5~~ 1074
	Bicarbonate	lb added: 0	gal water added: 0
Chemical Feed Off:	Time Stopped:	—	Time Restarted: —
Filter check (Y/N):	—		

Samples Collected	

Notes:

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 6/14/06 Weather 80°F, CLOUDY, RAINY
Personnel TERRY COTTENOIR (TC)

Well	EW	IW1	IW2	MW 1	MW 2	MW 3	MW 4	MW 5	003-35	003-53	003-73	003-121
DTW, feet	9.19	9.44	9.08	8.15	8.38	9.20	7.83	7.93	7.84	7.72	8.09	8.47
DO, mg/L	1.34*	0.84	0.54	0.45	0.62	0.73	0.58	2.18	0.43	0.81	0.79	0.52
pH	5.63*	6.11	5.93	6.44	5.61	5.42	6.23	4.83	5.47	5.93	6.35	6.81
ORP, mV	-36.2*	-43.4	-87.5	-87.6	-77.1	-44.2	-92.1	-101.2	-79.3	-88.8	-64.2	-79.6
Spec. Cond., mS/cm	0.17	0.46	0.59	0.74	0.39	0.27	0.61	0.05	0.11	0.10	.78	0.44
YSI stabilization time, minutes	15	15	15	15	15	15	15	15	15	15	15	15

* Recorded from in-line YSI meter.

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.38	0.17	8.4

Extraction Well flow rate		
Rate, gpm	2.6	2.8
Totalizer	229491.3	229939.8
Time of day	1109	1414

Run meter		
Reading	1987.6	1990.8
Time of day	1106	1416

Pressure Gauges	P1 (filter influent)		P2 (post-filter)		P3 (effluent)	
Reading, psig	7.0	0.5	6.0	<1	5.0	<1

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	—	—	—	—	X	X	—	—	—	—
Bicarbonate	—	—	—	—	—	—	—	—	—	—

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: NA	gal water added: NA
	Bicarbonate	lb added: NA	gal water added: NA
Chemical Feed Off:	Time Stopped:		Time Restarted:
Filter check (Y)/N):	REMOVED FILTER; NEED REPLACEMENT		

Samples Collected	

Notes: BOTH TANKS EMPTY. EW had no flow upon arrival. After checking pump and tubing, TC checked filter. Filter was very dirty. TC removed filter and flow resumed. TC contacted Rob Simcik, and he said it was okay to go ahead without filter.

NAS CECIL FIELD
SITE 59 PILOT STUDY
DAILY LOG SHEET

Date 6-21-06 Weather clear, 90's
Personnel WH

[redacted]												
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	7.12	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	2.5	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	2.97	[redacted]	0.85
[redacted]	[redacted]	[redacted]	[redacted]	6.08	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	4.60	6.60	7.70
[redacted]	27.1	[redacted]	-224.3	-119.2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	-79.7	-136.6	-117.9
[redacted]	[redacted]	0.286	0.182	0.291	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	0.059	0.596	0.346
[redacted]	[redacted]	[redacted]	15	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]												

In-Line YSI Meter (from extraction well)	Temp., °C	Spec. Cond., mS/cm	DO, %
	23.52	0.209	3.5

Extraction Well flow rate		
Rate, gpm	2.5	3.0
Totalizer	256101.2	256641.3
Time of day	1235	1605

Run meter		
Reading	2137.1	2180.8
Time of day	1248	1610

Pressure Gauges	P1 (filter influent)	P2 (post-filter)	P3 (effluent)
Reading, psig	1.5	L	L

Chemical Feed	Tank level, feet		Tank level, gallons		Pump stroke setting, %		Pump Speed, %		Pump rate, GPH	
	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day	start of day	end of day
Lactate	–	–	–	–	X	X	–	–	–	–
Bicarbonate	–	–	–	–	–	–	–	–	–	–

Normal settings: Lactate pump = 0.2 GPH; Bicarbonate pump = 2.15 GPH (0.23 GPH after 2 weeks)
Maximum pumps output capacities: Lactate pump = 0.4 GPH; Bicarbonate pump = 4.0 GPH

Chemical tanks refilled?:	Lactate	gal solution added: –	gal water added: –
	Bicarbonate	lb added: –	gal water added: –
Chemical Feed Off:	Time Stopped: –		Time Restarted: –
Filter check (Y/N):	✓		

Samples Collected	

Notes:

ATTACHMENT C

OPERATOR LOG SUMMARY

SUMMARY OF OPERATOR LOG DATA
PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date		3/15/2006	3/16/2006	3/17/2006	3/20/2006	3/22/2006	3/23/2006	3/24/2006	3/27/2006	3/29/2006	3/31/2006	4/3/2006	4/5/2006	4/7/2006	4/10/2006	4/12/2006	4/14/2006	4/17/2006	4/21/2006
Time of Day		Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start
Extraction Well	**Units**																		
DTW	feet	8.43	7.6	7.42	7.48	7.5	7.6	7.57	7.91	8.09	8.1	8.04	8.06	8.32	6.85	8.55	8.22	8.9	9.51
Groundwater Elevation	77.29	68.86	69.69	69.87	69.81	69.79	69.69	69.72	69.38	69.2	69.19	69.25	69.23	68.97	70.44	68.74	69.07	68.39	67.78
DO	mg/L	0.31	2.5	1.21	NC	3.5	0.69	0.4	0.79	0.65	0.74	0.21	0.87	0.75	0.52	1.22	0.88	0.6	0.69
pH	S.U.	4.91	4.48	4.86		4.74	4.6	4.73	4.73	4.79	4.53	4.65	4.69	4.55	4.63	4.64	4.71	4.7	4.89
ORP	mV	-30.9	10.1	11		31.7	87.1	81.4	73.3	86.8	75.2	1.8	30.4	46.4	-92.3	-6.2	-78	-63.2	-115.6
Spec. Cond	uS/cm	73	66	65		65	72	73	88	68	60	480	73	67	76	71	71	63	69
Injection Well 1																			
DTW	feet		6.84	6.72	6.77	6.95	5.05	5.21	5.34	7.37	7.53	7	7.52	7.62	8.03	7.86	8.34	7.18	4.63
Groundwater Elevation	78.54	78.54	71.7	71.82	71.77	71.59	73.49	73.33	73.2	71.17	71.01	71.54	71.02						
Groundwater Elevation	79.64													72.02	71.61	71.78	71.3	72.46	75.01
DO	mg/L			1.39	1.43	1.7	2.04	2.2	1.16	0.31	0.18	0.25	0.17	0.34	0.28	0.83	0.93	0.39	0.19
pH	S.U.			5.9	5.84	5.55	5.82	6.48	6.57	6.7	6.7	6.76	6.85	6.78	6.72	6.57	6.56	6.49	6.23
ORP	mV			67.2	69.4	114.2	70.9	13.2	-18.9	-27.9	-32.5	-47.6	-52	-148.2	-194.2	-171.9	-186.8	-185.4	-194.5
Spec. Cond	uS/cm													544	572	438	400	350	295
Injection Well 2																			
DTW	feet	6.68	3.37	2.88	3.01	0.38	6.98	7.05	7.44	4.76	5	4.84	4.87	4.84	8.1	4.78	6.33	8.66	8.45
Groundwater Elevation	77.5	70.82	74.13	74.62	74.49	77.12	70.52	70.45	70.06	72.74	72.5	72.66	72.63	72.66	69.4	72.72	71.17	68.84	69.05
DO	mg/L	0.15	0.36	0.89	1.13	0.28	0.38	0.73	0.41	0.47	0.21	0.27	0.26	0.41	0.39	0.12	0.69	0.25	0.21
pH	S.U.	5.8	4.79	4.85	4.76	6.93	6.4	6.26	5.84	6.72	6.73	4.82	6.83	6.66	4.81	6.48	7.1	6.85	6.55
ORP	mV	-39.2	5.6	58	77.2	-80.2	-1.5	-29.4	-79.7	-83.8	-93.1	-1.8	-123.5	-126.4	-79.2	-167.2	-186.8	-228.1	-238.7
Spec. Cond	uS/cm													711	79	816	2267	1381	703
Monitoring Well 1																			
DTW	feet	6.33	6.09	5.9	5.93	6.11	6.19	6.22	6.61	6.56	6.67	6.68	6.71	6.79	7.13	7.05	7.55	7.78	7.67
Groundwater Elevation	77.62	71.29	71.53	71.72	71.69	71.51	71.43	71.4	71.01	71.06	70.95	70.94	70.91	70.83	70.49	70.57	70.07	69.84	69.95
DO	mg/L	0.31	0.27	0.68	0.91	0.46	0.43	0.98	1.06	1.24	1.9	2.22	0.29	0.31	0.34	0.08	0.83	0.24	0.13
pH	S.U.	5.32	4.9	4.87	4.79	5.28	5.06	5.34	5.14	5.46	5.58	5.63	5.87	5.95	6.08	6.35	6.17	6.31	6.41
ORP	mV	8.6	8.6	107.8	121.3	84.8	104.6	65.1	64.4	15.8	-19.7	-18.4	-107.4	-100.1	-136.5	-140.4	-128.3	-158.5	-219.4
Spec. Cond	uS/cm													203	266	628	267	277	366
Monitoring Well 2																			
DTW	feet	5.98	6.44	6.19	6.26	6.4	6.42	6.46	6.83	6.9	6.96	6.95	6.99	7.14	6.86	7.33	7.6	7.83	7.93
Groundwater Elevation	77.34	71.36	70.9	71.15	71.08	70.94	70.92	70.88	70.51	70.44	70.38	70.39	70.35	70.2	70.48	70.01	69.74	69.51	69.41
DO	mg/L	0.22	0.16	0.69	0.89	0.29	0.2	0.48	0.48	0.49	0.63	1.81	1.87	2.29	3.76	0.69	2.76	1.89	0.65
pH	S.U.	5.42	4.78	4.94	5.02	4.92	4.68	5.16	5	4.84	5.05	5.07	5.14	5.06	5.03	4.74	5.04	5.05	5.24
ORP	mV	-29.1	8.5	86.4	101.8	61.3	43.9	51.2	68.9	111.7	102	104.8	0.8	5.7	7.2	-79.5	-22.7	-23.8	-50.1
Spec. Cond	uS/cm													79	86	106	83	77	115
Monitoring Well 3																			
DTW	feet	7.49	7.72	6.99	6.89	7.16	7.09	7.15	7.53	7.61	7.75	7.8	7.75	7.86	7.95	8.08	8.5	8.64	8.59
Groundwater Elevation	78.49	71	70.77	71.5	71.6	71.33	71.4	71.34	70.96	70.88	70.74	70.69	70.74	70.63	70.54	70.41	69.99	69.85	69.9
DO	mg/L	0.5	0.49	0.65	0.09	0.65	0.59	1.44	0.91	0.68	0.63	1.12	1.23	1.83	2.6	3.04	3.17	1.13	0.22
pH	S.U.	5.3	4.44	5.07	5.11	4.93	4.98	5.34	5.02	4.86	4.79	4.88	5.11	4.97	5.01	4.93	4.98	4.87	4.75
ORP	mV	31.5	12.1	50.2	71.6	105.4	71.7	96.2	11.1	105.7	65..1	47.1	13.6	4.7	-56.8	-13.2	-57.4	-86.7	-124.4
Spec. Cond	uS/cm													81	87	80	82	73	83
Monitoring Well 4																			
DTW	feet	5.81	5.96	5.72	5.88	5.94	6.02	6.07	6.46	6.42	6.52	6.5	6.57	6.67	6.73	6.88	7.32	7.54	7.53
Groundwater Elevation	77.21	71.4	71.25	71.49	71.33	71.27	71.19	71.14	70.75	70.79	70.69	70.71	70.64	70.54	70.48	70.33	69.89	69.67	69.68
DO	mg/L	0.46	0.29	0.61	0.78	0.26	0.31	0.78	0.45	0.5	0.26	0.86	0.85	1.38	1.14	0.73	1.02	0.19	0.13
pH	S.U.	5.16	5.05	4.85	4.92	4.85	4.77	4.97	4.77	4.69	4.71	4.71	4.99	4.96	5.4	5.45	5.54	5.55	5.63
ORP	mV	19.4	8.7	93	113.6	87.2	100.9	116.4	70.3	81.2	73.9	92.1	-24.4	-39.5	-14.9	-55.2	-108.5	-84.1	-110.4
Spec. Cond	uS/cm													80	142	150	264	136	150

SUMMARY OF OPERATOR LOG DATA
PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date		3/15/2006	3/16/2006	3/17/2006	3/20/2006	3/22/2006	3/23/2006	3/24/2006	3/27/2006	3/29/2006	3/31/2006	4/3/2006	4/5/2006	4/7/2006	4/10/2006	4/12/2006	4/14/2006	4/17/2006	4/21/2006
Time of Day		Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start	Start
Monitoring Well 5																			
DTW	feet	5.77	6.22	5.95	6.07	6.18	6.2	6.2	6.57	6.68	6.75	6.72	6.76	6.91	6.65	7.13	7.39	7.61	7.69
Groundwater Elevation	77.08	71.31	70.86	71.13	71.01	70.9	70.88	70.88	70.51	70.4	70.33	70.36	70.32	70.17	70.43	69.95	69.69	69.47	69.39
DO	mg/L	0.58	0.16	0.8	1.01	0.28	0.39	0.51	0.47	0.36	0.41	0.59	0.41	1.09	0.77	0.63	1.44	0.62	0.73
pH	S.U.	5.05	5.14	5.24	5.19	5.03	4.87	5.12	4.98	4.86	4.81	4.71	4.81	4.79	4.77	4.73	4.75	4.64	4.65
ORP	mV	54.5	0.9	55	81.5	37.5	32.3	33.8	50.7	42.3	51.1	92.1	52.3	85.2	91.8	-58.1	103.8	91.2	96.3
Spec. Cond	uS/cm													61	65	58	59	50	52
Monitoring Well 003-35																			
DTW	feet		5.33	5.37	5.39	5.28	5.4	5.43	5.68	5.85	5.94	6.09	6.15	6.25	6.33	6.41	6.52	6.75	6.94
Groundwater Elevation	77.49	77.49	72.16	72.12	72.1	72.21	72.09	72.06	71.81	71.64	71.55	71.4	71.34	71.24	71.16	71.08	70.97	70.74	70.55
DO	mg/L		0.98	0.96	1.08	3.88	0.36	4.96	4.34	2.9	3.38	3.69	0.43	3.7	4.81	3.66	6.43	4.73	4.53
pH	S.U.		5.09	5.27	5.12	5.19	4.54	5.04	4.75	4.63	4.55	4.54	4.44	4.61	4.85	4.83	4.78	4.48	4.47
ORP	mV		10.1	106.8	130.1	169.6	188.2	135.4	160.9	187.8	169.5	176.1	51.7	129	146.7	49.5	94.4	105	116
Spec. Cond	uS/cm													81	90	83	78	69	71
Monitoring Well 003-53																			
DTW	feet	5.57	6.03	5.58	5.83	5.72	5.69	5.72	6	6.15	6.24	6.32	6.38	6.48	6.59	6.66	6.92	7.1	7.16
Groundwater Elevation	77.44	71.87	71.41	71.86	71.61	71.72	71.75	71.72	71.44	71.29	71.2	71.12	71.06	70.96	70.85	70.78	70.52	70.34	70.28
DO	mg/L	0.45	0.23	0.92	1.1	2.7	2.39	4.55	3.89	2.56	2.79	3.09	2.31	3.39	0.47	4.44	5.61	3.86	5.36
pH	S.U.	4.49	5.21	5.29	5.25	5.13	5.13	5.09	4.99	4.98	4.86	4.81	4.87	4.76	4.54	5.31	4.77	4.75	4.76
ORP	mV	91.2	3.3	103.1	128.3	115.7	106	116.5	113.1	131.1	100	107.3	77.1	91.7	27.6	-19.1	56.5	39.8	3.8
Spec. Cond	uS/cm													76	76	133	76	63	64
Monitoring Well 003-73																			
DTW	feet	6.08	6.09	6	6.04	6.21	6.27	6.28	6.66	6.7	6.77	6.76	6.79	6.91	6.99	7.12	7.58	7.77	7.76
Groundwater Elevation	77.42	71.34	71.33	71.42	71.38	71.21	71.15	71.14	70.76	70.72	70.65	70.66	70.63	70.51	70.43	70.3	69.84	69.65	69.66
DO	mg/L	0.45	0.3	0.69	0.97	1.46	1.87	4.83	3.8	2.78	2.84	3.57	0.75	2.39	4.82	4.89	5.31	2.41	2.26
pH	S.U.	4.54	4.76	5.17	5.03	4.94	4.91	4.91	4.86	4.86	4.73	4.75	4.85	4.87	5.06	4.78	5.4	5.49	5.83
ORP	mV	78.2	7.1	94.8	119.6	144.6	131.7	149.8	152.6	152.1	104.2	38.2	-68.5	7.7	-20.4	61.1	-26.6	-33.5	-60.8
Spec. Cond	uS/cm													92	112	75	164	161	257
Monitoring Well 003-121																			
DTW	feet		7.08	6.54	6.82	6.85	6.8	6.74	7.32	7.42	7.52	7.32	7.26	7.3	7.64	7.77	7.85	8.56	8.39
Groundwater Elevation	77.63	77.63	70.55	71.09	70.81	70.78	70.83	70.89	70.31	70.21	70.11	70.31	70.37	70.33	69.99	69.86	69.78	69.07	69.24
DO	mg/L		0.16	0.71	0.92	0.26	0.33	0.39	0.44	0.46	0.29	0.47	0.46	0.64	1.22	1.66	2.44	1.92	1.9
pH	S.U.		8.7	8.01	8.23	9.34	8.17	9.35	9.19	8.71	9.09	8.95	8.8	8.85	8.85	8.69	8.8	8.62	8.51
ORP	mV		-7.9	-83.4	-114.3	-139.2	-55.6	-106.3	-110.3	-121.1	-103.5	-92.7	-70.1	-135.9	-80.9	-71.9	143	9.1	-55.5
Spec. Cond	uS/cm													405	448	414	400	350	359
System Parameters																			
Groundwater Temp	degrees	22.67	23.02	22.5	NC	22.97	22.8	22.81	23	23.05	23.08	23.13	23	23.2	22.41	22.89	23.84	23.33	23.28
Extraction well rate gpm	gpm	base line	3	2.85	NC	2.7	2.9	2.8	2.7	2.5	2.8	2.9	2.7	2.8	2.5	2.9	1.4	1.9	2.1
Run Meter	hours	base line	16.4	38.9	NC	135.7	158.85	182.8	256.7	303	351.5	421.6	469.6	517.8	589.1	630.8	678.1	751.1	848
P1 (filter influent)	psig	base line	base line	1.5	NC	1.3	<1	<1	<1	<1	3.5	5	6.5	3.5	11	3.5	<1	<1	<1
P2 (post-filter)	psig	base line	base line	0	NC	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1
P3 (effluent)	psig	base line	base line	0	NC	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1
Chemical Tank Data																			
Tank level Lactate	gal	base line	base line	base line	NC	40	35	28	13	32	27	15	35	23	25	34	24	30	15
Tank level Bicarb	gal	base line	base line	base line	NC	132	80	22	20	50	28	0	48	30	20	65	34	0	25
Pump Rate Lactate	GPH	base line	base line	base line	NC	6.19	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Pump Rate bicarb	GPH	base line	base line	base line	NC	2.16	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.44
Lactate tank refilling (sol)	gal	base line	base line	base line	NC	4.8	0	0	2.75	1	0	3.44	0	2.06	2.06	0	5.77	0	3.44
Lactate tank refilling (water)	gal	base line	base line	base line	NC	0	0	0	20	0	0	25	0	15	15	0	15	0	25
Bicarb tank refilling	lbs	base line	base line	base line	NC	50	0	43	46.6	29	43	150	35.8	43	46.6	28.7	59.6	38	36.1
Bicarb tank refilling (water)	gal	base line	base line	base line	NC	0	0	120	130	80	120	53.8	100	120	130	80	110	70	85

SUMMARY OF OPERATOR LOG DATA
PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date		5/4/2006	5/8/2006	5/15/2006	5/23/2006	5/25/2006	6/14/2006
Time of Day		Start	Start	Start	Start	Start	Start
Extraction Well	**Units**						
DTW	feet	9.14	9.23	9.55	12.14	9.39	9.19
Groundwater Elevation	77.29	68.15	68.06	67.74	65.15	67.9	68.1
DO	mg/L	0.81	0.23	0.6	2.1	0.72	1.34
pH	S.U.	5.07	5.07	5.19	5.72	5.53	5.63
ORP	mV	-91.4	-65.3	-122.1	-58.5	-28.4	-36.2
Spec. Cond	uS/cm	88	109	131	190	180	170
Injection Well 1							
DTW	feet	8.58	8.73	5.1	2.78	8.91	9.44
Groundwater Elevation	78.54						
Groundwater Elevation	79.64	71.06	70.91	74.54	76.86	70.73	70.2
DO	mg/L	0.55	0.2	0.29	0.7	0.82	0.84
pH	S.U.	6.16	6.01	6.01	6.16	6.16	6.11
ORP	mV	-142	-108.6	-138	-36.7	-6.31	-43.4
Spec. Cond	uS/cm	267	255	273	460	450	460
Injection Well 2							
DTW	feet	4.92	1.63	8.92	8.51	3.91	9.08
Groundwater Elevation	77.5	72.58	75.66	68.37	68.78	73.38	68.21
DO	mg/L	0.71	0.18	0.25	0.68	0.43	0.54
pH	S.U.	6.64	5.21	6.44	6.4	5.67	5.93
ORP	mV	-151.3	-112.8	-207.3	-88.8	-90.3	-87.5
Spec. Cond	uS/cm	745	116	734	760	290	590
Monitoring Well 1							
DTW	feet	7.8	7.92	8.18	7.76	8.21	8.15
Groundwater Elevation	77.62	69.82	69.7	69.44	69.86	69.41	69.47
DO	mg/L	0.59	0.24	0.25	0.5	0.4	0.45
pH	S.U.	6.65	6.43	6.45	6.4	6.42	6.44
ORP	mV	-174.4	-124.2	-131.3	-87.4	-97.9	-87.6
Spec. Cond	uS/cm	443	443	476	830	630	740
Monitoring Well 2							
DTW	feet	7.99	8.15	8.43	8.03	8.45	8.38
Groundwater Elevation	77.34	69.35	69.19	68.91	69.31	68.89	68.96
DO	mg/L	0.36	0.21	0.51	0.52	0.56	0.62
pH	S.U.	5.54	5.58	5.68	5.93	5.73	5.61
ORP	mV	-67.5	-56.9	-46.8	-99.6	-83.3	-77.1
Spec. Cond	uS/cm	123	141	183	420	400	390
Monitoring Well 3							
DTW	feet	8.69	8.97	9.09	8.66	9.19	9.2
Groundwater Elevation	78.49	69.8	69.52	69.4	69.83	69.3	69.29
DO	mg/L	0.64	0.18	0.27	0.98	0.65	0.73
pH	S.U.	5.02	5.08	5.11	5.1	5.16	5.42
ORP	mV	-106.9	-56.9	-114.5	11	-32.1	-44.2
Spec. Cond	uS/cm	82	252	810	210	250	270
Monitoring Well 4							
DTW	feet	7.62	7.7	8.02	7.59	8.02	7.83
Groundwater Elevation	77.21	69.59	69.51	69.19	69.62	69.19	69.38
DO	mg/L	0.41	0.23	0.21	0.36	0.63	0.58
pH	S.U.	6.05	5.97	6.12	6.16	6.27	6.23
ORP	mV	-151.1	-118.7	-134.6	-78.4	-88.3	-92.1
Spec. Cond	uS/cm	219	252	284	420	740	610

