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PILOT STUDY COMPLETION REPORT IN SITU BIOREMEDIATION OF CHLORINATED SOLVENTS AT THE FORMER WASTEWATER TREATMENT PLANT AREA SOLID WASTE MANAGEMENT UNIT 1 NAS PENSACOLA FL

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SOLUTIONS-IES

PILOT STUDY COMPLETION REPORT
IN SITU BIOREMEDIATION OF CHLORINATED SOLVENTS AT THE FORMER WASTEWATER TREATMENT PLANT AREA, SOLID WASTE MANAGEMENT UNIT 1
NAVAL AIR STATION PENSACOLA
PENSACOLA, FL

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1.0 INTRODUCTION

Solutions-IES, Inc. was contracted by the Naval Facilities Engineering Command Southeast (NAVFAC SE) to design, construct and monitor a pilot-scale remedial system for the treatment of chlorinated volatile organic compounds (CVOCs) within groundwater in the area of the Solid Waste Management Unit 1 (SWMU 1), Wastewater Treatment Plant (WWTP), Naval Air Station (NAS), Pensacola, Florida. Solutions-IES recommended an *in situ* remedial approach that involved injection of a commercially available organic substrate blended with a buffering agent to increase the pH of the groundwater and enhance the bioremediation of trichloroethene (TCE), *cis*-1,2-dichloroethene (*c*DCE), and vinyl chloride (VC) in the source area. This Pilot Study Completion Report summarizes the activities conducted at the site from June 2008 through April 2009.

1.1 SITE LOCATION AND DESCRIPTION

The site is located on the northeast side of NAS Pensacola which is approximately 5 miles south of the city of Pensacola, Escambia County, Florida. The pilot study was completed in an area adjacent to the former industrial WWTP and sludge drying beds. A site location map is included as **Figure 1**.

1.2 SITE HISTORY

The following site background and history is summarized from the following reports provided by NAVFAC SE.

U.S. Geological Survey, 2006, *Natural and Enhanced Attenuation of Benzene, Chlorobenzenes and Chlorinated Ethenes, Wastewater Treatment Plant, NAS Pensacola*, 2006 Annual Report, U.S. Geological Survey, Columbia, South Carolina.

U.S. Geological Survey, 2005, *Natural and Enhanced Attenuation of Benzene, Chlorobenzenes and Chlorinated Ethenes, Wastewater Treatment Plant, NAS Pensacola*, 2005 Annual Report, U.S. Geological Survey, Columbia, South Carolina.

Remedial Action Operation Optimization Summary Report, NAS Pensacola, Florida, January 2000.

The former industrial WWTP began processing sewage in 1941 and industrial wastes in 1971. Waste received at the plant included organic solvents (chlorinated ethenes, benzene, and chlorobenzenes), phenols, chromium electroplating wastes (cyanide and heavy metals), and waste from a chemical

conversion process for aluminum. Drying beds were used to dewater sludge which resulted in contamination of soils and groundwater in the area.

In July 1986, the United Stated Environmental Protection Agency (USEPA) determined that the industrial WWTP was not in RCRA compliance and issued a notice of violation (NOV) resulting in closure of the unlined sludge drying beds in 1987 and the surge pond in 1988. The impacts to soil and groundwater were addressed as part of a RCRA clean-up effort which included source removal and monitored natural attenuation (MNA). The drying beds were excavated to the water table at a depth of approximately 6 feet below ground surface (ft bgs) and the excavated material was disposed of as hazardous waste. The excavation was backfilled with clean sand and capped with high-density asphalt. A pump-and-treat (P&T) system was installed in 1986 to address groundwater impacts as part of the closure activities with extracted contaminated groundwater discharged for treatment to the industrial WWTP. In 1983, a leaking storage tank released approximately 2,250 gallons of concentrated sulfuric acid in the same part of the site. The release resulted in a relatively narrow, low pH (pH of 2 to 4), sulfuric acid/CVOC co-contaminant plume. The groundwater in the SWMU 1 vicinity has been monitored on a quarterly or semi-annual basis since 1987.

In 1995, a comprehensive groundwater review indicated 3,000 to 4,000 µg/L TCE remaining in the intermediate zone of the aquifer in the vicinity of GM-66, approximately 35 to 40 ft bgs, just above the confining clay layer. This suggested that the P&T system had been minimally effective for plume treatment so steps to optimize the design and further focus the remedial efforts around GM-66 were implemented. Natural attenuation processes appeared to be preventing migration of contaminants to Pensacola Bay at concentrations exceeding Florida Department of Environmental Protection (FDEP) Groundwater Cleanup Target Levels (GCTLs). The P&T system was discontinued in 1997 and additional monitoring activities were undertaken to assess the natural attenuation processes.

Results demonstrated that conditions favorable for reductive dechlorination were present in the vicinity of GM-66 and downgradient from the source despite the presence of generally acidic pH. In 1998, an *in situ* chemical oxidation (ISCO) treatment was implemented to address existing groundwater impacts in the source area. Maximum concentrations of CVOCs in the vicinity of GM-66 were reported to be 3,600 µg/L TCE, 520 µg/L cDCE and 63 µg/L VC. Approximately 4,089 gallons of 50% hydrogen peroxide and an equivalent volume of ferrous iron catalyst solution (Fenton's Reagent) were injected in the surficial aquifer. An 81% decrease in concentration of total CVOCs in the source area was initially observed, but contaminant concentrations rebounded. The rebound observed was believed to be a result

of residual sorbed-phase contamination, unusually high organic matter consuming the hydroxyl radicals through oxidation, or background geochemistry (in particular, 975 mg/L of dissolved iron in groundwater) affecting the chemical oxidation kinetics. A second injection of Fenton's reagent (6,038 gallons) was performed in May 1999 resulting in better than 97% reduction. GM-66R was installed at this time to replace GM-66, which was damaged (**Figure 2**).

According to information in the 2006 Annual Report, monitoring data since 2001 showed a rebound of CVOC concentrations in the source area and TCE concentrations in monitor well USGS-5 had returned almost to pre-ISCO injection levels. As a result of these findings, the Navy has been evaluating alternative strategies for addressing the residual CVOC contamination in groundwater, including biostimulation and bioaugmentation. As part of this effort, Solutions-IES was contracted to implement an enhanced bioremediation pilot study at SWMU 1. The Pilot Study Work Plan was approved by FDEP in May 2008, and the field study was begun in July 2008. The pilot study is the subject of this report.

1.3 GEOLOGY AND HYDROGEOLOGY

The aquifer underlying the site is divided into three zones: surficial (~5 to 40 ft bgs), intermediate (~40 to 50 ft bgs) and the lower silt - clay confining unit (below ~50 ft bgs). The surficial and intermediate zones are Quaternary marine and fluvial terrace sediments composed of homogenous fine to medium grained sands to a depth of approximately 40 ft bgs. These are underlain by a layer of lower-permeability silts and clays of marine origin which act as a confining bed to permeable sands and gravel in the confined aquifer system below. The confined aquifer is known as the main producing zone and has been used as a water supply in the past.

In 2007, the average depth to groundwater in SWMU 1 ranged from 0.5 to 1.9 ft bgs in the pilot study area; in July 2008, just prior to beginning the pilot test, depth to groundwater was approximately 4 ft bgs. The shallow groundwater flow at the site mimics the local topography and generally flows to the east-northeast towards Pensacola Bay which serves as a discharge for both aquifers. The average hydraulic gradient across the area is approximately 0.005 ft/ft. This flat gradient is likely slowing plume migration offsite. An upward hydraulic gradient exists between the lower confined and surficial aquifers.

2.0 PROJECT OBJECTIVES

The unusual history of the groundwater contamination near SWMU 1 at NAS Pensacola (including unusually high sulfate concentrations, low groundwater pH and geochemical artifacts from abiotic remediation attempts) offers an opportunity to examine the impact of such conditions on biological activity and reductive dechlorination processes. A number of studies have shown that anaerobic bioremediation processes can be inhibited by low pH. Bradley et al. (2007) stated that "biotic and abiotic reductive dechlorination reactions can contribute to the natural attenuation of chlorinated solvent plumes, and many of these reactions appear to be inhibited under low pH conditions." The pH may continue to decline during anaerobic bioremediation due to processes including release of free protons (H^+) during reductive dechlorination and if the aquifer buffering capacity is low, the pH may decline to a point where contaminant biodegradation is inhibited.

The primary objective of the pilot study was to determine the ability of a buffered, biodegradable, injectable emulsified edible oil substrate to stimulate the anaerobic reductive dechlorination of CVOCs and reduce existing concentrations in the DNAPL source zone. The substrate chosen is composed of emulsified soybean oil, alkaline solids, emulsifiers and preservatives to form a product sold as AquaBupH™[1]. The introduction of the AquaBupH™ to groundwater was intended to create anaerobic conditions, modify the pH and enhance the growth of indigenous and/or inoculated microorganisms capable of degrading the chlorinated solvents.

A secondary objective was to evaluate the need and effectiveness of bioaugmentation to supplement the biodegradation process. Assuming the pH of the aquifer could be adjusted to a range more favorable for the viability of the dehalorespiring microorganisms, the study was designed to evaluate any incremental improvement in enhanced bioremediation that could be obtained via the introduction of a commercially available bioaugmentation culture.

The third objective of the study was to gain information about injection and distribution of the substrate. If successful, the data would be used to design a full-scale approach to treat the larger area comprising SWMU 1.

[1] AquaBupH™ is provided by EOS Remediation, Inc. of Raleigh, NC.

2.1 BIOLOGICAL DEGRADATION

Natural aquifer systems are complex ecosystems populated by a broad and diverse array of microbial communities. The composition and activity of these microbial communities changes continuously as their environment changes. Aquifer geochemistry and substrate availability significantly affect microbial activity. Dehalorespiring bacteria are pH sensitive and dechlorination rates decrease below a pH of 6. Groundwater sampling at the SWMU 1 site has indicated levels of pH in some wells that are less than 4. Other conditions recognized in groundwater at SWMU 1 that may be limiting reductive dechlorination include sulfate concentrations as high as 15,000 mg/L, lack of organic substrate for microbial growth and a limited population of dehalorespiring bacteria.

The pilot study was designed to inject buffered-emulsified oil (AquaBupH™) into the subsurface to enhance the anaerobic biodegradation of CVOCs. As the emulsified oil component slowly biodegrades over time, it provides a continuous source of dissolved organic carbon; (i.e., fermentation products) to support anaerobic biodegradation of the target contaminants. Degradation of the oil results in removal of oxygen and production of acetic acid (CH_3COOH) and molecular hydrogen (H_2). This reaction is illustrated below.

$$C_{56}H_{100}O_6\ \textbf{(oil)} + 50\ H_2O \xrightarrow{\textit{Bacteria}} 28\ CH_3COOH + 44\ H_2$$

CH_3COOH can be used as an electron donor for TCE dechlorination to cDCE, and for removal of other competing electron acceptors (oxygen - O_2, nitrate - NO_3, ferric iron - Fe^{+3}, and sulfate - SO_4). Reduction of cDCE to ethene requires H_2 as an electron donor. As shown above, one mole of soybean oil can be fermented to produce 44 moles of hydrogen. The buffer in the formulation provides a slow-release source of alkalinity in the aquifer to help neutralize the background pH as well as counteract changes in pH that result from bioactivity and CVOC metabolism.

3.0 PILOT STUDY IMPLEMENTATION

3.1 DESIGN

The amount of AquaBupH™ included in the pilot system design was determined based upon the historical information provided including concentrations of the target compounds, concentrations of various biodegradation and geochemical parameters, and hydrogeologic conditions within the injection area. No preliminary titration of the aquifer matrices was performed to calculate the amount of buffering agent that would be required to adjust the pH of the aquifer to a more desired range for bioactivity to occur. For the

purpose of the pilot test it was assumed that the amount of buffering provided in the AquaBupH™ substrate would be adequate to meet the demand of the aquifer for the duration of the pilot test.

The design presumed that one injection of AquaBupH™ into the treatment area would allow for the buffering components of the product to increase the pH of the aquifer material and create a more suitable environment for dechlorinating bacteria. A monitoring schedule was developed to evaluate changes in the aquifer bio-geochemistry and biodegradation of the target CVOCs.

The injection design consisted of four injection points placed in an arc generally upgradient of each of three permanent monitoring wells (i.e., 12 injection points total). As shown in **Figure 3**, the design layout specified that the 12 injection locations (IP-1 through IP-12) would be installed approximately 3 to 5 feet apart. The injection locations were spaced so there was no overlap of the radius of influence and each treatment zone was located hydraulically cross-gradient. The design also included the installation of two temporary injection wells within the second treatment zone for introduction of the bioaugmentation culture.

The design volumes of AquaBupH™ were calculated based upon a radius of influence surrounding each of the temporary injection points. The volume of AquaBupH™ concentrate designed for each injection point was 13.2 gallons (127.5 lbs). The design specified the emplacement of a total volume of liquid, comprised of diluted AquaBupH™, of approximately 68 gallons per point. This calculates to a radius of influence (ROI) of ~1.6 ft around each injection point assuming a 5-ft injection interval and effective porosity of 0.24.

A Work Plan summarizing the pilot study objectives and injection design was prepared and submitted to the Florida Department of Environmental Protection (FDEP) in January 2008. In a letter dated April 2, 2008, FDEP provided comments on the Work Plan and requested additional information about the proposed design. Solutions-IES responded to these comments in a letter dated April 21, 2008 and received approval from FDEP to conduct the pilot study on May 7, 2008. A copy of the approval letter authorizing Solutions-IES to conduct the injection is included in **Attachment A**.

3.2 MONITORING AND INJECTION WELL INSTALLATION

Prior to AquaBupH™ injection, a soil core was advanced near the existing source area monitoring well, AE-01, to determine the target treatment interval. Soil samples were collected from 0 to 12 feet below ground surface (ft bgs) and from 42 to 46 ft bgs. The soil collected from the lower interval (42 to 46 ft bgs) was described as a dark gray clay. Based upon this description, it was decided that the new monitoring wells would be installed to a depth of 42 ft bgs and constructed with 5-feet of screen. All soil borings and well installations were performed under the supervision of a Florida-certified drilling contractor.

Two new groundwater monitoring wells, designated SI-01 and SI-02, were installed in a line with existing monitoring well AE-01. Two temporary injection wells, designated IW-1 and IW-2, were installed adjacent to the newly installed monitoring wells with the intention that they would be used for introduction of a bioaugmentation culture. The locations of the groundwater monitoring wells and temporary injection wells are illustrated on **Figure 3**.

The new monitoring wells and temporary injection wells were installed using 2-1/4 inch Geoprobe® casing with an expendable tip. The Geoprobe® casing was pushed to the termination depth, approximately 42 ft bgs. Five feet of 3/4-inch diameter PVC screen with pre-pack filter material was attached to 37 feet of 3/4-inch PVC well casing. At each location, the well screen and riser were placed in the Geoprobe® casing, and the casing was removed from the borehole leaving the well screen behind. The formation material was allowed to settle around the well casing and the top 5 feet of each borehole was sealed with bentonite. Following installation, each well was developed using a combination of surging and pumping.

3.3 BASELINE GROUNDWATER MONITORING

To establish baseline conditions within the aquifer, groundwater monitoring wells AE-01, SI-01, SI-02, and GM-66R were sampled on July 15, 2008, prior to substrate injection to evaluate pre-biostimulation field conditions and CVOC concentrations. Groundwater samples were analyzed for CVOCs, total organic carbon (TOC), sulfate, methane, ethane, and ethene. Ferrous iron, dissolved oxygen (DO), oxidation-reduction potential (ORP), pH, temperature, conductivity and turbidity were also measured with field instruments or sampling kits. Samples were also submitted for enumeration of selected microbial populations and enzymes.

3.3.1 Methodology

Wells were purged immediately before sampling using a low-flow peristaltic pump at an approximate rate equal to or less than the groundwater recharge rate until field parameters (temperature, pH, conductivity, turbidity and DO) stabilized. ORP readings were also recorded during purging. Samples were collected for field analysis of DO using CHEMetrics® field test kits and field meters. Results of field measurements are summarized on **Table 1**. Copies of the groundwater sampling logs, including all field parameter measurements, are provided in **Appendix B**.

Samples collected for the following analyses were submitted to Test America Laboratories (Test America), a Florida-certified laboratory located in Nashville, Tennessee:

- VOCs by EPA Method 8260B;
- Sulfate by EPA Method 300.0;
- Ferrous iron by Standard Method 3500;
- Total Organic Carbon by EPA Method 9060A; and
- Chromium by EPA Method 6010B.

Samples were also submitted to Microbial Insights, Inc. located in Rockford, Tennessee for bacterial enumeration and microbial testing. The identification of the microorganisms provides potential for reductive dechlorination but not direct evidence that it is occurring. Therefore, additional analyses were conducted to determine the existence of enzyme function. Samples were submitted for the following analyses:

- Total eubacteria;
- *Dehalococcoides spp* (Dhc);
- Trichloroethene reductase (TCE R-dase); and
- Vinyl Chloride reductase (VC R-dase and BAV1 VC R-dase).

Groundwater sampling was conducted in general accordance with FDEP standard operating procedures (SOP) and the Solutions-IES Work Plan. All samples collected were stored on ice and delivered to the applicable laboratory under chain-of-custody procedures. Copies of the laboratory analytical reports are provided in **Appendix C**.

3.3.2 Investigation-Derived Waste (IDW)

Purge water, wash water and rinse water were collected in 5-gallon containers and transferred to 55-gallon drums. The drums were staged on pallets in the area adjacent to the WWTP pending disposal. Solutions-IES contracted SWS, Inc. disposal company to remove and dispose of the IDW.

3.3.3 Analytical Results

The data from the baseline groundwater monitoring event indicate that the groundwater in the area of the pilot study can be characterized as a low pH, oxidative environment. The highest concentration of TCE was reported in monitoring well AE-01 at a concentration of 18,300 µg/L. The wells sampled during the baseline event all exhibited elevated TCE (18,300 µg/L to 1,640 µg/L), ferrous iron (380 mg/L to 176 mg/L) and sulfate (10,500 mg/L to 4,180 mg/L) concentrations. The TOC concentrations were relatively low (4.75 to 6.66 mg/L). **Table 2** provides a summary of non-biological analytical results from this monitoring event.

The total eubacteria population ranged from 2,870 cells per milliliter (c/mL) in well SI-02 to 170,000 c/mL in GM-66R, but the number of *Dehalococcoides spp.* was close to or below the detection limit in all four wells. These results indicated that the microbial populations necessary for effective biological reductive dechlorination processes were not present in quantities sufficient to effectively reduce the CVOC concentrations in this area without stimulation or enhancement, and possibly bioaugmentation. A summary of the biological sampling results is provided in **Table 3**. Copies of the analytical reports are provided in **Attachment C**.

3.4 AQUABUPH™ PERFORMANCE SUMMARY – JULY TO OCTOBER 2008

3.4.1 Injection Design

Three 55-gallon drums (~1,440 lbs) of AquaBupH™ were purchased as a concentrated emulsion from EOS Remediation, Inc. (Raleigh, NC) and delivered to the site. Solutions-IES used water from the site to dilute the AquaBupH™ at a 5 to 1 ratio prior to injection into the aquifer. Distribution of the emulsified oil away from the injection points and into the formation was performed by the continuous injection of diluted AquaBupH™ emulsion into the aquifer until the design volume was achieved.

The injection was performed July 16 to 18, 2008, using Geoprobe® technology to directly inject the substrate into the aquifer. The Geoprobe® tooling was advanced to the bottom of the treatment zone, approximately 42 ft bgs. The injection was conducted at 2½-ft intervals by moving the Geoprobe® tooling up through each interval. A water meter was used to record the total gallons of dilute emulsion delivered to each injection interval. Injection continued at each injection interval until approximately 68 gallons of dilute AquaBupH™ were introduced into the aquifer at which point the Geoprobe® rod was moved up to the next target treatment interval and the process was repeated. Injection pressures ranged from 5 to 30 psi and flow rates ranged from 0.1 to 1.6 gpm. Approximately 270 gallons of substrate were

injected into each injection zone. The total volume injected into the source area was approximately 817 gallons for the 12 injection points. A summary of the volumes and treatment intervals for all of the injection points is provided in **Table 4**. The locations of each injection point are shown on **Figure 3**. A collection of photographs documenting the field activities in provided in **Attachment D**.

During injection, Solutions-IES monitored the water levels in nearby existing monitoring wells before, once during, and immediately upon termination of the injection to evaluate whether groundwater mounding occurred and, if so, how widespread it was observed and to what depth. No significant mounding of the groundwater was observed adjacent to any of the injection locations. This information was later used to help evaluate the impact and effectiveness of the injection process.

After the required volume of substrate had been injected, the injection tooling was removed and the remaining borehole was abandoned by allowing the formation to collapse into the borehole. A cement-bentonite grout was then added to any remaining space within the borehole to the ground surface. Copies of the injection point completion and abandonment forms are provided in **Appendix D**.

3.4.2 Monitoring Results

The Work Plan stated that periodic field monitoring would be performed after the injection to confirm that anaerobic conditions had been established and pH levels had increased prior to bioaugmentation. Field parameters including water level, DO, pH, ORP, temperature and conductivity were recorded immediately after injection on Day 0 (pH only) and Day 17, 32, 60 and 98. During each of these events, monitoring wells AE-01, SI-01, SI-02 and GM-66R were purged and sampled following FDEP SOPs.

During the first post-injection field monitoring event on Day 0 (July 18, 2008) the pH in AE-01 had risen to pH 6.52; the pH in SI-01 was 5.85, but the pH in SI-02 was unchanged at 3.58. These observations and measurements immediately after injection confirmed the distribution of AquaBupH™ beyond the design ROI and at least 5 ft from the injection point around monitor wells AE-1 and SI-02, but not around SI-02. On August 1, 2008 (Day 17), the pH in monitoring well AE-01 had increased substantially from a pre-injection level of 3.67 to 7.28. The pH in monitoring well SI-01 had stabilized at pH 4.71 during the same period, which was above the pre-injection level of 3.56. No other monitoring wells exhibited measureable pH changes following the injection that could be attributable to the addition of AquaBupH™. The ORP readings in all monitoring wells generally changed from a positive to negative range indicating creation of reducing conditions following the injection. No change in pH and less

change in ORP was measured in monitoring well GM-66R which was located outside of the designed injection area of influence. A summary of the field monitoring data is provided in **Table 1**.

Solutions-IES continued to monitor the groundwater conditions in the four monitoring wells on August 16 (Day 32) and September 13, 2008 (Day 60). The pH in monitoring wells AE-01 and SI-01 declined slightly from the initial increase identified after the injection, and there continued to be no change in pH in the other wells. While a slight pH increase was seen in well SI-01, it did not increase enough to be considered conducive to microbial activity. The continuing low pH levels within the treatment zones proposed for bioaugmentation resulted in are-evaluation of the pilot study approach, including a delay in sampling groundwater for CVOCs.

Based on the apparent difficulty with raising the pH, Solutions-IES and NAVFAC SE agreed that an additional injection of AquaBupH™ would be a viable approach to attempt to raise the pH to more appropriate levels for bioaugmentation (i.e., closer to pH 6). A design was developed which included the injection of a higher volume of substrate into injection points adjacent to the original injection locations. Because the pH level in monitoring well AE-01 remained near neutral (i.e., pH 6.87), no additional injection was planned in this area.

3.5 AQUABUPH™ PERFORMANCE SUMMARY – OCTOBER 2008 TO MARCH 2009

3.5.1 Injection Design

Solutions-IES personnel mobilized to the site on October 20, 2008 to conduct a second AquaBupH™ injection. Prior to injection, field parameters were recorded in wells AE-01, SI-01, SI-02, IW-1 and IW-2. The field readings obtained October 21, 2008, immediately before injection, are included in **Table 1**.

Four 55-gallon drums (~1,920 lbs) of AquaBupH™ were purchased as a concentrated emulsion and delivered to the site. Solutions-IES used water from the site to dilute the AquaBupH™ at a 5:1 ratio prior to injection into the aquifer. A total of three injection points were placed radially around monitoring wells SI-01 and SI-02, at locations between the injection points completed in July 2008 (**Figure 3**). Approximately 189 gallons of dilute AquaBupH™ were injected into each of the injection points using the methodology described in **Section 3.4.1**. A total of 1,036 gallons of dilute AquaBupH™ were injected into six injection points. Injection pressures ranged from 6.5 to 45 psi and flow rates ranged from 1.3 to 4 gpm.

After the required volume of substrate had been injected, the injection tooling was removed and the remaining borehole was abandoned by allowing the formation to collapse into the borehole. A cement-bentonite grout was then added to any remaining space within the borehole to the ground surface. Copies of the injection point completion and abandonment forms are provided in **Appendix D**.

3.5.2 Monitoring Results

The pH in SI-02 increased from 3.85 to 4.52 on October 22, 2008, one day after completing the new injections. There was no change in SI-01. Solutions-IES returned to the site on November 17, 2008 (27 days after the new injections) to collect groundwater samples again for analysis of geochemical parameters. While evidence that the substrate had been effectively distributed to the area adjacent to the monitoring wells was noted, including a change in color and an oily texture, no positive increase in pH or change in other field parameters was identified.

The first groundwater sampling event for CVOCs since the beginning of the pilot study was performed by the USGS on November 24, 2008 during a routine site-wide sampling event. A review of the data provided to Solutions-IES by the USGS indicated a reduction of TCE concentration in well AE-01 from the baseline level of 18,300 µg/L to 420 µg/L and the reduction of 1,1-DCE from 69.7 µg/L to 12.0 µg/L. A significant increase in the degradation product VC from 94.4 µg/L to 3,500 µg/L was also identified in this well. The data appear to support the conclusion that successful adjustment of pH in AE-01 and addition of substrate enhanced reductive dechlorination of TCE. The TCE concentration in SI-02 also decreased substantially from 1,640 µg/L to 290 µg/L over the same 125-day time period. However, any increase in the degradation products cDCE and VC was not evident in SI-02. This is consistent with the inability to adjust the pH to a more favorable range for enhanced reductive dechlorination to occur. Curiously, the TCE concentration in well SI-01 increased from 4,150 µg/L to 7,200 µg/L, but there were increases in cDCE and VC in this well. This was unexpected at the pH of groundwater at this location.

These data seem to indicate that the introduction of AquaBupH™, while not substantially increasing the pH except in AE-01, did result in an increase of reductive dechlorination in the treatment zones in the vicinity of AE-01 and SI-02. The field observations of a black color and oily nature of the groundwater in these wells supports the idea that the injection was effective in distributing the AquaBupH™ to these areas and creating reducing conditions with the presence of high levels of organic carbon.

3.6 MICROBIAL TESTING

To gain more understanding of the biological processes that were occurring in the treated groundwater, on December 28, 2008 (Day 227 since the original injections were made) groundwater was collected and sent to Microbial Insights for analysis of a broader suite of microbial tests. These included enumeration of *Dehalococcoides spp*, (Dhc); *Dehalobacter spp.* (DHB), *Desulfuromonas spp.* (DSM), *Desulfitobacterium spp.* (DSB) and iron and sulfate reducing bacteria (IRB/SRB). In addition, the samples were analyzed for number of gene copies of dechlorinating enzymes including TCE R-Dase, VC R-Dase, and BAV1 VC reductase.