SUMMARY OF OPERATOR LOG DATA
PILOT STUDY
OPERABLE UNIT 9, SITE 59
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Date		5/4/2006	5/8/2006	5/15/2006	5/23/2006	5/25/2006	6/14/2006
Time of Day		Start	Start	Start	Start	Start	Start
Monitoring Well 5							
DTW	feet	7.87	7.94	8.16	7.83	8.19	7.93
Groundwater Elevation	77.08	69.21	69.14	68.92	69.25	68.89	69.15
DO	mg/L	1.49	0.76	1.62	1.87	2.26	2.18
pH	S.U.	4.7	4.62	4.47	4.24	5.18	4.83
ORP	mV	54	73.4	94.1	-27.6	-21.2	-101.2
Spec. Cond	uS/cm	51	48	50	60	50	50
Monitoring Well 003-35							
DTW	feet	7.42	7.53	7.67	7.81	7.88	7.84
Groundwater Elevation	77.49	70.07	69.96	69.82	69.68	69.61	69.65
DO	mg/L	4.89	4.16	4.67	0.47	0.45	0.43
pH	S.U.	4.47	4.49	4.51	5.42	5.45	5.47
ORP	mV	27	8	49.5	-94	-86	-79.3
Spec. Cond	uS/cm	71	72	65	180	100	110
Monitoring Well 003-53							
DTW	feet	7.57	7.68	7.76	7.76	7.94	7.72
Groundwater Elevation	77.44	69.87	69.76	69.68	69.68	69.5	69.72
DO	mg/L	5.12	3.83	4.77	0.65	0.78	0.81
pH	S.U.	4.75	4.65	4.61	5.19	5.87	5.93
ORP	mV	-23	-7.8	4	-61	-90.2	-88.8
Spec. Cond	uS/cm	68	64	66	240	130	100
Monitoring Well 003-73							
DTW	feet	7.89	7.99	8.25	7.85	8.26	8.09
Groundwater Elevation	77.42	69.53	69.43	69.17	69.57	69.16	69.33
DO	mg/L	2.12	2.31	3.93	0.36	0.91	0.79
pH	S.U.	6.3	6.18	6.34	6.33	6.37	6.35
ORP	mV	-110.7	-78.6	-73.2	-99.6	-71.2	-64.2
Spec. Cond	uS/cm	525	558	676	790	770	780
Monitoring Well 003-121							
DTW	feet	7.97	8.27	8.65	7.9	8.8	8.47
Groundwater Elevation	77.63	69.66	69.36	68.98	69.73	68.83	69.16
DO	mg/L	1.99	1.85	2.32	1.6	1.14	0.92
pH	S.U.	8.55	8.13	8.31	6.9	6.85	6.81
ORP	mV	49	80.6	-9.4	1.5	-64.5	-79.6
Spec. Cond	uS/cm	364	354	360	430	440	440
System Parameters							
Groundwater Temp	degrees	23.18	23.23	23.22	24.13	23.47	23.38
Extraction well rate gpm	gpm	2.8	2.8	2.6	2.8	2.7	2.6
Run Meter	hours	1079.3	1181.4	1278	1462	1504.6	1990.8
P1 (filter influent)	psig	4	6	4	3.5	1	7
P2 (post-filter)	psig	2.5	3	3	0	0	6
P3 (effluent)	psig	<1	2.5	3	0	0	5
Chemical Tank Data							
Tank level Lactate	gal	20	17	18	16	29	0
Tank level Bicarb	gal	0	0	68	26	0	0
Pump Rate Lactate	GPH	0.18	0.18	0.18	0.18	0.18	0
Pump Rate bicarb	GPH	1.44	1.44	1.44	1.44	0	0
Lactate tank refilling (sol)	gal	3.44	3.2	2.75	2.75	1.5	0
Lactate tank refilling (water)	gal	25	23	20	20	10	0
Bicarb tank refilling	lbs	76	75.9	43.4	24	0	0
Bicarb tank refilling (water)	gal	140	140	88	45	0	0

ATTACHMENT D

FIELD GEOCHEMICAL PARAMETER FORMS

EVENT 1

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039.DS010F200**
Sampled By: PL
Field Analyst: PL
Field Form Checked as per QA/QC Checklist (initials): ____

Sample ID No.: **CEF-059-GW- IW2-01A**
Sample Location: **CEF-059-IW2**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	
Date: 3/15/06	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)	
Time: 1153								
Method: Peristaltic	Clear	5.80	0.180	9.1	0.15	22.81	-39.2	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1210
Concentration: 0.6 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1220
Concentration: 40 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1216
Concentration: 50 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1213
Concentration: 0.66 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1225
Concentration: ____ mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- MW1-01A**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-MW1**
Sampled By: PL
Duplicate: ☐
Field Analyst: TERRY COTTENOIR
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials):

SAMPLING DATA:

Date: 3/14/06	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	
Time: 1305	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)	
Method: Peristaltic	CLEAR	5.32	0.166	8.2	0.31	23.26	8.6	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☐ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1420
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1414
Concentration: <10 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1419
Concentration: 52 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 83 / 500nm
Analysis Time: 1410
Concentration: 0.58 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1423
Concentration: 0.5 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- MW2-01A**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-MW2**
Sampled By: PL
Duplicate: ☐
Field Analyst: PL
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): ____

SAMPLING DATA:

Date: 3/14/06	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Time: 1000							
Method: Peristaltic	Lt. BRN	5.42	0.120	321	0.22	22.49	-29.1

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1127
Concentration: 0.8 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1135
Concentration: 30 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 1000 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1130
Concentration: 65 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1121
Concentration: 0.92 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1138
Concentration: 0.5 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- MW3-01A**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-MW3**
Sampled By: TERRY COTTENOIR
Duplicate: ☐
Field Analyst: TERRY COTTENOIR
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials):

SAMPLING DATA:

Date: 3/15/06	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)
Time: 1050	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)
Method: Peristaltic	CLOUDY	5.30	0.182	68	0.50	22.68	31.5

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512
Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1140
Concentration: 0.8 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1129
Concentration: 11.2 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1134
Concentration: 40 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: (DR-890) IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1130
Concentration: 0.68 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: (HS-C)
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1138
Concentration: 1.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- MW4-01A**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-MW4**
Sampled By: TC
Duplicate: ☐
Field Analyst: PL
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials):

SAMPLING DATA:

Date: 3/14/06	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)
Time: 1038	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)
Method: Peristaltic	CLEAR	5.16	0.120	35	0.46	22.69	19.4

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1200
Concentration: 1.0 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1157
Concentration: 40 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1153
Concentration: 55 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1150
Concentration: 0.76 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1202
Concentration: 0.3 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	NAS Cecil Field Site 59	Sample ID No.:	CEF-059-GW- 003-73-01A
Project No.:	112GN0039.DS010F200	Sample Location:	CEF-059-003-73
Sampled By:	TERRY COTTENOIR	Duplicate:	☐
Field Analyst:	TERRY COTTENOIR	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

Date: 3/14/06 Time: 1300	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	CLEAR	4.54	0.859	9.6	0.45	23.36	78.2

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 (circled) Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L Analysis Time: 1334

Concentration: 0.8 mg/L

Notes:

Alkalinity:

Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1323

CHEMetrics K-1910, K-1920, or K-1925. Concentration: <10 mg/L

Notes:

Carbon Dioxide:

Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1326

CHEMetrics K-9810, K-9815, or K-9820. Concentration: 47 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 (circled) IR-18C Color Wheel Analysis Time: 1315

Program/Module: 33 / 500nm Concentration: 0.51 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C (circled) Analysis Time: 1330

Exceeded 5.0 mg/L range on color chart: ☐ Concentration: 0.7 mg/L

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

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

Multiplication is correct for each *Multiplier* table: ☐

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

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

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

EVENT 3

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- IW2-03A**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-IW2**
Sampled By: PC
Duplicate: ☐
Field Analyst: PC
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials):

SAMPLING DATA:

Date: 4/12/00	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Time: 1038							
Method: Peristaltic	CLEAR	6.48	0.816	5.7	0.12	22.96	-167.2

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 (circled) Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1120
Concentration: 0.8 mg/L
Notes:

Alkalinity:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-1910, K-1920 (circled) or K-1925.
Analysis Time: 1114
Concentration: 300 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-9810, K-9815 (circled), or K-9820.
Analysis Time: 1110
Concentration: 140 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 (circled) IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1105
Concentration: 0.10 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C (circled)
Exceeded 5.0 mg/L range on color chart: ☒
Analysis Time: 1118
Concentration: 750 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039.DS010F200**
Sampled By: PL
Field Analyst: PL
Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: **CEF-059-GW- MW1-03A**
Sample Location: **CEF-059-MW1**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: 4/12/06	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	
Time: 1222	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)	
Method: Peristaltic	BRN	6.35	0.628	250	0.08	23.34	-140.4	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 (circled) Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1305
Concentration: 0.4 mg/L
Notes:

Alkalinity:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-1910, (K-1920) or K-1925.
Analysis Time: 1253
Concentration: 225 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-9810, (K-9815), or K-9820.
Analysis Time: 1258
Concentration: 110 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: (DR-890) IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1250
Concentration: 0.16 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: (HS-C)
Exceeded 5.0 mg/L range on color chart: ☒
Analysis Time: 1302
Concentration: 75.0 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- MW2-03A**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-MW2**
Sampled By:
Duplicate: ☐
Field Analyst:
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials):

SAMPLING DATA:

Date: 4-12-04	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	
Time: 1114	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)	
Method: Peristaltic	Clear	4.74	0.106	4.27	0.69	22.47	-29.5	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☑ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1205
Concentration: 0.8 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1210
Concentration: 40 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1220
Concentration: 250 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1223
Concentration: 0.28 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☐
Analysis Time: 1208
Concentration: 5 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☐
Correct measurement units are cited in the SAMPLING DATA block: ☐
Multiplication is correct for each *Multiplier* table: ☐
Final concentration is within the appropriate *Range Used* block: ☐
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐
Title block is initialized by person who performed the QA/QC Checklist: ☐

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	NAS Cecil Field Site 59	Sample ID No.:	CEF-059-GW- MW3-03A
Project No.:	112GN0039.DS010F200	Sample Location:	CEF-059-MW3
Sampled By:	T. COTTENOIR	Duplicate:	☐
Field Analyst:	T. COTTENOIR	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

Date: 4/11/06	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)
Time: 1245	(Visual)	(SU)	(mS/cm)	(NTU)	(Meter, mg/l)	(°C)	(+/- mv)
Method: Peristaltic	CLEAR	4.60	0.084	5.7	0.26	22.32	-106.4

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L Analysis Time: 1332

Concentration: 0.6 mg/L

Notes:

Alkalinity:

Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1334

CHEMetrics K-1910, K-1920, or K-1925. Concentration: <10 mg/L

Notes:

Carbon Dioxide:

Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1323

CHEMetrics K-9810, K-9815, or K-9820. Concentration: 70 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 IR-18C Color Wheel Analysis Time: 1322

Program/Module: 33 / 500nm Concentration: 1.88 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

[redacted] Analysis Time: 1331

[redacted] on color chart: ☐ Concentration: 5.0 mg/L

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

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

Multiplication is correct for each *Multiplier* table: ☐

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

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

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

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	NAS Cecil Field Site 59	Sample ID No.:	CEF-059-GW- MW4-03A
Project No.:	112GN0039.DS010F200	Sample Location:	CEF-059-MW4
Sampled By:	T. Cottenoir	Duplicate:	☐
Field Analyst:	T. Cottenoir	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

Date: 4/11/06 / Time: 1425	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	CLEAR	5.27	0.201	8.6	0.23	22.47	-130.5

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L Analysis Time: 1505

Concentration: 0.6 mg/L

Notes:

Alkalinity:

Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1508

CHEMetrics K-1910, K-1920, or K-1925. Concentration: <10 mg/L

Notes:

Carbon Dioxide:

Equipment: (Range: 10 to 100 mg/L) Analysis Time: 1511

CHEMetrics K-9810, K-9815, or K-9820. Concentration: 80 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 IR-18C Color Wheel Analysis Time: 1501

Program/Module: 33 / 500nm Concentration: 0.42 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Analysis Time: 1502

Exceeded 5.0 mg/L range on color chart: ☐ Concentration: 2.0 ~~200~~ mg/L

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

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

Multiplication is correct for each *Multiplier* table: ☐

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

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

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

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: **NAS Cecil Field Site 59** | Sample ID No.: **CEF-059-GW- 003-73-03A**

Project No.: **112GN0039.DS010F200** | Sample Location: **CEF-059-003-73**

Sampled By: WH | Duplicate: ☐

Field Analyst: WH | Blank: ☐

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

SAMPLING DATA:

Date: 4-11-00 / Time: 1420 / Method: Peristaltic	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
	cloudy	5.31	0.195	215	0.60	22.83	-105.3

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 | Range ☑ 0 - 1.0 mg/L ☐ 1 - 12 mg/L | Analysis Time: 1526

Concentration: 0.18 mg/L

Notes:

Alkalinity:

Equipment: CHEMetrics K-1910, K-1920, or K-1925. (Range: ~~1~~ 10 to ~~100~~ 1000 mg/L) | Analysis Time: 1520

Concentration: ~~230~~ <10 mg/L

Notes:

Carbon Dioxide:

Equipment: CHEMetrics K-9810, K-9815, or K-9820. K 1920 (Range: 100 to 1000 mg/L) | Analysis Time: 1520

Concentration: ~~230~~ <100 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 | IR-18C Color Wheel | Analysis Time: 1505

Program/Module: 33 / 500nm | Concentration: 0.08 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C | Analysis Time: 1508

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

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☐

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

Multiplication is correct for each *Multiplier* table: ☐

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

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

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

EVENT 7

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59** | Sample ID No.: **CEF-059-GW- IW2-07A**

Project No.: **112GN0039.DS010F200** | Sample Location: **CEF-059-IW2**

Sampled By: Wes Harden | Duplicate: ☐

Field Analyst: Wes Harden | Blank: ☐

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

SAMPLING DATA:

Date: 7-20-06 / Time: 1110	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	Cloudy	6.14	0.148	141	0.25	23.62	-143.9

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 | Range: ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L | Analysis Time: 1215

Concentration: 0.3 mg/L

Notes:

Alkalinity:

Equipment: (Range: ~~10~~ 10 to ~~100~~ 100 mg/L) | Analysis Time: ~~1220~~ 1225

CHEMetrics K-1910, K-1920, or K-1925. | Concentration: ~~100~~ LD mg/L

Notes:

Carbon Dioxide:

Equipment: (Range: 10 to 100 mg/L) | Analysis Time: 1220

CHEMetrics K-9810, K-9815, or K-9820. | Concentration: 100 mg/L

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-890 | IR-18C Color Wheel | Analysis Time: 1230

Program/Module: 33 / 500nm | Concentration: 0.32 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C | Analysis Time: 1217

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

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☑

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

Multiplication is correct for each *Multiplier* table: ☐ AW

Final concentration is within the appropriate *Range Used* block: ☑

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

Title block is initialized by person who performed the QA/QC Checklist: ☑

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Project No.: **112GN0039.DS010F200**
Sampled By: Wes Harden
Field Analyst: Wes Harden
Field Form Checked as per QA/QC Checklist (initials): DD

Sample ID No.: **CEF-059-GW- MW1-07A**
Sample Location: **CEF-059-MW1**
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: 7-20-00 / Time: 1320	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	Cloudy	5.89	0.170	142	0.64	23.62	-91.3

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512
Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1425
Concentration: 0.4 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1430
Concentration: 410 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1435
Concentration: 100 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1432
Concentration: 0.20 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☒
Analysis Time: 1425
Concentration: 75 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ■
Title block is initialized by person who performed the QA/QC Checklist: ☒

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- MW2-07A**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-MW2**
[redacted]
Duplicate: ☐
[redacted]
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): DS

SAMPLING DATA:

Date: 7-21-06	Color	pH	S.C.	Turbidity	DO	Temp.	ORP (Eh)	
Time: 0913	(Visual)			(NTU)	(Meter, mg/l)	(°C)	(+/- mv)	
Method: Peristaltic				150	0.81	23.23	-124.2	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1025
Concentration: 0.8 mg/L
Notes:

Alkalinity:
Equipment: (Range: [redacted] to 180 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1030
Concentration: 0-11 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 100 to 1000 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1238
Concentration: 160 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1235
Concentration: 0.20 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: [redacted]
Analysis Time: 1027
Concentration: 75 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☒
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒
Title block is initialized by person who performed the QA/QC Checklist: ☒

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **NAS Cecil Field Site 59**
Sample ID No.: **CEF-059-GW- MW3-07A**
Project No.: **112GN0039.DS010F200**
Sample Location: **CEF-059-MW3**
Sampled By: YH
Duplicate: ☐
Field Analyst: WH
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): DS

SAMPLING DATA:

Date: 7-21-06 / Time: 1333	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	cloudy	5.96	0.283	189	0.58	23.37	-106.4

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1345
Concentration: 0.6 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1353
Concentration: 12 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1355
Concentration: 95 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1351
Concentration: 0.25 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☒
Analysis Time: 1348
Concentration: 7.5 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☒
Correct measurement units are cited in the SAMPLING DATA block: ☒
Multiplication is correct for each *Multiplier* table: ☐ NA
Final concentration is within the appropriate *Range Used* block: ☒
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒
Title block is initialized by person who performed the QA/QC Checklist: ☒

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: NAS Cecil Field Site 59
Sample ID No.: CEF-059-GW- MW4-07A
Project No.: 112GN0039.DS010F200
Sample Location: CEF-059-MW4
Sampled By: WH
Duplicate: ☐
Field Analyst: WH
Blank: ☐
Field Form Checked as per QA/QC Checklist (initials): DS

SAMPLING DATA:

Date: 7-21-11 / Time: 1218	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	Clear	6.12	0.249	171	0.67	23.77	-87.7

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:
Equipment: Chemetrics K-7501 or K-7512 Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1235
Concentration: 0.8 mg/L
Notes:

Alkalinity:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-1910, K-1920, or K-1925.
Analysis Time: 1238
Concentration: 40 mg/L
Notes:

Carbon Dioxide:
Equipment: (Range: 10 to 100 mg/L)
CHEMetrics K-9810, K-9815, or K-9820.
Analysis Time: 1242
Concentration: 100 mg/L
Notes:

Ferrous Iron (Fe^{2+}):
Equipment: DR-890 IR-18C Color Wheel
Program/Module: 33 / 500nm
Analysis Time: 1239
Concentration: 10 mg/L
Filtered: ☐
Notes:

Hydrogen Sulfide (H_2S):
Equipment: HS-C
Exceeded 5.0 mg/L range on color chart: ☒
Analysis Time: 1236
Concentration: 25 mg/L
Notes:

QA/QC Checklist:
All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	NAS Cecil Field Site 59	Sample ID No.:	CEF-059-GW- 003-73-07A
Project No.:	112GN0039.DS010F200	Sample Location:	CEF-059-003-73
Sampled By:	WH	Duplicate:	☐
Field Analyst:	WH	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):	DS		

SAMPLING DATA:

Date: 7-21-00 / Time: 1124	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Method: Peristaltic	clear	6.13	0.237	109	0.69	24.02	-99.7

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: Chemetrics K-7501 or K-7512 Range ☑ 0 - 1.0 mg/L ☐ 1 - 12 mg/L

Analysis Time: 1140

Concentration: 0.8 mg/L

Notes:

Alkalinity:

Equipment: (Range: ~~10~~ to ~~100~~ mg/L)

CHEMetrics K-1910, K-1920, or K-1925.

Concentration: 40 ~~40~~ mg/L

Analysis Time: 1142

Notes:

Carbon Dioxide:

Equipment: (Range: 100 to 1000 mg/L)

CHEMetrics K-9810, K-9815, or K-9820.

Concentration: 140 mg/L

Analysis Time: 1145

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: ~~DR-890~~ IR-18C Color Wheel

Program/Module: 33 / 500nm

Concentration: 0.20 mg/L

Filtered: ☐

Analysis Time: 1143

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C

Exceeded 5.0 mg/L range on color chart: ☒

Concentration: 7.5 mg/L

Analysis Time: 1150

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

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

Multiplication is correct for each *Multiplier* table: ☒

Final concentration is within the appropriate *Range Used* block: ☒

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

Title block is initialized by person who performed the QA/QC Checklist: ☒

ATTACHMENT E

ANALYTICAL DATA REPORTS AND COCs

SOIL SAMPLES

Report of Analysis

Client Sample ID:	CEF-59-SB-MW1-65		
Lab Sample ID:	F39312-1	Date Sampled:	03/16/06
Matrix:	SO - Soil	Date Received:	03/17/06
		Percent Solids:	75.6
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chemical Oxygen Demand [a]	1740 I	2000	1000	mg/kg	10	03/20/06 09:00	CP	ARMY CORP. 1981
Fractional Organic Carbon	0.57			%	1	03/22/06 13:50	LE	ASTM D2974-87
Solids, Percent	75.6			%	1	03/17/06	EM	EPA 160.3 M

(a) Dilution required due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	CEF-59-SB-MW1-70		
Lab Sample ID:	F39312-2	Date Sampled:	03/16/06
Matrix:	SO - Soil	Date Received:	03/17/06
Method:	SW846 8260B	Percent Solids:	78.1
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F014635.D	1	03/29/06	WJ	n/a	n/a	VF89
Run #2							

	Initial Weight
Run #1	4.75 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	34 U	67	34	ug/kg	
71-43-2	Benzene	2.7 U	6.7	2.7	ug/kg	
75-27-4	Bromodichloromethane	2.7 U	6.7	2.7	ug/kg	
75-25-2	Bromoform	2.7 U	6.7	2.7	ug/kg	
108-90-7	Chlorobenzene	2.7 U	6.7	2.7	ug/kg	
75-00-3	Chloroethane	2.7 U	6.7	2.7	ug/kg	
67-66-3	Chloroform	2.7 U	6.7	2.7	ug/kg	
75-15-0	Carbon disulfide	2.7 U	6.7	2.7	ug/kg	
56-23-5	Carbon tetrachloride	2.7 U	6.7	2.7	ug/kg	
75-34-3	1,1-Dichloroethane	2.7 U	6.7	2.7	ug/kg	
75-35-4	1,1-Dichloroethylene	2.7 U	6.7	2.7	ug/kg	
107-06-2	1,2-Dichloroethane	2.7 U	6.7	2.7	ug/kg	
78-87-5	1,2-Dichloropropane	2.7 U	6.7	2.7	ug/kg	
124-48-1	Dibromochloromethane	2.7 U	6.7	2.7	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	2.7 U	6.7	2.7	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	2.7 U	6.7	2.7	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	2.7 U	6.7	2.7	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	2.7 U	6.7	2.7	ug/kg	
100-41-4	Ethylbenzene	2.7 U	6.7	2.7	ug/kg	
591-78-6	2-Hexanone	13 U	34	13	ug/kg	
108-10-1	4-Methyl-2-pentanone	13 U	34	13	ug/kg	
74-83-9	Methyl bromide	2.7 U	6.7	2.7	ug/kg	
74-87-3	Methyl chloride	2.7 U	6.7	2.7	ug/kg	
75-09-2	Methylene chloride	6.7 U	13	6.7	ug/kg	
78-93-3	Methyl ethyl ketone	13 U	34	13	ug/kg	
100-42-5	Styrene	2.7 U	6.7	2.7	ug/kg	
71-55-6	1,1,1-Trichloroethane	2.7 U	6.7	2.7	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	2.7 U	6.7	2.7	ug/kg	
79-00-5	1,1,2-Trichloroethane	2.7 U	6.7	2.7	ug/kg	
127-18-4	Tetrachloroethylene	2.7 U	6.7	2.7	ug/kg	
108-88-3	Toluene	2.7 U	6.7	2.7	ug/kg	
79-01-6	Trichloroethylene	2.7 U	6.7	2.7	ug/kg	

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-59-SB-MW1-70		
Lab Sample ID:	F39312-2	Date Sampled:	03/16/06
Matrix:	SO - Soil	Date Received:	03/17/06
Method:	SW846 8260B	Percent Solids:	78.1
Project:	Cecil Field Site 59		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	2.7 U	6.7	2.7	ug/kg	
1330-20-7	Xylene (total)	6.1 U	20	6.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		78-123%
2037-26-5	Toluene-D8	107%		71-137%
460-00-4	4-Bromofluorobenzene	106%		61-157%
17060-07-0	1,2-Dichloroethane-D4	100%		74-125%

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-59-SB-MW1-70		
Lab Sample ID:	F39312-2	Date Sampled:	03/16/06
Matrix:	SO - Soil	Date Received:	03/17/06
		Percent Solids:	78.1
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chemical Oxygen Demand [a]	2360	2000	1000	mg/kg	10	03/20/06 09:00	CP	ARMY CORP. 1981
Solids, Percent	78.1			%	1	03/17/06	EM	EPA 160.3 M

(a) Dilution required due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-59-SB-MW4-65		
Lab Sample ID:	F39312-3	Date Sampled:	03/16/06
Matrix:	SO - Soil	Date Received:	03/17/06
		Percent Solids:	75.0
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chemical Oxygen Demand [a]	1050 I	2000	1000	mg/kg	10	03/20/06 09:00	CP	ARMY CORP. 1981
Fractional Organic Carbon	0.35			%	1	03/22/06 13:50	LE	ASTM D2974-87
Solids, Percent	75			%	1	03/17/06	EM	EPA 160.3 M

(a) Dilution required due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	CEF-59-SB-MW4-70		
Lab Sample ID:	F39312-4	Date Sampled:	03/16/06
Matrix:	SO - Soil	Date Received:	03/17/06
Method:	SW846 8260B	Percent Solids:	81.8
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F014636.D	1	03/29/06	WJ	n/a	n/a	VF89
Run #2							

	Initial Weight
Run #1	5.05 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	30 U	61	30	ug/kg	
71-43-2	Benzene	2.4 U	6.1	2.4	ug/kg	
75-27-4	Bromodichloromethane	2.4 U	6.1	2.4	ug/kg	
75-25-2	Bromoform	2.4 U	6.1	2.4	ug/kg	
108-90-7	Chlorobenzene	2.4 U	6.1	2.4	ug/kg	
75-00-3	Chloroethane	2.4 U	6.1	2.4	ug/kg	
67-66-3	Chloroform	2.4 U	6.1	2.4	ug/kg	
75-15-0	Carbon disulfide	3.9	6.1	2.4	ug/kg	I
56-23-5	Carbon tetrachloride	2.4 U	6.1	2.4	ug/kg	
75-34-3	1,1-Dichloroethane	2.4 U	6.1	2.4	ug/kg	
75-35-4	1,1-Dichloroethylene	2.4 U	6.1	2.4	ug/kg	
107-06-2	1,2-Dichloroethane	2.4 U	6.1	2.4	ug/kg	
78-87-5	1,2-Dichloropropane	2.4 U	6.1	2.4	ug/kg	
124-48-1	Dibromochloromethane	2.4 U	6.1	2.4	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	2.4 U	6.1	2.4	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	2.4 U	6.1	2.4	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	2.4 U	6.1	2.4	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	2.4 U	6.1	2.4	ug/kg	
100-41-4	Ethylbenzene	2.4 U	6.1	2.4	ug/kg	
591-78-6	2-Hexanone	12 U	30	12	ug/kg	
108-10-1	4-Methyl-2-pentanone	12 U	30	12	ug/kg	
74-83-9	Methyl bromide	2.4 U	6.1	2.4	ug/kg	
74-87-3	Methyl chloride	2.4 U	6.1	2.4	ug/kg	
75-09-2	Methylene chloride	6.1 U	12	6.1	ug/kg	
78-93-3	Methyl ethyl ketone	12 U	30	12	ug/kg	
100-42-5	Styrene	2.4 U	6.1	2.4	ug/kg	
71-55-6	1,1,1-Trichloroethane	2.4 U	6.1	2.4	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	2.4 U	6.1	2.4	ug/kg	
79-00-5	1,1,2-Trichloroethane	2.4 U	6.1	2.4	ug/kg	
127-18-4	Tetrachloroethylene	2.4 U	6.1	2.4	ug/kg	
108-88-3	Toluene	2.4 U	6.1	2.4	ug/kg	
79-01-6	Trichloroethylene	2.4 U	6.1	2.4	ug/kg	

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-59-SB-MW4-70		
Lab Sample ID:	F39312-4	Date Sampled:	03/16/06
Matrix:	SO - Soil	Date Received:	03/17/06
Method:	SW846 8260B	Percent Solids:	81.8
Project:	Cecil Field Site 59		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	2.4 U	6.1	2.4	ug/kg	
1330-20-7	Xylene (total)	5.4 U	18	5.4	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		78-123%
2037-26-5	Toluene-D8	106%		71-137%
460-00-4	4-Bromofluorobenzene	105%		61-157%
17060-07-0	1,2-Dichloroethane-D4	102%		74-125%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-59-SB-MW4-70		
Lab Sample ID:	F39312-4	Date Sampled:	03/16/06
Matrix:	SO - Soil	Date Received:	03/17/06
		Percent Solids:	81.8
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chemical Oxygen Demand [a]	1290 I	2000	1000	mg/kg	10	03/20/06 09:00	CP	ARMY CORP. 1981
Solids, Percent	81.8			%	1	03/17/06	EM	EPA 160.3 M

(a) Dilution required due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-59-SB-MW2-65		
Lab Sample ID:	F39312-5	Date Sampled:	03/16/06
Matrix:	SO - Soil	Date Received:	03/17/06
		Percent Solids:	75.6
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chemical Oxygen Demand [a]	1000 U	2000	1000	mg/kg	10	03/20/06 09:00	CP	ARMY CORP. 1981
Fractional Organic Carbon	0.24			%	1	03/22/06 13:50	LE	ASTM D2974-87
Solids, Percent	75.6			%	1	03/17/06	EM	EPA 160.3 M

(a) Dilution required due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-59-SB-MW2-70		
Lab Sample ID:	F39312-6	Date Sampled:	03/16/06
Matrix:	SO - Soil	Date Received:	03/17/06
Method:	SW846 8260B	Percent Solids:	76.7
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F014637.D	1	03/29/06	WJ	n/a	n/a	VF89
Run #2							

	Initial Weight
Run #1	5.02 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	32 U	65	32	ug/kg	
71-43-2	Benzene	2.6 U	6.5	2.6	ug/kg	
75-27-4	Bromodichloromethane	2.6 U	6.5	2.6	ug/kg	
75-25-2	Bromoform	2.6 U	6.5	2.6	ug/kg	
108-90-7	Chlorobenzene	2.6 U	6.5	2.6	ug/kg	
75-00-3	Chloroethane	2.6 U	6.5	2.6	ug/kg	
67-66-3	Chloroform	2.6 U	6.5	2.6	ug/kg	
75-15-0	Carbon disulfide	2.6 U	6.5	2.6	ug/kg	
56-23-5	Carbon tetrachloride	2.6 U	6.5	2.6	ug/kg	
75-34-3	1,1-Dichloroethane	2.6 U	6.5	2.6	ug/kg	
75-35-4	1,1-Dichloroethylene	2.6 U	6.5	2.6	ug/kg	
107-06-2	1,2-Dichloroethane	2.6 U	6.5	2.6	ug/kg	
78-87-5	1,2-Dichloropropane	2.6 U	6.5	2.6	ug/kg	
124-48-1	Dibromochloromethane	2.6 U	6.5	2.6	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	2.6 U	6.5	2.6	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	2.6 U	6.5	2.6	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	2.6 U	6.5	2.6	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	2.6 U	6.5	2.6	ug/kg	
100-41-4	Ethylbenzene	2.6 U	6.5	2.6	ug/kg	
591-78-6	2-Hexanone	13 U	32	13	ug/kg	
108-10-1	4-Methyl-2-pentanone	13 U	32	13	ug/kg	
74-83-9	Methyl bromide	2.6 U	6.5	2.6	ug/kg	
74-87-3	Methyl chloride	2.6 U	6.5	2.6	ug/kg	
75-09-2	Methylene chloride	6.5 U	13	6.5	ug/kg	
78-93-3	Methyl ethyl ketone	13 U	32	13	ug/kg	
100-42-5	Styrene	2.6 U	6.5	2.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	2.6 U	6.5	2.6	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	2.6 U	6.5	2.6	ug/kg	
79-00-5	1,1,2-Trichloroethane	2.6 U	6.5	2.6	ug/kg	
127-18-4	Tetrachloroethylene	2.6 U	6.5	2.6	ug/kg	
108-88-3	Toluene	2.6 U	6.5	2.6	ug/kg	
79-01-6	Trichloroethylene	9.3	6.5	2.6	ug/kg	

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-59-SB-MW2-70		
Lab Sample ID:	F39312-6	Date Sampled:	03/16/06
Matrix:	SO - Soil	Date Received:	03/17/06
Method:	SW846 8260B	Percent Solids:	76.7
Project:	Cecil Field Site 59		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	2.6 U	6.5	2.6	ug/kg	
1330-20-7	Xylene (total)	5.8 U	19	5.8	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		78-123%
2037-26-5	Toluene-D8	108%		71-137%
460-00-4	4-Bromofluorobenzene	108%		61-157%
17060-07-0	1,2-Dichloroethane-D4	101%		74-125%

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-59-SB-MW2-70		
Lab Sample ID:	F39312-6	Date Sampled:	03/16/06
Matrix:	SO - Soil	Date Received:	03/17/06
		Percent Solids:	76.7
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chemical Oxygen Demand [a]	1000 U	2000	1000	mg/kg	10	03/20/06 09:00	CP	ARMY CORP. 1981
Solids, Percent	76.7			%	1	03/17/06	EM	EPA 160.3 M

(a) Dilution required due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-59-SB-MW2-50		
Lab Sample ID:	F39312-7	Date Sampled:	03/16/06
Matrix:	SO - Soil	Date Received:	03/17/06
		Percent Solids:	81.1
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Fractional Organic Carbon	0.47		%	1	03/22/06 13:50	LE	ASTM D2974-87
Solids, Percent	81.1		%	1	03/17/06	EM	EPA 160.3 M

RL = Reporting Limit

EVENT 1

Report of Analysis

Client Sample ID:	CEF-059-GW-MW5-01A		
Lab Sample ID:	F39250-1	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B037392.D	1	03/28/06	JG	n/a	n/a	VB1582
Run #2	C0039780.D	100	03/27/06	JG	n/a	n/a	VC1616

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	126 [a]	100	50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%	104%	86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW5-01A		
Lab Sample ID:	F39250-1	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	89%	97%	73-126%
2037-26-5	Toluene-D8	108%	95%	86-112%
460-00-4	4-Bromofluorobenzene	111%	97%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-01A		
Lab Sample ID:	F39250-2	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B037393.D	1	03/28/06	JG	n/a	n/a	VB1582
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.72	1.0	0.50	ug/l	I
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	15.4	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-01A		
Lab Sample ID:	F39250-2	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	88%		73-126%
2037-26-5	Toluene-D8	107%		86-112%
460-00-4	4-Bromofluorobenzene	110%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-01A		
Lab Sample ID:	F39250-2	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Sodium	11300	5000	77	ug/l	1	03/27/06	03/28/06 RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4887
(2) Prep QC Batch: MP9404

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-01A		
Lab Sample ID:	F39250-2	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.9	2.0	1.0	mg/l	1	03/15/06 11:46	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	03/15/06 11:46	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	03/15/06 11:46	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.040 U	0.20	0.040	mg/l	2	03/15/06 11:50	LE	EPA 365.3
Sulfate	24.3	2.0	1.0	mg/l	1	03/15/06 11:46	MP	EPA 300/SW846 9056
Total Organic Carbon	1.8	1.0	0.50	mg/l	1	03/28/06 13:21	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-01A		
Lab Sample ID:	F39250-2A	Date Sampled:	03/14/06
Matrix:	AQ - Groundwater Filtered	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	406	300	7.5	ug/l	1	03/27/06	03/28/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	7.9 I	15	0.20	ug/l	1	03/27/06	03/28/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4887
(2) Prep QC Batch: MP9404

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-01A		
Lab Sample ID:	F39250-2A	Date Sampled:	03/14/06
Matrix:	AQ - Groundwater Filtered	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Sulfide	1.0 U	1.0	1.0	mg/l	1	03/17/06	LE	EPA 376.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-01A		
Lab Sample ID:	F39250-3	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B037394.D	1	03/28/06	JG	n/a	n/a	VB1582
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	1.1	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	19.5	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-01A		
Lab Sample ID:	F39250-3	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	89%		73-126%
2037-26-5	Toluene-D8	108%		86-112%
460-00-4	4-Bromofluorobenzene	111%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-01A		
Lab Sample ID:	F39250-3	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	14200	5000	77	ug/l	1	03/27/06	03/28/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4887
(2) Prep QC Batch: MP9404

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-01A		
Lab Sample ID:	F39250-3	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	10	2.0	1.0	mg/l	1	03/15/06 12:02	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	03/15/06 12:02	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	03/15/06 12:02	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.14	0.10	0.020	mg/l	1	03/15/06 11:50	LE	EPA 365.3
Sulfate	32.3	2.0	1.0	mg/l	1	03/15/06 12:02	MP	EPA 300/SW846 9056
Total Organic Carbon	1.4	1.0	0.50	mg/l	1	03/28/06 13:36	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-01A		
Lab Sample ID:	F39250-3A	Date Sampled:	03/14/06
Matrix:	AQ - Groundwater Filtered	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	653	300	7.5	ug/l	1	03/27/06	03/28/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	11.5 I	15	0.20	ug/l	1	03/27/06	03/28/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4887
(2) Prep QC Batch: MP9404

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-01A		
Lab Sample ID:	F39250-3A	Date Sampled:	03/14/06
Matrix:	AQ - Groundwater Filtered	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Sulfide	1.0 U	1.0	1.0	mg/l	1	03/17/06	LE	EPA 376.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-003-73-01A		
Lab Sample ID:	F39250-4	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B037395.D	1	03/28/06	JG	n/a	n/a	VB1582
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	56.0	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-003-73-01A		
Lab Sample ID:	F39250-4	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	90%		73-126%
2037-26-5	Toluene-D8	107%		86-112%
460-00-4	4-Bromofluorobenzene	111%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-003-73-01A		
Lab Sample ID:	F39250-4	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	4810 I	5000	77	ug/l	1	03/27/06	03/28/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4887
(2) Prep QC Batch: MP9404

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-003-73-01A		
Lab Sample ID:	F39250-4	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.5	2.0	1.0	mg/l	1	03/15/06 12:17	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	03/15/06 12:17	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	03/15/06 12:17	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.053 I	0.10	0.020	mg/l	1	03/15/06 11:50	LE	EPA 365.3
Sulfate	22.1	2.0	1.0	mg/l	1	03/15/06 12:17	MP	EPA 300/SW846 9056
Total Organic Carbon	0.88 I	1.0	0.50	mg/l	1	03/28/06 13:50	SJL	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-003-73-01A		
Lab Sample ID:	F39250-4A	Date Sampled:	03/14/06
Matrix:	AQ - Groundwater Filtered	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	535	300	7.5	ug/l	1	03/27/06	03/28/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	3.2 I	15	0.20	ug/l	1	03/27/06	03/28/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4887
(2) Prep QC Batch: MP9404

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-003-73-01A		
Lab Sample ID:	F39250-4A	Date Sampled:	03/14/06
Matrix:	AQ - Groundwater Filtered	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Sulfide	1.0 U	1.0	1.0	mg/l	1	03/17/06	LE	EPA 376.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-01A		
Lab Sample ID:	F39250-5	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	B037426.D	1	03/29/06	JG	n/a	n/a	VB1583
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	1.1	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	18.8	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-01A		
Lab Sample ID:	F39250-5	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	92%		73-126%
2037-26-5	Toluene-D8	110%		86-112%
460-00-4	4-Bromofluorobenzene	108%		83-119%

(a) Sample analyzed beyond hold time; reported results are considered minimum values.

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-01A		
Lab Sample ID:	F39250-5	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	17700	5000	77	ug/l	1	03/27/06	03/28/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4887
(2) Prep QC Batch: MP9404

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-01A		
Lab Sample ID:	F39250-5	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.4	2.0	1.0	mg/l	1	03/15/06 12:33	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 I	0.10	0.050	mg/l	1	03/15/06 12:33	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	03/15/06 12:33	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.067 I	0.10	0.020	mg/l	1	03/15/06 11:50	LE	EPA 365.3
Sulfate	39.5	2.0	1.0	mg/l	1	03/15/06 12:33	MP	EPA 300/SW846 9056
Total Organic Carbon	0.93 I	1.0	0.50	mg/l	1	03/28/06 14:05	SJL	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-01A		
Lab Sample ID:	F39250-5A	Date Sampled:	03/14/06
Matrix:	AQ - Groundwater Filtered	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	361	300	7.5	ug/l	1	03/27/06	03/28/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	10.2 I	15	0.20	ug/l	1	03/27/06	03/28/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4887
(2) Prep QC Batch: MP9404

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-01A		
Lab Sample ID:	F39250-5A	Date Sampled:	03/14/06
Matrix:	AQ - Groundwater Filtered	Date Received:	03/15/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Sulfide	1.0 U	1.0	1.0	mg/l	1	03/17/06	LE	EPA 376.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-003-53-01A		
Lab Sample ID:	F39291-1	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0039793.D	1	03/28/06	JG	n/a	n/a	VC1617
Run #2 [a]	M0011342.D	50	03/27/06	CS	n/a	n/a	VM477

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	10.9	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%	104%	86-115%

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit = PQL V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-003-53-01A		
Lab Sample ID:	F39291-1	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	94%	108%	73-126%
2037-26-5	Toluene-D8	107%	101%	86-112%
460-00-4	4-Bromofluorobenzene	100%	105%	83-119%

(a) Confirmation run.

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-002-30-01A		
Lab Sample ID:	F39291-2	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	C0039848.D	1	03/29/06	JG	n/a	n/a	VC1619
Run #2 [b]	C0039795.D	5	03/28/06	JG	n/a	n/a	VC1617

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	0.62	1.0	0.50	ug/l	I
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%	101%	86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
I. = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-002-30-01A		
Lab Sample ID:	F39291-2	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	96%	93%	73-126%
2037-26-5	Toluene-D8	107%	106%	86-112%
460-00-4	4-Bromofluorobenzene	99%	100%	83-119%

(a) Sample re-analyzed beyond hold time; reported results are considered minimum values.
(b) Confirmation run.

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
I = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-DU01-01A		
Lab Sample ID:	F39291-3	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0039794.D	1	03/28/06	JG	n/a	n/a	VC1617
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	10.5	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-DU01-01A		
Lab Sample ID:	F39291-3	Date Sampled:	03/14/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	93%		73-126%
2037-26-5	Toluene-D8	106%		86-112%
460-00-4	4-Bromofluorobenzene	102%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-53-01A		
Lab Sample ID:	F39291-4	Date Sampled:	03/15/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0039799.D	5	03/28/06	JG	n/a	n/a	VC1617
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	2.5 U	5.0	2.5	ug/l	
75-25-2	Bromoform	2.5 U	5.0	2.5	ug/l	
108-90-7	Chlorobenzene	2.5 U	5.0	2.5	ug/l	
75-00-3	Chloroethane	5.0 U	10	5.0	ug/l	
67-66-3	Chloroform	2.5 U	5.0	2.5	ug/l	
110-75-8	2-Chloroethyl vinyl ether	13 U	25	13	ug/l	
56-23-5	Carbon tetrachloride	2.5 U	5.0	2.5	ug/l	
75-34-3	1,1-Dichloroethane	2.5 U	5.0	2.5	ug/l	
75-35-4	1,1-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
107-06-2	1,2-Dichloroethane	2.5 U	5.0	2.5	ug/l	
78-87-5	1,2-Dichloropropane	2.5 U	5.0	2.5	ug/l	
124-48-1	Dibromochloromethane	2.0 U	5.0	2.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
10061-01-5	cis-1,3-Dichloropropene	1.5 U	5.0	1.5	ug/l	
541-73-1	m-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
95-50-1	o-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
106-46-7	p-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
156-60-5	trans-1,2-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
10061-02-6	trans-1,3-Dichloropropene	1.5 U	5.0	1.5	ug/l	
74-83-9	Methyl bromide	5.0 U	10	5.0	ug/l	
74-87-3	Methyl chloride	5.0 U	10	5.0	ug/l	
75-09-2	Methylene chloride	5.0 U	25	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	2.5 U	5.0	2.5	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	2.0 U	5.0	2.0	ug/l	
79-00-5	1,1,2-Trichloroethane	2.5 U	5.0	2.5	ug/l	
127-18-4	Tetrachloroethylene	2.5 U	5.0	2.5	ug/l	
79-01-6	Trichloroethylene	128	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	2.5 U	5.0	2.5	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		86-115%

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit = PQL V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-53-01A		
Lab Sample ID:	F39291-4	Date Sampled:	03/15/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	93%		73-126%
2037-26-5	Toluene-D8	107%		86-112%
460-00-4	4-Bromofluorobenzene	95%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-53-01A		
Lab Sample ID:	F39291-4	Date Sampled:	03/15/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	19800	5000	77	ug/l	1	03/23/06	03/23/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4878
(2) Prep QC Batch: MP9388

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-53-01A		
Lab Sample ID:	F39291-4	Date Sampled:	03/15/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.0	2.0	1.0	mg/l	1	03/16/06 18:29	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 I	0.10	0.050	mg/l	1	03/16/06 18:29	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	03/16/06 18:29	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.020 U	0.10	0.020	mg/l	1	03/16/06 13:45	LE	EPA 365.3
Sulfate	50.5	2.0	1.0	mg/l	1	03/16/06 18:29	MP	EPA 300/SW846 9056
Total Organic Carbon	1.5	1.0	0.50	mg/l	1	03/24/06 11:40	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-53-01A		
Lab Sample ID:	F39291-4A	Date Sampled:	03/15/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	713	300	7.5	ug/l	1	03/23/06	03/23/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	16.1	15	0.20	ug/l	1	03/23/06	03/23/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4878
(2) Prep QC Batch: MP9388

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-53-01A		
Lab Sample ID:	F39291-4A	Date Sampled:	03/15/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Sulfide	1.0 U	1.0	1.0	mg/l	1	03/17/06	LE	EPA 376.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-53-01A		
Lab Sample ID:	F39291-5	Date Sampled:	03/15/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0039800.D	1	03/28/06	JG	n/a	n/a	VC1617
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	2.0	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	15.2	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-53-01A		
Lab Sample ID:	F39291-5	Date Sampled:	03/15/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	95%		73-126%
2037-26-5	Toluene-D8	106%		86-112%
460-00-4	4-Bromofluorobenzene	100%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-53-01A		
Lab Sample ID:	F39291-5	Date Sampled:	03/15/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	16800	5000	77	ug/l	1	03/23/06	03/23/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4878
(2) Prep QC Batch: MP9388

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-53-01A		
Lab Sample ID:	F39291-5	Date Sampled:	03/15/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.6	2.0	1.0	mg/l	1	03/17/06 10:04	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	03/17/06 10:04	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	03/17/06 10:04	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.13	0.10	0.020	mg/l	1	03/16/06 13:45	LE	EPA 365.3
Sulfate	27.9	2.0	1.0	mg/l	1	03/17/06 10:04	MP	EPA 300/SW846 9056
Total Organic Carbon	1.9	1.0	0.50	mg/l	1	03/24/06 12:59	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-53-01A		
Lab Sample ID:	F39291-5A	Date Sampled:	03/15/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	393	300	7.5	ug/l	1	03/23/06	03/23/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	14.6 I	15	0.20	ug/l	1	03/23/06	03/23/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4878
(2) Prep QC Batch: MP9388

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-53-01A		
Lab Sample ID:	F39291-5A	Date Sampled:	03/15/06
Matrix:	AQ - Ground Water	Date Received:	03/16/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Sulfide	1.0 U	1.0	1.0	mg/l	1	03/17/06	LE	EPA 376.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

MICROBIAL INSIGHTS, INC.
2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel: (865) 573-8188; Fax: (865) 573-8133

Q Potential (DNA)

Client: **Tetra Tech , Inc.**
Project: CTO# 78

MI Project Number: **020DC**
Date Received: 03/15/2006

Sample Information

Client Sample ID:		CEF-059-GW-MW2-01A	CEF-059-GW-MW1-01A	CEF-059-GW-001-83-01A
Sample Date:		03/14/2006	03/14/2006	03/15/2006
Units:		cells/mL	cells/mL	cells/mL
Dechlorinating Bacteria				
Dehalococcoides spp (1)	DHC	**1.77E+01**	**2.7E+00**	**1.29E+00**
Functional Genes				
BAV1 VC R-Dase (1)	BVC	**7.64E+00**	<7.14E-01	<4.55E-01
TCE R-Dase (1)	TCE	**8.27E+00**	**1.16E+00**	<4.55E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Notes:
1 Bio-Dechlor Census technology was developed by Dr. Loeffler and colleagues at Georgia Institute of Technology and was licensed for use through Regenesis.