Efforts to collect samples from AE-01 were hindered by an obstruction in the well that prohibited the tubing from reaching the well screen so the representativeness of these data are suspect. However, analytical data from the remaining groundwater samples indicated little change in population of DHC as compared to the pre-injection sampling results and DHB was not detected (**Table 3**). Samples were also submitted for enumeration of iron and sulfate-reducing bacteria during this event. The IRB/SRB numbers ranged from <1.4 c/mL in well SI-01 to 19,300 c/mL in well SI-02. The presence of these populations was not unexpected because of the high sulfate concentrations and reducing conditions that were established. These microorganisms apparently can survive the low pH conditions. Except for the detection of TCE R-Dase in AE-01, there was no evidence of dechlorinating enzyme activity.

The same suite of microbial tests was run on March 24, 2009 (Day 313 since startup). Despite continued low pH conditions, positive detections of DHC were reported in all four wells (**Table 3**). DHB was also reported in SI-02. IRB and SRB populations were reported in all wells except SI-01. Enzyme analyses were not performed on these samples.

3.7 WELL REHABILITATION AND GROUNDWATER SAMPLING– MARCH 2009

Solutions-IES personnel returned to the site on March 23, 2009 for the last performance monitoring event of the pilot study. There was some evidence from the December 2008 performance monitoring event that globular material had formed and accumulated in the monitor wells in the treatment zones. This raised the concern that sampling via low-flow procedures may not be representative of groundwater conditions in the aquifer, but only in the well bore. Therefore, some additional steps were taken to assure the quality of the data from this last event.

Initially, GM-66R, AE-01, SI-01, IW-1, SI-02 and IW-2 were tested to estimate hydraulic conductivity. The conductivity tests were based on a specific capacity test described by Wilson et al. (1997). GM-66R

(2-inch diameter well) is located downgradient and outside of the influence of the AquaBupH™ injections. This well was used as an indicator of background aquifer conditions. GM-66R was estimated to have a hydraulic conductivity (K) of approximately 5 feet per day (1.77×10^{-3} cm/sec). Wells SI-01 and IW-01, located in close proximity to each other, had K values of 0.6 and 0.06 feet per day (2.03×10^{-4} cm/sec and 2.03×10^{-5} cm/sec), respectively. Wells SI-02 and IW-02, also located in close proximity to each other, had K values of 6.8 and 9.0 feet per day (2.93×10^{-3} cm /sec 3.17×10^{-3} cm/sec), respectively. Well AE-01 made very little water at only 3-inches drawdown and was estimated to have a K value of 0.1 ft/day or (5.1×10^{-5} cm/sec).

After the specific capacity tests were run, well re-development activities were initiated at AE-01. A 2-inch diameter surge block was inserted into the well but could not be pushed beyond a depth of approximately 3 ft bgs. However, a section of 1-inch pipe could be inserted past this point easily. The outside diameter of the surge block was reduced to produce a loose fit in the well bore and it was possible to push the surge block to the bottom of the well. The well appeared to have a buildup of a light brown sticky coating on the inside of the well at the water table surface. This is presumed to be due to congealing of a small quantity of vegetable oil from the emulsion injected adjacent to this well. Changes in water level have apparently smeared this material on the walls of the well casing. Its slight stickiness probably prevented previous attempts to insert small diameter polyethylene tubing into the well for sampling.

The well was surged by repeatedly raising and lowering the surge block to force water in and out of the well screen. The surge block was removed and a bristle brush was run in and out of the well several times to scrub and loosen solids from the inside of the well. Upon withdrawal of the bristle brush, a black greasy coating was noted on the brush and the pipe that it was attached to. After brushing, a peristaltic pump was set up using ½-inch polyethylene tubing. The tubing was inserted unto the well and the well was pumped until approximately 5 gallons of water had been removed. Water removed from the well was black in color and had a very strong odor of hydrogen sulfide (rotten eggs).

Similar surging and brushing were performed in SI-01, IW-01, SI-02 and IW-02. For these wells, a small bristle brush and surge block was attached to ½-inch diameter PEX™ piping. After re-development, each of these wells was pumped with the peristaltic pump. Water recovered from these wells ranged from light gray to black in color and most exhibited a strong hydrogen sulfide odor. Approximately 10 gallons of water were removed from the five wells. This water was transferred to a 55-gallon drum for later disposal.

Water levels were measured in the five wells approximately 24-hours after re-development and were found to be close to the previous day's readings. Groundwater samples were then collected from wells GM-66R, SI-01, SI-02 and AE-01 using the previously described methodology. A summary of the field parameters collected during this sampling event is provided in **Table 1** and copies of the sampling forms are provided in **Attachment B**. Sulfide and iron were measured in the field using CHEMetrics™ test kits. Samples were submitted to Test America laboratory for analysis of VOCs, sulfate, hydrogen sulfide and TOC. Additional samples were sent to Microbial Insights for analysis of microbial parameters.

Some effervescence was observed in the water purged from well SI-02 suggesting the presence of dissolved gasses. Water removed from AE-01 and SI-01 was observed to be nearly black. However, when it was added to the VOA vials containing hydrochloric acid (HCl), the water became clear. This suggests that the black color may be associated with metal sulfide minerals (iron and/or manganese) that are dissolved by the acid added for sample preservation.

Specific capacity was measured again after sampling in wells SI-01 and AE-01. Both tests were run using 3-inches of drawdown as before. Values of K were 1.2 ft /day and 0.6 ft /day, respectively (4.06×10^{-4} cm/sec and 2.03×10^{-4} cm/sec). These values suggest that surging and brushing was helpful in restoring a connection with the aquifer. However, there still seems to be a reduction in hydraulic conductivity in several of the site wells. The most serious reductions appeared to correlate with observations of accumulation of congealed, soap-like material in AE-01, AE-02, SI-01 and IW-1.

Approximately 500 mL of purge water were collected from AE-01 for further evaluation. The black water was found to be due to the presence of particulates in the water. Upon standing, the water would become clear as the particulate settled to the bottom of the container. A small sample of the black particulate matter was examined under magnification. The particulate appears to be a precipitate. The particle size is too small to identify any crystalline pattern. Based on the high iron content of groundwater and the odor of hydrogen sulfide the material is believed to be iron sulfide.

The results of the microbial testing were described in Section 3.6 and showed very little evidence of dechlorinating activity (**Table 3**). The CVOC results are shown in **Table 2**. The CVOC analysis on the sample from AE-01 showed a strong rebound in concentration of TCE back to 10,000 µg/L from the 420 µg/L recorded in November 2008. It is possible that the drop in TCE concentration in the samples collected by the USGS in November 2008 was an artifact of sampling procedure if accumulation of

material in the well interfered with getting a truly representative sample of the aquifer. However, there remained a strong indication of a real increase in cDCE and continued presence of VC in this well.

There was virtually no change in CVOC concentrations or evidence of biodegradation of TCE in SI-01. In SI-02 the TCE concentration remained 25% of the baseline concentration, but there was little or no evidence of the formation of biodegradation daughter products. There was also no change in GM-66R which was outside the treatment zones.

Table 2 also shows the results of the TOC analysis during the baseline sampling event and the last event. However, during the last event, the TOC was only measured in SI-01. The impact of the addition of AquaBupH™ on the TOC is demonstrated by the presence of 2,500 mg/L dissolved TOC in groundwater 154 days after the supplementary injections in that vicinity.

4.0 PILOT STUDY SUMMARY

Solutions-IES conducted a pilot study at the NAS Pensacola SWMU 1 site under a Work Plan approved by FDEP. The scope-of-work was followed to initiate the study, but as results became available, the performance monitoring program was modified. Groundwater monitoring of field parameters did not indicate a rise in pH to levels conducive to bioaugmentation in any of the monitoring wells except AE-01. A second injection was conducted in an effort to add more buffered substrate to the aquifer. This step appeared to result in a decrease in TCE concentrations in two of the target treatment areas even though the substrate did not substantially increase the pH in the target areas as desired. As a result, the planned bioaugmentation injections were not conducted.

Additional groundwater monitoring was conducted to supplement the groundwater geochemical data in an effort to better understand the active anaerobic processes. The high ferrous iron, high sulfate and low hydrogen sulfide concentrations identified in groundwater at the site suggests that iron reduction may be a predominant mechanism at the site (Chapelle, 2009).

The pilot study was successful in demonstrating that AquaBupH™ could be injected into the aquifer through direct-push tooling and that the substrate could move away from the injection points to impact a larger treatment zone than designed. The injection observations also indicated that there is variability in the subsurface and identifying the correct treatment interval can have an important influence on the delivery of substrate to the contaminated zone.

The study also showed that more extensive pre-characterization of the aquifer conditions is needed prior to full-scale design. The data suggest that any potential increase of pH in the aquifer by the added buffer may have been offset by the acidity produced by reduction of the high concentrations of ferrous iron and the precipitation of iron sulfide. Additional characterization of the aquifer geochemistry is needed to determine the amount of buffer necessary to raise the pH of the highly acidic groundwater to levels that allow for the viability of dechlorinating bacteria. If the pH can be adjusted, there is potential for biodegradation to occur. However, given the absence of dehalorespiring microbial communities and specific enzyme activity, if might be necessary to consider bioaugmentation.

5.0 REFERENCES

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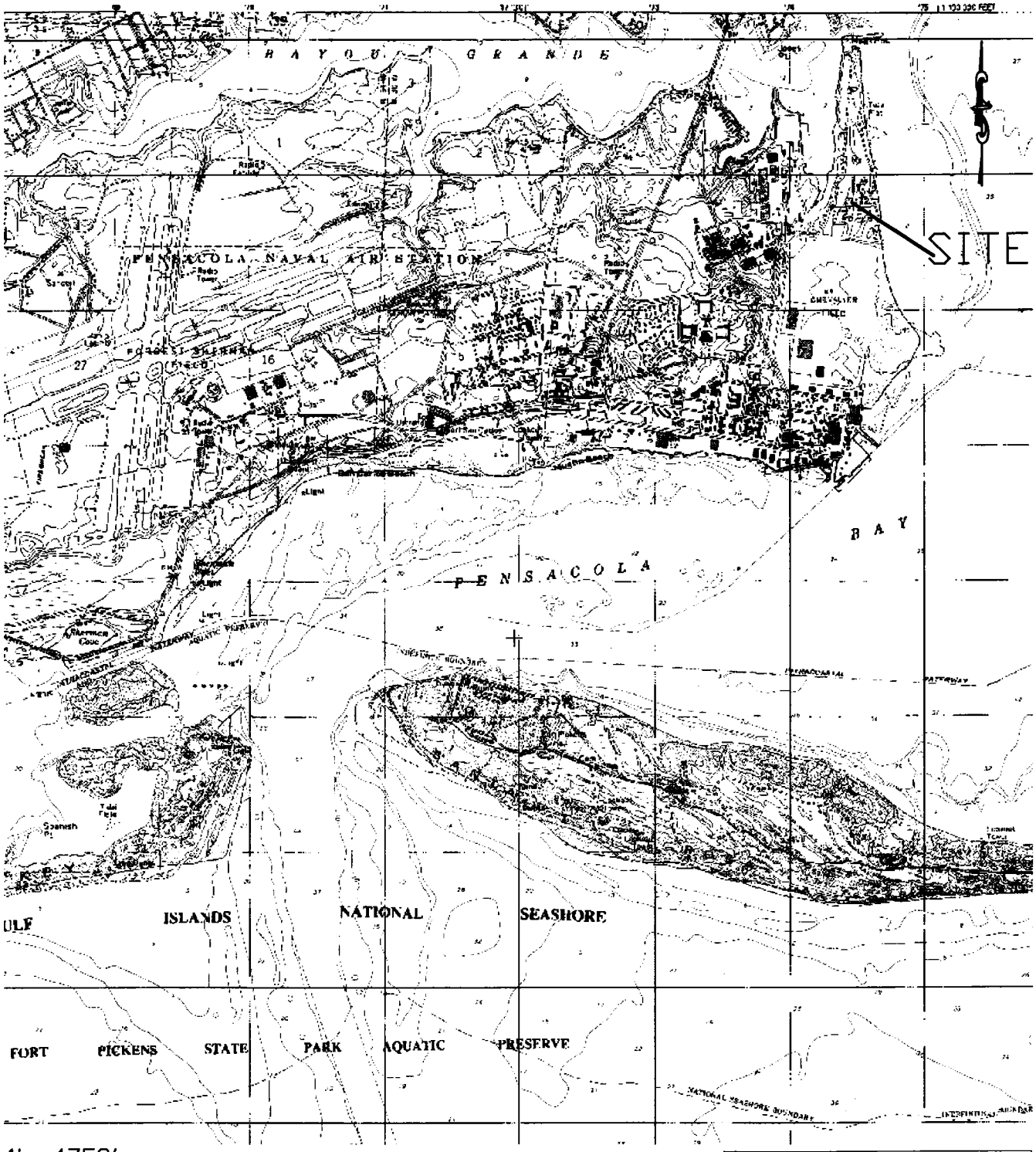
FIGURES



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REFERENCE:
USGS 7.5 MINUTE TOPOGRAPHIC MAP
FORT BARRANCAS, FLORIDA, 1965.
(PHOTOREVISED 1994)

PROJECT NUMBI 3910.07...NAVF

DRAFTER JD

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PROJECT MANAGER TL

DATE OCT 2007

FILE FIG 1 topo.pdf

Solutions-IES
Industrial & Environmental Services
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SITE LOCATION MAP
NAVAL AIR STATION
PENSACOLA, FLORIDA

FIGURE:
1

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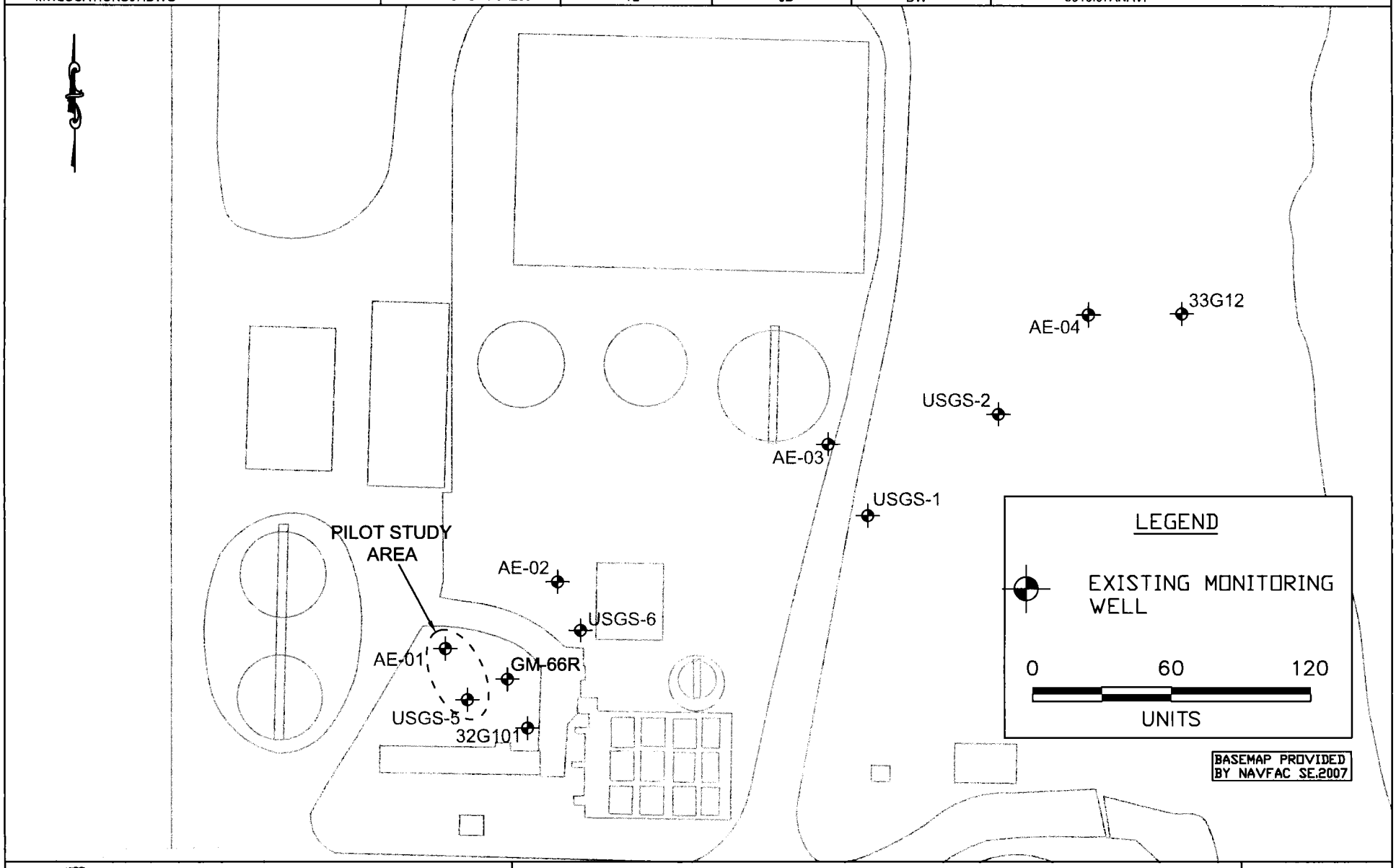

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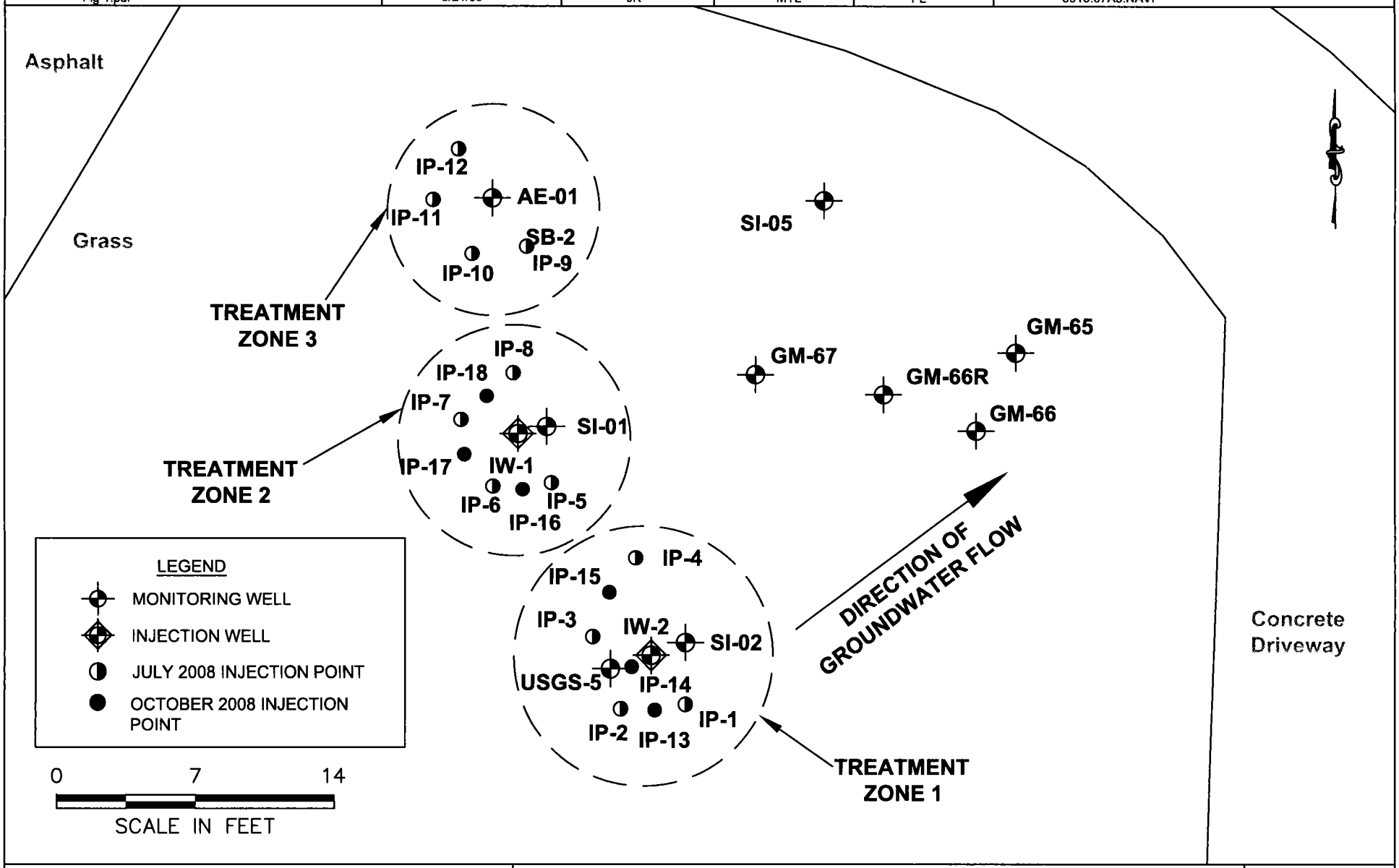
SWMU1
SITE MAP
NAVAL AIR STATION
PENSACOLA, FLORIDA

FIGURE:
2

FILE	DATE	PROJECT MANAGER	CHECKED BY	DRAFTER	PROJECT NUMBER
Fig 1.pdf	8/21/09	JK	MTL	PL	3910.07A3.NAVF



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INJECTION AND MONITORING WELL LOCATION MAP
PILOT STUDY COMPLETION REPORT
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

FIGURE: 3

TABLES

TABLE 1
SUMMARY OF FIELD AND NATURAL ATTENUATION PARAMETERS
NAS PENSACOLA PILOT STUDY
PENSACOLA, FLORIDA
Solutions-IES Project No. 3910.07A3.NAVF

Well ID	Sample Date	Days After Initial Injection	Temperature (°C)	pH (SU)	Conductivity (uS/cm)	Turbidity (NTU)	Oxidation-Reduction Potential (mV)	DO - field probe (mg/L)	DO-Chemetrics (mg/L)	Sulfate - field (mg/L)
AE-01	7/15/2008 (Baseline)	--	27.2	3.67	3950	1.5	27	2.21	--	--
	7/18/2008	0	--	6.52	--	--	--	1.45	--	--
	8/1/2008	14	25.6	7.28	1200	75	-399	8.6	NA	--
	8/16/2008	29	26.1	6.87	9470	316	-272	9.03	0.0	--
	9/13/2008	57	27.8	6.87	9280	455	-384	9.58	NA	5000
	10/21/2008	95	26.2	6.01	1398	--	-250	--	--	--
	11/17/2008	122	22.1	6.21	1300	8	-271	--	0.4	--
	11/24/2008	129	--	6.97	9626	--	--	--	0.05	--
	3/24/2009	249	23.3	4.28	8650	145	NM	0.23	NA	NA
SI-01	7/15/2008 (Baseline)	--	27	3.56	5510	11	106	1.77	--	--
	7/18/2008	0	--	5.85	--	--	--	--	--	--
	8/2/2008	15	25.8	4.71	8360	868	-179	9.26	NA	--
	8/16/2008	29	26	4.36	8480	413	-185	9.84	NA	--
	9/13/2008	57	27.4	4.13	8400	299	-194	9.82	NA	5800
	10/21/2008	95	25.5	4.65	7210	--	-196	--	--	--
	10/22/2008	96	26.5	4.53	2580	--	-171	--	--	--
	11/17/2008	122	23.4	4.39	8220	111	-188	--	NA	--
	11/24/2008	129	--	4.75	4400	--	--	--	<0.05	--
	12/28/2008	163	24.7	4.39	8270	47	-132	9.28	NA	--
	3/24/2009	249	23.5	5.93	8760	>1,000	NM	0.11	NA	
IW-1	9/13/2008	57	27.3	4.72	8000	440	-207	9.66	NA	4200
	10/21/2008	95	26.1	5.18	7060	--	-232	--	--	--
	10/22/2008	96	--	--	--	--	--	--	--	--
SI-02	7/15/2008 (Baseline)	--	23.2	3.44	6650	30	209	1.84	--	--
	7/18/2008	0	--	3.58	--	--	--	--	--	--
	8/1/2008	14	25.6	3.32	8240	0	-92	8.95	0.5	--
	8/16/2008	29	26.2	3.50	8270	27	-150	9.79	0.5	--
	9/13/2008	57	27.8	3.58	8010	206	-158	9.78	0.2	9000
	10/21/2008	95	26.0	3.85	5870	--	-125	--	--	--
	10/22/2008	96	26.0	4.52	5180	--	-127	--	--	--
	11/17/2008	122	23.6	4.21	8140	156	-151	--	NA	--
	11/24/2008	129	--	4.42	7905	--	--	--	<0.05	--
	12/28/2008	163	24.5	3.76	9160	8	-112	9.16	NA	--
	3/24/2009	249	22.8	4.01	9180	2.7	NM	0.28	NA	
IW-2	9/13/2008	57	27.2	3.53	8210	203	-141	9.99	0.3	6000
	10/21/2008	95	26.4	3.78	6010	--	-55	--	--	--
	10/22/2008	96	26.1	4.35	5830	--	-151	--	--	--
GM-66R	7/15/2008 (Baseline)	--	25.8	3.42	7060	7.06	143	1.85	--	--
	8/2/2008	15	25.5	3.16	8070	2	41	9.52	0.5	--
	8/16/2008	29	26.4	3.18	8240	193	-102	9.7	0.4	--
	9/13/2008	57	27.7	3.12	7880	149	-97	9.7	0.4	6000
	11/17/2008	122	22.8	3.25	8320	0	6	--	0.7	--
	12/28/2008	163	24.1	2.97	7980	1	-37	9.15	0.8	--
	3/24/2009	249	22.1	3.31	7370	4.7	--	0.26	NA	--

Notes:
°C - degrees celsius
SU - standard units
uS/cm - microsiemens per centimeter
mg/L - milligrams per liter
mV - millivolts
NTU - nephelometric turbidity unit
NA - not analyzed due to turbidity influence.
-- - not measured

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
NAS PENSACOLA PILOT STUDY
PENSACOLA, FLORIDA
Solutions-IES Project No. 3910.07A3.NAVF

Well ID	Sample Date	Chlorinated Aliphatics							Light Hydrocarbon Gasses			Total Organic Carbon	Metals		Inorganics	
		PCE (µg/L)	TCE (µg/L)	cis 1,2-DCE (µg/L)	trans 1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	1,1-DCA (µg/L)	Methane (µg/L)	Ethane (µg/L)	Ethene (µg/L)	(mg/L)	Ferrous Iron (mg/L)	Chromium (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)
FDEP GCTL		3	3	70	100	7	1	70	NE	NE	NE	NE	NE	0.1	250	NE
AE-01	7/15/2008	10.1	18300	877	5.47	69.7	94.4	10.4	2328.6	20.91	3.68	4.75	236	0.0176	4710	--
	11/24/2008	ND	420	320	19.0	12.0	3500	2.1	--	--	--	--	--	--	--	--
	3/24/2009	<50	10000	1200	<50	<50	1300	<50	--	--	--	--	--	--	--	--
SI-01	7/15/2008	2.66	4150	250	0.71	40.3	9.03	8.2	1598.8	14.5	0.21	5.36	176	0.186	4,180	--
	11/24/2008	4	7200	1200	1.8	20.0	46.0	5.5	--	--	--	--	--	--	--	--
	3/24/2009	<12	2800	560	<12	<12	<12	<12	1,084	7	13	2500	--	--	3,100	<0.036
SI-02	7/15/2008	0.93	1640	106	0.64	7.29	0.65	14.2	2255.4	20.89	0.28	6.26	317	0.353	10,500	--
	11/24/2008	ND	290	140	ND	5.3	ND	9.2	--	--	--	--	--	--	--	--
	3/24/2009	<2.5	440	120	<2.5	<2.5	<2.5	9.6 I	2409	11	1	--	--	--	--	--
GM-66R	7/15/2008	2.35	2760	207	0.98	31.9	2.81	15.6	2838.7	26.44	0.12	6.66	380	0.104	5,850	--
	3/24/2009	<12	4000	260	<12	24 I	<12	14 I	2,345.7	22.92	0.56	--	--	--	--	--

Notes:
-- denotes not analyzed
GCTL - groundwater cleanup target level
µg/L - micrograms per liter
mg/L - milligrams per liter
NE - not established
I - estimated concentration above the method detection limit but below the laboratory reporting limit
Data from 11/24/08 was collected by USGS during their routine sampling.