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 2 of 10
Lab Proj #: P0603261
Report Date: 03/23/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW2-01A	Water	P0603261-01	14 Mar. 06 10:00	16 Mar. 06 13:52

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
Acetic Acid	J	0.056	0.07	mg/L	AM23G	3/17/06	jb
Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	3/20/06	sl
Butyric acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb
Ethane	J	0.009	0.025	ug/L	AM20GAX	3/20/06	sl
Ethene		0.043	0.025	ug/L	AM20GAX	3/20/06	sl
Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	3/17/06	jb
i-Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	3/17/06	jb
i-Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb
Lactic Acid and HIBA	J	0 074	0.1	mg/L	AM23G	3/17/06	jb
Methane		7.200	0.100	ug/L	AM20GAX	3/20/06	sl
Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb
Propionic acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb
Pyruvic acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sa s received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 3 of 10
Lab Proj #: P0603261
Report Date: 03/23/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW4-01A	Water	P0603261-02	14 Mar. 06 10:38	16 Mar. 06 13:52

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
Acetic Acid	J	0.067	0.07	mg/L	AM23G	3/17/06	jb
Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	3/20/06	sl
Butyric acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb
Ethane	J	0.014	0.025	ug/L	AM20GAX	3/20/06	sl
Ethene		0.090	0.025	ug/L	AM20GAX	3/20/06	sl
Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	3/17/06	jb
i-Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	3/17/06	jb
i-Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb
Lactic Acid and HIBA	U	< 0.100	0.1	mg/L	AM23G	3/17/06	jb
Methane		6.700	0.100	ug/L	AM20GAX	3/20/06	sl
Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb
Propionic acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb
Pyruvic acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sa[illegible]as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 4 of 10
Lab Proj #: P0603261
Report Date: 03/23/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-59-GW-003-73-01A	Water	P0603261-03	14 Mar. 06 12:10	16 Mar. 06 13:52

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
Acetic Acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb
Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	3/20/06	sl
Butyric acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb
Ethane	J	0.012	0.025	ug/L	AM20GAX	3/20/06	sl
Ethene		0.047	0.025	ug/L	AM20GAX	3/20/06	sl
Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	3/17/06	jb
i-Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	3/17/06	jb
i-Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb
Lactic Acid and HIBA	U	< 0.100	0.1	mg/L	AM23G	3/17/06	jb
Methane		5.200	0.100	ug/L	AM20GAX	3/20/06	sl
Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb
Propionic acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb
Pyruvic acid	U	< 0.070	0.07	mg/L	AM23G	3/17/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sam[illegible]s received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 5 of 10
Lab Proj #: P0603261
Report Date: 03/23/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW1-01A	Water	P0603261-04	14 Mar. 06 13:05	16 Mar. 06 13:52

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
Acetic Acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	3/20/06	sl
Butyric acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Ethane	J	0.014	0.025	ug/L	AM20GAX	3/20/06	sl
Ethene		0.079	0.025	ug/L	AM20GAX	3/20/06	sl
Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	3/18/06	jb
i-Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	3/18/06	jb
i-Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Lactic Acid and HIBA	U	< 0.100	0.1	mg/L	AM23G	3/18/06	jb
Methane		2.700	0.100	ug/L	AM20GAX	3/20/06	sl
Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Propionic acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Pyruvic acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sar ns received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 6 of 10
Lab Proj #: P0603261
Report Date: 03/23/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW3-01A	Water	P0603261-05	14 Mar. 06 10:50	16 Mar. 06 13:52

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
Acetic Acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	3/20/06	sl
Butyric acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Ethane	J	0.009	0.025	ug/L	AM20GAX	3/20/06	sl
Ethene		0.043	0.025	ug/L	AM20GAX	3/20/06	sl
Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	3/18/06	jb
i-Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	3/18/06	jb
i-Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Lactic Acid and HIBA	U	< 0.100	0.1	mg/L	AM23G	3/18/06	jb
Methane		4.600	0.100	ug/L	AM20GAX	3/20/06	sl
Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Propionic acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Pyruvic acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sa[illegible]as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 7 of 10
Lab Proj #: P0603261
Report Date: 03/23/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-IW2-01A	Water	P0603261-06	15 Mar. 06 11:53	16 Mar. 06 13:52

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
Acetic Acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	3/20/06	sl
Butyric acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Ethane	J	0.019	0.025	ug/L	AM20GAX	3/20/06	sl
Ethene		0.170	0.025	ug/L	AM20GAX	3/20/06	sl
Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	3/18/06	jb
i-Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	3/18/06	jb
i-Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Lactic Acid and HIBA	U	< 0.100	0.1	mg/L	AM23G	3/18/06	jb
Methane		4.800	0.100	ug/L	AM20GAX	3/20/06	sl
Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Propionic acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb
Pyruvic acid	U	< 0.070	0.07	mg/L	AM23G	3/18/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field
s[illegible]s received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 3270 | PAGE 1 OF 1

PROJECT NO: 112GN0039	FACILITY: SITE 59	PROJECT MANAGER: MARK SPERANZA	PHONE NUMBER: (800)245-2730	LABORATORY NAME AND CONTACT: ACCUTEST / H. WANDREY
SAMPLERS (SIGNATURE): Terry Cotteroi		FIELD OPERATIONS LEADER: PETE LEVERETTE	PHONE NUMBER: (904)636-6125	ADDRESS: 4405 VINELAND RD C-15
		CARRIER/WAYBILL NUMBER: COURIER PICK-UP		CITY, STATE: ORLANDO, FL 32811

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

DATE (YEAR 2006)	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	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: VOC (8260B)	TYPE OF ANALYSIS: FOC (WALKLEY BLACK)	TYPE OF ANALYSIS: COD (EPA 410.1)	COMMENTS
									G					
									G	1				
									G	1				
3/16	1050	CEF-59-SB-MW1-65				SO	G	2			-	1	1	*COOL TO 4°C
3/16	1050	CEF-59-SB-MW1-70				SO	G	4			3	-	1	
3/16	1145	CEF-59-SB-MW4-65				SO	G	2			-	1	1	
3/16	1145	CEF-59-SB-MW4-70				SO	G	4			3	-	1	
3/16	1455	CEF-59-SB-MW2-65				SO	G	2			-	1	1	
3/16	1455	CEF-59-SB-MW2-70				SO	G	4			3	-	1	
3/16	1549	CEF-59-SB-MW2-50				SO	G	1			-	1	-	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	3/16/06	1555	1. RECEIVED BY (Accutest)	3/16/06	15:55
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

REPORT TO:

Reports will be provided to the contact(s) listed below. Parties other than the contact(s) listed below will require prior approval.

Name: MARK SPERANZA
Company: TETRA TECH NUS
Address: FOSTER PLAZA 7
661 ANDERSEN DR.
PITTSBURGH, PA 15220-2745
email: speranzam@ttnus.com
Phone: (800) 245-2730
Fax: (412) 921-7140

Project Manager: MARK SPERANZA
Project Name: SITE 59 PILOT STUDY
Project No.: 112GN0039

INVOICE TO:

For Invoices **paid by a third party** it is imperative that contact information & corresponding reference No. be provided.

Name: SAME
Company:
Address:
email:
Phone: ( )
Fax: ( )

Purchase Order No. 1007056
Subcontract No.

microbialinsights
2340 Stock Creek Blvd.
Rockford, TN 37853-3044
phone (865) 573-8188
fax: (865) 573-8133
email: info@microbe.com
www.microbe.com

Please Check One:
☒ More samples to follow
☐ No Additional Samples

Saturday Delivery
Please see sampling protocol for instructions

Report Type: ☒ Standard (default) ☐ Comprehensive (15% surcharge) ☐ Historical (30% surcharge)

Please contact us prior to submitting samples regarding questions about the analyses you are requesting at (865) 573-8188 (8:00 am to 4:00 pm M-F). After these hours please call (865) 300-8053.

Sample Information					Q-Targets:																														
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	VFA	M/E/E	DGGE+3ID	DGGE+5ID	Q-Potential (DNA)	Q-Expression (RNA)*	qDHC (Dehalococcoides)	qTCE R-Dase	qBAV1 VC R-Dase	qDHB (Dehalobacter)	qDSM (Desulfuromonas)	qDSB (Desulfitobacterium)	qEBAC (Total)	qDSR (SRBs only)	qSRB/IRB	qMGN (methanogens)	qMOB (methanotrophs)	qDNF (Dentrifying)	qAOB (ammonia oxidizing)	qPM1 (MTBE aerobic)	qTOD (Initial PAHs aerobic)	qCAT (Intermediate PAHs aerobic)	qBSS (Toluen/Xylene Anaerobic)	qNAH (Napthalene aerobic)	add. qPCR:	add. qPCR:	add. qPCR:	Other: CSSI	Other:	Other:
	CEF-059-GW-MW2-01A	3/14/06	1000	GW						X		X																					X		
	CEF-059-GW-MW1-01A	3/14/06	1305	GW						X		X																					X		

Relinquished by: [signature] Date: 3/14/06 Received by: Date

In order for analysis to be completed correctly, it is vital that chain of custody is filled out correctly & that all relative information is provided. Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable. *** additional cost and sample preservation are associated with RNA samples.**

REPORT TO:

Reports will be provided to the contact(s) listed below. Parties other than the contact(s) listed below will require prior approval.

Name: MARK SPERANZA
Company: TETRA TECH NUS
Address: FOSTER PLAZA 7
661 ANDERSEN DR.
PITTSBURGH, PA 15220-2745
email: speranzam@ttnus.com
Phone: (800) 245-2730
Fax: (412) 921-7140

Project Manager: MARK SPERANZA
Project Name: SITE 59 PILOT STUDY
Project No.: 1126N0039

INVOICE TO:

For Invoices **paid by a third-party** it is imperative that contact information & corresponding reference No. be provided.

Name: SAME
Company:
Address:
email:
Phone: ( )
Fax: ( )

Purchase Order No. 1007056
Subcontract No.

microbialinsights
2340 Stock Creek Blvd.
Rockford, TN 37853-3044
phone (865) 573-8188
fax: (865) 573-8133
email: info@microbe.com
www.microbe.com

Please Check One:

☐ More samples to follow
☒ No Additional Samples

Saturday Delivery

Please see sampling protocol for instructions

Report Type: ☒ Standard (default) ☐ Comprehensive (15% surcharge) ☐ Historical (30% surcharge)

Please contact us prior to submitting samples regarding questions about the analyses you are requesting at (865) 573-8188 (8:00 am to 4:00 pm M-F). After these hours please call (865) 300-8053.

Sample Information					Q-Targets (Put in column headers for DNA or Q-Expression for RNA)																														
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	VFA	ME/E	DGGE+3D	DGGE+5D	Q-Potential (DNA)	Q-Expression (RNA)*	qDHC (Dehalococcoides)	qTCE R-Dase	qBAV1 VC R-Dase	qDHB (Dehalobacter)	qDSM (Desulfuromonas)	qDSB (Desulfitobacterium)	qEBAC (Total)	qDSR (SRBs only)	qSRB/IRB	qMGN (methanogens)	qMOB (methanotrophs)	qDNF (Denitrifying)	qAOB (ammonia oxidizing)	qPM1 (MTBE aerobic)	qTOD (Initial PAHs aerobic)	qCAT (Intermediate PAHs aerobic)	qBSS (Toluen/Xylene Anaerobic)	qNAH (Napthalene aerobic)	add. qPCR:	add. qPCR:	add. qPCR:	Other: CSSI	Other:	Other:
	CEF-059-GW-002-30-01A	3/14/06	1610	GW																												X		
	CEF-059-GW-001-83-01A	3/15/06	1238	GW						X		X																						

Relinquished by: [signature] Date: 3/15/06 Received by: Date

In order for analysis to be completed correctly, it is vital that chain of custody is filled out correctly & that all relative information is provided. Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable. *** additional cost and sample preservation are associated with RNA samples.**

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 2252 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
N0039	Site 59 Cecil Field	Mark Speranza	(800)245-2730	Microseeps Debbie Hallo
SAMPLERS (SIGNATURE)		**FIELD OPERATIONS LEADER**	**PHONE NUMBER**	**ADDRESS**
		Pete Leverette	(904)636-6125	220 William Pitt Way
		CARRIER/WAYBILL NUMBER		**CITY, STATE**
		FEDEX		Pittsburgh, PA 15238

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

CONTAINER TYPE PLASTIC (P) or GLASS (G): G G
PRESERVATIVE USED
TYPE OF ANALYSIS: MEE + Acetylene (AM20GAX) | * Volatile Fatty Acids (AM236) | Trisodium Phosphate | Benzethonium Chloride

DATE (YEAR 2006)	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	MEE + Acetylene (AM20GAX)	* Volatile Fatty Acids (AM236)	Trisodium Phosphate	Benzethonium Chloride	COMMENTS
3/14	1000	CEF-059-GW-MW2-01A				GW	G	4	X	X			Cool to 4°C
3/14	1038	CEF-059-GW-MW4-01A				GW	G	4	X	X			
3/14	1210	CEF-059-GW-003-73-01A				GW	G	4	X	X			
3/14	1305	CEF-059-GW-MW1-01A				GW	G	4	X	X			PO# 1007090
3/15	1050	CEF-059-GW-MW3-01A				GW	G	4	X	X			
3/15	1153	CEF-059-GW-IW2-01A				GW	G	4	X	X			
													* Metabolic Acids: Lactic, Pyruvic, Acetic, Propionic, Butyric

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	3/15/06	1530	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

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

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 2251 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
N0039	Site 59 Cecil Field	Mark Speranza	(800)245-2730	Accutest. H. Wandrey
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Pete Leverette, Terry Cotterill		Pete Leverette	(904)636-6125	4405 Vineland Rd. C-15
		CARRIER/WAYBILL NUMBER		CITY, STATE
		Courier Pick-up		Orlando, FL 32811

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

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

PRESERVATIVE USED: HCL, HNO3, HNO3, HNO3, 2n Acetate NaOH, –, HCL

TYPE OF ANALYSIS

DATE YEAR 2006	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	Chlorinated VOCs (8260)	Diss. Fe (6010B)	Diss. Mn (6010B)	Sodium (6010B)	Diss. Sulfide (EPA 376.1)	*Anions (EPA 300.0)	TOC (EPA 415.1)		COMMENTS
3/14	1420	CEF-059-GW-003-53-01A				GW	G	3	X	–	–	–	–	–	–		Cool to 4°C
3/14	1610	CEF-059-GW-002-30-01A						3	X	–	–	–	–	–	–		
3/14	0000	CEF-059-GW-DU01-01A						3	X	–	–	–	–	–	–		
3/15	1050	CEF-059-GW-MW3-01A						11	X	X	X	X	X	X	X		WR# 1006570
3/15	1153	CEF-059-GW-IW2-01A						11	X	X	X	X	X	X	X		

*Anions: Chloride, Nitrate, Nitrite, Sulfate, Orthophosphate

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
Pete Leverette	3/15/06	1615	Stephen C. [illegible]	3/15/06	1615
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

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 2250 | PAGE 1 OF ____

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
N0039	SITE 59 CECIL FIELD	MARK SPERANZA	(800) 245-2730	ACCUTEST H. WANDREY
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
		PETE LEVERETTE	(904) 636-6125	4405 VINELAND RD C-15
		CARRIER/WAYBILL NUMBER		CITY, STATE
		COURIER PICK-UP		ORLANDO, FL 32811

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

DATE (YEAR 2006)	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	CONTAINER TYPE PLASTIC (P) or GLASS (G)								
									G	P	P	P	P	P	G		
									PRESERVATIVE USED		HCl	HNO_3	HNO_3	HNO_3	Zn Acetate NaOH	1	H_2SO_4
									TYPE OF ANALYSIS		Chlorinated VOCs (8260)	Diss. Fe (6010B)	Diss. Mn (6010B)	Sodium (6010B)	Diss. Sulfide (EPA 376.1)	*Anions (EPA 300.0)	TOC (EPA 415.1)
3/14	0931	CEF-059-GW-MW5-01A				GW	G	3			X	-	-	-	-	-	-		COOL TO 4°C
	1000	CEF-059-GW-MW2-01A						11			X	X	X	X	X	X	X		
	1038	CEF-059-GW-MW4-01A						11			X	X	X	X	X	X	X		
	1210	CEF-059-GW-003-73-01A						17			X	X	X	X	X	X	X		WR# 1006570
	1305	CEF-059-GW-MW1-01A						11			X	X	X	X	X	X	X		
																			*ANIONS: CHLORIDE, NITRATE, NITRITE, SULFATE, ORTHOPHOSPATE

1. RELINQUISHED BY	DATE 3/14/06	TIME 1450	1. RECEIVED BY (ACCUTEST)	DATE 3/14/06	TIME 14:30
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

VERIFICATION SAMPLING ROUND

Report of Analysis

Client Sample ID:	CEF-059-GW-003-73-01A-VS		
Lab Sample ID:	F39796-1	Date Sampled:	04/05/06
Matrix:	AQ - Ground Water	Date Received:	04/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0011660.D	1	04/07/06	CS	n/a	n/a	VM491
Run #2	M0011647.D	50	04/07/06	CS	n/a	n/a	VM489

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	9.7	25	5.0	ug/l	I
71-43-2	Benzene	0.50 U	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
75-15-0	Carbon disulfide	1.0 U	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	0.50 U	1.0	0.50	ug/l	
591-78-6	2-Hexanone	2.5 U	5.0	2.5	ug/l	
108-10-1	4-Methyl-2-pentanone	2.5 U	5.0	2.5	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	14.8	5.0	2.5	ug/l	
100-42-5	Styrene	0.50 U	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
108-88-3	Toluene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	167 [a]	50	25	ug/l	

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit = PQL V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-003-73-01A-VS		
Lab Sample ID:	F39796-1	Date Sampled:	04/05/06
Matrix:	AQ - Ground Water	Date Received:	04/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	1.0 U	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%	108%	86-115%
17060-07-0	1,2-Dichloroethane-D4	119%	122%	73-126%
2037-26-5	Toluene-D8	102%	102%	86-112%
460-00-4	4-Bromofluorobenzene	111%	110%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-003-35-01A-VS		
Lab Sample ID:	F39796-2	Date Sampled:	04/05/06
Matrix:	AQ - Ground Water	Date Received:	04/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0011661.D	1	04/07/06	CS	n/a	n/a	VM491
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	5.0 U	25	5.0	ug/l	
71-43-2	Benzene	0.50 U	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
75-15-0	Carbon disulfide	1.0 U	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	0.50 U	1.0	0.50	ug/l	
591-78-6	2-Hexanone	2.5 U	5.0	2.5	ug/l	
108-10-1	4-Methyl-2-pentanone	2.5 U	5.0	2.5	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	2.5 U	5.0	2.5	ug/l	
100-42-5	Styrene	0.50 U	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
108-88-3	Toluene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	29.3	1.0	0.50	ug/l	

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit = PQL V = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-003-35-01A-VS		
Lab Sample ID:	F39796-2	Date Sampled:	04/05/06
Matrix:	AQ - Ground Water	Date Received:	04/06/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	1.0 U	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		86-115%
17060-07-0	1,2-Dichloroethane-D4	120%		73-126%
2037-26-5	Toluene-D8	100%		86-112%
460-00-4	4-Bromofluorobenzene	110%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-004-73-VS		
Lab Sample ID:	F39872-1	Date Sampled:	04/07/06
Matrix:	AQ - Ground Water	Date Received:	04/08/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0040112.D	10	04/11/06	KW	n/a	n/a	VC1628
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	50 U	250	50	ug/l	
71-43-2	Benzene	5.0 U	10	5.0	ug/l	
75-27-4	Bromodichloromethane	5.0 U	10	5.0	ug/l	
75-25-2	Bromoform	5.0 U	10	5.0	ug/l	
108-90-7	Chlorobenzene	5.0 U	10	5.0	ug/l	
75-00-3	Chloroethane	10 U	20	10	ug/l	
67-66-3	Chloroform	5.0 U	10	5.0	ug/l	
75-15-0	Carbon disulfide	10 U	20	10	ug/l	
56-23-5	Carbon tetrachloride	5.0 U	10	5.0	ug/l	
75-34-3	1,1-Dichloroethane	5.0 U	10	5.0	ug/l	
75-35-4	1,1-Dichloroethylene	5.0 U	10	5.0	ug/l	
107-06-2	1,2-Dichloroethane	5.0 U	10	5.0	ug/l	
78-87-5	1,2-Dichloropropane	5.0 U	10	5.0	ug/l	
124-48-1	Dibromochloromethane	4.0 U	10	4.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	5.0 U	10	5.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	3.0 U	10	3.0	ug/l	
100-41-4	Ethylbenzene	5.0 U	10	5.0	ug/l	
591-78-6	2-Hexanone	25 U	50	25	ug/l	
108-10-1	4-Methyl-2-pentanone	25 U	50	25	ug/l	
74-83-9	Methyl bromide	10 U	20	10	ug/l	
74-87-3	Methyl chloride	10 U	20	10	ug/l	
75-09-2	Methylene chloride	10 U	50	10	ug/l	
78-93-3	Methyl ethyl ketone	25 U	50	25	ug/l	
100-42-5	Styrene	5.0 U	10	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	5.0 U	10	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	4.0 U	10	4.0	ug/l	
79-00-5	1,1,2-Trichloroethane	5.0 U	10	5.0	ug/l	
127-18-4	Tetrachloroethylene	5.0 U	10	5.0	ug/l	
108-88-3	Toluene	5.0 U	10	5.0	ug/l	
79-01-6	Trichloroethylene	657	10	5.0	ug/l	