TABLE 3
SUMMARY OF MICROBIAL TESTING
NAS PENSACOLA PILOT STUDY
PENSACOLA, FLORIDA
Solutions-IES Project No. 3910.07A3.NAVF

Well ID	Sample Date	Dehalogenating Bacteria						EBAC	Sulfate or Iron-reducing Bacteria		
		DHC (cell/mL)	TCE R-Dase (cell/mL)	VC R-Dase (cell/mL)	BAV1 (cell/mL)	BVC (cell/mL)	DHB (cell/mL)		DSM (cell/mL)	DSB (cell/mL)	IRB/SRB (cell/mL)
AE-01	7/15/2008	ND	ND	ND	ND	--	--	12,600	--	--	--
	12/28/2008 (1)	3.4	0.70	<0.5	--	<0.5	<1	--	<1	76.3	931
	3/24/2009	9.6	--	--	--	--	<2.0	--	<2.0	<2.0	12.9
SI-01	7/15/2008	0.729	ND	0.219[J]	ND	--	--	65,200	--	--	--
	12/28/2008(2)	<0.9	<0.9	<0.9	--	<0.9	<1.9	--	<1.9	43.1	<1.4
	3/24/2009	0.6 J	--	--	--	--	<2.0	--	<2.0	<2.0	<1.5
SI-02	7/15/2008	ND	ND	ND	ND	--	--	2,870	--	--	--
	12/28/2008	<0.9	<0.9	<0.9	--	<0.9	<1.8	--	1.6 J	71.7	19,300
	3/24/2009	8.5	--	--	--	--	3.1	--	<0.5	1.5	56.9
GM-66R	7/15/2008	0.142[J]	ND	ND	ND	--	--	170,000	--	--	--
	12/28/2008	<0.5	<0.5	<0.5	--	<0.5	<0.9	--	<0.9	183	3,440
	3/24/2009	1.4	--	--	--	--	<0.5	--	<0.5	2.7	379.0

Notes:
-- denotes not analyzed
ND - Not detected above the laboratory reporting limit
J - estimated gene copies below PQL but above LQL
(1) The sample collected from AE-01 on 12/28/08 may not be representative of the aquifer conditions due to a blockage and incorrect tubing placement in the well.
(2) The sample collected from SI-01 on 12/28/08 may have exhibited pcr inhibition.

Acronyms:

DHC	Dehalococcoides spp.	DSM	Desulfuromonas spp.
TCE R-Dase	Trichloroethene Reductive Dehalogenase	DSB	Desulfitobacterium spp.
VC R-Dase	Vinyl Chloride Reductive Dehalogenase	IRB/SRB	Iron and Sulfate Reducing
BAV1	Strain of Dehalococcoides spp.	EBAC	Eubacteria
BVC	BAV1 VC R-dase		
DHB	Dehalobacter spp.		

TABLE 4
SUMMARY OF INJECTION ACTIVITIES
NAS PENSACOLA PILOT STUDY
PENSACOLA, FLORIDA
Solutions-IES Project No. 3910.07A3.NAVF

Injection Location	Well Screen (ft bgs)	Injection Point ID	Emulsion Injection	
			Volume (gallons)	Injection Interval (ft bgs)
JULY 15-17, 2008				
Treatment Zone 1	37-42	IP-1	33.9	39.5-43
			34.0	36-39.5
		IP-2	34.0	39.5-43
			34.0	36-39.5
		IP-3	34.0	39.5-43
			34.0	36-39.5
		IP-4	34.0	39.5-43
			35.0	36-39.5
Treatment Zone 2	37-42	IP-5	34.0	39.5-43
			34.0	36-39.5
		IP-6	34.0	39.5-43
			34.0	36-39.5
		IP-7	34.0	39.5-43
			34.0	36-39.5
		IP-8	34.0	39.5-43
			39.0	36-39.5
Treatment Zone 3	40-45	IP-9	3.0	40.5-44
			63.0	37-40.5
		IP-10	68.0	38.5-42
		IP-11	68.0	38.5-42
		IP-12	65.0	38.5-42
OCTOBER 21-22, 2008				
Treatment Zone 1	37-42	IP-13	189.4	36.5-39
		IP-14	146.7	36.5-39
		IP-15	189.4	36.5-39
Treatment Zone 2	37-42	IP-16	189.4	36.5-39
		IP-17	189.4	36.5-39
		IP-18	131.4	36.5-39

Notes:
ft bgs - feet below ground surface

APPENDIX A

FDEP WORK PLAN APPROVAL LETTER

Florida Department of
Environmental Protection
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

May 07, 2008

SENT VIA E-MAIL
peter.franco@navy.mil

Peter Franco, Captain
US Navy Commanding Officer, NAS Pensacola
Naval Air Station, Pensacola
310 John Tower Road
Pensacola, Florida 32508-5303

Subject: Naval Air Station, Pensacola; FL9 170 024 567; **Response to Comments of Work Plan, Pilot System Installation for the Treatment of Chlorinated Solvents in Groundwater at SWMU** 1, dated April 21, 2008

Dear Captain Franco:

I have reviewed the subject document. Your response to the Departments comments ~~are~~ is adequate. Please provide the Department with one-week notice prior to beginning the remediation process. Quarterly reports will be expected from that point of time until conclusion of the project. This project is part of the postclosure permit, which is in the process of being renewed.

If you should have any questions, please contact me at 850-245-8766 or Anthony.Tripp@dep.state.fl.us.

Sincerely,

Anthony R. Tripp

Anthony R. Tripp, Ph.D., PE
Professional Engineer III
Hazardous Waste Regulation

ART/cs

cc :

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APPENDIX B

FDEP GROUNDWATER SAMPLING FORMS

Water in well very black and turbid throughout purging.

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: WWTP	SITE LOCATION: NAS Pensacola
WELL NO: S1-01	SAMPLE ID: NA	DATE: 8/7/08

PURGING DATA

WELL DIAMETER (inches): 1	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 37 feet to 42 feet	STATIC DEPTH TO WATER (feet): 3.96'	PURGE PUMP TYPE OR BAILER: peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 39	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 1451	PURGING ENDED AT: 1542	TOTAL VOLUME PURGED (gallons): 3.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	ml/min PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
1451				*	6.25	27.1	11.70	9.45	69	Black gray	H_2S	
1455			300		5.51	26.5	11.90	9.62	999	"	"	
1503			250		5.08	26.4	8.47	9.41	999	"	"	
1510			250		5.00	26.2	8.45	9.41	999	"	"	
1521					4.90	26.2	8.40	9.33	999	"	"	-180
1527					4.83	26.1	8.41	9.34	~~999~~ 50	"	"	-182
1534					4.74	25.9	8.38	9.31	50	"	"	
1541		3.5	250		4.71	25.8	8.36	9.26	868	"	"	-179

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type: ____	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

* Water level probe well not fit in well with tubing during purging

Chemetrix DO results masked by water color.

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: Pensacola NAS	SITE LOCATION: Pensacola FL	
WELL NO:	SAMPLE ID: ~~[illegible]~~ GM-66R	DATE: 7/15

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 36 feet to 41 feet (TOC)	STATIC DEPTH TO WATER (feet): 5.99 TOC	PURGE PUMP TYPE OR BAILER: Peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 3	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 5	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (~~µmhos/cm or µS/cm~~ mS)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
[illegible]				5.99								
14[illegible]	.5	320 ml/min	6.38	[illegible]	3.44	26.7	6.74	2.09	16	Clear	Sweet	
14:54		"		6.40	3.40	26.0	6.90	1.95	9.7	↓	↓	
14:59		~~[illegible]~~		6.38	3.40	25.9	7.01	1.99	4.0	↓	↓	136
15:07		3.25		6.38	3.42	25.8	7.06	1.85	4.0	↓	↓	14[illegible]
		3.5 total										
								↓ see	remark	sub		
		Sample		time		15:15		for	chemistry	data		

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Tim Parker	SAMPLER(S) SIGNATURES: Tim Parker	SAMPLING INITIATED AT: 15:10	SAMPLING ENDED AT: 15:25
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS: Sample time 15:15

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

GM-66 DTB - 40.06
WL - 5.99
Brown well WL - 5.99 TOC
DTB 41.18 TOC
DTB

Before develop.
WL - 3.91 bgs

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: NAS Pensacola		SITE LOCATION: Pensacola.	
WELL NO: S1-02	SAMPLE ID: S1-02		DATE: 7/15

PURGING DATA

WELL DIAMETER (inches): 1"	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH 37 feet to 42.5 feet	STATIC DEPTH TO WATER (feet): 3.91	PURGE PUMP TYPE OR BAILER: Per.

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	CONDUCTIVITY (~~umhos/cm or mS/cm~~)	DISSOLVED OXYGEN (circle ~~mg/L~~ or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
Start 18:35				3.72							
18:37	.3	.3	200 ml/min	3.72	3.55	28.2	6.98	1.66	700	light brown	
18:40	1	1.3 gal	300	3.94	3.44	26.2	6.17	1.72	146	–	
18:50	1.6		300	~~3.94~~	3.45	25.2	6.44	1.43	521	—	
18:57	2.25		300	3.98 4.02	3.44	25.1	6.46	1.83	34.7		
17:03	3.5			4.05	3.44	25.0	6.55	1.70	37		
17:08	4.25			4.07	3.44	25.0	6.65	1.74	29.5		
17:15	4.75	4.75		4.10	3.44	25.2	6.65	1.84	30.0		
				Sample time				18:20			

OR
27
22
20
21
21
20
209

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type: _____	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS: 18:20 Sample time

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

4.10 - .32 = 3.98

DTB - 42.05 bgs

4.06 - .32 = 3.74

.32 - stick up

4.20 - .32 = 3.94

GROUNDWATER SAMPLING LOG

SITE NAME: NAS Pensacola		SITE LOCATION:	
WELL NO: S1-01	SAMPLE ID:		DATE: 7/15

PURGING DATA

WELL DIAMETER (inches): 1	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 37 feet to 42 feet	STATIC DEPTH TO WATER (feet): 3.62	PURGE PUMP TYPE OR BAILER: Per.

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	CONDS (~~µmhos/cm or µS/cm~~)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	
start 16:30		330 ml/min		3.62 bgs	3.72	27.1	4.70	1.61	15	Slightly murky	sweet	OR 15
16:35	.75			3.62 bgs								
16:40	1.5			3.70	3.65	27.3	5.29	1.84	13	"	"	103
16:50	2			3.89	3.58	27.1	5.41	1.61	11	"	"	105
17:00	3.25			3.97	3.58	27.2	5.44	1.91	10	"	"	98
~~17:09~~												
17:09	3.5			3.99	3.56	27.0	5.51	1.77	11	"	"	101
				SAMPLE time -				17:10				

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 17:10	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

3.82 − 2.00 = 1.82
3.97 − .22 = 3.75
3.92 − .22 = 3.70
4.09 − .20 = 3.89
5290 / 5440
4.14 − .22 = 3.92

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: NAS Pensacola		SITE LOCATION: Pensacola, Fl	
WELL NO: AE-01	SAMPLE ID: AE-01		DATE: 7/15/08

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 41 feet to 45 feet	STATIC DEPTH TO WATER (feet): 7.28 TOC	PURGE PUMP TYPE OR BAILER: Peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
11:24		240 ml/min		7.28							
11:27	.25	.25	240 ml/min	7.53	3.82	28.8	3.61 ms	2.52	1.4	clear	sweet
11:36	.50	.75	240 ml/min	7.54	3.81	27.7	3.77 ms	2.43	1.7	clear	sweet
11:42	.25	1 gal	240	7.55	3.81	27.4	3.82 ms	2.71	1.4	clear	sweet
11:47	.3	1.3	240	7.61	3.74	27.0	3.74	2.39	1.3	Slightly greenish	?? sweet
11:54		1.6	240	7.63	3.67	27.1	3.90	2.20	1.5		
12:00		2.1	240	7.61	3.65	27.2	3.85	2.25	1.6		
12:05		2.5	240 ml/min	7.61	3.67	27.2	3.95	2.21	1.5		
	Total	= 3.0 gal									
				Sample time - 12:10							

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Tim Parker	SAMPLER(S) SIGNATURES: Tim Parker	SAMPLING INITIATED AT: 12:10	SAMPLING ENDED AT: 12:25
PUMP OR TUBING DEPTH IN WELL (feet): 2' off bottom	SAMPLE PUMP FLOW RATE (mL per minute): 240 ml	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		
AE-01	1		125	HCL	120	3.67	TOC 9060A	
↓	2		125	~~HCL~~ None	120	3.67	IC 300.0	
	1		125	~~HCL~~ HNO3	120	3.67	EPA 6010B-CA	
↓	3		40ml	HCl	40ml x 3	3.67	8260B VOC	
							Ferrous iron include	
							in 6010-B	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

DTB - 48.84 TOC
GW = 7.28 TOC
3 min - shi kun

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: WWTP	SITE LOCATION: NAS Pensacola	
WELL NO: 51-02	SAMPLE ID: NA	DATE: 8/1/08

PURGING DATA

WELL DIAMETER (inches): 1	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 27 feet to 42 feet	STATIC DEPTH TO WATER (feet): 3.84	PURGE PUMP TYPE OR BAILER: Geopump

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 40	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 40	PURGING INITIATED AT: 1614	PURGING ENDED AT: 1707	TOTAL VOLUME PURGED (gallons): 3.0

Start @ 1614

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm) mL/min	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or mS/cm) mS/cm	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
1617			275 ml		4.07	26.0	8.53	8.70	18	Clear	iron	-118
1624			300		3.57	25.8	8.41	8.85	6	"	"	
1629			"		3.47	25.7	8.34	8.92	4	"	"	-119
1634					3.40	25.7	8.33	8.90	2-3	"	None	
1640					3.36	25.6	8.30	8.93	2	"	"	
1646					3.34	25.6	8.28	8.94	1	"	"	-96
1653					3.32	25.6	8.27	8.95	0	"	"	-90
1659		3.0	250		3.32	25.6	8.24	8.95	0	"	"	-92
1707	Stopped pumping											

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Chemetrics DO <1 ppm
↳ DO = 0.5 ppm 1705

TOC = 3.5' AGL

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: WWTP	SITE LOCATION: NAS Pensacola	
WELL NO: AE-01	SAMPLE ID: NA	DATE: 8/1/06

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 41 feet to 45 feet	STATIC DEPTH TO WATER (feet): 8.82 (TOC)	PURGE PUMP TYPE OR BAILER: peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 43	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 43	PURGING INITIATED AT: 1731	PURGING ENDED AT: 1830	TOTAL VOLUME PURGED (gallons): 3.5

Start 1731

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
1735			250ml		6.83	26.3	11.1	8.41	999	milky	fishy	-235
1741					6.58	26.1	11.5	8.49	613	blue gray	"	-325
1751					7.12	26.0	11.9	8.59	885			
1800			250	9.70	7.34	26.0	11.9	8.58	999	black debris	fish	
1811			300		7.34	25.7	12.0	8.65	457	black	fish	-333
1816			"		7.33	25.6	11.9	8.66	89	black	debris fish	-287
1822	3.5 gal	3.5			7.28	25.6	12.0	8.60	75	black	fish	-399
1830	stopped											

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./FL): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Chemistry DO - water too turbid
looks low <1 mg/L

Well Depth 43.78?

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

TOC ≈ 2.0' AGL

GROUNDWATER SAMPLING LOG

SITE NAME: WWTP		SITE LOCATION: NAS Pensacola	
WELL NO: GM-66R	SAMPLE ID:		DATE: 8/2/08

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: 31.5 feet to 40 feet	STATIC DEPTH TO WATER (feet): 6.95	PURGE PUMP TYPE OR BAILER: peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 38'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 38'	PURGING INITIATED AT: 0804	PURGING ENDED AT: 0902	TOTAL VOLUME PURGED (gallons): 4.0

Begin pumping @ 0804

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	Sal %	ORP
0806			350 ml/min	6.85	3.92	25.8	7.80	9.10	2	clear	sl. organic		
0812			275		3.58	25.6	8.00	9.04	3	clear	organic		-10
0817			300		3.48	25.5	8.25	9.06	4	"	"		+6
0823					3.41	25.6	8.24	9.11	2	"	"	0.45	
0828				6.85	3.37	25.6	8.24	9.23	2			0.45	
0834			300		3.33	25.8	8.17	9.56	1	"	"		+36
0840					3.29	26.0	8.14	9.94	1	"	"		+40
0846				6.89	3.25	25.6	8.14	10.20	3	"	"	0.44	+36
0853					3.19	25.5	8.11	9.70	2	↓	↓		40
0858		4.0			3.16	25.5	8.07	9.52	2	↓	↓		41

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

Stopped pump @ 0902

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Final DO w/ Chemistry = 0.5 ppm

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: WWTP	SITE LOCATION: NAS Pensacola
WELL NO: AE01	SAMPLE ID: NA / DATE: 8/16/08

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: 43 feet to 43 feet	STATIC DEPTH TO WATER (feet): 7.02	PURGE PUMP TYPE OR BAILER: Peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 43	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 43	PURGING INITIATED AT: 0943	PURGING ENDED AT: 1040	TOTAL VOLUME PURGED (gallons): 3.75

	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm) ml/min	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
	0947			250		7.27	26.2	8.90	8.63	26	clear w/ particles	fishy	-62
0.48	0952					7.61	26.2	8.83	8.71	473	gray cloudy	"	
0.49	1000					7.68	26.2	8.98	8.82	999	"	"	-149
0.50	1006					7.70	26.1	9.09	8.96	999	"		
0.50	1010					7.62	25.9	9.12	8.98	999	"	"	-183
0.51	1015			275		7.42	25.9	9.17	8.99	"			
	1020					7.24	25.9	9.29	8.99	"			-267
0.52	1025			250		7.07	26.0	9.36	8.97	"	"	"	-268
0.53	1031					6.97	26.1	9.51	8.97	334	"	"	-281
	1035					6.87	26.1	9.47	9.03	316			-272

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Final Chemets DO = 0 ppm (no color)

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: iWTP		SITE LOCATION: NAS Pensacola	
WELL NO: S1-01	SAMPLE ID: —		DATE: 8/16/08

PURGING DATA

WELL DIAMETER (inches): 0.75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: 37 feet to 42 feet	STATIC DEPTH TO WATER (feet): 3.18	PURGE PUMP TYPE OR BAILER: peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 40	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 40	PURGING INITIATED AT: 1108	PURGING ENDED AT: 1145	TOTAL VOLUME PURGED (gallons): 2.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	ml/min PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	mS/cm COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1112			300		5.28	26.9	11.9	9.13	999	cloudy w/ parti.	1125 - fish
1118			250		4.57	26.4	12.2	9.34	633	"	"
1125					4.46	26.3	12.0	9.69	497	"	"
1132					4.41	26.2	8.57	9.96	450		
1136					4.39	26.1	8.53	9.92	460		
1141			✓		4.36	26.0	8.48	9.04	413	Black	

Salinity: 0.70%, 0.69, .47, .47, .46

ORP: -201, -197, -189, -185, -185

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Final Chemistry DO = 0 ppm – water too black + turbid to get good reading

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: WWTP		SITE LOCATION: NAS Pens.	
WELL NO: 51-02	SAMPLE ID:		DATE: 8/10/08

PURGING DATA

WELL DIAMETER (inches): 0.75	TUBING DIAMETER (inches): 0.25 ~~0.25~~	WELL SCREEN INTERVAL DEPTH: 37 feet to 42 feet	STATIC DEPTH TO WATER (feet): 3.00	PURGE PUMP TYPE OR BAILER: peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 40	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 1152	PURGING ENDED AT: 1223	TOTAL VOLUME PURGED (gallons): 2.0

Sal	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	~~PURGE RATE (gpm)~~ mL/min	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	~~COND.~~ (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
.46	1155			200		3.68	27.1	[illegible]	9.49	[illegible]	Clear	Sulfur	-176
.46	1200					3.62	26.4	8.37	9.71	69	↓	↓	
0.45	1205			200		3.57	26.0	8.32	9.89	59	↓	↓	-166
.45	~~1211~~			250		3.55	26.3	8.30	9.92	30	↓	↓	-157
.45	1216			↓		3.52	26.3	8.27	9.76	34	↓	↓	-152
.45	1220			↓		3.50	26.2	8.27	9.79	27	↓	↓	-150

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Final Chemistry DO = 0.5 ppm

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: NMW TP	SITE LOCATION: NAS Pens.	
WELL NO: GM-66R	SAMPLE ID: NA	DATE: 8/16/08

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 37.5 feet to 40 feet	STATIC DEPTH TO WATER (feet): 5.30	PURGE PUMP TYPE OR BAILER: Peristaltic

WELL VOLUME PURGE: 1 **WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 **EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 38	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 1234	PURGING ENDED AT: 1303	TOTAL VOLUME PURGED (gallons): 2.2

Sal %	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	ml/min PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
0.05	1237			250		3.27	26.9	8.23	9.70	10	Clear	Slight H_2S	
.05	1243			260		3.20	26.4	8.34	9.70	10	"	"	-112
.05	1248			260	5.97	3.20	26.2	8.33	9.71	6	"	"	-108
.05	1257			↓		3.19	26.1	8.27	9.72	4			-105
	1301			↓		3.18	26.1	8.24	9.70	193			-102

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type: ____	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Final Chemets DO = 0.4 ppm

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: WWTP	SITE LOCATION: NAS Pensacola	
WELL NO: AE01	SAMPLE ID: NA	DATE: 8/16/08

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: 41 feet to 43 feet	STATIC DEPTH TO WATER (feet): 7.02	PURGE PUMP TYPE OR BAILER: Peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 43	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 43	PURGING INITIATED AT: 0943	PURGING ENDED AT: 1040	TOTAL VOLUME PURGED (gallons): 3.75

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm) mL/min	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/l or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
0947			250		7.27	26.2	8.90	8.63	26	clear w/ particles	fishy	-62
0952					7.61	26.2	8.83	8.71	473	brown cloudy	"	
1000					7.68	26.2	8.98	8.82	999	"	"	-149
1006					7.70	26.1	9.09	8.96	999	"		
1010					7.72	25.9	9.12	8.98	999	"	"	-183
1015			275		7.42	25.9	9.17	8.99	"			
1020					7.24	25.9	9.29	8.99	"			-267
1025			250		7.07	26.0	9.36	8.97	"	"	"	-268
1031					6.97	26.1	9.51	8.97	334	"	"	-281
1035					6.87	26.1	9.47	9.03	316			-272

sal.: 0.48, 0.49, 0.50, 0.50, 0.51, 0.52, 0.53

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Final Chemets DO = 0 ppm (no color)

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: IWTP		SITE LOCATION: NAS Pensacola	
WELL NO: S1-01	SAMPLE ID: —		DATE: 8/16/08

PURGING DATA

WELL DIAMETER (inches): 0.75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: 37 feet to 42 feet	STATIC DEPTH TO WATER (feet): 3.18	PURGE PUMP TYPE OR BAILER: peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 40	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 40	PURGING INITIATED AT: 1108	PURGING ENDED AT: 1145	TOTAL VOLUME PURGED (gallons): 2.5

Salinity	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	ml/min PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	mS/cm COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
	1112			300		5.28	26.9	11.9	9.13	999	gray w/ prct.	H2S - fish	
0.70%	1118			250		4.57	26.4	12.2	9.34	633	"	"	-201
0.69	1125					4.46	26.3	12.0	9.69	497	"	"	-197
.47	1132					4.41	26.2	8.57	9.96	450			
.47	1136					4.39	26.1	8.53	9.92	460			-189
.46	1141			✓		4.36	26.0	8.48	9.04	413	Black		-185
													-185

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type: ____	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Final Chemistry DO = 0 ppm – water too black + turbid to get good reading

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: WWTP	SITE LOCATION: NAS Pens.
WELL NO: 51-02	SAMPLE ID:
DATE: 8/10/08	

PURGING DATA

WELL DIAMETER (inches): 0.75	TUBING DIAMETER (inches): 0.25 ~~0.75~~	WELL SCREEN INTERVAL DEPTH: 31 feet to 42 feet	STATIC DEPTH TO WATER (feet): 3.00	PURGE PUMP TYPE OR BAILER: peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 40	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 1152	PURGING ENDED AT: 1223	TOTAL VOLUME PURGED (gallons): 2.0

Sal	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	~~PURGE RATE (gpm)~~ mL/min	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	~~COND.~~ (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
.46	1155			200		3.68	27.1	[illegible]	9.49	172	Clear	Sulfur	-176
.46	1200					3.62	26.6	8.37	9.71	69	↓		
0.45	1205			200		3.57	26.6	8.32	9.89	59			-166
.45	1211			250		3.55	26.3	8.30	9.92	30			-157
.45	1216					3.52	26.3	8.27	9.76	34			-152
.45	1220			↓		3.50	26.2	8.27	9.79	27			-150

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Final Chemistry DO = 0.5 ppm

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: MW TP		SITE LOCATION: NAS Pens.	
WELL NO: GM-66R	SAMPLE ID: NA		DATE: 8/16/03

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 37.5 feet to 40 feet	STATIC DEPTH TO WATER (feet): 5.30	PURGE PUMP TYPE OR BAILER: Peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 38	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 1234	PURGING ENDED AT: 1303	TOTAL VOLUME PURGED (gallons): 2.2