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit = PQL V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-004-73-VS		
Lab Sample ID:	F39872-1	Date Sampled:	04/07/06
Matrix:	AQ - Ground Water	Date Received:	04/08/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	5.0 U	10	5.0	ug/l	
1330-20-7	Xylene (total)	10 U	30	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		86-115%
17060-07-0	1,2-Dichloroethane-D4	99%		73-126%
2037-26-5	Toluene-D8	105%		86-112%
460-00-4	4-Bromofluorobenzene	111%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-004-112-VS		
Lab Sample ID:	F39872-2	Date Sampled:	04/07/06
Matrix:	AQ - Ground Water	Date Received:	04/08/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0040113.D	1	04/11/06	KW	n/a	n/a	VC1628
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	5.0 U	25	5.0	ug/l	
71-43-2	Benzene	0.50 U	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
75-15-0	Carbon disulfide	1.0 U	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	0.50 U	1.0	0.50	ug/l	
591-78-6	2-Hexanone	2.5 U	5.0	2.5	ug/l	
108-10-1	4-Methyl-2-pentanone	2.5 U	5.0	2.5	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	2.5 U	5.0	2.5	ug/l	
100-42-5	Styrene	0.50 U	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
108-88-3	Toluene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	0.50 U	1.0	0.50	ug/l	

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit = PQL V = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-004-112-VS		
Lab Sample ID:	F39872-2	Date Sampled:	04/07/06
Matrix:	AQ - Ground Water	Date Received:	04/08/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	1.0 U	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		86-115%
17060-07-0	1,2-Dichloroethane-D4	100%		73-126%
2037-26-5	Toluene-D8	105%		86-112%
460-00-4	4-Bromofluorobenzene	108%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-006-50-VS		
Lab Sample ID:	F39872-3	Date Sampled:	04/07/06
Matrix:	AQ - Ground Water	Date Received:	04/08/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0040114.D	100	04/11/06	KW	n/a	n/a	VC1628
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	500 U	2500	500	ug/l	
71-43-2	Benzene	50 U	100	50	ug/l	
75-27-4	Bromodichloromethane	50 U	100	50	ug/l	
75-25-2	Bromoform	50 U	100	50	ug/l	
108-90-7	Chlorobenzene	50 U	100	50	ug/l	
75-00-3	Chloroethane	100 U	200	100	ug/l	
67-66-3	Chloroform	50 U	100	50	ug/l	
75-15-0	Carbon disulfide	100 U	200	100	ug/l	
56-23-5	Carbon tetrachloride	50 U	100	50	ug/l	
75-34-3	1,1-Dichloroethane	50 U	100	50	ug/l	
75-35-4	1,1-Dichloroethylene	50 U	100	50	ug/l	
107-06-2	1,2-Dichloroethane	50 U	100	50	ug/l	
78-87-5	1,2-Dichloropropane	50 U	100	50	ug/l	
124-48-1	Dibromochloromethane	40 U	100	40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	50 U	100	50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	30 U	100	30	ug/l	
156-60-5	trans-1,2-Dichloroethylene	50 U	100	50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	30 U	100	30	ug/l	
100-41-4	Ethylbenzene	50 U	100	50	ug/l	
591-78-6	2-Hexanone	250 U	500	250	ug/l	
108-10-1	4-Methyl-2-pentanone	250 U	500	250	ug/l	
74-83-9	Methyl bromide	100 U	200	100	ug/l	
74-87-3	Methyl chloride	100 U	200	100	ug/l	
75-09-2	Methylene chloride	100 U	500	100	ug/l	
78-93-3	Methyl ethyl ketone	250 U	500	250	ug/l	
100-42-5	Styrene	50 U	100	50	ug/l	
71-55-6	1,1,1-Trichloroethane	50 U	100	50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	40 U	100	40	ug/l	
79-00-5	1,1,2-Trichloroethane	50 U	100	50	ug/l	
127-18-4	Tetrachloroethylene	50 U	100	50	ug/l	
108-88-3	Toluene	50 U	100	50	ug/l	
79-01-6	Trichloroethylene	3980	100	50	ug/l	

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit = PQL V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-006-50-VS		
Lab Sample ID:	F39872-3	Date Sampled:	04/07/06
Matrix:	AQ - Ground Water	Date Received:	04/08/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	50 U	100	50	ug/l	
1330-20-7	Xylene (total)	100 U	300	100	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		86-115%
17060-07-0	1,2-Dichloroethane-D4	102%		73-126%
2037-26-5	Toluene-D8	105%		86-112%
460-00-4	4-Bromofluorobenzene	110%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
E = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-NG-02D-45-VS		
Lab Sample ID:	F39872-4	Date Sampled:	04/07/06
Matrix:	AQ - Ground Water	Date Received:	04/08/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0040115.D	20	04/11/06	KW	n/a	n/a	VC1628
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	100 U	500	100	ug/l	
71-43-2	Benzene	10 U	20	10	ug/l	
75-27-4	Bromodichloromethane	10 U	20	10	ug/l	
75-25-2	Bromoform	10 U	20	10	ug/l	
108-90-7	Chlorobenzene	10 U	20	10	ug/l	
75-00-3	Chloroethane	20 U	40	20	ug/l	
67-66-3	Chloroform	10 U	20	10	ug/l	
75-15-0	Carbon disulfide	20 U	40	20	ug/l	
56-23-5	Carbon tetrachloride	10 U	20	10	ug/l	
75-34-3	1,1-Dichloroethane	10 U	20	10	ug/l	
75-35-4	1,1-Dichloroethylene	10 U	20	10	ug/l	
107-06-2	1,2-Dichloroethane	10 U	20	10	ug/l	
78-87-5	1,2-Dichloropropane	10 U	20	10	ug/l	
124-48-1	Dibromochloromethane	8.0 U	20	8.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	10 U	20	10	ug/l	
10061-01-5	cis-1,3-Dichloropropene	6.0 U	20	6.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	10 U	20	10	ug/l	
10061-02-6	trans-1,3-Dichloropropene	6.0 U	20	6.0	ug/l	
100-41-4	Ethylbenzene	10 U	20	10	ug/l	
591-78-6	2-Hexanone	50 U	100	50	ug/l	
108-10-1	4-Methyl-2-pentanone	50 U	100	50	ug/l	
74-83-9	Methyl bromide	20 U	40	20	ug/l	
74-87-3	Methyl chloride	20 U	40	20	ug/l	
75-09-2	Methylene chloride	20 U	100	20	ug/l	
78-93-3	Methyl ethyl ketone	50 U	100	50	ug/l	
100-42-5	Styrene	10 U	20	10	ug/l	
71-55-6	1,1,1-Trichloroethane	10 U	20	10	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	8.0 U	20	8.0	ug/l	
79-00-5	1,1,2-Trichloroethane	10 U	20	10	ug/l	
127-18-4	Tetrachloroethylene	10 U	20	10	ug/l	
108-88-3	Toluene	10 U	20	10	ug/l	
79-01-6	Trichloroethylene	911	20	10	ug/l	

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit = PQL V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-NG-02D-45-VS		
Lab Sample ID:	F39872-4	Date Sampled:	04/07/06
Matrix:	AQ - Ground Water	Date Received:	04/08/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	10 U	20	10	ug/l	
1330-20-7	Xylene (total)	20 U	60	20	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		86-115%
17060-07-0	1,2-Dichloroethane-D4	102%		73-126%
2037-26-5	Toluene-D8	106%		86-112%
460-00-4	4-Bromofluorobenzene	110%		83-119%

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit = PQL V = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-EW-VS		
Lab Sample ID:	F39872-5	Date Sampled:	04/07/06
Matrix:	AQ - Ground Water	Date Received:	04/08/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0040116.D	5	04/11/06	KW	n/a	n/a	VC1628
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	25 U	130	25	ug/l	
71-43-2	Benzene	2.5 U	5.0	2.5	ug/l	
75-27-4	Bromodichloromethane	2.5 U	5.0	2.5	ug/l	
75-25-2	Bromoform	2.5 U	5.0	2.5	ug/l	
108-90-7	Chlorobenzene	2.5 U	5.0	2.5	ug/l	
75-00-3	Chloroethane	5.0 U	10	5.0	ug/l	
67-66-3	Chloroform	2.5 U	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	5.0 U	10	5.0	ug/l	
56-23-5	Carbon tetrachloride	2.5 U	5.0	2.5	ug/l	
75-34-3	1,1-Dichloroethane	2.5 U	5.0	2.5	ug/l	
75-35-4	1,1-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
107-06-2	1,2-Dichloroethane	2.5 U	5.0	2.5	ug/l	
78-87-5	1,2-Dichloropropane	2.5 U	5.0	2.5	ug/l	
124-48-1	Dibromochloromethane	2.0 U	5.0	2.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
10061-01-5	cis-1,3-Dichloropropene	1.5 U	5.0	1.5	ug/l	
156-60-5	trans-1,2-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
10061-02-6	trans-1,3-Dichloropropene	1.5 U	5.0	1.5	ug/l	
100-41-4	Ethylbenzene	2.5 U	5.0	2.5	ug/l	
591-78-6	2-Hexanone	13 U	25	13	ug/l	
108-10-1	4-Methyl-2-pentanone	13 U	25	13	ug/l	
74-83-9	Methyl bromide	5.0 U	10	5.0	ug/l	
74-87-3	Methyl chloride	5.0 U	10	5.0	ug/l	
75-09-2	Methylene chloride	5.0 U	25	5.0	ug/l	
78-93-3	Methyl ethyl ketone	13 U	25	13	ug/l	
100-42-5	Styrene	2.5 U	5.0	2.5	ug/l	
71-55-6	1,1,1-Trichloroethane	2.5 U	5.0	2.5	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	2.0 U	5.0	2.0	ug/l	
79-00-5	1,1,2-Trichloroethane	2.5 U	5.0	2.5	ug/l	
127-18-4	Tetrachloroethylene	2.5 U	5.0	2.5	ug/l	
108-88-3	Toluene	2.5 U	5.0	2.5	ug/l	
79-01-6	Trichloroethylene	213	5.0	2.5	ug/l	

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit = PQL V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-EW-VS		
Lab Sample ID:	F39872-5	Date Sampled:	04/07/06
Matrix:	AQ - Ground Water	Date Received:	04/08/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	2.5 U	5.0	2.5	ug/l	
1330-20-7	Xylene (total)	5.0 U	15	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		86-115%
17060-07-0	1,2-Dichloroethane-D4	102%		73-126%
2037-26-5	Toluene-D8	104%		86-112%
460-00-4	4-Bromofluorobenzene	110%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
I. = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 3271 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112GN0039	CECIL FIELD	MARK SPERANZA	(412)921-8916	ACCUTEST / HEATHER WANDREY
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Terry Ottemann		PETE LEVERETTE	(904)636-6125	4405 VINELAND RD C-15
		CARRIER/WAYBILL NUMBER		CITY, STATE
		COURIER PICK-UP		ORLANDO, FL 32811

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

DATE (YEAR 2006)	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: 8260B / VOCs								COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)									G								
PRESERVATIVE USED									HCl								
4/7	0925	CEF-059-GW-004-73-VS				GW	G	3	X								* COOL TO 4°C
4/7	1002	CEF-059-GW-004-112-VS				GW	G	3	X								
4/7	1048	CEF-059-GW-006-50-VS				GW	G	3	X								
4/7	1125	CEF-059-GW-NG-020-45-VS				GW	G	3	X								
4/7	1150	CEF-059-GW-EW-VS				GW	G	3	X								

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY Terry Ottemann	4/7/06	1515	1. RECEIVED BY (accutest)	4/7/06	15:15
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

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 3132 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112GN0039	CECIL FIELD	MARK SPERANZA	(412) 921-8916	ACCUTEST / HEATHER WANDREY
SAMPLERS (SIGNATURE)		**FIELD OPERATIONS LEADER**	**PHONE NUMBER**	**ADDRESS**
Terry Cotterill		PETE LEVERETTE	(904) 636-6125	4405 VINELAND RD C-15
		CARRIER/WAYBILL NUMBER		**CITY, STATE**
		COURIER PICK-UP		ORLANDO, FL 32811

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

DATE (YEAR 2006)	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: 8260B / VOC	CONTAINER TYPE PLASTIC (P) or GLASS (G): G	PRESERVATIVE USED: HCl	COMMENTS
4/5	1145	CEF-059-GW-003-73-01A-VS				GW	G	3	X			* Cool To 4°C
4/5	1235	CEF-059-GW-003-35-01A-VS				GW	G	3	X			

1. RELINQUISHED BY: Terry Cotterill	DATE: 4/5/06	TIME: 1350	1. RECEIVED BY: (Accutest)	DATE: 4/5/06	TIME: 13:50
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

EVENT 3

Report of Analysis

Client Sample ID:	CEF-059-GW-003-59-03A		
Lab Sample ID:	F39971-1	Date Sampled:	04/10/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B037919.D	1	04/19/06	KW	n/a	n/a	VB1606
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	11.8	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		86-115%

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit = PQL V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-003-59-03A		
Lab Sample ID:	F39971-1	Date Sampled:	04/10/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	102%		73-126%
2037-26-5	Toluene-D8	100%		86-112%
460-00-4	4-Bromofluorobenzene	110%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW5-03A		
Lab Sample ID:	F39971-2	Date Sampled:	04/10/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B037920.D	1	04/19/06	KW	n/a	n/a	VB1606
Run #2	B037931.D	5	04/20/06	KW	n/a	n/a	VB1607

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	196 [a]	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%	103%	86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW5-03A		
Lab Sample ID:	F39971-2	Date Sampled:	04/10/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	103%	101%	73-126%
2037-26-5	Toluene-D8	101%	99%	86-112%
460-00-4	4-Bromofluorobenzene	110%	109%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-03A		
Lab Sample ID:	F39971-3	Date Sampled:	04/11/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B037921.D	1	04/19/06	KW	n/a	n/a	VB1606
Run #2	B037932.D	5	04/20/06	KW	n/a	n/a	VB1607

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	248 [a]	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%	103%	86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-03A		
Lab Sample ID:	F39971-3	Date Sampled:	04/11/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	104%	102%	73-126%
2037-26-5	Toluene-D8	101%	101%	86-112%
460-00-4	4-Bromofluorobenzene	108%	108%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-03A		
Lab Sample ID:	F39971-3	Date Sampled:	04/11/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Sodium	8840	5000	77	ug/l	1	04/19/06	04/19/06 RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4926
(2) Prep QC Batch: MP9501

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-03A		
Lab Sample ID:	F39971-3	Date Sampled:	04/11/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	11.2	2.0	1.0	mg/l	1	04/13/06 09:40	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	04/13/06 09:40	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	04/13/06 09:40	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.15	0.10	0.020	mg/l	1	04/13/06 09:30	LE	EPA 365.3
Sulfate	15.6	2.0	1.0	mg/l	1	04/13/06 09:40	MP	EPA 300/SW846 9056
Total Organic Carbon	21.8	1.0	0.50	mg/l	1	04/28/06 12:43	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-03A		
Lab Sample ID:	F39971-3A	Date Sampled:	04/11/06
Matrix:	AQ - Groundwater Filtered	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	1620	300	7.5	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	19.3	15	0.20	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4926
(2) Prep QC Batch: MP9501

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-03A		
Lab Sample ID:	F39971-3A	Date Sampled:	04/11/06
Matrix:	AQ - Groundwater Filtered	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Sulfide	3.2	1.0	1.0	mg/l	1	04/14/06	LE	EPA 376.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-03A		
Lab Sample ID:	F39971-4	Date Sampled:	04/11/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B037922.D	1	04/19/06	KW	n/a	n/a	VB1606
Run #2	B037933.D	5	04/20/06	KW	n/a	n/a	VB1607

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	196 [a]	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%	103%	86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-03A		
Lab Sample ID:	F39971-4	Date Sampled:	04/11/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	102%	102%	73-126%
2037-26-5	Toluene-D8	99%	99%	86-112%
460-00-4	4-Bromofluorobenzene	108%	108%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-03A		
Lab Sample ID:	F39971-4	Date Sampled:	04/11/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	39900	5000	77	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4926
(2) Prep QC Batch: MP9501

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-03A		
Lab Sample ID:	F39971-4	Date Sampled:	04/11/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	11.5	2.0	1.0	mg/l	1	04/13/06 09:54	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	04/13/06 09:54	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	04/13/06 09:54	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.16	0.10	0.020	mg/l	1	04/13/06 09:30	LE	EPA 365.3
Sulfate	7.1	2.0	1.0	mg/l	1	04/13/06 09:54	MP	EPA 300/SW846 9056
Total Organic Carbon	37.2	2.0	1.0	mg/l	2	05/01/06 13:10	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-03A		
Lab Sample ID:	F39971-4A	Date Sampled:	04/11/06
Matrix:	AQ - Groundwater Filtered	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	319	300	7.5	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	2.4 I	15	0.20	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4926
(2) Prep QC Batch: MP9501

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-03A		
Lab Sample ID:	F39971-4A	Date Sampled:	04/11/06
Matrix:	AQ - Groundwater Filtered	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Sulfide	2.8	1.0	1.0	mg/l	1	04/14/06	LE	EPA 376.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-003-73-03A		
Lab Sample ID:	F39971-5	Date Sampled:	04/11/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B037923.D	1	04/19/06	KW	n/a	n/a	VB1606
Run #2	B037934.D	5	04/20/06	KW	n/a	n/a	VB1607

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	187 [a]	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%	103%	86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-003-73-03A		
Lab Sample ID:	F39971-5	Date Sampled:	04/11/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	104%	103%	73-126%
2037-26-5	Toluene-D8	101%	99%	86-112%
460-00-4	4-Bromofluorobenzene	108%	109%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-003-73-03A		
Lab Sample ID:	F39971-5	Date Sampled:	04/11/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	36000	5000	77	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4926
(2) Prep QC Batch: MP9501

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-003-73-03A		
Lab Sample ID:	F39971-5	Date Sampled:	04/11/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	11.4	2.0	1.0	mg/l	1	04/13/06 10:09	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	04/13/06 10:09	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	04/13/06 10:09	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.040 U	0.20	0.040	mg/l	2	04/13/06 09:30	LE	EPA 365.3
Sulfate	7.1	2.0	1.0	mg/l	1	04/13/06 10:09	MP	EPA 300/SW846 9056
Total Organic Carbon	37.9	2.0	1.0	mg/l	2	05/01/06 13:26	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-003-73-03A		
Lab Sample ID:	F39971-5A	Date Sampled:	04/11/06
Matrix:	AQ - Groundwater Filtered	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	63.5 I	300	7.5	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	1.3 I	15	0.20	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4926
(2) Prep QC Batch: MP9501

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-003-73-03A		
Lab Sample ID:	F39971-5A	Date Sampled:	04/11/06
Matrix:	AQ - Groundwater Filtered	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Sulfide	6.3	1.0	1.0	mg/l	1	04/14/06	LE	EPA 376.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-DU01-03A		
Lab Sample ID:	F39971-6	Date Sampled:	04/11/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B037924.D	1	04/19/06	KW	n/a	n/a	VB1606
Run #2	B037935.D	5	04/20/06	KW	n/a	n/a	VB1607

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	240 [a]	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%	103%	86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-DU01-03A		
Lab Sample ID:	F39971-6	Date Sampled:	04/11/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	104%	103%	73-126%
2037-26-5	Toluene-D8	101%	100%	86-112%
460-00-4	4-Bromofluorobenzene	108%	109%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-03A		
Lab Sample ID:	F39971-7	Date Sampled:	04/12/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B037994.D	5	04/24/06	KW	n/a	n/a	VB1609
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	2.5 U	5.0	2.5	ug/l	
75-25-2	Bromoform	2.5 U	5.0	2.5	ug/l	
108-90-7	Chlorobenzene	2.5 U	5.0	2.5	ug/l	
75-00-3	Chloroethane	5.0 U	10	5.0	ug/l	
67-66-3	Chloroform	2.5 U	5.0	2.5	ug/l	
110-75-8	2-Chloroethyl vinyl ether	13 U	25	13	ug/l	
56-23-5	Carbon tetrachloride	2.5 U	5.0	2.5	ug/l	
75-34-3	1,1-Dichloroethane	2.5 U	5.0	2.5	ug/l	
75-35-4	1,1-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
107-06-2	1,2-Dichloroethane	2.5 U	5.0	2.5	ug/l	
78-87-5	1,2-Dichloropropane	2.5 U	5.0	2.5	ug/l	
124-48-1	Dibromochloromethane	2.0 U	5.0	2.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
10061-01-5	cis-1,3-Dichloropropene	1.5 U	5.0	1.5	ug/l	
541-73-1	m-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
95-50-1	o-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
106-46-7	p-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
156-60-5	trans-1,2-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
10061-02-6	trans-1,3-Dichloropropene	1.5 U	5.0	1.5	ug/l	
74-83-9	Methyl bromide	5.0 U	10	5.0	ug/l	
74-87-3	Methyl chloride	5.0 U	10	5.0	ug/l	
75-09-2	Methylene chloride	5.0 U	25	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	2.5 U	5.0	2.5	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	2.0 U	5.0	2.0	ug/l	
79-00-5	1,1,2-Trichloroethane	2.5 U	5.0	2.5	ug/l	
127-18-4	Tetrachloroethylene	2.5 U	5.0	2.5	ug/l	
79-01-6	Trichloroethylene	175	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	2.5 U	5.0	2.5	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-03A		
Lab Sample ID:	F39971-7	Date Sampled:	04/12/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	96%		73-126%
2037-26-5	Toluene-D8	107%		86-112%
460-00-4	4-Bromofluorobenzene	109%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-03A		
Lab Sample ID:	F39971-7	Date Sampled:	04/12/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	116000	50000	2500	ug/l	5	04/19/06	04/20/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4928
(2) Prep QC Batch: MP9501