Sol %	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	ml/min PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
0.45	1237			250		3.27	26.9	8.23	9.70	10	Clear	Slight H_2S	
.45	1243			260		3.20	26.4	8.34	9.70	10	"	"	-112
.45	1248			260	5.97	3.20	26.2	8.33	9.70	6	"	"	-108
.45	1257			↓		3.19	26.1	8.27	9.72	4			-105
	1301			↓		3.18	26.1	8.24	9.70	193			-102

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Final Chemets DO = 0.4 ppm

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: NWTP	SITE LOCATION: NAS Pens	
WELL NO: AE-01	SAMPLE ID:	DATE: 4/13/00

PURGING DATA

BTOC

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: 41 feet to 45 feet	STATIC DEPTH TO WATER (feet): 6.25	PURGE PUMP TYPE OR BAILER: peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 1116	PURGING ENDED AT: 1210	TOTAL VOLUME PURGED (gallons): 3.5

	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH standard units)	TEMP (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	
0.53	1120			250 mL		7.54	27.1	7.51	9.24	72	Gray	Fishy	
0.53	1130			250		6.92	28.1	7.55	9.31	94			-236
0.53	1140					7.01	27.8	7.64	9.62	113			
0.53	1145			250		7.01	27.5	7.59	9.57	250			-326
0.53	1150			250		6.93	27.3	7.32	9.37	[illegible]			
0.53	1155					6.97	28.1	7.25	9.40	[illegible]			-352
	1200					6.97	28.1	7.22	7.55	618			-377
0.53	1205			250		6.97	27.8	7.25	7.58	155	Black	Fishy	-384

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Water was black [illegible] Chemists R
Sulfate = 5,000 ppm

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: NWTP		SITE LOCATION: Mits Plant
WELL NO: S1-01	SAMPLE ID:	DATE: 7/3/[illegible]

PURGING DATA BTOC

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: 3[illegible] feet to 42 feet	STATIC DEPTH TO WATER (feet): 2.45	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 1215	PURGING ENDED AT: 1255	TOTAL VOLUME PURGED (gallons): ~~[illegible]~~ 2.41

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1214			250 mL		[illegible]	[illegible]	[illegible]	[illegible]	636	gray	[illegible]
1230					[illegible]	[illegible]	[illegible]	[illegible]	320	white	
1235					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	clear	↓
1240					[illegible]	[illegible]	[illegible]	[illegible]	324	gray	
1245					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	black	

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1215	SAMPLING ENDED AT: 2.50
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2), optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Water too black for [illegible] DO
[illegible]

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: WWTP		SITE LOCATION: NAS Pens	
WELL NO: IW-1	SAMPLE ID:		DATE: 9/13/08

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): 2.45	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 1302	PURGING ENDED AT: 1335	TOTAL VOLUME PURGED (gallons): 2

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1305			2.5		4.55	27.5	7.17	7.78	8.43	Black	Fishy
1315			2.66		4.21	[illegible]	[illegible]	[illegible]	[illegible]		
1320					4.13	[illegible]	2.05	[illegible]	[illegible]		
1324			2.50		4.72	27.3	5.00	2.66	4.46	Black	Fish

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1302	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ um Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Sulfate = 4,300 mg/L
Chloride = Black

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: [illegible]	SITE LOCATION: NAS Pens.	
WELL NO.: 51-02	SAMPLE ID:	DATE: [illegible]

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: 3.7 feet to 4.2 feet	STATIC DEPTH TO WATER (feet): 1.27	PURGE PUMP TYPE OR BAILER: Peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: [illegible]	PURGING ENDED AT: 1405	TOTAL VOLUME PURGED (gallons): 1.75

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND. (mmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1343			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1351			2.0		[illegible]	27.8	[illegible]	2.74	[illegible]		
1355			2.0		[illegible]	27.6	[illegible]	[illegible]	[illegible]		
1400			"		[illegible]	27.2	8.01	[illegible]	[illegible]		

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE ____ um Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Chemets DO = 0.2 mg/L

GROUNDWATER SAMPLING LOG

SITE NAME: GWTP	SITE LOCATION: NAS Pensacola
WELL NO: MW-2	SAMPLE ID:
DATE: 9/13/00	

PURGING DATA

WELL DIAMETER (inches): 1.5	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH 5.7 feet to 4.2 feet	STATIC DEPTH TO WATER (feet): 7.30	PURGE PUMP TYPE OR BAILER: Peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 1410	PURGING ENDED AT: 1440	TOTAL VOLUME PURGED (gallons): 1.75

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH standard units	TEMP (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1421			250		7.59	27.4	6.02	7.86	141	Clear	Fish
1426			250		7.52	27.2	5.9	7.91	149		
1431					7.55	27.3	5.10	7.75	8.2		
1436					7.55	27.2	5.26	7.67	120		
1440					7.55	27.2	5.21	7.71	2.3		

Sal: 0.43, .44, .45, .43, .45

ORP: -146, -143, -145, -14, -141

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 1, 2004

GROUNDWATER SAMPLING LOG

SITE NAME: [illegible]	SITE LOCATION: [illegible]
WELL NO: GM-66R	SAMPLE ID:
DATE: [illegible]	

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH [illegible] feet to 40 feet	STATIC DEPTH TO WATER (feet): 4.61	PURGE PUMP TYPE OR BAILER: Peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 1452	PURGING ENDED AT: 1526	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH standard units)	TEMP (°C)	COND (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1457			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1504			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
1512			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	161		
1517					[illegible]	[illegible]	[illegible]	[illegible]	162		
1522			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	149	[illegible]	[illegible]

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	

FIELD DECONTAMINATION Y N | FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type: ____ | DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Sulfate = 6,000 ppm
Chemets DO = [illegible] mg/L

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: NASP WWTP		SITE LOCATION: NASP	
WELL NO: AE01	SAMPLE ID:		DATE: 11/17/08

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 41 feet to 45 feet	STATIC DEPTH TO WATER (feet): 7.65	PURGE PUMP TYPE OR BAILER: Peristal.

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 43	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 44	PURGING INITIATED AT: 0757	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons): 3.5

% Sat	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm) mL/min	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm) mS/cm	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
0.20	0809			250		6.11	20.7	5.35	**	391	Black	Fishy	-203
0.16	0817			"		5.95	21.9	3.33		615			-229
0.16	0826					5.91	22.1	3.2[illegible]		617	Gray	"	-224
0.18	0831			"		5.97	22.4	3.61		622			-235
0.18	0837			250		5.98	22.2			620			
0.19	0842					6.01	22.4	3.90		593			-250
0.20	0846	*				6.04	22.[illegible]	4.02		528	Gray	"	-247
0.76	0852					6.28	22.4	13.3		25	clear		
0.76	0858			250		6.25	22.1	13.1		10	clear		-260
0.7.	0903					6.21	22.1	13.0		8	clear	"	-271

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

* well pumped dry to below tubing, moved tubing down 1'

Chenets DO = 0.4 mg/L

** DO probe on meter not functioning

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: NASP WWTP		SITE LOCATION: NASP	
WELL NO: S1-01	SAMPLE ID:		DATE: 11/17/08

PURGING DATA

WELL DIAMETER (inches): 3/4	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 37 feet to 42 feet	STATIC DEPTH TO WATER (feet): 3.59	PURGE PUMP TYPE OR BAILER: peristal.

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 40	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 40	PURGING INITIATED AT: 0910	PURGING ENDED AT: 0955	TOTAL VOLUME PURGED (gallons): 2.5

Sal %	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	
0.43	0925			250		4.40	22.7	7.92		113	Gray	Fishy	
0.45	0935			225		4.37	23.1	8.19		65	Clear	"	-200
0.45	0940			230		4.38	23.5	8.22		68	"	"	-185
0.46	0945					4.40	23.4	8.16		80			-182
0.45	0950			230		4.39	23.4	8.22		111	"	"	-188

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet): 40	SAMPLE PUMP FLOW RATE (mL per minute): 40	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Chemets DO = ~~mg~~/L
↳ too black for reading

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: NASP WWTP		SITE LOCATION: WWTP	
WELL NO: 51-02	SAMPLE ID:		DATE: 11/17/08

PURGING DATA

WELL DIAMETER (inches): 0.75	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 37 feet to 92 feet	STATIC DEPTH TO WATER (feet): 3.55	PURGE PUMP TYPE OR BAILER: Peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 40	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 40	PURGING INITIATED AT: 1000	PURGING ENDED AT: 1033	TOTAL VOLUME PURGED (gallons): 1.75

% Sat	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	mL/min PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
0.43	1004			230		4.06	23.4	7.81		529	Gray	Fishy	-141
0.45	1020			"		4.12	23.6	8.28		126	"		-151
0.46	1025			"		4.18	23.2	8.22		128			-149
0.45	1030			"		4.21	23.6	8.14		156	Gray	Fishy	-151

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

DO Chemets is black - no reading

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: NASP WWTP		SITE LOCATION: WWTP	
WELL NO: GM-66R	SAMPLE ID:		DATE: 11/17/08

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 37.5 feet to 40 feet	STATIC DEPTH TO WATER (feet) 5.96	PURGE PUMP TYPE OR BAILER: Peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 38	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 38	PURGING INITIATED AT: 1035	PURGING ENDED AT: 1105	TOTAL VOLUME PURGED (gallons): 1.5

	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	mL/min PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
0.45	1045			250		3.54	22.8	8.25		2	Clear	Sl. fish	-16
0.46	1050			250		3.36	22.9	8.30		0			-5
0.46	1055					3.29	22.9	8.33		3	"	"	-1
0.46	1100			250		3.25	22.8	8.32		0	"	Fish	+1
													+6

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Chemtech DO = 0.7 mg/L

Tubing not able to go to bottom of well due to adhesive residue well casing

↓ ~25' down

1020 Collected bio1. sample

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: NAS Pensacola		SITE LOCATION: WWTP	
WELL NO: AE01	SAMPLE ID:		DATE: 12/28/08

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 41 feet to 45 feet	STATIC DEPTH TO WATER (feet): 7.78	PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): ~~43~~ 25	FINAL PUMP OR TUBING DEPTH IN WELL (feet): ~~43~~ 25	PURGING INITIATED AT: 0937	PURGING ENDED AT: 1020	TOTAL VOLUME PURGED (gallons): 2.3

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
946			.250		3.97	23.0	8.53	8.70	4	clear	fishy
1000			250		3.96	23.4	8.72	8.74	8	clear w/ black flecks	
1006					3.96	23.4	8.72	8.83	12		
1011			250		3.87	23.6	8.73	8.76	1		

Sal. 0.47, 0.48, 0.48, 0.48

ORP -23, -47, -51, -53

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Forgot to do Chemets DO

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: NAS Pens		SITE LOCATION: NWTP	
WELL NO: S1-01	SAMPLE ID:		DATE: 12/28/08

PURGING DATA

WELL DIAMETER (inches): 0.75	TUBING DIAMETER (inches): .25	WELL SCREEN INTERVAL DEPTH: 37 feet to 42 feet	STATIC DEPTH TO WATER (feet): 3.95	PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 40	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 40	PURGING INITIATED AT: 1029	PURGING ENDED AT: 1114	TOTAL VOLUME PURGED (gallons): 2.5

Sal	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or mS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
0.41	1033			250		4.46	24.0	7.88	9.43	98	sl. turb	Fishy	-123
0.50	1045					4.38	24.6	9.10	9.21	43	"	"	-134
0.50	1051			250		4.36	24.9	9.10	9.15	40			-131
0.45	1056					4.37	24.7	8.27	9.26	48	"		-132
0.45	1101					4.38	24.7	8.27	9.27	50			-132
0.45	1106					4.39	24.7	8.27	9.28	47			-132

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE: PP	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		
S1-01	1	PP	1L	None	None		Biol.	PP

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Chemetrics DO = Black

Collected Dup sample @ 1155

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: N'ts Pens.		SITE LOCATION: WWTP	
WELL NO: S1-02	SAMPLE ID: S1-02		DATE: 12/28/08

PURGING DATA

WELL DIAMETER (inches): 0.75	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 37 feet to 42 feet	STATIC DEPTH TO WATER (feet): 3.56	PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 40	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 40	PURGING INITIATED AT: 1121	PURGING ENDED AT: 1155	TOTAL VOLUME PURGED (gallons): 2.0

Sal%	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
0.49	1125			300		3.72	24.4	8.94	9.34	34	gray	fish	-115
0.50	1137			250		3.74	24.5	9.18	9.18	8			-111
0.50	1142					3.75	24.4	9.18	9.12	7			
0.50	1147					3.76	24.5	9.16	9.06	8	clear	fish	-112

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type: ____	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Chemets DO = black

Collected bail.
Sample @ 1235

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: Hts Pens.		SITE LOCATION: WWTP	
WELL NO: GM-66R	SAMPLE ID: GM-66R		DATE: 12/20/08

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 37.5 feet to 40 feet	STATIC DEPTH TO WATER (feet): 6.02	PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 38	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 38	PURGING INITIATED AT: 1203	PURGING ENDED AT: 1235	TOTAL VOLUME PURGED (gallons): 2.2

Sal %	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
0.46	1205			250		3.04	24.5	8.43	9.18	1	clear	None	-35
0.44	1216			275		2.98	24.3	8.11	9.09	1	↓	↓	-30
0.44	1221			"		2.99	24.1	8.04	9.16	1			-35
0.43	1226					2.98	24.1	8.00	9.10	1			-39
0.43	1231					2.97	24.1	7.98	9.15	1			-37

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE: PE	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Chem's DO = 0.8 mg/L

3.6
1.9
5.5 gal

36.42' H_2O
.16
216
36
5.76 x 3 = 17.2

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: WWTP		SITE LOCATION: NAS Pensacola	
WELL NO: AE01	SAMPLE ID:		DATE: 2/12/09

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.3	WELL SCREEN INTERVAL DEPTH: 41 feet to 45 feet	STATIC DEPTH TO WATER (feet): 8.58	PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = 5.76 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 33	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 33	PURGING INITIATED AT: 1239	PURGING ENDED AT: 1310	TOTAL VOLUME PURGED (gallons): 4.0

Sal %	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (mmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
0.52	1243			1L/min		3.88	23.0	9.30	—	-10	Clear w/ black sed	fish	
0.53	1248	2.5	2.5	1L/min		3.92	22.0	9.60		-10			-99
0.54	1254		3.5	.5L/m		3.91	23.4	9.7		-2			
0.54	1303	well pumped dry	4.0	100mL		3.93	22.9	9.7	—	-10			-138

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type: _____	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Tubing only went down to 33' BGS
well pumped dry down to that level.

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: WWTP		SITE LOCATION: NAS Pensacola	
WELL NO: 51-01	SAMPLE ID:		DATE: 2/12/09

PURGING DATA

WELL DIAMETER (inches): 0.75	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 37 feet to 42 feet	STATIC DEPTH TO WATER (feet): 4.60	PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 39	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 39	PURGING INITIATED AT: 1323	PURGING ENDED AT: 1354	TOTAL VOLUME PURGED (gallons): 1.5

Sal %	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (mmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
0.42	1325			300mL		4.59	23.1	7.88	2.59	269	Black	Sulfur	-fish-11
0.42	1335					4.54	23.2	7.84	0.03	157			-179
0.42	1340			180mL		4.56	23.4	7.84	0.01	-10	Gray	H_2S	-175
0.42	1345			225		4.55	23.4	7.75	0.07	-4	"	"	-200
0.42	1351	1.5		225		4.58	23.5	7.75	1.78	-10	"	"	-225

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type: _____	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

DO Chemets = black

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: WWTP		SITE LOCATION: NAS Pensacola	
WELL NO: S1-02	SAMPLE ID:		DATE: 2/12/09

PURGING DATA

WELL DIAMETER (inches): 0.75	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: 37 feet to 42 feet	STATIC DEPTH TO WATER (feet): 4.25	PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 39	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 39	PURGING INITIATED AT: 1402	PURGING ENDED AT: 1436	TOTAL VOLUME PURGED (gallons): 2.25

Sal %	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
0.47	1406			250 mL		3.77	23.1	8.56	0.01	-9	Black	H_2S	-145
0.48	1415					3.77	23.3	8.73	8.15	-10	Clear	Fish	-143
0.48	1420			250		3.77	23.5	8.74	0.02	-10	"	"	-141
0.47	1425					3.78	23.1	8.65	0.01	-10			-140
0.47	1430					3.79	23.3	8.66	0.07	-13	"	"	-141
0.47	1435			250		3.79	23.3	8.65	0.03	-10			-147

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type:	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Chemets DO = black

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: WWTP		SITE LOCATION: NAS Pensacola	
WELL NO: GM-66R	SAMPLE ID:		DATE: 2/12/09

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.75	WELL SCREEN INTERVAL DEPTH: 37.5 feet to 40 feet	STATIC DEPTH TO WATER (feet): 6.72	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 38	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 38	PURGING INITIATED AT: 1447	PURGING ENDED AT: 1518	TOTAL VOLUME PURGED (gallons): 2.0

Sal %	TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
0.42	1454			250mL		3.12	22.6	7.84	2.97	-10	Clear	Fish	
0.42	1505			"		3.03	22.8	7.76	8.29	-10	"	"	-81
0.42	1510			"		3.02	22.9	7.74	3.42	-10	"	"	-79
0.42	1515			"		3.03	22.9	7.73	3.89	-10	"	"	-80

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type: ____	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Chemetrics DO = 0.5 mg/L

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: Pensacola NAS - WTP	SITE LOCATION: Water Treatment Plant NAS Pensacola, FL
WELL NO: 6m-66R	SAMPLE ID: 6m-66R
	DATE: March 24, 2009

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 40 feet to 45 feet	STATIC DEPTH TO WATER (feet): 6.43	PURGE PUMP TYPE OR BAILER: Peristaltic

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
(feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
0.00 gallons + (0.002 gallons/foot X 50 feet) + gallons = gallons 0.2

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 42.5	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 42.5	PURGING INITIATED AT: 0951	PURGING ENDED AT: 1011	TOTAL VOLUME PURGED (gallons): 0.8

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0954											
1056	0.2	0.2	0.04	6.88	3.31	21.9	7420	0.44	2.79	clear	Sulfur
1001	0.2	0.4	0.04	6.89	3.30	22.1	7620	0.29	5.05	"	"
1006	0.2	0.6	0.04	6.90	3.30	22.1	7550	0.28	4.72	"	"
1011	0.2	0.8	0.04	6.90	3.31	22.1	7370	0.26	4.17	"	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Reeves / Beckwith / [illegible]	SAMPLER(S) SIGNATURE(S): [illegible]	SAMPLING INITIATED AT: 1012	SAMPLING ENDED AT: 1030
PUMP OR TUBING DEPTH IN WELL (feet): 42.5	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
6m-66R	3	CG	40 ml	None	~~40 ml~~ – WB	–	L NC Gases	APP	
	1	O	–	None	–	–	Microbial DNA	APP	
	3	CG	40 ml	HCL	~~40 ml~~ WB	–	8260B	RFPP	100 ml/min

REMARKS: Deep well – 5' screen – fully submerged (SP)
Low recharge – purge dry first feed testing (SP)

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2) optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: Pensacola NAS - WTP	SITE LOCATION: Water Treatment Plant, NAS Pensacola, FL
WELL NO: SI-02	SAMPLE ID: SI-02	DATE: March 24 2007

PURGING DATA

WELL DIAMETER (inches): 3/4"	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 40 feet to 45 feet	STATIC DEPTH TO WATER (feet): 4.03	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
(feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
0.0 gallons + (0.026 gallons/foot X 50 feet) + gallons = 0.2 gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 42.5	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 42.5	PURGING INITIATED AT: 1054	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1100	0.2	0.2	0.03	4.34	4.75	22.5	5760	0.62	8.50	clear	Sulfur
1105	0.2	0.4	0.04	4.34	4.38	22.6	7940	0.37	10.70	"	Sulfur
1110	0.2	0.6	0.04	4.34	4.08	22.7	9050	0.32	6.45	"	"
1114	0.2	0.8	0.05	4.34	4.03	22.7	9130	0.30	3.53	"	"
1118	0.2	1.0	0.05	4.34	4.01	22.8	9180	0.28	2.67	"	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Kent / Brown Int.	SAMPLER(S) SIGNATURE(S): [signature]	SAMPLING INITIATED AT: 1119	SAMPLING ENDED AT: 1140
PUMP OR TUBING DEPTH IN WELL (feet): 42.5	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
SI-02	3	CG	40ml	None	—		LHC Gases	APP	
	1	—	—	None	—		Microbial DNA	APP	
	3	CG	40ml	HCL	—		8260B	RFPP	100 ml/min

REMARKS: Deep Well - SI Screen fully submerged @ (SI-2)
SI-3 submersible pump set @ least flow fully

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2 optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: Pensacola NAS [illegible]	SITE LOCATION: [illegible] TREATMENT PLANT NAS PENSACOLA, FL
WELL NO: [illegible] SI-01	SAMPLE ID: SI - 01 / DATE: MARCH 24, 2000

PURGING DATA

WELL DIAMETER (inches): 3/4	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 42 feet to 45 feet	STATIC DEPTH TO WATER (feet): 4.41	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
(feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
0.1 gallons + (0.0026 gallons/foot X 50 feet) + / gallons = 0.1 gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 42.5	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 42.5	PURGING INITIATED AT: 1308	PURGING ENDED AT: 1349	TOTAL VOLUME PURGED (gallons): 1.8

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1313	0.2	0.2	0.04	4.83	5.87	23.6	8760	0.21	57.0	Black	Sulfur
1317	0.2	0.4	0.05	6.97	6.07	23.5	8940	0.23	52.3	Gray	"
1321	0.2	0.6	0.05	7.15	6.05	23.6	8990	0.22	71.00	Black	"
1324	0.2	0.8	0.04	7.23	5.98	23.8	8880	0.17	71.00	"	"
1330	0.2	1.0	0.05	7.25	5.96	23.5	8870	0.14	71.00	"	"
1334	0.2	1.2	0.05	7.30	5.95	23.9	8830	0.14	71.00	"	"
1339	0.2	1.4	0.04	7.38	5.94	23.5	8770	0.12	71.00	"	"
1344	0.2	1.6	0.04	7.41	5.93	23.4	8780	0.10	71.00	"	"
1348	0.2	1.8	0.05	7.41	5.93	23.5	8760	0.11	71.00	"	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Robert Bernard / [illegible]	SAMPLER(S) SIGNATURE(S): [signature]	SAMPLING INITIATED AT: 1348	SAMPLING ENDED AT: 1400
PUMP OR TUBING DEPTH IN WELL (feet): 42.5	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
SI-01	3	CG	40 ml	None	—		LHC Gases	APP	
	2	—	—	—			Microbial DNA	APP	
	1	CG	40 ml				TOC	APP	
	1	PE	500 ml				H_2S	APP	
	1	PE	250 ml				Sulfate	APP	
	3	CG	40 ml				8260B	RFPP	100 ml/min

REMARKS: Dam well – 5' Screen fully submerged. (SI) Turbidity – stable 2000 – [illegible] [illegible] – [illegible] [illegible] – [illegible] [illegible] [illegible] [illegible] (SI)

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

DEP-SOP-001/01
FS 2200 Groundwater Sampling
Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: Pensacola NAS - WTP	SITE LOCATION: Water Treatment Plant - NAS, Pensacola, FL
WELL NO: AE-01	SAMPLE ID: AE-01	DATE: March 24, 2005

PURGING DATA

WELL DIAMETER (inches): 2.0	TUBING DIAMETER (inches): 0.25	WELL SCREEN INTERVAL DEPTH: 40 feet to 45 feet	STATIC DEPTH TO WATER (feet): 8.27	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
(feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
0.1 gallons + (0.0006 gallons/foot X 50 feet) + ✓ gallons = 0.2 gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 42.5	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 42.5	PURGING INITIATED AT: 1443	PURGING ENDED AT: 1535	TOTAL VOLUME PURGED (gallons): 2.2

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1440	0.2	0.2	0.04	9.60	4.39	22.9	8570	0.60	85.7	HAZE	Sulfur
1453	0.2	0.4	0.04	10.30	4.32	23.1	8850	0.50	81.2	"	"
1458	0.2	0.6	0.04	10.98	4.31	23.3	8810	0.41	76.9	"	"
1503	0.2	0.8	0.04	11.44	4.30	23.0	8850	0.37	63.6	"	"
1508	0.2	1.0	0.40	11.98	4.29	23.3	8820	0.32	68.4	"	"
1513	0.2	1.2	0.40	12.23	4.28	23.2	8820	0.30	81.9	"	"
1518	0.2	1.4	0.04	12.67	4.22	23.4	8750	0.28	96.3	"	"
1522	0.2	1.6	0.05	12.90	4.28	23.5	8710	0.23	116	"	"
1527	0.2	1.8	0.04	13.13	4.27	23.3	8710	0.23	132	"	"
1531	0.2	2.0	0.05	13.25	4.27	23.3	8650	0.26	139	"	"
1535	0.2	2.2	0.05	13.35	4.28	23.3	8650	0.23	145	HAZY	"

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Randy Beckwith / CH2M	SAMPLER(S) SIGNATURE(S): [signature]	SAMPLING INITIATED AT: 1536	SAMPLING ENDED AT: 1600
PUMP OR TUBING DEPTH IN WELL (feet): 42.5	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
AE-01	1	—	—	—	—		Microbial DNA	APP	
	3	CG	40 ml	HCL	—	—	8260B	RFPP	100 ml/min

REMARKS: Deep well - 51 screen fully submerged
slow-no volume - pump cleaned at 1530 (SC)

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2) optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

APPENDIX C

LABORATORY ANALYTICAL REPORT AND CHAIN-OF-CUSTODY FORMS

microbialinsights

2340 Stock Creek Blvd.
Rockford TN 37853-3044
Phone: (865) 573-8188
Fax: (865) 573-8133
Email: info@microbe.com

DNA Analysis Report

Client: Jessica Dehart
Solutions IES
1101 Nowell Road
Raleigh, NC 27607

Phone:

Fax:

MI Identifier: 025FG **Date Rec:** 07/17/2008 **Report Date:** 07/21/2008

Client Project #: 3910.07A3.NAVF Task 3 **Client Project Name:** NAS Pensacola

Purchase Order #:

Analysis Requested: CENSUS

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 Bienacki

Reviewed By: Lora M Ogle

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.

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: Jessica Dehart
Company: Solutions-IES
Address: 1101 Nowell Rd
Raleigh NC 27607

email: jdehart@solutions-ies.com
Phone: (919) 873-1060
Fax: (919) 873-1074

Project Manager: Jessica Dehart
Project Name: NAS Pensacola
Project No.: 3910.07A3.NAVF Task 3

INVOICE TO:

For Invoices **paid by a third party** it is imperative that contact information & corresponding reference No. be provided.