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-03A		
Lab Sample ID:	F39971-7	Date Sampled:	04/12/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	12.3	2.0	1.0	mg/l	1	04/13/06 10:23	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.15	0.10	0.050	mg/l	1	04/13/06 10:23	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	04/13/06 10:23	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.040 U	0.20	0.040	mg/l	2	04/13/06 09:30	LE	EPA 365.3
Sulfate	7.3	2.0	1.0	mg/l	1	04/13/06 10:23	MP	EPA 300/SW846 9056
Total Organic Carbon	48.3	3.0	1.5	mg/l	3	05/01/06 13:43	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-03A		
Lab Sample ID:	F39971-7A	Date Sampled:	04/12/06
Matrix:	AQ - Groundwater Filtered	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	198 I	300	7.5	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	2.9 I	15	0.20	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4926
(2) Prep QC Batch: MP9501

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-03A		
Lab Sample ID:	F39971-7A	Date Sampled:	04/12/06
Matrix:	AQ - Groundwater Filtered	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Sulfide	5.7	1.0	1.0	mg/l	1	04/14/06	LE	EPA 376.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-03A		
Lab Sample ID:	F39971-8	Date Sampled:	04/12/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B037983.D	1	04/21/06	KW	n/a	n/a	VB1608
Run #2	B037995.D	5	04/24/06	KW	n/a	n/a	VB1609

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	169 [a]	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%	99%	86-115%

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit = PQL V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-03A		
Lab Sample ID:	F39971-8	Date Sampled:	04/12/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	100%	97%	73-126%
2037-26-5	Toluene-D8	101%	105%	86-112%
460-00-4	4-Bromofluorobenzene	108%	108%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-03A		
Lab Sample ID:	F39971-8	Date Sampled:	04/12/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	14200	5000	77	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4926
(2) Prep QC Batch: MP9501

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-03A		
Lab Sample ID:	F39971-8	Date Sampled:	04/12/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	11.4	2.0	1.0	mg/l	1	04/13/06 10:38	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.10	0.10	0.050	mg/l	1	04/13/06 10:38	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	04/13/06 10:38	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.12	0.10	0.020	mg/l	1	04/13/06 09:30	LE	EPA 365.3
Sulfate	8.0	2.0	1.0	mg/l	1	04/13/06 10:38	MP	EPA 300/SW846 9056
Total Organic Carbon	31.1	2.0	1.0	mg/l	2	05/01/06 13:59	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-03A		
Lab Sample ID:	F39971-8A	Date Sampled:	04/12/06
Matrix:	AQ - Groundwater Filtered	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	377	300	7.5	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	4.3 I	15	0.20	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4926
(2) Prep QC Batch: MP9501

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-03A		
Lab Sample ID:	F39971-8A	Date Sampled:	04/12/06
Matrix:	AQ - Groundwater Filtered	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Sulfide	3.2	1.0	1.0	mg/l	1	04/14/06	LE	EPA 376.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-03A		
Lab Sample ID:	F39971-9	Date Sampled:	04/12/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B037984.D	1	04/21/06	KW	n/a	n/a	VB1608
Run #2	B037996.D	5	04/24/06	KW	n/a	n/a	VB1609

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	173 [a]	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%	98%	86-115%

U = Not detected MDL - Method Detection Limit I = Result > = MDL but < RL J = Estimated value
RL = Reporting Limit = PQL V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-03A		
Lab Sample ID:	F39971-9	Date Sampled:	04/12/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	101%	97%	73-126%
2037-26-5	Toluene-D8	100%	107%	86-112%
460-00-4	4-Bromofluorobenzene	107%	109%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-03A		
Lab Sample ID:	F39971-9	Date Sampled:	04/12/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	146000	50000	2500	ug/l	5	04/19/06	04/20/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4928
(2) Prep QC Batch: MP9501

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-03A		
Lab Sample ID:	F39971-9	Date Sampled:	04/12/06
Matrix:	AQ - Ground Water	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	10.6	2.0	1.0	mg/l	1	04/13/06 10:53	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	04/13/06 10:53	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	04/13/06 10:53	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.32	0.10	0.020	mg/l	1	04/13/06 09:30	LE	EPA 365.3
Sulfate	11.0	2.0	1.0	mg/l	1	04/13/06 10:53	MP	EPA 300/SW846 9056
Total Organic Carbon	46.7	3.0	1.5	mg/l	3	05/01/06 14:18	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-03A		
Lab Sample ID:	F39971-9A	Date Sampled:	04/12/06
Matrix:	AQ - Groundwater Filtered	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	440	300	7.5	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	7.2 I	15	0.20	ug/l	1	04/19/06	04/19/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA4926
(2) Prep QC Batch: MP9501

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-03A		
Lab Sample ID:	F39971-9A	Date Sampled:	04/12/06
Matrix:	AQ - Groundwater Filtered	Date Received:	04/12/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Sulfide	1.0 U	1.0	1.0	mg/l	1	04/14/06	LE	EPA 376.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

MICROBIAL INSIGHTS, INC.
2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel: (865) 573-8188; Fax: (865) 573-8133

Q Potential (DNA)

Client: Tetra Tech , Inc.
Project: Site 59 Pilot Study

MI Project Number: 020DD
Date Received: 04/13/2006

Sample Information

Client Sample ID:		CEF-059-GW-IW 2-03A	CEF-059-GW-M W1-03A	CEF-059-GW -MW2-03A
Sample Date:		04/12/2006	04/12/2006	04/12/2006
Units:		cells/mL	cells/mL	cells/mL
Dechlorinating Bacteria				
Dehalococcoides spp (1)	DHC	**2.8E+00**	**7.53E+00**	**2.82E+00**
Functional Genes				
BAV1 VC R-Dase (1)	BVC	**1.07E-01 (J)**	**4.63E-01 (J)**	<3.33E-01
TCE R-Dase (1)	TCE	<3.33E-01	<1.67E+00	<3.33E-01
VC R-Dase	VCR	**2.47E-01 (J)**	**1.2E+00 (J)**	**1.22E-01 (J)**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Notes:
1 Bio-Dechlor Census technology was developed by Dr. Loeffler and colleagues at Georgia Institute of Technology and was licensed for use through Regenesis.

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0604230
Report Date: 04/25/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW3-03A	Water	P0604230-01	11 Apr. 06 12:45	13 Apr. 06 12:54

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetic Acid		20.300	7.000	mg/L	AM23G	4/24/06	jb
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	4/22/06	mm
N Butyric acid		0.502	0.07	mg/L	AM23G	4/21/06	jb
N Ethane	J	0.022	0.025	ug/L	AM20GAX	4/22/06	mm
N Ethene		0.040	0.025	ug/L	AM20GAX	4/22/06	mm
N Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	4/21/06	jb
N i-Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	4/21/06	jb
N i-Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	4/21/06	jb
N Lactic Acid and HIBA	U	< 10.000	10.000	mg/L	AM23G	4/24/06	jb
N Methane		5.700	0.100	ug/L	AM20GAX	4/22/06	mm
N Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	4/21/06	jb
N Propionic acid		14.200	0.700	mg/L	AM23G	4/24/06	jb
N Pyruvic acid	U	< 0.070	0.07	mg/L	AM23G	4/21/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0604230
Report Date: 04/25/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW4-03A	Water	P0604230-02	11 Apr 06 14:25	13 Apr 06 12:54

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetic Acid		40.400	7.000	mg/L	AM23G	4/24/06	jb
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	4/22/06	mm
N Butyric acid		0.837	0.07	mg/L	AM23G	4/21/06	jb
N Ethane	J	0.023	0.025	ug/L	AM20GAX	4/22/06	mm
N Ethene		0.036	0.025	ug/L	AM20GAX	4/22/06	mm
N Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	4/21/06	jb
N i-Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	4/21/06	jb
N i-Pentanoic Acid		0.139	0.07	mg/L	AM23G	4/21/06	jb
N Lactic Acid and HIBA	U	< 10.000	10.000	mg/L	AM23G	4/24/06	jb
N Methane		7.200	0.100	ug/L	AM20GAX	4/22/06	mm
N Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	4/21/06	jb
N Propionic acid		40.100	7.000	mg/L	AM23G	4/24/06	jb
N Pyruvic acid	U	< 0.070	0.07	mg/L	AM23G	4/21/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0604230
Report Date: 04/25/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-019-GW-003-073-03A	Water	P0604230-03	11 Apr. 06 14:20	13 Apr. 06 12:54

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetic Acid		39.500	7.000	mg/L	AM23G	4/24/06	jb
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	4/22/06	mm
N Butyric acid		0.924	0.07	mg/L	AM23G	4/21/06	jb
N Ethane	J	0.021	0.025	ug/L	AM20GAX	4/22/06	mm
N Ethene		0.042	0.025	ug/L	AM20GAX	4/22/06	mm
N Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	4/21/06	jb
N i-Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	4/21/06	jb
N i-Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	4/21/06	jb
N Lactic Acid and HIBA	U	< 10.000	10.000	mg/L	AM23G	4/24/06	jb
N Methane		8.300	0.100	ug/L	AM20GAX	4/22/06	mm
N Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	4/21/06	jb
N Propionic acid		39.400	7.000	mg/L	AM23G	4/24/06	jb
N Pyruvic acid	U	< 0.070	0.07	mg/L	AM23G	4/21/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0604230
Report Date: 04/25/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW1-03A	Water	P0604230-04	12 Apr. 06 12:22	13 Apr. 06 12:54

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetic Acid		45.600	7.000	mg/L	AM23G	4/24/06	jb
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	4/22/06	mm
N Butyric acid		1.270	0.07	mg/L	AM23G	4/21/06	jb
N Ethane	J	0.018	0.025	ug/L	AM20GAX	4/22/06	mm
N Ethene		0.036	0.025	ug/L	AM20GAX	4/22/06	mm
N Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	4/21/06	jb
N i-Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	4/21/06	jb
N i-Pentanoic Acid		0.294	0.07	mg/L	AM23G	4/21/06	jb
N Lactic Acid and HIBA	U	< 10.000	10.000	mg/L	AM23G	4/24/06	jb
N Methane		7.500	0.100	ug/L	AM20GAX	4/22/06	mm
N Pentanoic Acid		0.095	0.07	mg/L	AM23G	4/21/06	jb
N Propionic acid		54.400	7.000	mg/L	AM23G	4/24/06	jb
N Pyruvic acid	U	< 0.070	0.07	mg/L	AM23G	4/21/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 6 of 11
Lab Proj #: P0604230
Report Date: 04/25/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW2-03A	Water	P0604230-05	12 Apr. 06 11:14	13 Apr. 06 12:54

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetic Acid		39.900	7.000	mg/L	AM23G	4/24/06	jb
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	4/22/06	mm
N Butyric acid		1.800	0.07	mg/L	AM23G	4/21/06	jb
N Ethane	J	0.014	0.025	ug/L	AM20GAX	4/22/06	mm
N Ethene		0.026	0.025	ug/L	AM20GAX	4/22/06	mm
N Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	4/21/06	jb
N i-Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	4/21/06	jb
N i-Pentanoic Acid		0.103	0.07	mg/L	AM23G	4/21/06	jb
N Lactic Acid and HIBA	U	< 10.000	10.000	mg/L	AM23G	4/24/06	jb
N Methane		6.700	0.100	ug/L	AM20GAX	4/22/06	mm
N Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	4/21/06	jb
N Propionic acid		34.900	7.000	mg/L	AM23G	4/24/06	jb
N Pyruvic acid	U	< 0.070	0.07	mg/L	AM23G	4/21/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0604230
Report Date: 04/25/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-IW2-03A	Water	P0604230-06	12 Apr. 06 10:38	13 Apr. 06 12:54

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetic Acid		8.460	7.000	mg/L	AM23G	4/24/06	jb
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	4/22/06	mm
N Butyric acid		0.559	0.07	mg/L	AM23G	4/21/06	jb
N Ethane	J	0.014	0.025	ug/L	AM20GAX	4/22/06	mm
N Ethene	J	0.025	0.025	ug/L	AM20GAX	4/22/06	mm
N Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	4/21/06	jb
N i-Hexanoic Acid	U	< 0.100	0.1	mg/L	AM23G	4/21/06	jb
N i-Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	4/21/06	jb
N Lactic Acid and HIBA		97.400	10.000	mg/L	AM23G	4/24/06	jb
N Methane		7.500	0.100	ug/L	AM20GAX	4/22/06	mm
N Pentanoic Acid	U	< 0.070	0.07	mg/L	AM23G	4/21/06	jb
N Propionic acid		6.270	0.700	mg/L	AM23G	4/24/06	jb
N Pyruvic acid		0.117	0.07	mg/L	AM23G	4/21/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 2256 | PAGE 1 OF 1

PROJECT NO: N0039	FACILITY: SITE 59 CECIL FIELD	PROJECT MANAGER MARK SPERANZA	PHONE NUMBER (800) 245-2730	LABORATORY NAME AND CONTACT: ACCUTEST H. WANDREY
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER PETE LEVESQUE	PHONE NUMBER (904) 636-6125	ADDRESS 4405 VINELAND RD C-15
		CARRIER/WAYBILL NUMBER COURIER PICK-UP		CITY, STATE ORLANDO, FL 32811

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

DATE YEAR 2006	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	CONTAINER TYPE PLASTIC (P) or GLASS (G)								
										G	P	P	P	P	P	G	
									PRESERVATIVE USED	HCL	HNO_3	HNO_3	HNO_3	2N NaOH	–	HCL	
									TYPE OF ANALYSIS	CHLORINATED VOCs (8260)	DISS. Fe (6010B)	DISS. Mn (6010B)	SODIUM (6010B)	DISS. SULFIDE (EPA 376.1)	* ANIONS (EPA 300.0)	TOC (EPA 415.1)	COMMENTS
4/10	1249	CEF-059-GW-003-59-03A				GW	G	3		X	–	–	–	–	–	–	COOL TO 4°C
4/10	1322	CEF-059-GW-MW5-03A						3		X	–	–	–	–	–	–	
4/11	1245	CEF-059-GW-MW3-03A						10		X	X	X	X	X	X	X	
4/11	1425	CEF-059-GW-MW4-03A						10		X	X	X	X	X	X	X	WR# 1006570
4/11	1420	CEF-059-GW-003-73-03A						10		X	X	X	X	X	X	X	
4/11	0000	CEF-059-GW-DUP1-03A						3		X	–	–	–	–	–	–	
4/12	1222	CEF-059-GW-MW1-03A						10		X	X	X	X	X	X	X	* ANIONS: CHLORIDE,
4/12	1114	CEF-059-GW-MW2-03A						10		X	X	X	X	X	X	X	NITRATE, NITRITE,
4/12	1038	CEF-059-GW-IW2-03A						10		X	X	X	X	X	X	X	SULFATE, ORTHOPHOSPHATE

1. RELINQUISHED BY	DATE 4/12/06	TIME 1405	1. RECEIVED BY Lui's Accutest	DATE 1405 4/12/06	TIME
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

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 2257 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
N0039	SITE 59 CECIL FIELD	MARK SPERANZA	(800)245-2730	MICROSEEPS DEBBIE HALLO
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER: PETE LEVERETTE	PHONE NUMBER: (904)636-6125	ADDRESS: 220 WILLIAM PITT WAY
		CARRIER/WAYBILL NUMBER: FEDEX		CITY, STATE: PITTSBURGH, PA 15238

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

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

TYPE OF ANALYSIS: MEE + ACETYLENE (AM20GAY) TRISODIUM PHOSPHATE; * VOLATILE FATTY ACIDS (AM23G) BNK CHLORIDE

DATE YEAR 2006	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	MEE + ACETYLENE (AM20GAY) TRISODIUM PHOSPHATE	* VOLATILE FATTY ACIDS (AM23G) BNK CHLORIDE						COMMENTS
4/11	1245	CEF-059-GW-MW3-03A				GW	G	4	X	X						COOL TO 4°C
4/11	1425	CEF-059-GW-MW4-03A				GW	G	4	X	X						
4/11	1420	CEF-059-GW-003-073-03A				GW	G	4	X	X						
4/12	1222	CEF-059-GW-MW1-03A				GW	G	4	X	X						PO# 1007090
4/12	1114	CEF-059-GW-MW2-03A				GW	G	4	X	X						
4/12	1038	CEF-059-GW-IW2-03A				GW	G	4	X	X						
																*METABOLIC ACIDS: LACTIC, PYRUVIC, ACETIC, PROPIONIC, BUTYRIC

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	4/12/06	1530	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

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

4/02R
FORM NO. TtNUS-001

REPORT TO:

Reports will be provided to the contact(s) listed below. Parties other than the contact(s) listed below will require prior approval.

Name: MARK SPERANZA
Company: TETRA TECH NUS
Address: FOSTER PLAZA 7
661 ANDERSEN DR.
PITTSBURGH, PA 15220-2745
email: speranzam@ttnus.com
Phone: (800) 245-2730
Fax: (412) 921-7140

Project Manager: MARK SPERANZA
Project Name: SITE 59 PILOT STUDY
Project No.: 112GN0039

INVOICE TO:

For Invoices **paid by a third party** it is imperative that contact information & corresponding reference No. be provided.

Name: SAME
Company:
Address:
email:
Phone: ( )
Fax: ( )

Purchase Order No. 1007056
Subcontract No.

microbialinsights
2340 Stock Creek Blvd.
Rockford, TN 37853-3044
phone (865) 573-8188
fax: (865) 573-8133
email: info@microbe.com
www.microbe.com

Please Check One:

☐ More samples to follow
☒ No Additional Samples

Saturday Delivery

Please see sampling protocol for instructions

Report Type: ☒ Standard (default) ☐ Comprehensive (15% surcharge) ☐ Historical (30% surcharge)

[redacted] about the analyses you are requesting at (865) 573-8188 (8:00 am to 4:00 pm M-F). After these hours please call (865) 300-8053.

MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	VFA	MI/E	DGGE+3ID	DGGE+8ID	Q-Potential (DNA)	Q-Expression (RNA)*	Q-Targets (Prior to selecting Q-Targets, please see Background Information on Q-Potential DNA or Q-Expression for RNA)																				Other: VC-R-DASE	Other:	Other:
												qDHC (Dehalococcoides)	qTCE R-Dase	qBAV1 VC R-Dase	qDHB (Dehalobacter)	qDSM (Desulfuromonas)	qDSB (Desulfitobacterium)	qEBAC (Total)	qDSR (SRBs only)	qSRB/RB	qMGN (methanogens)	qMOB (methanotrophs)	qDNF (Denitrifying)	qAOB (ammonia oxidizing)	qPM1 (MTBE aerobic)	qTOD (Initial PAHs aerobic)	qCAT (Intermediate PAHs aerobic)	qBSS (Toluen/Xylene Anaerobic)	qNAH (Napthalene aerobic)	Add. qPCR:	Add. qPCR:	Add. qPCR:			
	CEF-059-GW-IW2-03A	4/12/06	1038	GW						X		X	X	X																		X		
	CEF-059-GW-MW1-03A	4/12/06	1222	GW						X		X	X	X																		X		
	CEF-059-GW-MW2-03A	4/12/06	1114	GW						X		X	X	X																		X		
	CEF-059-GW-001-83-03A	4/12/06	1437	GW						X		X	X	X																		X		

Relinquished by: Date: 4/12/06 Received by: Date

In order for analysis to be completed correctly, it is vital that chain of custody is filled out correctly & that all relative information is provided. Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable. *** additional cost and sample preservation are associated with RNA samples.**

SECOND VERIFICATION SAMPLING ROUND

Report of Analysis

Client Sample ID:	CEF-059-MW3-VS1		
Lab Sample ID:	F40770-1	Date Sampled:	05/16/06
Matrix:	AQ - Ground Water	Date Received:	05/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Site 59-CTO 359		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B038631.D	5	05/19/06	KW	n/a	n/a	VB1637
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	25 U	130	25	ug/l	
71-43-2	Benzene	2.5 U	5.0	2.5	ug/l	
75-27-4	Bromodichloromethane	2.5 U	5.0	2.5	ug/l	
75-25-2	Bromoform	2.5 U	5.0	2.5	ug/l	
108-90-7	Chlorobenzene	2.5 U	5.0	2.5	ug/l	
75-00-3	Chloroethane	5.0 U	10	5.0	ug/l	
67-66-3	Chloroform	2.5 U	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	5.0 U	10	5.0	ug/l	
56-23-5	Carbon tetrachloride	2.5 U	5.0	2.5	ug/l	
75-34-3	1,1-Dichloroethane	2.5 U	5.0	2.5	ug/l	
75-35-4	1,1-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
107-06-2	1,2-Dichloroethane	2.5 U	5.0	2.5	ug/l	
78-87-5	1,2-Dichloropropane	2.5 U	5.0	2.5	ug/l	
124-48-1	Dibromochloromethane	2.0 U	5.0	2.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
10061-01-5	cis-1,3-Dichloropropene	1.5 U	5.0	1.5	ug/l	
156-60-5	trans-1,2-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
10061-02-6	trans-1,3-Dichloropropene	1.5 U	5.0	1.5	ug/l	
100-41-4	Ethylbenzene	2.5 U	5.0	2.5	ug/l	
591-78-6	2-Hexanone	13 U	25	13	ug/l	
108-10-1	4-Methyl-2-pentanone	13 U	25	13	ug/l	
74-83-9	Methyl bromide	5.0 U	10	5.0	ug/l	
74-87-3	Methyl chloride	5.0 U	10	5.0	ug/l	
75-09-2	Methylene chloride	5.0 U	25	5.0	ug/l	
78-93-3	Methyl ethyl ketone	13 U	25	13	ug/l	
100-42-5	Styrene	2.5 U	5.0	2.5	ug/l	
71-55-6	1,1,1-Trichloroethane	2.5 U	5.0	2.5	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	2.0 U	5.0	2.0	ug/l	
79-00-5	1,1,2-Trichloroethane	2.5 U	5.0	2.5	ug/l	
127-18-4	Tetrachloroethylene	2.5 U	5.0	2.5	ug/l	
108-88-3	Toluene	2.5 U	5.0	2.5	ug/l	
79-01-6	Trichloroethylene	193	5.0	2.5	ug/l	

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-MW3-VS1		
Lab Sample ID:	F40770-1	Date Sampled:	05/16/06
Matrix:	AQ - Ground Water	Date Received:	05/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Site 59-CTO 359		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	2.5 U	5.0	2.5	ug/l	
1330-20-7	Xylene (total)	5.0 U	15	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		86-115%
17060-07-0	1,2-Dichloroethane-D4	94%		73-126%
2037-26-5	Toluene-D8	101%		86-112%
460-00-4	4-Bromofluorobenzene	105%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-MW1-VS1		
Lab Sample ID:	F40770-2	Date Sampled:	05/16/06
Matrix:	AQ - Ground Water	Date Received:	05/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Site 59-CTO 359		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B038632.D	2	05/19/06	KW	n/a	n/a	VB1637
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	10 U	50	10	ug/l	
71-43-2	Benzene	1.0 U	2.0	1.0	ug/l	
75-27-4	Bromodichloromethane	1.0 U	2.0	1.0	ug/l	
75-25-2	Bromoform	1.0 U	2.0	1.0	ug/l	
108-90-7	Chlorobenzene	1.0 U	2.0	1.0	ug/l	
75-00-3	Chloroethane	2.0 U	4.0	2.0	ug/l	
67-66-3	Chloroform	1.0 U	2.0	1.0	ug/l	
75-15-0	Carbon disulfide	2.0 U	4.0	2.0	ug/l	
56-23-5	Carbon tetrachloride	1.0 U	2.0	1.0	ug/l	
75-34-3	1,1-Dichloroethane	1.0 U	2.0	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
107-06-2	1,2-Dichloroethane	1.0 U	2.0	1.0	ug/l	
78-87-5	1,2-Dichloropropane	1.0 U	2.0	1.0	ug/l	
124-48-1	Dibromochloromethane	0.80 U	2.0	0.80	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.60 U	2.0	0.60	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.60 U	2.0	0.60	ug/l	
100-41-4	Ethylbenzene	1.0 U	2.0	1.0	ug/l	
591-78-6	2-Hexanone	5.0 U	10	5.0	ug/l	
108-10-1	4-Methyl-2-pentanone	5.0 U	10	5.0	ug/l	
74-83-9	Methyl bromide	2.0 U	4.0	2.0	ug/l	
74-87-3	Methyl chloride	2.0 U	4.0	2.0	ug/l	
75-09-2	Methylene chloride	2.0 U	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	5.0 U	10	5.0	ug/l	
100-42-5	Styrene	1.0 U	2.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	1.0 U	2.0	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.80 U	2.0	0.80	ug/l	
79-00-5	1,1,2-Trichloroethane	1.0 U	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	1.0 U	2.0	1.0	ug/l	
108-88-3	Toluene	1.0 U	2.0	1.0	ug/l	
79-01-6	Trichloroethylene	187	2.0	1.0	ug/l	

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-MW1-VS1		
Lab Sample ID:	F40770-2	Date Sampled:	05/16/06
Matrix:	AQ - Ground Water	Date Received:	05/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Site 59-CTO 359		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	1.0 U	2.0	1.0	ug/l	
1330-20-7	Xylene (total)	2.0 U	6.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		86-115%
17060-07-0	1,2-Dichloroethane-D4	97%		73-126%
2037-26-5	Toluene-D8	99%		86-112%
460-00-4	4-Bromofluorobenzene	109%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-003-73-VS1		
Lab Sample ID:	F40770-3	Date Sampled:	05/16/06
Matrix:	AQ - Ground Water	Date Received:	05/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Site 59-CTO 359		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B038633.D	2	05/19/06	KW	n/a	n/a	VB1637
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	10 U	50	10	ug/l	
71-43-2	Benzene	1.0 U	2.0	1.0	ug/l	
75-27-4	Bromodichloromethane	1.0 U	2.0	1.0	ug/l	
75-25-2	Bromoform	1.0 U	2.0	1.0	ug/l	
108-90-7	Chlorobenzene	1.0 U	2.0	1.0	ug/l	
75-00-3	Chloroethane	2.0 U	4.0	2.0	ug/l	
67-66-3	Chloroform	1.0 U	2.0	1.0	ug/l	
75-15-0	Carbon disulfide	2.0 U	4.0	2.0	ug/l	
56-23-5	Carbon tetrachloride	1.0 U	2.0	1.0	ug/l	
75-34-3	1,1-Dichloroethane	1.0 U	2.0	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
107-06-2	1,2-Dichloroethane	1.0 U	2.0	1.0	ug/l	
78-87-5	1,2-Dichloropropane	1.0 U	2.0	1.0	ug/l	
124-48-1	Dibromochloromethane	0.80 U	2.0	0.80	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.60 U	2.0	0.60	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.60 U	2.0	0.60	ug/l	
100-41-4	Ethylbenzene	1.0 U	2.0	1.0	ug/l	
591-78-6	2-Hexanone	5.0 U	10	5.0	ug/l	
108-10-1	4-Methyl-2-pentanone	5.0 U	10	5.0	ug/l	
74-83-9	Methyl bromide	2.0 U	4.0	2.0	ug/l	
74-87-3	Methyl chloride	2.0 U	4.0	2.0	ug/l	
75-09-2	Methylene chloride	2.0 U	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	5.0 U	10	5.0	ug/l	
100-42-5	Styrene	1.0 U	2.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	1.0 U	2.0	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.80 U	2.0	0.80	ug/l	
79-00-5	1,1,2-Trichloroethane	1.0 U	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	1.0 U	2.0	1.0	ug/l	
108-88-3	Toluene	1.0 U	2.0	1.0	ug/l	
79-01-6	Trichloroethylene	188	2.0	1.0	ug/l	

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-003-73-VS1		
Lab Sample ID:	F40770-3	Date Sampled:	05/16/06
Matrix:	AQ - Ground Water	Date Received:	05/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Site 59-CTO 359		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	1.0 U	2.0	1.0	ug/l	
1330-20-7	Xylene (total)	2.0 U	6.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		86-115%
17060-07-0	1,2-Dichloroethane-D4	98%		73-126%
2037-26-5	Toluene-D8	100%		86-112%
460-00-4	4-Bromofluorobenzene	108%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-EW-VS1		
Lab Sample ID:	F40770-4	Date Sampled:	05/16/06
Matrix:	AQ - Ground Water	Date Received:	05/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Site 59-CTO 359		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B038634.D	2	05/19/06	KW	n/a	n/a	VB1637
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	10 U	50	10	ug/l	
71-43-2	Benzene	1.0 U	2.0	1.0	ug/l	
75-27-4	Bromodichloromethane	1.0 U	2.0	1.0	ug/l	
75-25-2	Bromoform	1.0 U	2.0	1.0	ug/l	
108-90-7	Chlorobenzene	1.0 U	2.0	1.0	ug/l	
75-00-3	Chloroethane	2.0 U	4.0	2.0	ug/l	
67-66-3	Chloroform	1.0 U	2.0	1.0	ug/l	
75-15-0	Carbon disulfide	2.0 U	4.0	2.0	ug/l	
56-23-5	Carbon tetrachloride	1.0 U	2.0	1.0	ug/l	
75-34-3	1,1-Dichloroethane	1.0 U	2.0	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
107-06-2	1,2-Dichloroethane	1.0 U	2.0	1.0	ug/l	
78-87-5	1,2-Dichloropropane	1.0 U	2.0	1.0	ug/l	
124-48-1	Dibromochloromethane	0.80 U	2.0	0.80	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.60 U	2.0	0.60	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.60 U	2.0	0.60	ug/l	
100-41-4	Ethylbenzene	1.0 U	2.0	1.0	ug/l	
591-78-6	2-Hexanone	5.0 U	10	5.0	ug/l	
108-10-1	4-Methyl-2-pentanone	5.0 U	10	5.0	ug/l	
74-83-9	Methyl bromide	2.0 U	4.0	2.0	ug/l	
74-87-3	Methyl chloride	2.0 U	4.0	2.0	ug/l	
75-09-2	Methylene chloride	2.0 U	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	5.0 U	10	5.0	ug/l	
100-42-5	Styrene	1.0 U	2.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	1.0 U	2.0	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.80 U	2.0	0.80	ug/l	
79-00-5	1,1,2-Trichloroethane	1.0 U	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	1.0 U	2.0	1.0	ug/l	
108-88-3	Toluene	1.0 U	2.0	1.0	ug/l	
79-01-6	Trichloroethylene	172	2.0	1.0	ug/l	

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-EW-VS1		
Lab Sample ID:	F40770-4	Date Sampled:	05/16/06
Matrix:	AQ - Ground Water	Date Received:	05/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Site 59-CTO 359		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-01-4	Vinyl chloride	1.0 U	2.0	1.0	ug/l	
1330-20-7	Xylene (total)	2.0 U	6.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		86-115%
17060-07-0	1,2-Dichloroethane-D4	100%		73-126%
2037-26-5	Toluene-D8	101%		86-112%
460-00-4	4-Bromofluorobenzene	110%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 3129 | PAGE 1 OF 1

PROJECT NO: 112GN6039	FACILITY: Site 59 Cecil Field	PROJECT MANAGER Mark Speranza	PHONE NUMBER (800)245-2730	LABORATORY NAME AND CONTACT: Accutest H. Wanidrey
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER Pete Leverette	PHONE NUMBER (904)636-6125	ADDRESS 4405 Vineland Rd C-15
		CARRIER/WAYBILL NUMBER Courier Pick-up		CITY, STATE Orlando, FL 32811 3925

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

DATE YEAR 2006	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	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS VOCs (8260B)								COMMENTS
									G	HCl									
5/16	0922	CEF-059-MW3-VS1				GW	G	3			X								Cool to 4°C
5/16	0959	CEF-059-MW1-VS1				GW	G	3			X								
5/16	1040	CEF-059-003-73-VS1				GW	G	3			X								
5/16	1121	CEF-059-EW-VS1				GW	G	3			X								PO# 1006750

1. RELINQUISHED BY Pete Leverette	DATE 5/16/06	TIME 1335	1. RECEIVED BY M. Vail (Accutest)	DATE 5/16/06	TIME 13:35
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

EVENT 7

Report of Analysis

Client Sample ID:	CEF-059-GW-MW5-07A		
Lab Sample ID:	F42338-1	Date Sampled:	07/19/06
Matrix:	AQ - Ground Water	Date Received:	07/21/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B040288.D	1	07/31/06	KW	n/a	n/a	VB1701
Run #2	C0042545.D	5	08/01/06	KW	n/a	n/a	VC1719

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.56	1.0	0.50	ug/l	I
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	323 [a]	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%	103%	86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW5-07A		
Lab Sample ID:	F42338-1	Date Sampled:	07/19/06
Matrix:	AQ - Ground Water	Date Received:	07/21/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	115%	105%	73-126%
2037-26-5	Toluene-D8	90%	102%	86-112%
460-00-4	4-Bromofluorobenzene	98%	102%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-003-53-07A		
Lab Sample ID:	F42338-2	Date Sampled:	07/19/06
Matrix:	AQ - Ground Water	Date Received:	07/21/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B040289.D	1	07/31/06	KW	n/a	n/a	VB1701
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	11.1	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-003-53-07A		
Lab Sample ID:	F42338-2	Date Sampled:	07/19/06
Matrix:	AQ - Ground Water	Date Received:	07/21/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	115%		73-126%
2037-26-5	Toluene-D8	91%		86-112%
460-00-4	4-Bromofluorobenzene	98%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-07A		
Lab Sample ID:	F42338-3	Date Sampled:	07/20/06
Matrix:	AQ - Ground Water	Date Received:	07/21/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B040290.D	1	07/31/06	KW	n/a	n/a	VB1701
Run #2	C0042546.D	2	08/01/06	KW	n/a	n/a	VC1719

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	138 [a]	2.0	1.0	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%	103%	86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-07A		
Lab Sample ID:	F42338-3	Date Sampled:	07/20/06
Matrix:	AQ - Ground Water	Date Received:	07/21/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	112%	106%	73-126%
2037-26-5	Toluene-D8	91%	99%	86-112%
460-00-4	4-Bromofluorobenzene	99%	101%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-07A		
Lab Sample ID:	F42338-3	Date Sampled:	07/20/06
Matrix:	AQ - Ground Water	Date Received:	07/21/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.1	2.0	1.0	mg/l	1	07/21/06 11:19	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	07/21/06 11:19	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	07/21/06 11:19	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.21	0.20	0.040	mg/l	2	07/21/06 10:36	LE	EPA 365.3
Sulfate	6.1	2.0	1.0	mg/l	1	07/21/06 11:19	MP	EPA 300/SW846 9056
Sulfide	5.2	1.0	1.0	mg/l	1	07/22/06	LE	EPA 376.1
Total Organic Carbon	29.2	1.0	0.50	mg/l	1	07/26/06 21:45	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-IW2-07A		
Lab Sample ID:	F42338-3A	Date Sampled:	07/20/06
Matrix:	AQ - Groundwater Filtered	Date Received:	07/21/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	378	300	15	ug/l	1	07/22/06	07/24/06	DM	SW846 6010B [1]	SW846 3010A [2]
Manganese	15.8	15	1.5	ug/l	1	07/22/06	07/24/06	DM	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5107
(2) Prep QC Batch: MP9949

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-07A		
Lab Sample ID:	F42338-4	Date Sampled:	07/20/06
Matrix:	AQ - Ground Water	Date Received:	07/21/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B040291.D	1	07/31/06	KW	n/a	n/a	VB1701
Run #2	C0042547.D	2	08/01/06	KW	n/a	n/a	VC1719

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.75	1.0	0.50	ug/l	I
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	150 [a]	2.0	1.0	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%	107%	86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-07A		
Lab Sample ID:	F42338-4	Date Sampled:	07/20/06
Matrix:	AQ - Ground Water	Date Received:	07/21/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	111%	107%	73-126%
2037-26-5	Toluene-D8	91%	102%	86-112%
460-00-4	4-Bromofluorobenzene	99%	99%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-07A		
Lab Sample ID:	F42338-4	Date Sampled:	07/20/06
Matrix:	AQ - Ground Water	Date Received:	07/21/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	8.9	2.0	1.0	mg/l	1	07/21/06 11:36	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.16	0.10	0.050	mg/l	1	07/21/06 11:36	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	07/21/06 11:36	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.063 I	0.20	0.040	mg/l	2	07/21/06 10:36	LE	EPA 365.3
Sulfate	6.4	2.0	1.0	mg/l	1	07/21/06 11:36	MP	EPA 300/SW846 9056
Sulfide	4.2	1.0	1.0	mg/l	1	07/22/06	LE	EPA 376.1
Total Organic Carbon	28.3	1.0	0.50	mg/l	1	07/26/06 22:00	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW1-07A		
Lab Sample ID:	F42338-4A	Date Sampled:	07/20/06
Matrix:	AQ - Groundwater Filtered	Date Received:	07/21/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	25.1 I	300	15	ug/l	1	07/22/06	07/24/06	DM	SW846 6010B [1]	SW846 3010A [2]
Manganese	4.4 I	15	1.5	ug/l	1	07/22/06	07/24/06	DM	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5107
(2) Prep QC Batch: MP9949

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-07A		
Lab Sample ID:	F42374-1	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0014171.D	2	08/01/06	CS	n/a	n/a	VM589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	1.0 U	2.0	1.0	ug/l	
75-25-2	Bromoform	1.0 U	2.0	1.0	ug/l	
108-90-7	Chlorobenzene	1.0 U	2.0	1.0	ug/l	
75-00-3	Chloroethane	2.0 U	4.0	2.0	ug/l	
67-66-3	Chloroform	1.0 U	2.0	1.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	5.0 U	10	5.0	ug/l	
56-23-5	Carbon tetrachloride	1.0 U	2.0	1.0	ug/l	
75-34-3	1,1-Dichloroethane	1.0 U	2.0	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
107-06-2	1,2-Dichloroethane	1.0 U	2.0	1.0	ug/l	
78-87-5	1,2-Dichloropropane	1.0 U	2.0	1.0	ug/l	
124-48-1	Dibromochloromethane	0.80 U	2.0	0.80	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.60 U	2.0	0.60	ug/l	
541-73-1	m-Dichlorobenzene	1.0 U	2.0	1.0	ug/l	
95-50-1	o-Dichlorobenzene	1.0 U	2.0	1.0	ug/l	
106-46-7	p-Dichlorobenzene	1.0 U	2.0	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.60 U	2.0	0.60	ug/l	
74-83-9	Methyl bromide	2.0 U	4.0	2.0	ug/l	
74-87-3	Methyl chloride	2.0 U	4.0	2.0	ug/l	
75-09-2	Methylene chloride	4.1	10	2.0	ug/l	IV
71-55-6	1,1,1-Trichloroethane	1.0 U	2.0	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.80 U	2.0	0.80	ug/l	
79-00-5	1,1,2-Trichloroethane	1.0 U	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	1.0 U	2.0	1.0	ug/l	
79-01-6	Trichloroethylene	161	2.0	1.0	ug/l	
75-01-4	Vinyl chloride	1.0 U	2.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-07A		
Lab Sample ID:	F42374-1	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	87%		73-126%
2037-26-5	Toluene-D8	97%		86-112%
460-00-4	4-Bromofluorobenzene	105%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound.

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-07A		
Lab Sample ID:	F42374-1	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	8.9	2.0	1.0	mg/l	1	07/22/06 11:59	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	07/22/06 11:59	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	07/22/06 11:59	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.20 U	1.0	0.20	mg/l	10	07/22/06 10:30	LE	EPA 365.3
Sulfate	15.3	2.0	1.0	mg/l	1	07/22/06 11:59	MP	EPA 300/SW846 9056
Sulfide	2.5	1.0	1.0	mg/l	1	07/25/06	LE	EPA 376.1
Total Organic Carbon	33.6	2.0	1.0	mg/l	2	07/28/06 10:10	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW2-07A		
Lab Sample ID:	F42374-1A	Date Sampled:	07/21/06
Matrix:	AQ - Groundwater Filtered	Date Received:	07/22/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	34.5 I	300	15	ug/l	1	08/01/06	08/01/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	1.5 U	15	1.5	ug/l	1	08/01/06	08/01/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5130
(2) Prep QC Batch: MP10018

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-D03-73-07A		
Lab Sample ID:	F42374-2	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0014172.D	2	08/01/06	CS	n/a	n/a	VM589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	1.0 U	2.0	1.0	ug/l	
75-25-2	Bromoform	1.0 U	2.0	1.0	ug/l	
108-90-7	Chlorobenzene	1.0 U	2.0	1.0	ug/l	
75-00-3	Chloroethane	2.0 U	4.0	2.0	ug/l	
67-66-3	Chloroform	1.0 U	2.0	1.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	5.0 U	10	5.0	ug/l	
56-23-5	Carbon tetrachloride	1.0 U	2.0	1.0	ug/l	
75-34-3	1,1-Dichloroethane	1.0 U	2.0	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
107-06-2	1,2-Dichloroethane	1.0 U	2.0	1.0	ug/l	
78-87-5	1,2-Dichloropropane	1.0 U	2.0	1.0	ug/l	
124-48-1	Dibromochloromethane	0.80 U	2.0	0.80	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	0.60 U	2.0	0.60	ug/l	
541-73-1	m-Dichlorobenzene	1.0 U	2.0	1.0	ug/l	
95-50-1	o-Dichlorobenzene	1.0 U	2.0	1.0	ug/l	
106-46-7	p-Dichlorobenzene	1.0 U	2.0	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.60 U	2.0	0.60	ug/l	
74-83-9	Methyl bromide	2.0 U	4.0	2.0	ug/l	
74-87-3	Methyl chloride	2.0 U	4.0	2.0	ug/l	
75-09-2	Methylene chloride	3.1	10	2.0	ug/l	IV
71-55-6	1,1,1-Trichloroethane	1.0 U	2.0	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.80 U	2.0	0.80	ug/l	
79-00-5	1,1,2-Trichloroethane	1.0 U	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	1.0 U	2.0	1.0	ug/l	
79-01-6	Trichloroethylene	151	2.0	1.0	ug/l	
75-01-4	Vinyl chloride	1.0 U	2.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-D03-73-07A		
Lab Sample ID:	F42374-2	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	88%		73-126%
2037-26-5	Toluene-D8	97%		86-112%
460-00-4	4-Bromofluorobenzene	106%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-D03-73-07A		
Lab Sample ID:	F42374-2	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.0	2.0	1.0	mg/l	1	07/22/06 12:16	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.37	0.10	0.050	mg/l	1	07/22/06 12:16	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	07/22/06 12:16	MP	EPA 300/SW846 9056
Phosphate, Ortho	1.1	1.0	0.20	mg/l	10	07/22/06 10:30	LE	EPA 365.3
Sulfate	14.2	2.0	1.0	mg/l	1	07/22/06 12:16	MP	EPA 300/SW846 9056
Sulfide	4.8	1.0	1.0	mg/l	1	07/25/06	LE	EPA 376.1
Total Organic Carbon	31.1	2.0	1.0	mg/l	2	07/28/06 10:26	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-D03-73-07A		
Lab Sample ID:	F42374-2A	Date Sampled:	07/21/06
Matrix:	AQ - Groundwater Filtered	Date Received:	07/22/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	39.3 I	300	15	ug/l	1	08/01/06	08/01/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	1.5 U	15	1.5	ug/l	1	08/01/06	08/01/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5130
(2) Prep QC Batch: MP10018

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-07A		
Lab Sample ID:	F42374-3	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0014190.D	2	08/01/06	CS	n/a	n/a	VM589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	1.0 U	2.0	1.0	ug/l	
75-25-2	Bromoform	1.0 U	2.0	1.0	ug/l	
108-90-7	Chlorobenzene	1.0 U	2.0	1.0	ug/l	
75-00-3	Chloroethane	2.0 U	4.0	2.0	ug/l	
67-66-3	Chloroform	1.0 U	2.0	1.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	5.0 U	10	5.0	ug/l	
56-23-5	Carbon tetrachloride	1.0 U	2.0	1.0	ug/l	
75-34-3	1,1-Dichloroethane	1.0 U	2.0	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
107-06-2	1,2-Dichloroethane	1.0 U	2.0	1.0	ug/l	
78-87-5	1,2-Dichloropropane	1.0 U	2.0	1.0	ug/l	
124-48-1	Dibromochloromethane	0.80 U	2.0	0.80	ug/l	
156-59-2	cis-1,2-Dichloroethylene	1.6	2.0	1.0	ug/l	I
10061-01-5	cis-1,3-Dichloropropene	0.60 U	2.0	0.60	ug/l	
541-73-1	m-Dichlorobenzene	1.0 U	2.0	1.0	ug/l	
95-50-1	o-Dichlorobenzene	1.0 U	2.0	1.0	ug/l	
106-46-7	p-Dichlorobenzene	1.0 U	2.0	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	1.0 U	2.0	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.60 U	2.0	0.60	ug/l	
74-83-9	Methyl bromide	2.0 U	4.0	2.0	ug/l	
74-87-3	Methyl chloride	2.0 U	4.0	2.0	ug/l	
75-09-2	Methylene chloride	5.7	10	2.0	ug/l	IV
71-55-6	1,1,1-Trichloroethane	1.0 U	2.0	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.80 U	2.0	0.80	ug/l	
79-00-5	1,1,2-Trichloroethane	1.0 U	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	1.0 U	2.0	1.0	ug/l	
79-01-6	Trichloroethylene	134	2.0	1.0	ug/l	
75-01-4	Vinyl chloride	1.0 U	2.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-07A		
Lab Sample ID:	F42374-3	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	85%		73-126%
2037-26-5	Toluene-D8	95%		86-112%
460-00-4	4-Bromofluorobenzene	101%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-07A		
Lab Sample ID:	F42374-3	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	8.9	2.0	1.0	mg/l	1	07/22/06 12:32	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.22	0.10	0.050	mg/l	1	07/22/06 12:32	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	07/22/06 12:32	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.63 I	1.0	0.20	mg/l	10	07/22/06 10:30	LE	EPA 365.3
Sulfate	14.5	2.0	1.0	mg/l	1	07/22/06 12:32	MP	EPA 300/SW846 9056
Sulfide	4.5	1.0	1.0	mg/l	1	07/25/06	LE	EPA 376.1
Total Organic Carbon	30.9	2.0	1.0	mg/l	2	07/28/06 11:13	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW4-07A		
Lab Sample ID:	F42374-3A	Date Sampled:	07/21/06
Matrix:	AQ - Groundwater Filtered	Date Received:	07/22/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	188 I	300	15	ug/l	1	08/01/06	08/01/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	1.5 U	15	1.5	ug/l	1	08/01/06	08/01/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5130
(2) Prep QC Batch: MP10018