Name: Mary Howard
Company: Solutions-IES
Address: 1101 Nowell Rd
Raleigh NC 27607

email: MHoward@solutions-ies.com
Phone: (919) 873-1060
Fax: (919) 873-1074

Purchase Order No.
Subcontract No.

microbialinsigh

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					CENSUS: Please select the target organism/gene																												
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	VFA	M/E/E	DGGE-43D	DGGE-51D	qDHC (Dehalococcoides)	DHC Functional genes	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 (Toluene/Xylene Anaerobic)	qNAH (Naphthalene aerobic)	add. qPCR:	add. qPCR:	add. qPCR:	RNA (Expression Option)	Other: qBAV-1	Other: qTCE	Other:
02556 1	AE-01	7/15/08	1210	GW											X													X			X		
2	GM-106R	7/15	1515	GW																													
3	SI-01	7/15	17:10	GW																													
4	SI-02	7/15	18:20	GW																													
*	SI-02 has two filters submitted. Each filter had 600 ml Ran through it. *																																

Relinquished by: Tom Pa Date: 7/16/08 Received by: [illegible] Date 7/17/08 0930

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 informati may result in [illegible] for which MI will not be liable. * additional cost and sample preservation are associated with [illegible] samples.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

7/31/2008 4:43:40PM

Client: Solutions-IES, Inc (427297)
1101 Nowell Road
Raleigh, NC 27607

Attn: Jessica Dehart

Work Order: NRG1541
Project Name: NAS Pensacola
Project Number: [none]
Date Received: 07/17/08

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
AE-01	NRG1541-01	07/15/08 12:10
GM-66R	NRG1541-02	07/15/08 15:15
S1-01	NRG1541-03	07/15/08 17:10
S1-02	NRG1541-04	07/15/08 18:20

Samples were received into laboratory at a temperature of 0.20 °C.

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

This material is intended only for the use of the individual(s) or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, or the employee or agent responsible for delivering this material to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this material is strictly prohibited. If you have recieved this material in error, please notify us immediately.

Results are reported on a wet weight basis unless otherwise noted

The reported results were obtained in compliance with 2003 NELAC standards unless otherwise noted.

These results relate only to the items tested

Estimated uncertainty is available upon request.

Florida Certification Number: E87358

This report has been electronically signed.

Approved By:

Roxanne L. Connor

TestAmerica - Nashville, TN
Roxanne Connor
Program Manager - Conventional Accounts

nt:	Solutions-IES, Inc (427297)	Work Order:	NRG1541	Sampled:	07/15/08
	1101 Nowell Road	Project:	NAS Pensacola	Received:	07/17/08
	Raleigh, NC 27607	Project Number:	[none]		
Attn:	Jessica Dehart				

LABORATORY REPORT
Sample ID: AE-01 - Lab Number: NRG1541-01 - Matrix: Water

CAS #	Analyte	Result	Q	Units	MDL	PQL	Dil Factor	Analyzed Date/Time	By	Method	Batch
Volatile Organic Compounds by EPA Method 8260B - Cont.											
10061-02-6	trans-1,3-Dichloropropene	0.330	U	ug/L	0.330	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
563-58-6	1,1-Dichloropropene	0.310	U	ug/L	0.310	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
100-41-4	**Ethylbenzene**	**1.49**		ug/L	0.240	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
87-68-3	Hexachlorobutadiene	0.910	U	ug/L	0.910	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
591-78-6	2-Hexanone	16.7	U	ug/L	16.7	50.0	1	07/18/08 21:31	EML	SW846 8260B	8073196
98-82-8	Isopropylbenzene	0.300	U	ug/L	0.300	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
99-87-6	p-Isopropyltoluene	0.220	U	ug/L	0.220	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
1634-04-4	Methyl tert-Butyl Ether	0.420	U	ug/L	0.420	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
75-09-2	Methylene Chloride	0.830	U	ug/L	0.830	5.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
108-10-1	4-Methyl-2-pentanone	3.49	U	ug/L	3.49	10.0	1	07/18/08 21:31	EML	SW846 8260B	8073196
91-20-3	**Naphthalene**	**19.8**		ug/L	0.540	5.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
103-65-1	**n-Propylbenzene**	**0.510**	I	ug/L	0.290	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
100-42-5	Styrene	0.330	U	ug/L	0.330	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
630-20-6	1,1,1,2-Tetrachloroethane	0.290	U	ug/L	0.290	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
79-34-5	1,1,2,2-Tetrachloroethane	0.290	U	ug/L	0.290	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
1[illegible]4	**Tetrachloroethene**	**10.1**		ug/L	0.230	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
10[illegible]-3	**Toluene**	**3.45**		ug/L	0.280	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
87-61-6	1,2,3-Trichlorobenzene	0.940	U	ug/L	0.940	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
120-82-1	1,2,4-Trichlorobenzene	0.500	U	ug/L	0.500	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
79-00-5	1,1,2-Trichloroethane	0.400	U	ug/L	0.400	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
71-55-6	1,1,1-Trichloroethane	0.370	U	ug/L	0.370	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
79-01-6	**Trichloroethene**	**18300**		ug/L	23.0	100	100	07/19/08 19:09	EML	SW846 8260B	8073199
75-69-4	Trichlorofluoromethane	0.350	U	ug/L	0.350	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
96-18-4	1,2,3-Trichloropropane	0.290	U	ug/L	0.290	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
108-67-8	1,3,5-Trimethylbenzene	0.160	U	ug/L	0.160	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
95-63-6	**1,2,4-Trimethylbenzene**	**1.93**		ug/L	0.170	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
75-01-4	**Vinyl chloride**	**94.4**		ug/L	0.290	1.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
1330-20-7	**Xylenes, total**	**6.79**		ug/L	0.860	3.00	1	07/18/08 21:31	EML	SW846 8260B	8073196
Surrogate: 1,2-Dichloroethane-d4 (60-140%)		*89 %*									
Surrogate: 1,2-Dichloroethane-d4 (60-140%)		*97 %*									
Surrogate: 1,2-Dichloroethane-d4 (60-140%)		*95 %*									
Surrogate: Dibromofluoromethane (75-124%)		*90 %*									
Surrogate: Dibromofluoromethane (75-124%)		*94 %*									
Surrogate: Dibromofluoromethane (75-124%)		*90 %*									
Surrogate: Toluene-d8 (78-121%)		*99 %*									
Surrogate: Toluene-d8 (78-121%)		*100 %*									
Surrogate: Toluene-d8 (78-121%)		*99 %*									
Surrogate: 4-Bromofluorobenzene (79-124%)		*101 %*									
Surrogate: 4-Bromofluorobenzene (79-124%)		*101 %*									
Surrogate: 4-Bromofluorobenzene (79-124%)		*103 %*									

Client: Solutions-IES, Inc (427297)
1101 Nowell Road
Raleigh, NC 27607
Attn: Jessica Dehart

Work Order: NRG1541
Project: NAS Pensacola
Project Number: [none]

Sampled: 07/15/08
Received: 07/17/08

LABORATORY REPORT
Sample ID: GM-66R - Lab Number: NRG1541-02 - Matrix: Water

CAS #	Analyte	Result	Q	Units	MDL	PQL	Dil Factor	Analyzed Date/Time	By	Method	Batch
Volatile Organic Compounds by EPA Method 8260B - Cont.											
10061-02-6	trans-1,3-Dichloropropene	0.330	U	ug/L	0.330	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
563-58-6	1,1-Dichloropropene	0.310	U	ug/L	0.310	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
100-41-4	**Ethylbenzene**	**1.06**		ug/L	0.240	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
87-68-3	Hexachlorobutadiene	0.910	U	ug/L	0.910	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
591-78-6	2-Hexanone	16.7	U	ug/L	16.7	50.0	1	07/18/08 21:58	EML	SW846 8260B	8073196
98-82-8	Isopropylbenzene	0.300	U	ug/L	0.300	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
99-87-6	p-Isopropyltoluene	0.220	U	ug/L	0.220	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
1634-04-4	Methyl tert-Butyl Ether	0.420	U	ug/L	0.420	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
75-09-2	Methylene Chloride	0.830	U	ug/L	0.830	5.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
108-10-1	4-Methyl-2-pentanone	3.49	U	ug/L	3.49	10.0	1	07/18/08 21:58	EML	SW846 8260B	8073196
91-20-3	**Naphthalene**	**6.35**		ug/L	0.540	5.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
103-65-1	n-Propylbenzene	0.290	U	ug/L	0.290	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
100-42-5	Styrene	0.330	U	ug/L	0.330	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
630-20-6	1,1,1,2-Tetrachloroethane	0.290	U	ug/L	0.290	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
79-34-5	1,1,2,2-Tetrachloroethane	0.290	U	ug/L	0.290	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
12[illegible]4	**Tetrachloroethene**	**2.35**		ug/L	0.230	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
10[illegible]3	**Toluene**	**2.81**		ug/L	0.280	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
87-61-6	1,2,3-Trichlorobenzene	0.940	U	ug/L	0.940	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
120-82-1	1,2,4-Trichlorobenzene	0.500	U	ug/L	0.500	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
79-00-5	1,1,2-Trichloroethane	0.400	U	ug/L	0.400	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
71-55-6	1,1,1-Trichloroethane	0.370	U	ug/L	0.370	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
79-01-6	**Trichloroethene**	**2760**		ug/L	11.5	50.0	50	07/19/08 20:04	EML	SW846 8260B	8073199
75-69-4	Trichlorofluoromethane	0.350	U	ug/L	0.350	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
96-18-4	1,2,3-Trichloropropane	0.290	U	ug/L	0.290	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
108-67-8	1,3,5-Trimethylbenzene	0.160	U	ug/L	0.160	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
95-63-6	1,2,4-Trimethylbenzene	0.170	U	ug/L	0.170	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
75-01-4	**Vinyl chloride**	**2.81**		ug/L	0.290	1.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
1330-20-7	**Xylenes, total**	**4.65**		ug/L	0.860	3.00	1	07/18/08 21:58	EML	SW846 8260B	8073196
Surrogate: 1,2-Dichloroethane-d4 (60-140%)		*88 %*									
Surrogate: 1,2-Dichloroethane-d4 (60-140%)		*98 %*									
Surrogate: 1,2-Dichloroethane-d4 (60-140%)		*96 %*									
Surrogate: Dibromofluoromethane (75-124%)		*90 %*									
Surrogate: Dibromofluoromethane (75-124%)		*93 %*									
Surrogate: Dibromofluoromethane (75-124%)		*94 %*									
Surrogate: Toluene-d8 (78-121%)		*100 %*									
Surrogate: Toluene-d8 (78-121%)		*100 %*									
Surrogate: Toluene-d8 (78-121%)		*100 %*									
Surrogate: 4-Bromofluorobenzene (79-124%)		*101 %*									
Surrogate: 4-Bromofluorobenzene (79-124%)		*102 %*									
Surrogate: 4-Bromofluorobenzene (79-124%)		*101 %*									

Client:	Solutions-IES, Inc (427297)	Work Order:	NRG1541	Sampled:	07/15/08
	1101 Nowell Road	Project:	NAS Pensacola	Received:	07/17/08
	Raleigh, NC 27607	Project Number:	[none]		
Attn:	Jessica Dehart				

LABORATORY REPORT
Sample ID: S1-01 - Lab Number: NRG1541-03 - Matrix: Water

CAS #	Analyte	Result	Q	Units	MDL	PQL	Dil Factor	Analyzed Date/Time	By	Method	Batch
Volatile Organic Compounds by EPA Method 8260B - Cont.											
10061-02-6	trans-1,3-Dichloropropene	0.330	U	ug/L	0.330	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
563-58-6	1,1-Dichloropropene	0.310	U	ug/L	0.310	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
100-41-4	**Ethylbenzene**	**1.14**		ug/L	0.240	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
87-68-3	Hexachlorobutadiene	0.910	U	ug/L	0.910	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
591-78-6	2-Hexanone	16.7	U	ug/L	16.7	50.0	1	07/18/08 22:25	EML	SW846 8260B	8073196
98-82-8	Isopropylbenzene	0.300	U	ug/L	0.300	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
99-87-6	p-Isopropyltoluene	0.220	U	ug/L	0.220	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
1634-04-4	Methyl tert-Butyl Ether	0.420	U	ug/L	0.420	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
75-09-2	Methylene Chloride	0.830	U	ug/L	0.830	5.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
108-10-1	4-Methyl-2-pentanone	3.49	U	ug/L	3.49	10.0	1	07/18/08 22:25	EML	SW846 8260B	8073196
91-20-3	**Naphthalene**	**10.7**		ug/L	0.540	5.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
103-65-1	**n-Propylbenzene**	**0.460**	I	ug/L	0.290	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
100-42-5	Styrene	0.330	U	ug/L	0.330	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
630-20-6	1,1,1,2-Tetrachloroethane	0.290	U	ug/L	0.290	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
79-34-5	1,1,2,2-Tetrachloroethane	0.290	U	ug/L	0.290	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
127-[illegible]	**Tetrachloroethene**	**2.66**		ug/L	0.230	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
108-[illegible]	**Toluene**	**2.17**		ug/L	0.280	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
87-61-6	1,2,3-Trichlorobenzene	0.940	U	ug/L	0.940	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
120-82-1	1,2,4-Trichlorobenzene	0.500	U	ug/L	0.500	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
79-00-5	1,1,2-Trichloroethane	0.400	U	ug/L	0.400	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
71-55-6	1,1,1-Trichloroethane	0.370	U	ug/L	0.370	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
79-01-6	**Trichloroethene**	**4150**		ug/L	11.5	50.0	50	07/19/08 20:58	EML	SW846 8260B	8073199
75-69-4	Trichlorofluoromethane	0.350	U	ug/L	0.350	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
96-18-4	1,2,3-Trichloropropane	0.290	U	ug/L	0.290	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
108-67-8	1,3,5-Trimethylbenzene	0.160	U	ug/L	0.160	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
95-63-6	**1,2,4-Trimethylbenzene**	**0.990**	I	ug/L	0.170	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
75-01-4	**Vinyl chloride**	**9.03**		ug/L	0.290	1.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
1330-20-7	**Xylenes, total**	**4.90**		ug/L	0.860	3.00	1	07/18/08 22:25	EML	SW846 8260B	8073196
Surrogate: 1,2-Dichloroethane-d4 (60-140%)		*90 %*									
Surrogate: 1,2-Dichloroethane-d4 (60-140%)		*97 %*									
Surrogate: 1,2-Dichloroethane-d4 (60-140%)		*97 %*									
Surrogate: Dibromofluoromethane (75-124%)		*91 %*									
Surrogate: Dibromofluoromethane (75-124%)		*93 %*									
Surrogate: Dibromofluoromethane (75-124%)		*94 %*									
Surrogate: Toluene-d8 (78-121%)		*100 %*									
Surrogate: Toluene-d8 (78-121%)		*101 %*									
Surrogate: Toluene-d8 (78-121%)		*99 %*									
Surrogate: 4-Bromofluorobenzene (79-124%)		*102 %*									
Surrogate: 4-Bromofluorobenzene (79-124%)		*100 %*									
Surrogate: 4-Bromofluorobenzene (79-124%)		*104 %*									

C : Solutions-IES, Inc (427297)
1101 Nowell Road
Raleigh, NC 27607
Attn: Jessica Dehart

Work Order: NRG1541
Project: NAS Pensacola
Project Number: [none]

Sampled: 07/15/08
Received: 07/17/08

LABORATORY REPORT
Sample ID: S1-02 - Lab Number: NRG1541-04 - Matrix: Water

CAS #	Analyte	Result	Q	Units	MDL	PQL	Dil Factor	Analyzed Date/Time	By	Method	Batch
Volatile Organic Compounds by EPA Method 8260B - Cont.											
10061-02-6	trans-1,3-Dichloropropene	0.330	U	ug/L	0.330	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
563-58-6	1,1-Dichloropropene	0.310	U	ug/L	0.310	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
100-41-4	**Ethylbenzene**	**1.37**		ug/L	0.240	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
87-68-3	Hexachlorobutadiene	0.910	U	ug/L	0.910	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
591-78-6	2-Hexanone	16.7	U	ug/L	16.7	50.0	1	07/18/08 22:53	EML	SW846 8260B	8073196
98-82-8	Isopropylbenzene	0.300	U	ug/L	0.300	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
99-87-6	p-Isopropyltoluene	0.220	U	ug/L	0.220	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
1634-04-4	Methyl tert-Butyl Ether	0.420	U	ug/L	0.420	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
75-09-2	Methylene Chloride	0.830	U	ug/L	0.830	5.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
108-10-1	4-Methyl-2-pentanone	3.49	U	ug/L	3.49	10.0	1	07/18/08 22:53	EML	SW846 8260B	8073196
91-20-3	**Naphthalene**	**12.1**		ug/L	0.540	5.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
103-65-1	**n-Propylbenzene**	**0.390**	I	ug/L	0.290	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
100-42-5	Styrene	0.330	U	ug/L	0.330	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
630-20-6	1,1,1,2-Tetrachloroethane	0.290	U	ug/L	0.290	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
79-34-5	1,1,2,2-Tetrachloroethane	0.290	U	ug/L	0.290	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
12[illegible]	**Tetrachloroethene**	**0.930**	I	ug/L	0.230	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
108-[illegible]	**Toluene**	**2.89**		ug/L	0.280	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
87-61-6	1,2,3-Trichlorobenzene	0.940	U	ug/L	0.940	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
120-82-1	1,2,4-Trichlorobenzene	0.500	U	ug/L	0.500	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
79-00-5	1,1,2-Trichloroethane	0.400	U	ug/L	0.400	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
71-55-6	1,1,1-Trichloroethane	0.370	U	ug/L	0.370	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
79-01-6	**Trichloroethene**	**1640**		ug/L	11.5	50.0	50	07/19/08 21:53	EML	SW846 8260B	8073199
75-69-4	Trichlorofluoromethane	0.350	U	ug/L	0.350	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
96-18-4	1,2,3-Trichloropropane	0.290	U	ug/L	0.290	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
108-67-8	1,3,5-Trimethylbenzene	0.160	U	ug/L	0.160	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
95-63-6	**1,2,4-Trimethylbenzene**	**1.23**		ug/L	0.170	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
75-01-4	**Vinyl chloride**	**0.650**	I	ug/L	0.290	1.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
1330-20-7	**Xylenes, total**	**5.46**		ug/L	0.860	3.00	1	07/18/08 22:53	EML	SW846 8260B	8073196
Surrogate: 1,2-Dichloroethane-d4 (60-140%)		*90 %*									
Surrogate: 1,2-Dichloroethane-d4 (60-140%)		*97 %*									
Surrogate: 1,2-Dichloroethane-d4 (60-140%)		*98 %*									
Surrogate: Dibromofluoromethane (75-124%)		*92 %*									
Surrogate: Dibromofluoromethane (75-124%)		*92 %*									
Surrogate: Dibromofluoromethane (75-124%)		*95 %*									
Surrogate: Toluene-d8 (78-121%)		*100 %*									
Surrogate: Toluene-d8 (78-121%)		*99 %*									
Surrogate: Toluene-d8 (78-121%)		*98 %*									
Surrogate: 4-Bromofluorobenzene (79-124%)		*100 %*									
Surrogate: 4-Bromofluorobenzene (79-124%)		*102 %*									
Surrogate: 4-Bromofluorobenzene (79-124%)		*102 %*									

C t:	Solutions-IES, Inc (427297) 1101 Nowell Road Raleigh, NC 27607	Work Order:	NRG1541	Sampled:	07/15/08
		Project:	NAS Pensacola	Received:	07/17/08
		Project Number:	[none]		
Attn:	Jessica Dehart				

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number
General Chemistry Parameters					
Iron, ferrous	0.0800	U	mg/L	8073679	8073679-BLK1
Sulfate	0.500	U	mg/L	8073150	8073150-BLK1
Total Organic Carbon	0.500	U	mg/L	8072839	8072839-BLK1
Total Metals by EPA Method 6010B					
Chromium	0.00200	U	mg/L	8073249	8073249-BLK1
Volatile Organic Compounds by EPA Method 8260B					
Acetone	25.0	U	ug/L	8073196	8073196-BLK1
Acetone	25.0	U	ug/L	8073199	8073199-BLK1
Benzene	0.270	U	ug/L	8073196	8073196-BLK1
Benzene	0.270	U	ug/L	8073199	8073199-BLK1
Bromobenzene	0.360	U	ug/L	8073199	8073199-BLK1
Bromobenzene	0.360	U	ug/L	8073196	8073196-BLK1
Bromochloromethane	0.400	U	ug/L	8073196	8073196-BLK1
Bromochloromethane	0.400	U	ug/L	8073199	8073199-BLK1
Bromodichloromethane	0.350	U	ug/L	8073196	8073196-BLK1
B. chloromethane	0.350	U	ug/L	8073199	8073199-BLK1
Bromoform	0.430	U	ug/L	8073196	8073196-BLK1
Bromoform	0.430	U	ug/L	8073199	8073199-BLK1
Bromomethane	0.420	U	ug/L	8073196	8073196-BLK1
Bromomethane	0.420	U	ug/L	8073199	8073199-BLK1
2-Butanone	2.40	U	ug/L	8073196	8073196-BLK1
2-Butanone	2.40	U	ug/L	8073199	8073199-BLK1
sec-Butylbenzene	0.140	U	ug/L	8073199	8073199-BLK1
sec-Butylbenzene	0.140	U	ug/L	8073196	8073196-BLK1
n-Butylbenzene	0.280	U	ug/L	8073199	8073199-BLK1
n-Butylbenzene	0.280	U	ug/L	8073196	8073196-BLK1
tert-Butylbenzene	0.330	U	ug/L	8073199	8073199-BLK1
tert-Butylbenzene	0.330	U	ug/L	8073196	8073196-BLK1
Carbon disulfide	0.380	U	ug/L	8073199	8073199-BLK1
Carbon disulfide	0.380	U	ug/L	8073196	8073196-BLK1
Carbon Tetrachloride	0.350	U	ug/L	8073196	8073196-BLK1
Carbon Tetrachloride	0.350	U	ug/L	8073199	8073199-BLK1
Chlorobenzene	0.180	U	ug/L	8073196	8073196-BLK1
Chlorobenzene	0.180	U	ug/L	8073199	8073199-BLK1
Chlorodibromomethane	0.280	U	ug/L	8073196	8073196-BLK1
Chlorodibromomethane	0.280	U	ug/L	8073199	8073199-BLK1
Chloroethane	0.450	U	ug/L	8073199	8073199-BLK1
Chloroethane	0.450	U	ug/L	8073196	8073196-BLK1
Chloroform	0.280	U	ug/L	8073196	8073196-BLK1
C rm	0.280	U	ug/L	8073199	8073199-BLK1
Chloromethane	0.380	U	ug/L	8073196	8073196-BLK1

Client:	Solutions-IES, Inc (427297) 1101 Nowell Road Raleigh, NC 27607	Work Order:	NRG1541	Sampled:	07/15/08
		Project:	NAS Pensacola	Received:	07/17/08
		Project Number:	[none]		
Attn:	Jessica Dehart				

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number
Volatile Organic Compounds by EPA Method 8260B					
Ethylbenzene	0.240	U	ug/L	8073196	8073196-BLK1
Ethylbenzene	0.240	U	ug/L	8073199	8073199-BLK1
Hexachlorobutadiene	0.910	U	ug/L	8073196	8073196-BLK1
Hexachlorobutadiene	0.910	U	ug/L	8073199	8073199-BLK1
2-Hexanone	16.7	U	ug/L	8073199	8073199-BLK1
2-Hexanone	16.7	U	ug/L	8073196	8073196-BLK1
Isopropylbenzene	0.300	U	ug/L	8073199	8073199-BLK1
Isopropylbenzene	0.300	U	ug/L	8073196	8073196-BLK1
p-Isopropyltoluene	0.220	U	ug/L	8073199	8073199-BLK1
p-Isopropyltoluene	0.220	U	ug/L	8073196	8073196-BLK1
Methyl tert-Butyl Ether	0.420	U	ug/L	8073199	8073199-BLK1
Methyl tert-Butyl Ether	0.420	U	ug/L	8073196	8073196-BLK1
Methylene Chloride	0.830	U	ug/L	8073199	8073199-BLK1
Methylene Chloride	1.56	V,I	ug/L	8073196	8073196-BLK1
4-M[illegible]yl-2-pentanone	3.49	U	ug/L	8073199	8073199-BLK1
4-[illegible]-2-pentanone	3.49	U	ug/L	8073196	8073196-BLK1
Naphthalene	0.540	U	ug/L	8073196	8073196-BLK1
Naphthalene	0.540	U	ug/L	8073199	8073199-BLK1
n-Propylbenzene	0.290	U	ug/L	8073196	8073196-BLK1
n-Propylbenzene	0.290	U	ug/L	8073199	8073199-BLK1
Styrene	0.330	U	ug/L	8073196	8073196-BLK1
Styrene	0.330	U	ug/L	8073199	8073199-BLK1
1,1,1,2-Tetrachloroethane	0.290	U	ug/L	8073199	8073199-BLK1
1,1,1,2-Tetrachloroethane	0.290	U	ug/L	8073196	8073196-BLK1
1,1,2,2-Tetrachloroethane	0.290	U	ug/L	8073196	8073196-BLK1
1,1,2,2-Tetrachloroethane	0.290	U	ug/L	8073199	8073199-BLK1
Tetrachloroethene	0.230	U	ug/L	8073199	8073199-BLK1
Tetrachloroethene	0.230	U	ug/L	8073196	8073196-BLK1
Toluene	0.280	U	ug/L	8073199	8073199-BLK1
Toluene	0.280	U	ug/L	8073196	8073196-BLK1
1,2,3-Trichlorobenzene	0.940	U	ug/L	8073199	8073199-BLK1
1,2,3-Trichlorobenzene	0.940	U	ug/L	8073196	8073196-BLK1
1,2,4-Trichlorobenzene	0.500	U	ug/L	8073199	8073199-BLK1
1,2,4-Trichlorobenzene	0.500	U	ug/L	8073196	8073196-BLK1
1,1,2-Trichloroethane	0.400	U	ug/L	8073199	8073199-BLK1
1,1,2-Trichloroethane	0.400	U	ug/L	8073196	8073196-BLK1
1,1,1-Trichloroethane	0.370	U	ug/L	8073196	8073196-BLK1
1,1,1-Trichloroethane	0.370	U	ug/L	8073199	8073199-BLK1
Tri[illegible]oethene	0.230	U	ug/L	8073196	8073196-BLK1
Tr[illegible]oethene	0.230	U	ug/L	8073199	8073199-BLK1
Trichlorofluoromethane	0.350	U	ug/L	8073196	8073196-BLK1

Client: Solutions-IES, Inc (427297)
1101 Nowell Road
Raleigh, NC 27607
Attn: Jessica Dehart

Work Order: NRG1541
Project: NAS Pensacola
Project Number: [none]