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-07A		
Lab Sample ID:	F42374-4	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0014173.D	5	08/01/06	CS	n/a	n/a	VM589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	2.5 U	5.0	2.5	ug/l	
75-25-2	Bromoform	2.5 U	5.0	2.5	ug/l	
108-90-7	Chlorobenzene	2.5 U	5.0	2.5	ug/l	
75-00-3	Chloroethane	5.0 U	10	5.0	ug/l	
67-66-3	Chloroform	2.5 U	5.0	2.5	ug/l	
110-75-8	2-Chloroethyl vinyl ether	13 U	25	13	ug/l	
56-23-5	Carbon tetrachloride	2.5 U	5.0	2.5	ug/l	
75-34-3	1,1-Dichloroethane	2.5 U	5.0	2.5	ug/l	
75-35-4	1,1-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
107-06-2	1,2-Dichloroethane	2.5 U	5.0	2.5	ug/l	
78-87-5	1,2-Dichloropropane	2.5 U	5.0	2.5	ug/l	
124-48-1	Dibromochloromethane	2.0 U	5.0	2.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
10061-01-5	cis-1,3-Dichloropropene	1.5 U	5.0	1.5	ug/l	
541-73-1	m-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
95-50-1	o-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
106-46-7	p-Dichlorobenzene	2.5 U	5.0	2.5	ug/l	
156-60-5	trans-1,2-Dichloroethylene	2.5 U	5.0	2.5	ug/l	
10061-02-6	trans-1,3-Dichloropropene	1.5 U	5.0	1.5	ug/l	
74-83-9	Methyl bromide	5.0 U	10	5.0	ug/l	
74-87-3	Methyl chloride	5.0 U	10	5.0	ug/l	
75-09-2	Methylene chloride	9.0	25	5.0	ug/l	IV
71-55-6	1,1,1-Trichloroethane	2.5 U	5.0	2.5	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	2.0 U	5.0	2.0	ug/l	
79-00-5	1,1,2-Trichloroethane	2.5 U	5.0	2.5	ug/l	
127-18-4	Tetrachloroethylene	2.5 U	5.0	2.5	ug/l	
79-01-6	Trichloroethylene	177	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	2.5 U	5.0	2.5	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-07A		
Lab Sample ID:	F42374-4	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	86%		73-126%
2037-26-5	Toluene-D8	98%		86-112%
460-00-4	4-Bromofluorobenzene	104%		83-119%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-07A		
Lab Sample ID:	F42374-4	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.1	2.0	1.0	mg/l	1	07/22/06 12:49	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.23	0.10	0.050	mg/l	1	07/22/06 12:49	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	07/22/06 12:49	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.49 I	1.0	0.20	mg/l	10	07/22/06 10:30	LE	EPA 365.3
Sulfate	15.8	2.0	1.0	mg/l	1	07/22/06 12:49	MP	EPA 300/SW846 9056
Sulfide	4.5	1.0	1.0	mg/l	1	07/25/06	LE	EPA 376.1
Total Organic Carbon	55.1	2.0	1.0	mg/l	2	07/28/06 11:29	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-GW-MW3-07A		
Lab Sample ID:	F42374-4A	Date Sampled:	07/21/06
Matrix:	AQ - Groundwater Filtered	Date Received:	07/22/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	56.6 I	300	15	ug/l	1	08/01/06	08/01/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	1.5 U	15	1.5	ug/l	1	08/01/06	08/01/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5130
(2) Prep QC Batch: MP10018

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-DUP-07A		
Lab Sample ID:	F42374-5	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0014169.D	1	08/01/06	CS	n/a	n/a	VM589
Run #2	M0014175.D	5	08/01/06	CS	n/a	n/a	VM589

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Halogenated List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	0.50 U	1.0	0.50	ug/l	
75-25-2	Bromoform	0.50 U	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	0.50 U	1.0	0.50	ug/l	
75-00-3	Chloroethane	1.0 U	2.0	1.0	ug/l	
67-66-3	Chloroform	0.50 U	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	2.5 U	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	0.50 U	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	0.50 U	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	0.50 U	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	0.50 U	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	0.40 U	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.55	1.0	0.50	ug/l	I
10061-01-5	cis-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	0.50 U	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	0.50 U	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	0.30 U	1.0	0.30	ug/l	
74-83-9	Methyl bromide	1.0 U	2.0	1.0	ug/l	
74-87-3	Methyl chloride	1.0 U	2.0	1.0	ug/l	
75-09-2	Methylene chloride	1.0 U	5.0	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	0.50 U	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	0.40 U	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	0.50 U	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	0.50 U	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	153 [a]	5.0	2.5	ug/l	
75-01-4	Vinyl chloride	0.50 U	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%	102%	86-115%

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range
I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-DUP-07A		
Lab Sample ID:	F42374-5	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Cecil Field Site 59		

VOA Halogenated List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	88%	86%	73-126%
2037-26-5	Toluene-D8	98%	96%	86-112%
460-00-4	4-Bromofluorobenzene	106%	104%	83-119%

(a) Result is from Run# 2

U = Not detected MDL - Method Detection Limit
RL = Reporting Limit = PQL
L = Indicates value exceeds calibration range

I = Result > = MDL but < RL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-059-DUP-07A		
Lab Sample ID:	F42374-5	Date Sampled:	07/21/06
Matrix:	AQ - Ground Water	Date Received:	07/22/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.0	2.0	1.0	mg/l	1	07/22/06 13:06	MP	EPA 300/SW846 9056
Nitrogen, Nitrate	0.12	0.10	0.050	mg/l	1	07/22/06 13:06	MP	EPA 300/SW846 9056
Nitrogen, Nitrite	0.050 U	0.10	0.050	mg/l	1	07/22/06 13:06	MP	EPA 300/SW846 9056
Phosphate, Ortho	0.53 I	1.0	0.20	mg/l	10	07/22/06 10:30	LE	EPA 365.3
Sulfate	13.4	2.0	1.0	mg/l	1	07/22/06 13:06	MP	EPA 300/SW846 9056
Sulfide	1.6	1.0	1.0	mg/l	1	07/25/06	LE	EPA 376.1
Total Organic Carbon	31.4	2.0	1.0	mg/l	2	07/28/06 11:45	LE	EPA 415.1

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	CEF-059-DUP-07A		
Lab Sample ID:	F42374-5A	Date Sampled:	07/21/06
Matrix:	AQ - Groundwater Filtered	Date Received:	07/22/06
		Percent Solids:	n/a
Project:	Cecil Field Site 59		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	44.4 I	300	15	ug/l	1	08/01/06	08/01/06	RS	SW846 6010B [1]	SW846 3010A [2]
Manganese	1.5 U	15	1.5	ug/l	1	08/01/06	08/01/06	RS	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA5130
(2) Prep QC Batch: MP10018

RL = Reporting Limit = PQL
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < RL

MICROBIAL INSIGHTS, INC.
2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel: (865) 573-8188; Fax: (865) 573-8133

Q Potential (DNA)

Client: **Tetra Tech , Inc.**
Project: Site 59 Pilot Study

MI Project Number: **039DG**
Date Received: 07/22/2006

Sample Information

Client Sample ID:		CEF-059-GW-IW 2-07A	CEF-059-GW-M W1-07A	CEF-059-GW -MW2-07A
Sample Date:		07/20/2006	07/20/2006	07/21/2006
Units:		cells/mL	cells/mL	cells/mL
Dechlorinating Bacteria				
Dehalococcoides spp (1)	DHC	<1E+00	1.21E+01	1.49E+00
Functional Genes				
BAV1 VC R-Dase (1)	BVC	<1E+00	<7.69E-01	<1E+00
TCE R-Dase (1)	TCE	<1E+00	<7.69E-01	<1E+00
VC R-Dase	VCR	<1E+00	<7.69E-01	<1E+00

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Notes:
1 Bio-Dechlor Census technology was developed by Dr. Loeffler and colleagues at Georgia Institute of Technology and was licensed for use through Regenesis.

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 2 of 11
Lab Proj #: P0607350
Report Date: 08/09/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-IW2-07A	Water	P0607350-01	20 Jul. 06 11:10	22 Jul. 06 10:08

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	7/27/06	rw
N Ethane	J	0.025	0.025	ug/L	AM20GAX	7/27/06	rw
N Ethene		0.160	0.025	ug/L	AM20GAX	7/27/06	rw
N Methane		550.000	0.100	ug/L	AM20GAX	7/27/06	rw
SemiVolatiles							
N Acetic Acid		33.00	7	mg/L	AM23G	8/7/06	jb
N Butyric Acid	U	< 7.00	7	mg/L	AM23G	8/7/06	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	8/4/06	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	8/4/06	jb
N i-Pentanoic Acid		0.49	0.07	mg/L	AM23G	8/4/06	jb
N Lactic Acid and HIBA	U	< 10.00	10	mg/L	AM23G	8/7/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/4/06	jb
N Propionic Acid		30.00	7	mg/L	AM23G	8/7/06	jb
N Pyruvic Acid	U	< 0.07	0.07	mg/L	AM23G	8/4/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0607350
Report Date: 08/09/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW1-07A	Water	P0607350-02	20 Jul. 06 13:20	22 Jul. 06 10:08

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	7/27/06	rw
N Ethane		0.028	0.025	ug/L	AM20GAX	7/27/06	rw
N Ethene		0.110	0.025	ug/L	AM20GAX	7/27/06	rw
N Methane		130.000	0.100	ug/L	AM20GAX	7/27/06	rw
SemiVolatiles							
N Acetic Acid		35.00	7	mg/L	AM23G	8/7/06	jb
N Butyric Acid	U	< 7.00	7	mg/L	AM23G	8/7/06	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	8/4/06	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	8/4/06	jb
N i-Pentanoic Acid		0.18	0.07	mg/L	AM23G	8/4/06	jb
N Lactic Acid and HIBA	U	< 10.00	10	mg/L	AM23G	8/7/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/4/06	jb
N Propionic Acid		34.00	7	mg/L	AM23G	8/7/06	jb
N Pyruvic Acid	U	< 0.07	0.07	mg/L	AM23G	8/4/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0607350
Report Date: 08/09/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW2-07A	Water	P0607350-03	21 Jul. 06 9:15	22 Jul. 06 10:08

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	7/27/06	rw
N Ethane	J	0.024	0.025	ug/L	AM20GAX	7/27/06	rw
N Ethene		0.077	0.025	ug/L	AM20GAX	7/27/06	rw
N Methane		140.000	0.100	ug/L	AM20GAX	7/27/06	rw
SemiVolatiles							
N Acetic Acid		38.00	7	mg/L	AM23G	8/7/06	jb
N Butyric Acid	U	< 7.00	7	mg/L	AM23G	8/7/06	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	8/4/06	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	8/4/06	jb
N i-Pentanoic Acid		0.22	0.07	mg/L	AM23G	8/4/06	jb
N Lactic Acid and HIBA	U	< 10.00	10	mg/L	AM23G	8/7/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/4/06	jb
N Propionic Acid		43.00	7	mg/L	AM23G	8/7/06	jb
N Pyruvic Acid	U	< 0.07	0.07	mg/L	AM23G	8/4/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Lab Proj #: P0607350
Report Date: 08/09/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-003-73-07A	Water	P0607350-04	21 Jul 06 11:25	22 Jul. 06 10:08

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	7/27/06	rw
N Ethane	J	0.025	0.025	ug/L	AM20GAX	7/27/06	rw
N Ethene		0.066	0.025	ug/L	AM20GAX	7/27/06	rw
N Methane		130.000	0.100	ug/L	AM20GAX	7/27/06	rw
SemiVolatiles							
N Acetic Acid		36.00	7	mg/L	AM23G	8/7/06	jb
N Butyric Acid	U	< 7.00	7	mg/L	AM23G	8/7/06	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	8/4/06	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	8/4/06	jb
N i-Pentanoic Acid		0.21	0.07	mg/L	AM23G	8/4/06	jb
N Lactic Acid and HIBA	U	< 10.00	10	mg/L	AM23G	8/7/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/4/06	jb
N Propionic Acid		38.00	7	mg/L	AM23G	8/7/06	jb
N Pyruvic Acid	U	< 0.07	0.07	mg/L	AM23G	8/4/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 6 of 11
Lab Proj #: P0607350
Report Date: 08/09/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW4-07A	Water	P0607350-05	21 Jul. 06 12:20	22 Jul. 06 10:08

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	7/27/06	rw
N Ethane	J	0.024	0.025	ug/L	AM20GAX	7/27/06	rw
N Ethene		0.091	0.025	ug/L	AM20GAX	7/27/06	rw
N Methane		210.000	0.100	ug/L	AM20GAX	7/27/06	rw
SemiVolatiles							
N Acetic Acid		38.00	7	mg/L	AM23G	8/7/06	jb
N Butyric Acid	U	< 7.00	7	mg/L	AM23G	8/7/06	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	8/4/06	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	8/4/06	jb
N i-Pentanoic Acid		0.20	0.07	mg/L	AM23G	8/4/06	jb
N Lactic Acid and HIBA	U	< 10.00	10	mg/L	AM23G	8/7/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/4/06	jb
N Propionic Acid		42.00	7	mg/L	AM23G	8/7/06	jb
N Pyruvic Acid	U	< 0.07	0.07	mg/L	AM23G	8/4/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Ann Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 7 of 11
Lab Proj #: P0607350
Report Date: 08/09/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-MW3-07A	Water	P0607350-06	21 Jul. 06 13:35	22 Jul. 06 10:08

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	7/27/06	rw
N Ethane		0.028	0.025	ug/L	AM20GAX	7/27/06	rw
N Ethene		0.090	0.025	ug/L	AM20GAX	7/27/06	rw
N Methane		250.000	0.100	ug/L	AM20GAX	7/27/06	rw
SemiVolatiles							
N Acetic Acid		60.00	7	mg/L	AM23G	8/7/06	jb
N Butyric Acid		1.90	0.7	mg/L	AM23G	8/8/06	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	8/4/06	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	8/4/06	jb
N i-Pentanoic Acid		0.56	0.07	mg/L	AM23G	8/4/06	jb
N Lactic Acid and HIBA	U	< 10.00	10	mg/L	AM23G	8/7/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/4/06	jb
N Propionic Acid		73.00	7	mg/L	AM23G	8/7/06	jb
N Pyruvic Acid	U	< 0.07	0.07	mg/L	AM23G	8/4/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: TetraTech NUS Inc.
Contact: Amy Thomson
Address: Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220-2745

Page: Page 8 of 11
Lab Proj #: P0607350
Report Date: 08/09/06
Client Proj Name: NAS Cecil Field
Client Proj #: CTO 78 N62467-94-D-0888

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
CEF-059-GW-DUP-07A	Water	P0607350-07	21 Jul. 06	22 Jul. 06 10:08

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Acetylene	U	< 0.500	0.500	ug/L	AM20GAX	7/27/06	rw
N Ethane		0.026	0.025	ug/L	AM20GAX	7/27/06	rw
N Ethene		0.064	0.025	ug/L	AM20GAX	7/27/06	rw
N Methane		130.000	0.100	ug/L	AM20GAX	7/27/06	rw
SemiVolatiles							
N Acetic Acid		42.00	7	mg/L	AM23G	8/7/06	jb
N Butyric Acid		0.95	0.7	mg/L	AM23G	8/8/06	jb
N Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	8/5/06	jb
N i-Hexanoic Acid	U	< 0.10	0.1	mg/L	AM23G	8/5/06	jb
N i-Pentanoic Acid		0.21	0.07	mg/L	AM23G	8/5/06	jb
N Lactic Acid and HIBA	U	< 10.00	10	mg/L	AM23G	8/7/06	jb
N Pentanoic Acid	U	< 0.07	0.07	mg/L	AM23G	8/5/06	jb
N Propionic Acid		44.00	7	mg/L	AM23G	8/7/06	jb
N Pyruvic Acid	U	< 0.07	0.07	mg/L	AM23G	8/5/06	jb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 2217 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112GN0039	NAS CF	Mark Speranza	800-245-2730	Accutest (H. Landry)
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER: Wes Harden	PHONE NUMBER: 904-636-6125	ADDRESS: 4405 Vineland Rd C-15
		CARRIER/WAYBILL NUMBER		CITY, STATE: Orlando, FL 32811

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

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

PRESERVATIVE USED: HCl, HNO_3, HNO_3, NaOH, ZnAc, –, HCl

TYPE OF ANALYSIS: chlorinated VOCs (8260), diss. Fe (6010B), diss Mn (6010B), with diss. sulfide (376.1), *Anions (300.0), TOC (415.1)

DATE YEAR 2006	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	chlorinated VOCs (8260)	diss. Fe (6010B)	diss Mn (6010B)	with diss. sulfide (376.1)	*Anions (300.0)	TOC (415.1)			COMMENTS
7-21	0915	CEF-059-GW-MW2-07A				GW	G	10	X	X	X	X	X	X			1001 to 04C
	1125	CEF-059-GW-003-T3-07A						10	X	X	X	X	X	X			
	1220	CEF-059-GW-MW4-07A						10	X	X	X	X	X	X			
	1335	CEF-059-GW-MW3-07A						10	X	X	X	X	X	X			*Anions incl.
	0000	CEF-059-DUP-07A						10	X	X	X	X	X	X			sulfate, sulfide,
																	nitrate, nitrite,
																	chloride and
																	phosphate

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	7-21-06	1415	1. RECEIVED BY: Luis Alse		
2. RELINQUISHED BY: Luis Alse	7/21/06	1415	2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

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

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 3130 | PAGE 1 OF 1

PROJECT NO: 112GN0039	FACILITY: NAS CF	PROJECT MANAGER Mark Speranza	PHONE NUMBER 800 245 2730	LABORATORY NAME AND CONTACT: Accutest H. Vandrey
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER Wes Harden	PHONE NUMBER 904-636-6125	ADDRESS 4405 Vineland Rd C-15
		CARRIER/WAYBILL NUMBER		CITY, STATE Orlando, FL 32811

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

DATE YEAR 2006	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: Chlorinated VOCs (8260)	Diss Fe (6010B)	Diss Mn (6010B)	Sulfide (EPA 376.1)	* Anions (EPA 300.0)	TOC (EPA 415.1)	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED: HCl	HNO3	HNO3	ZnAc NaOH	-	H2SO4	COMMENTS
7/9	1400	CEF-059-GW-MW5-07A				GW	G	3	X	-	-	-	-	-	-	HCl						cool to 4°C
7/9	1445	CEF-059-GW-003-53-07A						3	X	-	-	-	-	-	-							
7/10	1110	CEF-059-GW-IW2-07A						10	X	X	X	X	X	X	X							
7/20	1320	CEF-059-GW-MW1-07A						10	X	X	X	X	X	X	X							
																						* Anions incl. sulfate, sulfide, nitrate, nitrite, chloride, phosphate

1. RELINQUISHED BY		DATE 7-20-06	TIME 1512	1. RECEIVED BY Luis Alse		DATE 7/20/6	TIME 1512
2. RELINQUISHED BY Luis Alse		DATE 7/20/6	TIME 1512	2. RECEIVED BY		DATE	TIME
3. RELINQUISHED BY		DATE	TIME	3. RECEIVED BY		DATE	TIME
COMMENTS							

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Microseeps Lab. Proj. # _____

CHAIN - OF - CUSTODY RECORD

Microseeps COC cont. # 1263 B

Phone: (412) 826-5245 | Microseeps, Inc. - 220 William Pitt Way - Pittsburgh, PA 15238 | Fax No. : (412) 826-3433

Company : Tetra Tech NUS

Co. Address : 9646 Phillips Hwy Ste Jacksonville, FL 32277

Phone # : 800-245-2730 Fax # : _____

Proj. Manager : Mark Sarcanza

Proj. Name/Number : SITE 59 / 112F-N0039

Sampler's signature : _____

Cooler Temp. _____

Results to : _____

Invoice to : _____

Sample ID	Sample Description	Sample Type: Water	Vapor	Solid	Date	Time	# Bottles	Parameters Requested: Methane	Ethane	Ethene	Acetylene	Metabolic Acids*						Remarks :
CEF-059-GW-SW2-07A		X			7-20-06	1110	4	X	X	X	X	X						Lead to MW
CEF-059-GW-MW1-07A		X			7-20-06	1320	4	X	X	X	X	X						
CEF-059-GW-MW2-07A		X			7-21-06	0915	4	X	X	X	X	X						* Metabolic acids include lactic, pyruvic, citric propionic and butyric
CEF-059-GW-00773-07A		X				1125	4	X	X	X	X	X						
CEF-059-GW-MW4-07A		X				1220	4	X	X	X	X	X						
CEF-059-GW-MW3-07A		X				1335	4	X	X	X	X	X						
CEF-059-DUP-07A		X				0000	4	X	X	X	X	X						

Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
[signature]	TtNUS	7-24-06	1530				
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :

WHITE COPY : Accompany Samples YELLOW COPY : Laboratory File PINK COPY : Submitter

REPORT TO:

Reports will be provided to the contact(s) listed below. Parties other than the contact(s) listed below will require prior approval.

Name: Mark Sprang
Company: Tet.a Tech NUS
Address: Foster Plaza 7
661 Anderson Dr
Pittsburgh PA 15220
email: mark.sprang@TtNUS.com
Phone: (800) 255-2730
Fax: (412) 921-4040

Project Manager: Mark Sprang
Project Name: Site 59 Pilot Study
Project No.: 112G-N00039

INVOICE TO:

For Invoices **paid by a third party** it is imperative that contact information & corresponding reference No. be provided.

Name: Same
Company:
Address:
email:
Phone: ( )
Fax: ( )

Purchase Order No.
Subcontract No.

microbialinsights
2340 Stock Creek Blvd.
Rockford, TN 37853-3044
phone (865) 573-8188
fax: (865) 573-8133
email: info@microbe.com
www.microbe.com

Please Check One:

☐ More samples to follow
☒ No Additional Samples

Saturday Delivery

Please see sampling protocol for instructions

Report Type: ☒ Standard (default) ☐ Comprehensive (15% surcharge) ☐ Historical (30% surcharge)

[redacted] about the analyses you are requesting at (865) 573-8188 (8:00 am to 4:00 pm M-F). After these hours please call (865) 300-8053.

MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	VFA	M/E/E	DGGE+3ID	DGGE+5ID	Q-Potential (DNA)	Q-Expression (RNA)*	qDHC (Dehalococcoides)	qTCE R-Dase	qBAV1 VC R-Dase	qDHB (Dehalobacter)	qDSM (Desulfuromonas)	qDSB (Desulfitobacterium)	qEBAC (Total)	qDSR (SRBs only)	qSRB/RB	qMGN (methanogens)	qMOB (methanotrophs)	qDNF (Denitrifying)	qAOB (ammonia oxidizing)	qPM1 (MTBE aerobic)	qTOD (Intial PAHs aerobic)	qCAT (Intermediate PAHs aerobic)	qBSS (Toluen/Xylene Anaerobic)	qNAH (Napthalene aerobic)	add. qPCR:	add. qPCR:	add. qPCR:	Other:	Other:	Other:
	CEE-059-GW-1142-072020	7-20	1110	GW						X		X	X	X																			X		
	CEE-059-GW-MW9-072020	7-20	1320	GW						X		X	X	X																			X		
	CEE-059-GW-MW2-072120	7-21	0915	GW						X		X	X	X																			X		

Relinquished by: Date: 7-21-20 Received by: Date

In order for analysis to be completed correctly, it is vital that chain of custody is filled out correctly & that all relative information is provided. Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable. *** additional cost and sample preservation are associated with RNA samples.**