Sampled: 07/15/08
Received: 07/17/08

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Q.C. Batch
General Chemistry Parameters							
Iron, ferrous	1.00	0.980		mg/L	98	80 - 120	8073679
Sulfate	15.0	15.0		mg/L	100	90 - 110	8073150
Total Organic Carbon	200	193		mg/L	97	90 - 110	8072839
Total Metals by EPA Method 6010B							
Chromium	0.200	0.197		mg/L	99	80 - 120	8073249
Volatile Organic Compounds by EPA Method 8260B							
Acetone	250	213		ug/L	85	62 - 150	8073199
Acetone	250	251		ug/L	100	62 - 150	8073196
Benzene	50.0	49.6		ug/L	99	80 - 137	8073196
Benzene	50.0	50.9		ug/L	102	80 - 137	8073199
Bromobenzene	50.0	55.9		ug/L	112	74 - 131	8073196
Bromobenzene	50.0	53.9		ug/L	108	74 - 131	8073199
Bromochloromethane	50.0	44.7		ug/L	89	80 - 128	8073199
Bromochloromethane	50.0	47.3		ug/L	95	80 - 128	8073196
Br[illegible]chloromethane	50.0	49.2		ug/L	98	80 - 129	8073196
Bro[illegible]ichloromethane	50.0	48.5		ug/L	97	80 - 129	8073199
Bromoform	50.0	57.2		ug/L	114	69 - 127	8073196
Bromoform	50.0	58.0		ug/L	116	69 - 127	8073199
Bromomethane	50.0	46.0		ug/L	92	62 - 148	8073196
Bromomethane	50.0	45.5		ug/L	91	62 - 148	8073199
2-Butanone	250	238		ug/L	95	77 - 141	8073196
2-Butanone	250	218		ug/L	87	77 - 141	8073199
sec-Butylbenzene	50.0	57.2		ug/L	114	78 - 133	8073199
sec-Butylbenzene	50.0	58.5		ug/L	117	78 - 133	8073196
n-Butylbenzene	50.0	53.6		ug/L	107	72 - 136	8073196
n-Butylbenzene	50.0	52.4		ug/L	105	72 - 136	8073199
tert-Butylbenzene	50.0	57.0		ug/L	114	77 - 135	8073196
tert-Butylbenzene	50.0	55.9		ug/L	112	77 - 135	8073199
Carbon disulfide	50.0	56.0		ug/L	112	80 - 126	8073199
Carbon disulfide	50.0	58.5		ug/L	117	80 - 126	8073196
Carbon Tetrachloride	50.0	50.1		ug/L	100	76 - 143	8073199
Carbon Tetrachloride	50.0	48.2		ug/L	96	76 - 143	8073196
Chlorobenzene	50.0	51.9		ug/L	104	80 - 120	8073199
Chlorobenzene	50.0	53.2		ug/L	106	80 - 120	8073196
Chlorodibromomethane	50.0	55.1		ug/L	110	76 - 123	8073199
Chlorodibromomethane	50.0	55.3		ug/L	111	76 - 123	8073196
Chloroethane	50.0	46.0		ug/L	92	77 - 127	8073196
Cl[illegible]ane	50.0	45.8		ug/L	92	77 - 127	8073199
Chloroform	50.0	49.2		ug/L	98	80 - 133	8073196

C[illegible]: Solutions-IES, Inc (427297)
1101 Nowell Road
Raleigh, NC 27607
Attn: Jessica Dehart

Work Order: NRG1541
Project: NAS Pensacola
Project Number: [none]

Sampled: 07/15/08
Received: 07/17/08

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Q.C. Batch
Volatile Organic Compounds by EPA Method 8260B							
trans-1,3-Dichloropropene	50.0	55.1		ug/L	110	70 - 137	8073196
trans-1,3-Dichloropropene	50.0	53.4		ug/L	107	70 - 137	8073199
1,1-Dichloropropene	50.0	53.0		ug/L	106	80 - 127	8073199
1,1-Dichloropropene	50.0	50.6		ug/L	101	80 - 127	8073196
Ethylbenzene	50.0	56.6		ug/L	113	80 - 128	8073199
Ethylbenzene	50.0	58.7		ug/L	117	80 - 128	8073196
Hexachlorobutadiene	50.0	59.9		ug/L	120	68 - 148	8073199
Hexachlorobutadiene	50.0	60.1		ug/L	120	68 - 148	8073196
2-Hexanone	250	284		ug/L	114	69 - 148	8073196
2-Hexanone	250	266		ug/L	106	69 - 148	8073199
Isopropylbenzene	50.0	48.4		ug/L	97	80 - 121	8073199
Isopropylbenzene	50.0	50.0		ug/L	100	80 - 121	8073196
p-Isopropyltoluene	50.0	55.6		ug/L	111	79 - 127	8073196
p-Isopropyltoluene	50.0	54.4		ug/L	109	79 - 127	8073199
M[illegible]rt-Butyl Ether	50.0	48.5		ug/L	97	70 - 129	8073196
Methyl tert-Butyl Ether	50.0	46.2		ug/L	92	70 - 129	8073199
Methylene Chloride	50.0	49.4		ug/L	99	76 - 135	8073199
Methylene Chloride	50.0	52.7		ug/L	105	76 - 135	8073196
4-Methyl-2-pentanone	250	284		ug/L	114	67 - 143	8073199
4-Methyl-2-pentanone	250	296		ug/L	118	67 - 143	8073196
Naphthalene	50.0	56.0		ug/L	112	62 - 141	8073196
Naphthalene	50.0	54.2		ug/L	108	62 - 141	8073199
n-Propylbenzene	50.0	61.7		ug/L	123	80 - 132	8073196
n-Propylbenzene	50.0	60.3		ug/L	121	80 - 132	8073199
Styrene	50.0	57.5		ug/L	115	80 - 139	8073196
Styrene	50.0	55.4		ug/L	111	80 - 139	8073199
1,1,1,2-Tetrachloroethane	50.0	53.7		ug/L	107	80 - 135	8073196
1,1,1,2-Tetrachloroethane	50.0	53.3		ug/L	107	80 - 135	8073199
1,1,2,2-Tetrachloroethane	50.0	53.6		ug/L	107	65 - 145	8073199
1,1,2,2-Tetrachloroethane	50.0	55.9		ug/L	112	65 - 145	8073196
Tetrachloroethene	50.0	55.7		ug/L	111	80 - 125	8073199
Tetrachloroethene	50.0	56.9		ug/L	114	80 - 125	8073196
Toluene	50.0	54.6		ug/L	109	80 - 125	8073199
Toluene	50.0	56.1		ug/L	112	80 - 125	8073196
1,2,3-Trichlorobenzene	50.0	53.6		ug/L	107	57 - 144	8073196
1,2,3-Trichlorobenzene	50.0	52.5		ug/L	105	57 - 144	8073199
1,2[illegible]ichlorobenzene	50.0	54.2		ug/L	108	60 - 140	8073196
1,2[illegible]chlorobenzene	50.0	53.5		ug/L	107	60 - 140	8073199
1,1,2-Trichloroethane	50.0	55.2		ug/L	110	80 - 122	8073196

Client:	Solutions-IES, Inc (427297)	Work Order:	NRG1541	Sampled:	07/15/08
	1101 Nowell Road	Project:	NAS Pensacola	Received:	07/17/08
	Raleigh, NC 27607	Project Number:	[none]		
Attn:	Jessica Dehart				

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	RPD	RPD Limit	Q.C. Batch	Sample Duplicated
Volatile Organic Compounds by EPA Method 8260B										
Acetone		226		ug/L	250	90	11	29	8073196	
Acetone		226	MNR1	ug/L	250	90	6	29	8073199	
Benzene		51.5	MNR1	ug/L	50.0	103	1	23	8073199	
Benzene		49.8		ug/L	50.0	100	0.4	23	8073196	
Bromobenzene		54.6	MNR1	ug/L	50.0	109	1	18	8073199	
Bromobenzene		55.4		ug/L	50.0	111	0.8	18	8073196	
Bromochloromethane		46.2		ug/L	50.0	92	2	18	8073196	
Bromochloromethane		44.3	MNR1	ug/L	50.0	89	0.7	18	8073199	
Bromodichloromethane		48.8		ug/L	50.0	98	0.9	18	8073196	
Bromodichloromethane		49.2	MNR1	ug/L	50.0	98	1	18	8073199	
Bromoform		57.6		ug/L	50.0	115	0.5	24	8073196	
Bromoform		57.4	MNR1	ug/L	50.0	115	1	24	8073199	
Bromomethane		46.8	MNR1	ug/L	50.0	94	3	45	8073199	
Bromomethane		46.7		ug/L	50.0	93	2	45	8073196	
2 one		238		ug/L	250	95	0.1	36	8073196	
2-Butanone		223	MNR1	ug/L	250	89	2	36	8073199	
sec-Butylbenzene		58.4		ug/L	50.0	117	0.3	17	8073196	
sec-Butylbenzene		57.5	MNR1	ug/L	50.0	115	0.7	17	8073199	
n-Butylbenzene		54.0		ug/L	50.0	108	0.7	18	8073196	
n-Butylbenzene		52.8	MNR1	ug/L	50.0	106	0.6	18	8073199	
tert-Butylbenzene		56.1	MNR1	ug/L	50.0	112	0.4	17	8073199	
tert-Butylbenzene		57.3		ug/L	50.0	115	0.6	17	8073196	
Carbon disulfide		57.6		ug/L	50.0	115	1	16	8073196	
Carbon disulfide		56.6	MNR1	ug/L	50.0	113	1	16	8073199	
Carbon Tetrachloride		48.2		ug/L	50.0	96	0	29	8073196	
Carbon Tetrachloride		50.9	MNR1	ug/L	50.0	102	2	29	8073199	
Chlorobenzene		52.7		ug/L	50.0	105	0.9	27	8073196	
Chlorobenzene		51.9	MNR1	ug/L	50.0	104	0.04	27	8073199	
Chlorodibromomethane		55.1		ug/L	50.0	110	0.5	21	8073196	
Chlorodibromomethane		54.9	MNR1	ug/L	50.0	110	0.3	21	8073199	
Chloroethane		46.5	MNR1	ug/L	50.0	93	1	32	8073199	
Chloroethane		45.2		ug/L	50.0	90	2	32	8073196	
Chloroform		47.4	MNR1	ug/L	50.0	95	0.6	28	8073199	
Chloroform		48.6		ug/L	50.0	97	1	28	8073196	
Chloromethane		44.4	MNR1	ug/L	50.0	89	6	21	8073199	
Chloromethane		40.5		ug/L	50.0	81	0.8	21	8073196	
2-Chlorotoluene		59.4		ug/L	50.0	119	0.5	16	8073196	
2-Chlorotoluene		57.7	MNR1	ug/L	50.0	115	0.2	16	8073199	
4-Chlorotoluene		58.0		ug/L	50.0	116	0.8	17	8073196	

Client:	Solutions-IES, Inc (427297)	Work Order:	NRG1541	Sampled:	07/15/08
	1101 Nowell Road	Project:	NAS Pensacola	Received:	07/17/08
	Raleigh, NC 27607	Project Number:	[none]		
Attn:	Jessica Dehart				

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	RPD	RPD Limit	Q.C. Batch	Sample Duplicated
Volatile Organic Compounds by EPA Method 8260B										
Hexachlorobutadiene		59.9		ug/L	50.0	120	0.3	34	8073196	
Hexachlorobutadiene		60.4	MNR1	ug/L	50.0	121	0.7	34	8073199	
2-Hexanone		280		ug/L	250	112	2	34	8073196	
2-Hexanone		272	MNR1	ug/L	250	109	3	34	8073199	
Isopropylbenzene		49.4		ug/L	50.0	99	1	18	8073196	
Isopropylbenzene		48.2	MNR1	ug/L	50.0	96	0.4	18	8073199	
p-Isopropyltoluene		55.7		ug/L	50.0	111	0.05	17	8073196	
p-Isopropyltoluene		54.7	MNR1	ug/L	50.0	109	0.5	17	8073199	
Methyl tert-Butyl Ether		46.8	MNR1	ug/L	50.0	94	1	32	8073199	
Methyl tert-Butyl Ether		48.6		ug/L	50.0	97	0.4	32	8073196	
Methylene Chloride		49.8	MNR1	ug/L	50.0	100	0.7	18	8073199	
Methylene Chloride		52.0		ug/L	50.0	104	1	18	8073196	
4-Methyl-2-pentanone		286	MNR1	ug/L	250	114	0.5	31	8073199	
4-Methyl-2-pentanone		297		ug/L	250	119	0.4	31	8073196	
Naphthalene		55.1	MNR1	ug/L	50.0	110	2	39	8073199	
Naphthalene		57.4		ug/L	50.0	115	2	39	8073196	
n-Propylbenzene		62.1		ug/L	50.0	124	0.6	17	8073196	
n-Propylbenzene		60.2	MNR1	ug/L	50.0	120	0.08	17	8073199	
Styrene		55.2	MNR1	ug/L	50.0	110	0.3	16	8073199	
Styrene		56.7		ug/L	50.0	113	1	16	8073196	
1,1,1,2-Tetrachloroethane		53.4		ug/L	50.0	107	0.6	17	8073196	
1,1,1,2-Tetrachloroethane		53.0	MNR1	ug/L	50.0	106	0.5	17	8073199	
1,1,2,2-Tetrachloroethane		54.6	MNR1	ug/L	50.0	109	2	28	8073199	
1,1,2,2-Tetrachloroethane		56.7		ug/L	50.0	113	1	28	8073196	
Tetrachloroethene		56.1		ug/L	50.0	112	1	27	8073196	
Tetrachloroethene		55.7	MNR1	ug/L	50.0	111	0.09	27	8073199	
Toluene		55.6		ug/L	50.0	111	1	19	8073196	
Toluene		54.2	MNR1	ug/L	50.0	108	0.7	19	8073199	
1,2,3-Trichlorobenzene		53.2	MNR1	ug/L	50.0	106	1	31	8073199	
1,2,3-Trichlorobenzene		54.4		ug/L	50.0	109	1	31	8073196	
1,2,4-Trichlorobenzene		53.9	MNR1	ug/L	50.0	108	0.8	26	8073199	
1,2,4-Trichlorobenzene		54.6		ug/L	50.0	109	0.9	26	8073196	
1,1,2-Trichloroethane		53.1	MNR1	ug/L	50.0	106	0.7	21	8073199	
1,1,2-Trichloroethane		54.5		ug/L	50.0	109	1	21	8073196	
1,1,1-Trichloroethane		52.4		ug/L	50.0	105	0.5	16	8073196	
1,1,1-Trichloroethane		51.8	MNR1	ug/L	50.0	104	6	16	8073199	
Trichloroethene		50.0		ug/L	50.0	100	1	28	8073196	
Trichloroethene		50.7	MNR1	ug/L	50.0	101	2	28	8073199	
Trichlorofluoromethane		45.3	MNR1	ug/L	50.0	91	2	20	8073199	

C' t: Solutions-IES, Inc (427297)
1101 Nowell Road
Raleigh, NC 27607
Attn: Jessica Dehart

Work Order: NRG1541
Project: NAS Pensacola
Project Number: [none]

Sampled: 07/15/08
Received: 07/17/08

PROJECT QUALITY CONTROL DATA
Matrix Spike

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked
General Chemistry Parameters									
Iron, ferrous	3.08	0.419	J4	mg/L	1.00	-267	75 - 125	8073679	NRG1538-01
Sulfate	19.8	47.6		mg/L	30.0	93	80 - 120	8073150	NRG1544-03
Total Organic Carbon	4.75	27.9		mg/L	20.0	116	79 - 130	8072839	NRG1541-01
Total Metals by EPA Method 6010B									
Chromium	<0.00200	0.198		mg/L	0.200	99	75 - 125	8073249	NRG1680-03
Volatile Organic Compounds by EPA Method 8260B									
Acetone	<25.0	199		ug/L	250	80	55 - 148	8073196	NRG1405-03
Benzene	<0.270	52.1		ug/L	50.0	104	68 - 143	8073196	NRG1405-03
Bromobenzene	<0.360	54.7		ug/L	50.0	109	65 - 140	8073196	NRG1405-03
Bromochloromethane	<0.400	48.4		ug/L	50.0	97	80 - 137	8073196	NRG1405-03
Bromodichloromethane	<0.350	48.8		ug/L	50.0	98	80 - 132	8073196	NRG1405-03
Bromoform	<0.430	51.0		ug/L	50.0	102	67 - 123	8073196	NRG1405-03
Bromomethane	<0.420	49.4		ug/L	50.0	99	39 - 166	8073196	NRG1405-03
2-Butanone	<2.40	204		ug/L	250	81	50 - 154	8073196	NRG1405-03
se[illegible]lbenzene	<0.140	60.6		ug/L	50.0	121	73 - 142	8073196	NRG1405-03
n-B[illegible]oenzene	<0.280	55.6		ug/L	50.0	111	64 - 147	8073196	NRG1405-03
tert-Butylbenzene	<0.330	58.4		ug/L	50.0	117	70 - 148	8073196	NRG1405-03
Carbon disulfide	<0.380	59.5		ug/L	50.0	119	79 - 147	8073196	NRG1405-03
Carbon Tetrachloride	<0.350	50.2		ug/L	50.0	100	62 - 165	8073196	NRG1405-03
Chlorobenzene	<0.180	52.7		ug/L	50.0	105	67 - 140	8073196	NRG1405-03
Chlorodibromomethane	<0.280	51.9		ug/L	50.0	104	72 - 123	8073196	NRG1405-03
Chloroethane	<0.450	48.2		ug/L	50.0	96	74 - 151	8073196	NRG1405-03
Chloroform	<0.280	51.8		ug/L	50.0	104	59 - 152	8073196	NRG1405-03
Chloromethane	<0.380	54.8		ug/L	50.0	110	33 - 138	8073196	NRG1405-03
2-Chlorotoluene	<0.300	59.0		ug/L	50.0	118	76 - 134	8073196	NRG1405-03
4-Chlorotoluene	<0.330	57.8		ug/L	50.0	116	80 - 133	8073196	NRG1405-03
1,2-Dibromo-3-chloropropane	<0.860	53.0		ug/L	50.0	106	60 - 136	8073196	NRG1405-03
1,2-Dibromoethane (EDB)	<0.390	54.0		ug/L	50.0	108	80 - 132	8073196	NRG1405-03
Dibromomethane	<0.350	49.4		ug/L	50.0	99	79 - 131	8073196	NRG1405-03
1,4-Dichlorobenzene	<0.380	54.6		ug/L	50.0	109	80 - 126	8073196	NRG1405-03
1,3-Dichlorobenzene	<0.350	58.6		ug/L	50.0	117	75 - 132	8073196	NRG1405-03
1,2-Dichlorobenzene	<0.500	54.7		ug/L	50.0	109	80 - 130	8073196	NRG1405-03
Dichlorodifluoromethane	<0.460	43.5		ug/L	50.0	87	36 - 146	8073196	NRG1405-03
1,1-Dichloroethane	<0.540	50.2		ug/L	50.0	100	76 - 131	8073196	NRG1405-03
1,2-Dichloroethane	<0.370	47.5		ug/L	50.0	95	53 - 146	8073196	NRG1405-03
cis-1,2-Dichloroethene	4.67	54.5		ug/L	50.0	100	76 - 141	8073196	NRG1405-03
1,1-Dichloroethene	<0.340	49.5		ug/L	50.0	99	63 - 157	8073196	NRG1405-03
tra[illegible]-Dichloroethene	<0.470	51.1		ug/L	50.0	102	78 - 137	8073196	NRG1405-03
1,3-Dichloropropane	<0.290	49.6		ug/L	50.0	99	76 - 130	8073196	NRG1405-03

C t:	Solutions-IES, Inc (427297)	Work Order:	NRG1541	Sampled:	07/15/08
	1101 Nowell Road	Project:	NAS Pensacola	Received:	07/17/08
	Raleigh, NC 27607	Project Number:	[none]		
Attn:	Jessica Dehart				

PROJECT QUALITY CONTROL DATA
Matrix Spike Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	RPD	RPD Limit	Q.C. Batch	Sample Duplicated
General Chemistry Parameters										
Iron, ferrous	3.08	4.13	J4	mg/L	1.00	105	163	20	8073679	NRG1538-01
Sulfate	19.8	47.9		mg/L	30.0	93	0.5	20	8073150	NRG1544-03
Total Organic Carbon	4.75	28.0		mg/L	20.0	116	0.3	20	8072839	NRG1541-01
Total Metals by EPA Method 6010B										
Chromium	<0.00200	0.199		mg/L	0.200	100	0.3	20	8073249	NRG1680-03
Volatile Organic Compounds by EPA Method 8260B										
Acetone	<25.0	197		ug/L	250	79	1	29	8073196	NRG1405-03
Benzene	<0.270	51.0		ug/L	50.0	102	2	23	8073196	NRG1405-03
Bromobenzene	<0.360	53.7		ug/L	50.0	107	2	18	8073196	NRG1405-03
Bromochloromethane	<0.400	47.7		ug/L	50.0	95	2	18	8073196	NRG1405-03
Bromodichloromethane	<0.350	48.6		ug/L	50.0	97	0.2	18	8073196	NRG1405-03
Bromoform	<0.430	50.5		ug/L	50.0	101	1	24	8073196	NRG1405-03
Bromomethane	<0.420	48.7		ug/L	50.0	97	1	45	8073196	NRG1405-03
2-Butanone	<2.40	197		ug/L	250	79	3	36	8073196	NRG1405-03
se lbenzene	<0.140	59.3		ug/L	50.0	119	2	17	8073196	NRG1405-03
n-Butylbenzene	<0.280	54.2		ug/L	50.0	108	3	18	8073196	NRG1405-03
tert-Butylbenzene	<0.330	57.5		ug/L	50.0	115	2	17	8073196	NRG1405-03
Carbon disulfide	<0.380	58.4		ug/L	50.0	117	2	16	8073196	NRG1405-03
Carbon Tetrachloride	<0.350	50.0		ug/L	50.0	100	0.4	29	8073196	NRG1405-03
Chlorobenzene	<0.180	51.7		ug/L	50.0	103	2	27	8073196	NRG1405-03
Chlorodibromomethane	<0.280	51.0		ug/L	50.0	102	2	21	8073196	NRG1405-03
Chloroethane	<0.450	47.0		ug/L	50.0	94	2	32	8073196	NRG1405-03
Chloroform	<0.280	50.7		ug/L	50.0	101	2	28	8073196	NRG1405-03
Chloromethane	<0.380	56.0		ug/L	50.0	112	2	21	8073196	NRG1405-03
2-Chlorotoluene	<0.300	58.4		ug/L	50.0	117	1	16	8073196	NRG1405-03
4-Chlorotoluene	<0.330	57.2		ug/L	50.0	114	1	17	8073196	NRG1405-03
1,2-Dibromo-3-chloropropane	<0.860	52.2		ug/L	50.0	104	2	29	8073196	NRG1405-03
1,2-Dibromoethane (EDB)	<0.390	53.0		ug/L	50.0	106	2	21	8073196	NRG1405-03
Dibromomethane	<0.350	48.1		ug/L	50.0	96	3	20	8073196	NRG1405-03
1,4-Dichlorobenzene	<0.380	53.4		ug/L	50.0	107	2	19	8073196	NRG1405-03
1,3-Dichlorobenzene	<0.350	57.3		ug/L	50.0	115	2	18	8073196	NRG1405-03
1,2-Dichlorobenzene	<0.500	53.5		ug/L	50.0	107	2	23	8073196	NRG1405-03
Dichlorodifluoromethane	<0.460	43.3		ug/L	50.0	87	0.6	14	8073196	NRG1405-03
1,1-Dichloroethane	<0.540	48.9		ug/L	50.0	98	3	15	8073196	NRG1405-03
1,2-Dichloroethane	<0.370	46.9		ug/L	50.0	94	1	26	8073196	NRG1405-03
cis-1,2-Dichloroethene	4.67	54.1		ug/L	50.0	99	0.7	14	8073196	NRG1405-03
1,1-Dichloroethene	<0.340	48.7		ug/L	50.0	97	2	26	8073196	NRG1405-03
tr -Dichloroethene	<0.470	50.0		ug/L	50.0	100	2	14	8073196	NRG1405-03
1,3-Dichloropropane	<0.290	48.5		ug/L	50.0	97	2	21	8073196	NRG1405-03

Client:	Solutions-IES, Inc (427297) 1101 Nowell Road Raleigh, NC 27607	Work Order:	NRG1541	Sampled:	07/15/08
		Project:	NAS Pensacola	Received:	07/17/08
		Project Number:	[none]		
Attn:	Jessica Dehart				

CERTIFICATION SUMMARY

TestAmerica Nashville

Method	Matrix	A2LA	AIHA	Nelac	Florida
EPA 300.0	Water		N/A	X	X
SM 3500Fe D	Water			X	X
SW846 6010B	Water	X	N/A	X	X
SW846 8260B	Water	X	N/A	X	X
SW846 9060A	Water				

DATA QUALIFIERS AND DEFINITIONS

HTI	The holding time for this test is immediate. The laboratory measurement, therefore, may not be suitable for compliance purposes.
I	The reported value is between the laboratory method detection limit and method reporting limit.
J4	The sample matrix interfered with the ability to make an accurate determination.
MNR1	There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike.
U	The compound was analyzed for but not detected
V	The analyte was detected in both the sample and the associated method blank.

ADDITIONAL COMMENTS

When insufficient sample volume is received for Matrix Spike and Matrix Spike Duplicate, Laboratory Control Spike and Laboratory Control Spike Duplicate data is used for batch QC.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Nashville Division
2960 Foster Creighton Drive * Nashville TN 37204
Phone: (800) 765-0980 / (615) 726-0177 Fax:(615) 726-3404

1 of 1

Page _____ of _____

Client: Solutions-IES, Inc (427297)
Address: 1101 Nowell Road
City, State, Zip: Raleigh NC 27607
Client Invoice Contact: Jessica Dehart
Client Project Mgr: Jessica Dehart
Client Telephone#: (919) 873-1060 Fax: (919) 873-1074
Sampler Name (Print): Tim Parker
SamplerSignature: Tim Parker

TA Account #: 427297 PO #:
Invoice to: Solutions-IES, Inc (427297)
Report to: Jessica Dehart
Project Name: NAS Pensacola
Facility ID: [none]
Site Address:
City,State,Zip: Florida
Regulatory District (CA):

Sample ID	Date Sampled	Time Sampled	# Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	(Blue Label) HCL	(Orange Label) NaOH	(Yellow Label) Plastic H2SO4	(Yellow Label) Glass H2SO4	(Red Label) HNO3	(Black Label) None	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	(specify) Other	Analyze for: 8260B Volatile Organics	Chromium Total EPA 6010B	Sulfate by IC 300.0	TOC 9060A	Ferrous Iron	RUSH TAT (Pre Schedule) *
AE-01	7/15/08	12:10	7	X					X				X		X						X	X	X	X	X	-1
GM-66R	↓	15:15	↓	↓					↓				↓		↓						↓	↓	↓	↓	↓	-2
SI-01		17:10																								-3
SI-02		18:20																								-4

NRG1541
07/31/08 23:59

COMMENTS: All turn around times are calculated from the time of receipt at TestAmerica.
* Pre-Arrangements must be made AT LEAST 48 Hours in ADVANCE to receive results with RUSH turn around time commitments;additional charges may be assessed.
There may be a charge assessed for TestAmerica disposing of sample remainders.

NOTES/SPECIAL INSTRUCTIONS: BO # 10894
Please analyze for Ferrous Iron. It is not stated in previous documents.

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Relinquished by:	Date:	Time:
Tim Park	7/16/08	14:00						

Shipped Via: Fed Ex 971023201695
Shipped Via:
QC Deliverables (Please Circle One): Level 2 Level 3 Level 4 Site Specific (If site specific, please pre-schedule w/ TestAmerica Project Manager or attach specific instructions)
Date Due of Report:

Received for TestAmerica by: Date: 7-17-08 Time: 0815
Temperature Upon Receipt: 0.2
Sample Containers Intact? Y N
VOCs Free Headspace? Y N

MICROBIAL INSIGHTS, INC.

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel. (865) 573-8188 Fax. (865) 573-8133

Q Potential (DNA)

Client: **Solutions IES**
Project: NAS Pensacola

MI Project Number: **067FL**
Date Received: 12/30/2008

Sample Information

Client Sample ID:		**AE01**	**S1-01**	**S1-02**	**GM-66R**
Sample Date:		12/28/2008	12/28/2008	12/28/2008	12/28/2008
Units:		cells/mL	cells/mL	cells/mL	cells/mL
Dechlorinating Bacteria					
Dehalococcoides spp.	DHC	**3.4E+00**	<9.00E-01	<9.00E-01	<5.00E-01
Desulfuromonas spp.	DSM	<1.00E+00	<1.90E+00	**1.60E+00 (J)**	<9.00E-01
Dehalobacter spp.	DHB	<1.00E+00	<1.90E+00	<1.80E+00	<9.00E-01
Desulfitobacterium spp.	DSB	**7.63E+01**	**4.31E+01**	**7.17E+02**	**1.83E+03**
Functional Genes					
tceA Reductase	TCE	**7E-01**	<9.00E-01	<9.00E-01	<5.00E-01
bvcA Reductase	BVC	<5.00E-01	<9.00E-01	<9.00E-01	<5.00E-01
Vinyl Chloride Reductase	VCR	<5.00E-01	<9.00E-01	<9.00E-01	<5.00E-01
Phylogenetic Group					
Iron and Sulfate Reducing	IRB/SRB	**9.31E+03**	<1.40E+00	**1.93E+04**	**3.44E+03**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

microbialinsights

2340 Stock Creek Blvd.
Rockford TN 37853-3044
Phone: (865) 573-8188
Fax: (865) 573-8133
Email: info@microbe.com

Client: Jessica Dehart
Solutions IES
1101 Nowell Road
Raleigh, NC 27607

Phone: (919) 873-1060

Fax: (919) 873-1074

Identifier: 071GC **Date Rec:** 03/26/2009 **Report Date:** 04/01/2009

Client Project #: 3910.07A3.NAVF **Client Project Name:** NAS Pensacola

Purchase Order #:

Analysis Requested: CENSUS

Comments:

Reviewed By:

Anita Biernacki

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.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 400-38804-1

SDG Number: 3910.07A3.NAVF

Job Description: Pensacola NAS

For:
Solutions Industrial & Environmental Ser
1101 Nowell Road
Raleigh, NC 27607

Attention: Ms. Jessica Dehart

Approved for release.
Cheyenne Whitmire
Project Manager I
4/7/2009 12:36 PM

Cheyenne Whitmire
Project Manager I
cheyenne.whitmire@testamericainc.com
04/07/2009

The test results in this report meet all NELAP requirements for accredited parameters and relate only to the referenced samples. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without written approval from the laboratory.

TestAmerica Pensacola Certifications and Approvals: Alabama (40150), Arizona (AZ0710), Arkansas (88-0689), Florida (E81010), Illinois (200041), Iowa (367), Kansas (E-10253), Kentucky UST (53), Louisiana (30748), Maryland (233), Massachusetts (M-FL094), Michigan (9912), New Hampshire (250507), New Jersey (FL006), North Carolina (314), North Dakota (R-108), Oklahoma (9810), Pennsylvania (68-00467), Rhode Island (LAO00307), South Carolina (96026), Tennessee (TN02907), Texas (T104704286-08-TX), Virginia (00008), Washington (C2043), West Virginia (136), USDA Foreign Soil Permit (P330-08-00006).

METHOD SUMMARY

Client: Solutions Industrial & Environmental Ser

Job Number: 400-38804-1
Sdg Number: 3910.07A3.NAVF

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL PEN	SW846 8260B	
Purge and Trap	TAL PEN		SW846 5030B
Sulfate	TAL PEN	MCAWW 375.4	
Sulfide	TAL MOB	MCAWW 376.2	
TOC	TAL PEN	MCAWW 415.1	

Lab References:

TAL MOB = TestAmerica Mobile

TAL PEN = TestAmerica Pensacola

Method References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: Solutions Industrial & Environmental Ser

Job Number: 400-38804-1
Sdg Number: 3910.07A3.NAVF

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
400-38804-1	GM-66R	Water	03/24/2009 1012	03/25/2009 1510
400-38804-2	SI-02	Water	03/24/2009 1119	03/25/2009 1510
400-38804-3	SI-01	Water	03/24/2009 1349	03/25/2009 1510
400-38804-4	AE-01	Water	03/24/2009 1536	03/25/2009 1510
400-38804-5TB	TRIP BLANK	Water	03/24/2009 0000	03/25/2009 1510

Client: Solutions Industrial & Environmental Ser

Job Number: 400-38804-1
Sdg Number: 3910.07A3.NAVF

Client Sample ID: **GM-66R**

Lab Sample ID: 400-38804-1
Client Matrix: Water

Date Sampled: 03/24/2009 1012
Date Received: 03/25/2009 1510

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B
Preparation: 5030B
Dilution: 25
Date Analyzed: 04/03/2009 1142
Date Prepared: 04/03/2009 1142

Analysis Batch: 400-87438

Instrument ID: GC/MS
Lab File ID: 8051015.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	PQL
Benzene	7.5	U	7.5	25
Bromobenzene	14	U	14	120
Bromochloromethane	12	U	12	120
Bromodichloromethane	12	U	12	120
Bromoform	14	U	14	120
Bromomethane	18	U	18	120
Carbon tetrachloride	12	U	12	120
Chlorobenzene	180		12	120
Chloroethane	12	U	12	120
Chloroform	12	U	12	120
Chloromethane	13	U	13	120
ᵓ-Chlorotoluene	14	U	14	120
ᵣ-Chlorotoluene	14	U	14	120
Dibromochloromethane	12	U	12	120
Dibromomethane	12	U	12	120
Ethylene Dibromide	12	U	12	120
1,2-Dichlorobenzene	36	I	12	120
1,3-Dichlorobenzene	14	U	14	120
1,4-Dichlorobenzene	16	U	16	120
Dichlorodifluoromethane	20	U	20	120
1,1-Dichloroethane	14	I	12	120
1,2-Dichloroethane	12	U	12	120
1,1-Dichloroethene	24	I	12	120
cis-1,2-Dichloroethene	260		12	120
trans-1,2-Dichloroethene	12	U	12	120
1,2-Dichloropropane	12	U	12	120
1,3-Dichloropropane	12	U	12	120
2,2-Dichloropropane	12	U J3	12	120
cis-1,3-Dichloropropene	12	U	12	120
trans-1,3-Dichloropropene	12	U	12	120
Ethylbenzene	12	U	12	120
Hexachlorobutadiene	22	U	22	120
Isopropylbenzene	13	U	13	120
p-Cymene	18	U	18	120
Methylene Chloride	20	U	20	120
Methyl tert-butyl ether	18	U	18	120
Naphthalene	25	U	25	120
n-Butylbenzene	19	U	19	120
N-Propylbenzene	17	U	17	120
ec-Butylbenzene	18	U	18	120
Styrene	25	U	25	120
tert-Butylbenzene	15	U	15	120
1,1,1,2-Tetrachloroethane	12	U	12	120
1,1,2,2-Tetrachloroethane	12	U	12	120

Client: Solutions Industrial & Environmental Ser

Job Number: 400-38804-1
Sdg Number: 3910.07A3.NAVF

Client Sample ID: **SI-02**

Lab Sample ID: 400-38804-2
Client Matrix: Water

Date Sampled: 03/24/2009 1119
Date Received: 03/25/2009 1510

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B
Preparation: 5030B
Dilution: 5.0
Date Analyzed: 04/03/2009 1215
Date Prepared: 04/03/2009 1215

Analysis Batch: 400-87438

Instrument ID: GC/MS
Lab File ID: 8051017.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	PQL
Benzene	1.5	U	1.5	5.0
Bromobenzene	2.7	U	2.7	25
Bromochloromethane	2.5	U	2.5	25
Bromodichloromethane	2.5	U	2.5	25
Bromoform	2.9	U	2.9	25
Bromomethane	3.6	U	3.6	25
Carbon tetrachloride	2.5	U	2.5	25
Chlorobenzene	43		2.5	25
Chloroethane	2.5	U	2.5	25
Chloroform	2.5	U	2.5	25
Chloromethane	2.6	U	2.6	25
-Chlorotoluene	2.8	U	2.8	25
-Chlorotoluene	2.8	U	2.8	25
Dibromochloromethane	2.5	U	2.5	25
Dibromomethane	2.5	U	2.5	25
Ethylene Dibromide	2.5	U	2.5	25
1,2-Dichlorobenzene	2.5	U	2.5	25
1,3-Dichlorobenzene	2.7	U	2.7	25
1,4-Dichlorobenzene	3.2	U	3.2	25
Dichlorodifluoromethane	4.0	U	4.0	25
1,1-Dichloroethane	9.6	I	2.5	25
1,2-Dichloroethane	2.5	U	2.5	25
1,1-Dichloroethene	2.5	U	2.5	25
cis-1,2-Dichloroethene	120		2.5	25
trans-1,2-Dichloroethene	2.5	U	2.5	25
1,2-Dichloropropane	2.5	U	2.5	25
1,3-Dichloropropane	2.5	U	2.5	25
2,2-Dichloropropane	2.5	U J3	2.5	25
cis-1,3-Dichloropropene	2.5	U	2.5	25
trans-1,3-Dichloropropene	2.5	U	2.5	25
Ethylbenzene	2.5	U	2.5	25
Hexachlorobutadiene	4.5	U	4.5	25
Isopropylbenzene	2.6	U	2.6	25
p-Cymene	3.6	U	3.6	25
Methylene Chloride	4.0	U	4.0	25
Methyl tert-butyl ether	3.7	U	3.7	25
Naphthalene	5.0	U	5.0	25
n-Butylbenzene	3.8	U	3.8	25
N-Propylbenzene	3.4	U	3.4	25
ec-Butylbenzene	3.5	U	3.5	25
Styrene	5.0	U	5.0	25
tert-Butylbenzene	3.0	U	3.0	25
1,1,1,2-Tetrachloroethane	2.5	U	2.5	25
1,1,2,2-Tetrachloroethane	2.5	U	2.5	25

Client: Solutions Industrial & Environmental Ser

Job Number: 400-38804-1
Sdg Number: 3910.07A3.NAVF

Client Sample ID: **SI-01**

Lab Sample ID: 400-38804-3
Client Matrix: Water

Date Sampled: 03/24/2009 1349
Date Received: 03/25/2009 1510

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B
Preparation: 5030B
Dilution: 25
Date Analyzed: 04/03/2009 1249
Date Prepared: 04/03/2009 1249

Analysis Batch: 400-87438

Instrument ID: GC/MS
Lab File ID: 8051019.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	PQL
Benzene	7.5	U	7.5	25
Bromobenzene	14	U	14	120
Bromochloromethane	12	U	12	120
Bromodichloromethane	12	U	12	120
Bromoform	14	U	14	120
Bromomethane	18	U	18	120
Carbon tetrachloride	12	U	12	120
Chlorobenzene	20	I	12	120
Chloroethane	12	U	12	120
Chloroform	12	U	12	120
Chloromethane	13	U	13	120
2-Chlorotoluene	14	U	14	120
4-Chlorotoluene	14	U	14	120
Dibromochloromethane	12	U	12	120
Dibromomethane	12	U	12	120
Ethylene Dibromide	12	U	12	120
1,2-Dichlorobenzene	12	U	12	120
1,3-Dichlorobenzene	14	U	14	120
1,4-Dichlorobenzene	16	U	16	120
Dichlorodifluoromethane	20	U	20	120
1,1-Dichloroethane	12	U	12	120
1,2-Dichloroethane	12	U	12	120
1,1-Dichloroethene	12	U	12	120
cis-1,2-Dichloroethene	560		12	120
trans-1,2-Dichloroethene	12	U	12	120
1,2-Dichloropropane	12	U	12	120
1,3-Dichloropropane	12	U	12	120
2,2-Dichloropropane	12	U J3	12	120
cis-1,3-Dichloropropene	12	U	12	120
trans-1,3-Dichloropropene	12	U	12	120
Ethylbenzene	12	U	12	120
Hexachlorobutadiene	22	U	22	120
Isopropylbenzene	13	U	13	120
p-Cymene	18	U	18	120
Methylene Chloride	20	U	20	120
Methyl tert-butyl ether	18	U	18	120
Naphthalene	25	U	25	120
n-Butylbenzene	19	U	19	120
N-Propylbenzene	17	U	17	120
sec-Butylbenzene	18	U	18	120
Styrene	25	U	25	120
tert-Butylbenzene	15	U	15	120
1,1,1,2-Tetrachloroethane	12	U	12	120
1,1,2,2-Tetrachloroethane	12	U	12	120

Client: Solutions Industrial & Environmental Ser

Job Number: 400-38804-1
Sdg Number: 3910.07A3.NAVF

Client Sample ID: **AE-01**

Lab Sample ID: 400-38804-4
Client Matrix: Water

Date Sampled: 03/24/2009 1536
Date Received: 03/25/2009 1510

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B
Preparation: 5030B
Dilution: 100
Date Analyzed: 04/03/2009 1322
Date Prepared: 04/03/2009 1322

Analysis Batch: 400-87438

Instrument ID: GC/MS
Lab File ID: 8051021.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	PQL
Benzene	30	U	30	100
Bromobenzene	54	U	54	500
Bromochloromethane	50	U	50	500
Bromodichloromethane	50	U	50	500
Bromoform	58	U	58	500
Bromomethane	73	U	73	500
Carbon tetrachloride	50	U	50	500
Chlorobenzene	50	U	50	500
Chloroethane	50	U	50	500
Chloroform	50	U	50	500
Chloromethane	53	U	53	500
2-Chlorotoluene	57	U	57	500
4-Chlorotoluene	56	U	56	500
Dibromochloromethane	50	U	50	500
Dibromomethane	50	U	50	500
Ethylene Dibromide	50	U	50	500
1,2-Dichlorobenzene	50	U	50	500
1,3-Dichlorobenzene	54	U	54	500
1,4-Dichlorobenzene	64	U	64	500
Dichlorodifluoromethane	79	U	79	500
1,1-Dichloroethane	50	U	50	500
1,2-Dichloroethane	50	U	50	500
1,1-Dichloroethene	50	U	50	500
cis-1,2-Dichloroethene	1200		50	500
trans-1,2-Dichloroethene	50	U	50	500
1,2-Dichloropropane	50	U	50	500
1,3-Dichloropropane	50	U	50	500
2,2-Dichloropropane	50	U J3	50	500
cis-1,3-Dichloropropene	50	U	50	500
trans-1,3-Dichloropropene	50	U	50	500
Ethylbenzene	50	U	50	500
Hexachlorobutadiene	90	U	90	500
Isopropylbenzene	53	U	53	500
p-Cymene	71	U	71	500
Methylene Chloride	81	U	81	500
Methyl tert-butyl ether	74	U	74	500
Naphthalene	100	U	100	500
n-Butylbenzene	76	U	76	500
N-Propylbenzene	69	U	69	500
sec-Butylbenzene	70	U	70	500
Styrene	100	U	100	500
tert-Butylbenzene	61	U	61	500
1,1,1,2-Tetrachloroethane	50	U	50	500
1,1,2,2-Tetrachloroethane	50	U	50	500

Client: Solutions Industrial & Environmental Ser

Job Number: 400-38804-1
Sdg Number: 3910.07A3.NAVF

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 400-38804-5TB
Client Matrix: Water

Date Sampled: 03/24/2009 0000
Date Received: 03/25/2009 1510

8260B Volatile Organic Compounds (GC/MS)

Method: 8260B
Preparation: 5030B
Dilution: 1.0
Date Analyzed: 04/03/2009 1356
Date Prepared: 04/03/2009 1356

Analysis Batch: 400-87438

Instrument ID: GC/MS
Lab File ID: 8051023.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	PQL
Benzene	0.30	U	0.30	1.0
Bromobenzene	0.54	U	0.54	5.0
Bromochloromethane	0.50	U	0.50	5.0
Bromodichloromethane	0.50	U	0.50	5.0
Bromoform	0.58	U	0.58	5.0
Bromomethane	0.73	U	0.73	5.0
Carbon tetrachloride	0.50	U	0.50	5.0
Chlorobenzene	0.50	U	0.50	5.0
Chloroethane	0.50	U	0.50	5.0
Chloroform	0.50	U	0.50	5.0
Chloromethane	0.53	U	0.53	5.0
?-Chlorotoluene	0.57	U	0.57	5.0
4-Chlorotoluene	0.56	U	0.56	5.0
Dibromochloromethane	0.50	U	0.50	5.0
Dibromomethane	0.50	U	0.50	5.0
Ethylene Dibromide	0.50	U	0.50	5.0
1,2-Dichlorobenzene	0.50	U	0.50	5.0
1,3-Dichlorobenzene	0.54	U	0.54	5.0
1,4-Dichlorobenzene	0.64	U	0.64	5.0
Dichlorodifluoromethane	0.79	U	0.79	5.0
1,1-Dichloroethane	0.50	U	0.50	5.0
1,2-Dichloroethane	0.50	U	0.50	5.0
1,1-Dichloroethene	0.50	U	0.50	5.0
cis-1,2-Dichloroethene	0.50	U	0.50	5.0
trans-1,2-Dichloroethene	0.50	U	0.50	5.0
1,2-Dichloropropane	0.50	U	0.50	5.0
1,3-Dichloropropane	0.50	U	0.50	5.0
2,2-Dichloropropane	0.50	U J3	0.50	5.0
cis-1,3-Dichloropropene	0.50	U	0.50	5.0
trans-1,3-Dichloropropene	0.50	U	0.50	5.0
Ethylbenzene	0.50	U	0.50	5.0
Hexachlorobutadiene	0.90	U	0.90	5.0
Isopropylbenzene	0.53	U	0.53	5.0
p-Cymene	0.71	U	0.71	5.0
Methylene Chloride	0.81	U	0.81	5.0
Methyl tert-butyl ether	0.74	U	0.74	5.0
Naphthalene	1.0	U	1.0	5.0
n-Butylbenzene	0.76	U	0.76	5.0
N-Propylbenzene	0.69	U	0.69	5.0
ec-Butylbenzene	0.70	U	0.70	5.0
Styrene	1.0	U	1.0	5.0
tert-Butylbenzene	0.61	U	0.61	5.0
1,1,1,2-Tetrachloroethane	0.50	U	0.50	5.0
1,1,2,2-Tetrachloroethane	0.50	U	0.50	5.0

Client: Solutions Industrial & Environmental Ser

Job Number: 400-38804-1
Sdg Number: 3910.07A3.NAVF

General Chemistry

Client Sample ID: **SI-01**

Lab Sample ID: 400-38804-3
Client Matrix: Water

Date Sampled: 03/24/2009 1349
Date Received: 03/25/2009 1510

Analyte	Result	Qual	Units	MDL	PQL	Dil	Method
Sulfate	3100		mg/L	45	500	100	375.4
	Anly Batch: 400-87591	Date Analyzed		04/07/2009 0859			
Sulfide	0.036	U	mg/L	0.036	0.10	1.0	376.2
	Anly Batch: 700-65474	Date Analyzed		03/27/2009 1515			
Total Organic Carbon	2500	V	mg/L	21	100	100	415.1
	Anly Batch: 400-87241	Date Analyzed		03/31/2009 1540			

QUALITY CONTROL RESULTS

Client: Solutions Industrial & Environmental Ser

Job Number: 400-38804-1
Sdg Number: 3910.07A3.NAVF

Method Blank - Batch: 400-87438

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 400-87438/1	Analysis Batch:	400-87438	Instrument ID:	GC/MS
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	8051007.D
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	5 mL
Date Analyzed:	04/03/2009 0927			Final Weight/Volume:	5 mL
Date Prepared:	04/03/2009 0927				

Analyte	Result	Qual	MDL	PQL
Benzene	0.30	U	0.30	1.0
Bromobenzene	0.54	U	0.54	5.0
Bromochloromethane	0.50	U	0.50	5.0
Bromodichloromethane	0.50	U	0.50	5.0
Bromoform	0.58	U	0.58	5.0
Bromomethane	0.73	U	0.73	5.0
Carbon tetrachloride	0.50	U	0.50	5.0
Chlorobenzene	0.50	U	0.50	5.0
Chloroethane	0.50	U	0.50	5.0
Chloroform	0.50	U	0.50	5.0
Chloromethane	0.53	U	0.53	5.0
2-Chlorotoluene	0.57	U	0.57	5.0
4-Chlorotoluene	0.56	U	0.56	5.0
Dibromochloromethane	0.50	U	0.50	5.0
Dibromomethane	0.50	U	0.50	5.0
Ethylene Dibromide	0.50	U	0.50	5.0
1,2-Dichlorobenzene	0.50	U	0.50	5.0
1,3-Dichlorobenzene	0.54	U	0.54	5.0
1,4-Dichlorobenzene	0.64	U	0.64	5.0
Dichlorodifluoromethane	0.79	U	0.79	5.0
1,1-Dichloroethane	0.50	U	0.50	5.0
1,2-Dichloroethane	0.50	U	0.50	5.0
1,1-Dichloroethene	0.50	U	0.50	5.0
cis-1,2-Dichloroethene	0.50	U	0.50	5.0
trans-1,2-Dichloroethene	0.50	U	0.50	5.0
1,2-Dichloropropane	0.50	U	0.50	5.0
1,3-Dichloropropane	0.50	U	0.50	5.0
2,2-Dichloropropane	0.50	U	0.50	5.0
cis-1,3-Dichloropropene	0.50	U	0.50	5.0
trans-1,3-Dichloropropene	0.50	U	0.50	5.0
Ethylbenzene	0.50	U	0.50	5.0
Hexachlorobutadiene	0.90	U	0.90	5.0
Isopropylbenzene	0.53	U	0.53	5.0
p-Cymene	0.71	U	0.71	5.0
Methylene Chloride	0.81	U	0.81	5.0
Methyl tert-butyl ether	0.74	U	0.74	5.0
Naphthalene	1.0	U	1.0	5.0
n-Butylbenzene	0.76	U	0.76	5.0
N-Propylbenzene	0.69	U	0.69	5.0
sec-Butylbenzene	0.70	U	0.70	5.0
Styrene	1.0	U	1.0	5.0

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Solutions Industrial & Environmental Ser

Job Number: 400-38804-1
Sdg Number: 3910.07A3.NAVF

Lab Control Spike - Batch: 400-87438

Method: 8260B
Preparation: 5030B

Lab Sample ID: LCS 400-87438/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 04/03/2009 1001
Date Prepared: 04/03/2009 1001

Analysis Batch: 400-87438
Prep Batch: N/A
Units: ug/L

Instrument ID: GC/MS
Lab File ID: 8051009.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Benzene	50.0	50.4	101	80 - 117	
Bromobenzene	50.0	54.7	109	74 - 113	
Bromochloromethane	50.0	46.2	92	71 - 118	
Bromodichloromethane	50.0	54.0	108	79 - 127	
Bromoform	50.0	46.1	92	67 - 138	
Bromomethane	50.0	48.9	98	51 - 152	
Carbon tetrachloride	50.0	44.9	90	72 - 148	
Chlorobenzene	50.0	49.8	100	77 - 113	
Chloroethane	50.0	46.3	93	66 - 137	
Chloroform	50.0	52.3	105	75 - 116	
Chloromethane	50.0	35.5	71	47 - 146	
2-Chlorotoluene	50.0	49.9	100	68 - 116	
4-Chlorotoluene	50.0	55.3	111	59 - 132	
Dibromochloromethane	50.0	50.2	100	83 - 135	
Dibromomethane	50.0	48.4	97	80 - 114	
Ethylene Dibromide	50.0	46.9	94	81 - 120	
1,2-Dichlorobenzene	50.0	51.9	104	71 - 117	
1,3-Dichlorobenzene	50.0	52.7	105	68 - 118	
1,4-Dichlorobenzene	50.0	52.1	104	73 - 112	
Dichlorodifluoromethane	50.0	29.2	58	34 - 141	
1,1-Dichloroethane	50.0	52.1	104	70 - 117	
1,2-Dichloroethane	50.0	58.5	117	69 - 131	
1,1-Dichloroethene	50.0	41.5	83	75 - 125	
cis-1,2-Dichloroethene	50.0	46.1	92	73 - 117	
trans-1,2-Dichloroethene	50.0	44.3	89	72 - 119	
1,2-Dichloropropane	50.0	53.1	106	79 - 118	
1,3-Dichloropropane	50.0	50.7	101	80 - 121	
2,2-Dichloropropane	50.0	34.0	68	76 - 128	J3
cis-1,3-Dichloropropene	50.0	47.0	94	79 - 130	
trans-1,3-Dichloropropene	50.0	41.9	84	77 - 139	
Ethylbenzene	50.0	52.6	105	77 - 119	
Hexachlorobutadiene	50.0	59.7	119	66 - 128	
Isopropylbenzene	50.0	53.2	106	76 - 123	
Methylene Chloride	50.0	49.7	99	76 - 129	
Methyl tert-butyl ether	50.0	44.2	88	67 - 128	
Naphthalene	50.0	28.3	57	46 - 125	
n-Butylbenzene	50.0	57.8	116	72 - 126	
N-Propylbenzene	50.0	50.9	102	63 - 120	
sec-Butylbenzene	50.0	50.8	102	70 - 120	
Styrene	50.0	52.2	104	79 - 121	
tert-Butylbenzene	50.0	56.8	114	71 - 115	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Solutions Industrial & Environmental Ser

Job Number: 400-38804-1
Sdg Number: 3910.07A3.NAVF

Method Blank - Batch: 400-87591

Method: 375.4
Preparation: N/A

Lab Sample ID:	MB 400-87591/1	Analysis Batch:	400-87591	Instrument ID:	Konelab 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Units:	mg/L	Initial Weight/Volume:	1.0 mL
Date Analyzed:	04/06/2009 1621			Final Weight/Volume:	1.0 mL
Date Prepared:	N/A				

Analyte	Result	Qual	MDL	PQL
Sulfate	0.45	U	0.45	5.0

Lab Control Spike - Batch: 400-87591

Method: 375.4
Preparation: N/A

Lab Sample ID:	LCS 400-87591/2	Analysis Batch:	400-87591	Instrument ID:	Konelab 1
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Units:	mg/L	Initial Weight/Volume:	1.0 mL
Date Analyzed:	04/06/2009 1621			Final Weight/Volume:	10 mL
Date Prepared:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Sulfate	20.0	19.3	96	90 - 110	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Solutions Industrial & Environmental Ser

Job Number: 400-38804-1
Sdg Number: 3910.07A3.NAVF

Method Blank - Batch: 400-87241

Method: 415.1
Preparation: N/A

Lab Sample ID: MB 400-87241/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/31/2009 1311
Date Prepared: N/A

Analysis Batch: 400-87241
Prep Batch: N/A
Units: mg/L

Instrument ID: OI Analytical TOC 1
Lab File ID: N/A
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 1.0 mL

Analyte	Result	Qual	MDL	PQL
Total Organic Carbon	0.24	I	0.21	1.0

Lab Control Spike - Batch: 400-87241

Method: 415.1
Preparation: N/A

Lab Sample ID: LCS 400-87241/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/31/2009 1005
Date Prepared: N/A

Analysis Batch: 400-87241
Prep Batch: N/A
Units: mg/L

Instrument ID: OI Analytical TOC 1
Lab File ID: N/A
Initial Weight/Volume: 1.0 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Total Organic Carbon	10.0	10.7	107	90 - 110	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Login Sample Receipt Check List

C' Solutions Industrial & Environmental Ser

Job Number: 400-38804-1
SDG Number: 3910.07A3.NAVF

Login Number: 38804
Creator: Chea, Vanda
List Number: 1

List Source: TestAmerica Pensacola

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	1.9°C
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Ap[illegible]priate sample containers are used.	True	
S[illegible] bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

APPENDIX D

WELL COMPLETION FORMS

T20090015-20 Completion

WELL COMPLETION REPORT (Please complete in black ink or type.)

PERMIT # _____ CUP/ WUP # _____ DID # _____

If permit is for multiple wells indicate the number of wells drilled 6.

Indicate remaining wells to be cancelled _____.

WATER WELL CONTRACTOR'S SIGNATURE _____ LICENSE # 11304

I certify that the information provided in this report is accurate and true.

Grout	No. of Bags	From (Ft.)	To (Ft.)
Neat Cement:	NA		
Bentonite:			

WELL LOCATION: County ESCAMBIA

SE 1:4 of NE 1:4 of Section 01 Twp: 3S Rge: 30W

Latitude 30 21 47.77 Longitude 87 15 54.84

DATE STAMP

Official Use Only

Sketch of well location on property

N

SEE ATTACHED

Give distances from septic tank and house or other reference points.

CHEMICAL ANALYSIS WHEN REQUIRED

Iron: ___ ppm Sulfate: _____ ppm

Chloride: ____ ppm

[ ] Lab Test [ ] Field Test Kit

Pump Type

[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine

Horsepower _____ Capacity _____ G.P.M. _____

Pump Depth _____ Ft. Intake Depth _____Ft.

OWNER'S NAME United States Government Dept of Navy

COMPLETION DATE 10/21/08 Florida Unique I.D. _____

WELL USE: DEP/Public ____ Irrigation _____ Domestic ____ Monitor ____

HRS Limited ____ 62-524 _____ Other Inj. √(4)(b)

DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination

[ ] Jet [ ] Auger Other Direct Push

Measured Static Water Level _____ Measured Pumping Water Level ____

After ___ Hours at ___G.P.M. Measuring Pt. (Describe): _____

Which is _____ Ft. [ ] Above [ ] Below Land Surface

Casing: [X] Black Steel [ ] Galv. [ ] PVC Other _____

[ ] Open Hole [ ] Screen Casing Diameter & Depth (Ft.)	Depth (Ft.) From	To	DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes. Note cavities, depth to producing zones. Color	Grain Size	Type of Material
Diameter 1-5"	0	0.5	brown	Med	Sand
From 0	0.5	0.8	dk brown	Med	Sand
To 36	0.8	2	orange	silty	Sand
	2	4	grey/wht	fine	sand
Diameter ___	4	12	white	Med	Sand
From _____	12	36	white	Fine/Med	sand
To _____	36	39.5	grey	fine/Med	Sand/Silty Clay
Screen [X] or					
Liner [ ] or					
Casing [ ]					
Diameter 1"					
From 36					
To 39.5					
Cased Depth					
Total Depth	39.5				

Driller's Name: *(print or type)* Joshua T. Clay

NWFWMD Form 114. Rev. 11/1/95 White – NWFWMD; Yellow – Owner; Pink – Drilling Contractor

T20090021-00026 Abandonment

WELL COMPLETION REPORT (Please complete in black ink or type.)

PERMIT # _____ CUP/ WUP # _____ DID # _____

If permit is for multiple wells indicate the number of wells drilled 6.

Indicate remaining wells to be cancelled _____.

WATER WELL CONTRACTOR'S SIGNATURE _____ LICENSE # 11304

I certify that the information provided in this report is accurate and true.

Grout	No. of Bags	From (Ft.)	To (Ft.)
Neat Cement:	0.5	0	3.0
Bentonite:	NA		

WELL LOCATION: County _____

____ 1:4 of ___ 1:4 of Section _____ Twp: _____ Rge: _____

Latitude _____ Longitude _____

DATE STAMP

Official Use Only

Sketch of well location on property

N

SEE ATTACHED

Give distances from septic tank and house or other reference points.

CHEMICAL ANALYSIS WHEN REQUIRED

Iron: ___ ppm Sulfate: _____ ppm

Chloride: ____ ppm

[ ] Lab Test [ ] Field Test Kit

Pump Type

[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine

Horsepower _____ Capacity _____ G.P.M. _____

Pump Depth _____ Ft. Intake Depth _____Ft.

OWNER'S NAME United States Government Dept of Navy

COMPLETION DATE 10/21/08 Florida Unique I.D. _____

WELL USE: DEP/Public ____ Irrigation _____ Domestic ____ Monitor ____

HRS Limited ____ 62-524 _____ Other Inj. √(4)(b)

DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination

[ ] Jet [ ] Auger Other DIRECT PUSH

Measured Static Water Level _____ Measured Pumping Water Level ____

After ___ Hours at ___G.P.M. Measuring Pt. (Describe): _____

Which is _____ Ft. [ ] Above [ ] Below Land Surface

Casing: [ ] Black Steel [ ] Galv. [ ] PVC Other _____

[ ] Open Hole [ ] Screen Casing Diameter & Depth (Ft.)	Depth (Ft.) From	To	DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes. Note cavities, depth to producing zones. Color	Grain Size	Type of Material
Diameter ___					
From _____			SAME AS		
To _____					
			T20090015		
Diameter ___					
From _____					
To _____					
Screen [ ] or					
Liner [ ] or					
Casing [ ]					
Diameter ___					
From _____					
To _____					
Cased Depth					
Total Depth					

Driller's Name: *(print or type)* Joshua T Clay

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

☐ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River

CHECK BOX FOR APPROPRIATE DISTRICT. ADDRESS ON BACK OF PERMIT FORM.

THIS FORM *MUST* BE FILLED OUT COMPLETELY.

The water well contractor is responsible for completing this form and forwarding the permit to the appropriate delegated county where applicable.

B/4

Permit No. T200900015-00020
Florida Unique I.D. _____
Permit Stipulations Required (See attached) ✓ See Attached
62-524 well ☐
CUP/WUP Application No. _____

ABOVE THIS LINE FOR OFFICIAL USE ONLY

1. United States Government Dept. of Navy - Pentagon Washington DC 20301
Owner, Legal Name of Entity if Corporation — Address — City — Zip — Telephone Number

2. Industrial Drive and Pat Bellinger Road, NAS Pensacola Pensacola, FL
Well Location — Address, Road Name or Number, City

3. Joshua Clay — 11304 — 9198731060
Well Drilling Contractor — License No. — Telephone No.

1101 Nowell Road
Address

Raleigh NC 27607
City — State — Zip

4. SE (smallest) 1/4 of NE (biggest) 1/4 of Section 01
(Indicate Well on Chart)

5. Township 3S Range 3W

6. Escambia, NA, NA, NA, NA
County — Subdivision Name — Lot — Block — Unit

7. Number of proposed wells 6 Check the use of well: (See back of permit for additional choices) _____ Domestic Monitor (type) _____
_____ Irrigation (type) (See Back) Public Water Supply (type) _____ List Other Injection Point V(4)(b)
Distance from septic system N/A ft. Description of facility Navy (See Back) Estimated start of construction date 10/20/2008

8. Application for: X New Construction ____ Repair/Modify ____ Abandonment _____ (Reason for Abandonment)

9. Estimated: Well Depth 42 bgs Casing Depth 35 bgs Screen Interval from 35 to 42
Casing Material: Blk-Steel / Gal / PVC Casing Diameter 1.5 in. Seal Material N/A

10. If applicable: Proposed Grouting Interval From ____ to ____ Seal Material _____
From ____ to ____ Seal Material _____
From ____ to ____ Seal Material _____

11. Telescope Casing ____ or Liner ____ (check one) Diameter _____
Blk-Steel / Galvanized / PVC Other (specify: _____

12. Method of Construction: ____ Rotary ____ Cable Tool ____ Combination
____ Auger X Other (specify:) Direct Push

13. Indicate total No. of wells on site N/A. List number of unused wells on site N/A.

14. Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application? ___No N/A ___Yes
(If yes, complete the following) CUP/WUP No. NA
District well I.D. No. _____
Latitude _____ Longitude _____
Data obtained from GPS ____ or map ____ or survey ____ (*map datum NAD 27* ____ *NAD 83* ____)

Draw a map of well location and indicate well site with an "X". Include known roads and landmarks; provide distances between well and landmarks.

North
SEE ATTACHED
West — East
South

15. I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code, and that a water use permit or artificial recharge permit, if needed, has been or will be obtained prior to commencement of well construction. I further certify that all information provided on this application is accurate and that I will obtain necessary approval from other federal, state, or local governments, if applicable. I agree to provide a well completion report to the District within 30 days after drilling or the permit expiration, whichever occurs first.

Signature of Contractor — 11304 License No.

I certify that I am the owner of the property, that the information provided is accurate, and that I am aware of my responsibilities under Chapter 373, Florida Statutes, to maintain or properly abandon this well; or, I certify that I am the agent for the owner, that the information provided is accurate, and that I have informed the owner of his responsibilities as stated above. Owner consents to personnel of the WMD or a representative access to the well site.

Joana Dehart — 9/29/08
Owner's or Agent's Signature — Date

DO NOT WRITE BELOW THIS LINE — FOR OFFICIAL USE ONLY

Approval Granted By: Lynn Thurer Issue Date: 10/16/08 Hydrologist Approval _____ Initials
Owner Number: _____ Fee Received: $ 210.00 Receipt No.: 3191 Check No.: 1895

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD. IT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL DRILLING OPERATIONS. ***This permit is valid for 90 days from date of issue.***

RECEIVED OCT - 2 2008 NWFWMD REGULATORY DIVISION

WHITE: ORIGINAL FILE
YELLOW: DRILLING CONTRACTOR
PINK: OWNER

NWFWMD Form No. 10. Rev. 11/1/95

Fold at this line in order that address is visible through envelope window

32508

Range - 30W

United States Government – Department of Navy
Bio-injection Wells
Specific Well Permit Conditions, Chapter 40A-3, FAC.
Permit No. T200900015-T200900020
(Addendum to NWFWMD Form 10)

_____1. Geological samples of well cuttings required, if performed.

_____2. Copy of Geophysical logs required, if performed.

_____3. Pump test required/ Number of hours _____.

_____4. Total well depth restricted to _____ feet.

_____5. Well casing depth restricted to _____ feet.

_____6. Pumping capacity of well restricted to _____ G.P.M.

_____ 7. Notify District 24 hours in advance of grouting well.

_____8. Grouting required from bottom of casing to land surface.

_____9. Copy of water quality analyses required for this well, if performed.

_____10. Water treatment system may be required for this well if contaminated.

_____11. Install antisyphon device on irrigation well used for application of chemicals as required by Section 487.064, FS.

__X__12. Other:

12A. The proposed wells shall be constructed and operated as described in the construction permits and the DEP approved Pilot System Plan, approval date May 7, 2008.

12B. The well points shall be properly abandoned upon injection of the solution.

IP-13-18 Abandonment...

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

☐ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River

CHECK BOX FOR APPROPRIATE DISTRICT. ADDRESS ON BACK OF PERMIT FORM.

THIS FORM *MUST* BE FILLED OUT COMPLETELY.

The water well contractor is responsible for completing this form and forwarding the permit to the appropriate delegated county where applicable.

B/4

Permit No. I2009 0002 1 - 00026
Florida Unique I.D. ____
Permit Stipulations Required (See attached) ✓ See attached.
62-524 well ☐
CUP/WUP Application No. ____

ABOVE THIS LINE FOR OFFICIAL USE ONLY

1. United States Government Dept. of Navy - Pentagon Washington D.C 20301
Owner, Legal Name of Entity if Corporation — Address — City — Zip — Telephone Number

2. Industrial Drive and Pat Bellinger Road, NAS Pensacola Pensacola, FL
Well Location — Address, Road Name or Number, City

3. Joshua Clay 11304 919 873 1060
Well Drilling Contractor — License No. — Telephone No.

1101 Nowell Road
Address

Raleigh NC 27607
City — State — Zip

4. SE (smallest) 1/4 of NE (biggest) 1/4 of Section 01

(Indicate Well on Chart)

5. Township 3S Range 31

Range - 30W 32508

6. Escambia, NA, NA, NA, NA
County — Subdivision Name — Lot — Block — Unit

Fold at this line in order that address is visible through envelope window

7. Number of proposed wells 6 Check the use of well: (See back of permit for additional choices) ____ Domestic Monitor (type) ____
____ Irrigation (type) (See Back) Public Water Supply (type) ____ List Other Injection Point V(4)(b)
Distance from septic system NA ft. Description of facility Navy (See Back) Estimated start of construction date 10/20/2008

8. Application for: ____ New Construction ____ Repair/Modify X Abandonment temporary Inj. Point (Reason for Abandonment)

9. Estimated: Well Depth 42 bgs Casing Depth 35 bgs Screen Interval from 35 to 42
Casing Material: Blk-Steel / Gal / PVC Casing Diameter 1.50 in. Seal Material ____

10. If applicable: Proposed Grouting Interval From 0 to N/A Seal Material cement (portland)
From ____ to ____ Seal Material ____
From ____ to ____ Seal Material ____

RECEIVED (Date Stamp) OCT - 2 2008 NWFWMD REGULATORY DIVISION

11. Telescope Casing ____ or Liner ____ (check one) Diameter ____
Blk-Steel / Galvanized / PVC Other (specify: ____

12. Method of Construction: ____ Rotary ____ Cable Tool ____ Combination
____ Auger X Other (specify:) Direct Push

13. Indicate total No. of wells on site N/A. List number of unused wells on site NA.

14. Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application? N/A No ____ Yes
(If yes, complete the following) CUP/WUP No. N/A
District well I.D. No. ____
Latitude ____ Longitude ____
Data obtained from GPS ____ or map ____ or survey ____ (*map datum NAD 27* ____ *NAD 83* ____)

Draw a map of well location and indicate well site with an "X". Identify known roads and landmarks; provide distances between well and landmarks.

North
West — SEE ATTACHED — East
South

15. I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code, and that a water use permit or artificial recharge permit, if needed, has been or will be obtained prior to commencement of well construction. I further certify that all information provided on this application is accurate and that I will obtain necessary approval from other federal, state, or local governments, if applicable. I agree to provide a well completion report to the District within 30 days after drilling or the permit expiration, whichever occurs first.

I certify that I am the owner of the property, that the information provided is accurate, and that I am aware of my responsibilities under Chapter 373, Florida Statutes, to maintain or properly abandon this well; or, I certify that I am the agent for the owner, that the information provided is accurate, and that I have informed the owner of his responsibilities as stated above. Owner consents to personnel of the WMD or a representative access to the well site.

Signature of Contractor — 11304 License No. — Joanna Dehart Owner's or Agent's Signature — 9/29/08 Date

DO NOT WRITE BELOW THIS LINE — FOR OFFICIAL USE ONLY

Approval Granted By: Lynn Thurier Issue Date: 10/16/08 Hydrologist Approval ____ Initials
Owner Number: ____ Fee Received: $ 60.00 Receipt No.: 3191 Check No.: 1895

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD. IT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL DRILLING OPERATIONS. ***This permit is valid for 90 days from date of issue.***

WHITE: ORIGINAL FILE
YELLOW: DRILLING CONTRACTOR
PINK: OWNER

NWFWMD Form No. 10. Rev. 11/1/95

United States Government – Department of Navy
Bio-injection Wells
Specific Well Permit Conditions, Chapter 40A-3, FAC.
Permit No. T200900021-T200900026
(Addendum to NWFWMD Form 10)

_____1. Geological samples of well cuttings required, if performed.

_____2. Copy of Geophysical logs required, if performed.

_____3. Pump test required/ Number of hours _____.

_____4. Total well depth restricted to _____ feet.

_____5. Well casing depth restricted to _____ feet.

_____6. Pumping capacity of well restricted to _____ G.P.M.

_____7. Notify District 24 hours in advance of grouting well.

_____8. Grouting required from bottom of casing to land surface.

_____9. Copy of water quality analyses required for this well, if performed.

_____10. Water treatment system may be required for this well if contaminated.

_____11. Install antisyphon device on irrigation well used for application of chemicals as required by Section 487.064, FS.

__X__12. Other:

12A. The proposed wells shall be constructed and operated as described in the construction permits and the DEP approved Pilot System Plan, approval date May 7, 2008.

12B. The well points shall be properly abandoned upon injection of the solution.

IP-1 - IP-12 completion

WELL COMPLETION REPORT

(Please complete in black ink or type.)

PERMIT # T200801941-52 CUP/WUP # _____ DID # _____

If permit is for multiple wells indicate the number of wells drilled 12.

Indicate remaining wells to be cancelled Ø.

WATER WELL CONTRACTOR'S SIGNATURE _____ LICENSE # 11304

I certify that the information provided in this report is accurate and true.

Grout	No. of Bags	From (Ft.)	To (Ft.)
Neat Cement:	0.5	0	3
Bentonite:	None	NA	NA

WELL LOCATION: County Escambia

SE 1:4 of NE 1:4 of Section 01 Twp: 3S Rge: 31

Latitude 30° 21' 47.77" Longitude 87° 15' 54.84"

DATE STAMP

Official Use Only

Sketch of well location on property

N

SEE ATTACHED

Give distances from septic tank and house or other reference points.

CHEMICAL ANALYSIS WHEN REQUIRED

Iron: ___ ppm Sulfate: ___ ppm

Chloride: ___ ppm

[ ] Lab Test [ ] Field Test Kit

Pump Type

[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine

Horsepower NA Capacity NA G.P.M. NA

Pump Depth NA Ft. Intake Depth NA Ft.

OWNER'S NAME United States Government Dept of NAVY

COMPLETION DATE 7/16-7/18 Florida Unique I.D. _____

WELL USE: DEP/Public ___ Irrigation ___ Domestic ___ Monitor ___

HRS Limited ___ 62-524 ___ Other Temp. inj. Point

DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination

[ ] Jet [ ] Auger Other Direct Push

Measured Static Water Level ___ Measured Pumping Water Level ___

After ___ Hours at ___ G.P.M. Measuring Pt. (Describe): _____

Which is ___ Ft. [ ] Above [ ] Below Land Surface

Casing: [X] Black Steel [ ] Galv. [ ] PVC Other Geoprobe Rod

[ ] Open Hole [ ] Screen Casing Diameter & Depth (Ft.)	Depth (Ft.) From	To	DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes. Note cavities, depth to producing zones. Color / Grain Size / Type of Material
Diameter 1.5"			
From 0			Same as
To 35			
			SI-01
Diameter ___			
From ___			T200801938
To ___			
Screen [X] or			
Liner [ ] or			
Casing [ ]			
Diameter 1.5"			
From 35			
To 42			
Cased Depth			
Total Depth	42		

Driller's Name: *(print or type)* Joshua Clay

NWFWMD Form 114. Rev. 11/1/95 White – NWFWMD; Yellow – Owner; Pink – Drilling Contractor

IP-1 - IP-12 Abandonments

WELL COMPLETION REPORT (Please complete in black ink or type.)

PERMIT # T2008 0953-64 CUP/WUP # _____ DID # _____

If permit is for multiple wells indicate the number of wells drilled 12.

Indicate remaining wells to be cancelled 0.

WATER WELL CONTRACTOR'S

SIGNATURE _____ LICENSE # 11304

I certify that the information provided in this report is accurate and true.

Grout	No. of Bags	From (Ft.)	To (Ft.)
Neat Cement:	0.5	0	3.0
Bentonite:	None	NA	NA

WELL LOCATION: County Escambia

SE 1:4 of NE 1:4 of Section 01 Twp: 3S Rge: 31

Latitude 30° 21'47.77" Longitude 87° 15'54.84"

DATE STAMP

Official Use Only

Sketch of well location on property

N

SEE ATTACHED

Give distances from septic tank and house or other reference points.

CHEMICAL ANALYSIS WHEN REQUIRED

Iron: ___ ppm Sulfate: ___ ppm

Chloride: ___ ppm

[ ] Lab Test [ ] Field Test Kit

Pump Type

[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine

Horsepower NA Capacity NA G.P.M. NA

Pump Depth NA Ft. Intake Depth NA Ft.

OWNER'S NAME United States Government Dept of Navy

COMPLETION DATE 7/10-7/18 Florida Unique I.D. _____

WELL USE: DEP/Public ___ Irrigation ___ Domestic ___ Monitor ___

HRS Limited ___ 62-524 ___ Other temp. inj. point

DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination

[ ] Jet [ ] Auger Other Direct Push

Measured Static Water Level ___ Measured Pumping Water Level ___

After ___ Hours at ___ G.P.M. Measuring Pt. (Describe): _____

Which is ___ Ft. [ ] Above [ ] Below Land Surface

Casing: [X] Black Steel [ ] Galv. [ ] PVC Other geoprobe rod

[ ] Open Hole [ ] Screen Casing Diameter & Depth (Ft.)	Depth (Ft.) From	To	DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes. Note cavities, depth to producing zones. Color / Grain Size / Type of Material
Diameter 1.5"			
From 0			SAME AS SI-01
To 35			
			T2008019 38
Diameter ___			
From ___			
To ___			
Screen [X] or			
Liner [ ] or			
Casing [ ]			
Diameter 1.5"			
From 35			
To 42			
Cased Depth			
Total Depth	42		

Driller's Name: *(print or type)* Joshua Clay

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SI-01 and SI-02

WELL COMPLETION REPORT (Please complete in black ink or type.)

PERMIT # T2008 01938 CUP/WUP # _____ DID # _____

If permit is for multiple wells indicate the number of wells drilled 2.

Indicate remaining wells to be cancelled 8.

WATER WELL CONTRACTOR'S

SIGNATURE _____ LICENSE # 11304

I certify that the information provided in this report is accurate and true.

Grout	No. of Bags	From (Ft.)	To (Ft.)
Neat Cement:	0.5	0.0	3.0
Bentonite:	None	N/A	N/A

WELL LOCATION: County Escambia

SE 1:4 of NE 1:4 of Section 01 Twp: 3s Rge: 31

Latitude 30° 21' 47.77" Longitude 87° 15' 54.84"

DATE STAMP

Official Use Only

Sketch of well location on property

N

SEE ATTACHED

Give distances from septic tank and house or other reference points.

CHEMICAL ANALYSIS WHEN REQUIRED

Iron: ___ ppm Sulfate: ___ ppm

Chloride: ___ ppm

[ ] Lab Test [ ] Field Test Kit

Pump Type

[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine

Horsepower NA Capacity NA G.P.M. NA

Pump Depth NA Ft. Intake Depth NA Ft.

OWNER'S NAME United States Government Dept of Navy

COMPLETION DATE 7/15/08 Florida Unique I.D. _____

WELL USE: DEP/Public ___ Irrigation ___ Domestic ___ Monitor X

HRS Limited ___ 62-524 ___ Other _____

DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination

[ ] Jet [ ] Auger Other Direct Push

Measured Static Water Level ___ Measured Pumping Water Level ___

After ___ Hours at ___ G.P.M. Measuring Pt. (Describe): _____

Which is ___ Ft. [ ] Above [ ] Below Land Surface

Casing: [ ] Black Steel [ ] Galv. [X] PVC Other _____

[ ] Open Hole [ ] Screen Casing Diameter & Depth (Ft.)	Depth (Ft.) From	Depth (Ft.) To	DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes. Note cavities, depth to producing zones. Color	Grain Size	Type of Material
Diameter 3/4"	0.0	0.5	brown	Med	Sand
From 0.0	0.5	0.8	dk. brown	Med	Sand
To 37	0.8	2.0	orange	silty	sand
	2.0	4.0	gry/white	Fine	Sand
Diameter ___	4.0	12.0	white	Med.	Sand
From ___	12.0	40	white	Med.	Sand
To ___	40	46	DK. grey		Clay
Screen [X] or Liner [ ] or Casing [ ]					
Diameter 3/4"					
From 37					
To 42					
Cased Depth					
Total Depth	42				

Driller's Name: *(print or type)* Joshua Clay

NWFWMD Form 114. Rev. 11/1/95 White – NWFWMD; Yellow – Owner; Pink – Drilling Contractor

IW-1 and IW-2

WELL COMPLETION REPORT (Please complete in black ink or type.)

PERMIT # T2008019340 CUP/WUP # _____ DID # _____

If permit is for multiple wells indicate the number of wells drilled 2.

Indicate remaining wells to be cancelled 8.

WATER WELL CONTRACTOR'S

SIGNATURE _____ LICENSE # 11304

I certify that the information provided in this report is accurate and true.

Grout	No. of Bags	From (Ft.)	To (Ft.)
Neat Cement:	0-5	0	3.0
Bentonite:	None	NA	NA

WELL LOCATION: County Escambia

SE 1:4 of NE 1:4 of Section 01 Twp: 3S Rge: 31

Latitude 30° 21' 47.77" Longitude 87° 15' 54.84"

DATE STAMP

Official Use Only

Sketch of well location on property

N

SEE ATTACHED

Give distances from septic tank and house or other reference points.

CHEMICAL ANALYSIS WHEN REQUIRED

Iron: ___ ppm Sulfate: ___ ppm

Chloride: ___ ppm

[ ] Lab Test [ ] Field Test Kit

Pump Type

[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine

Horsepower NA Capacity NA G.P.M. NA

Pump Depth NA Ft. Intake Depth NA Ft.

OWNER'S NAME United States Government Dept of NAVY

COMPLETION DATE 7/15/08 Florida Unique I.D. _____

WELL USE: DEP/Public ___ Irrigation ___ Domestic ___ Monitor ___

HRS Limited ___ 62-524 X Other injection well

DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination

[ ] Jet [ ] Auger Other Direct Push

Measured Static Water Level ___ Measured Pumping Water Level ___

After ___ Hours at ___ G.P.M. Measuring Pt. (Describe): _____

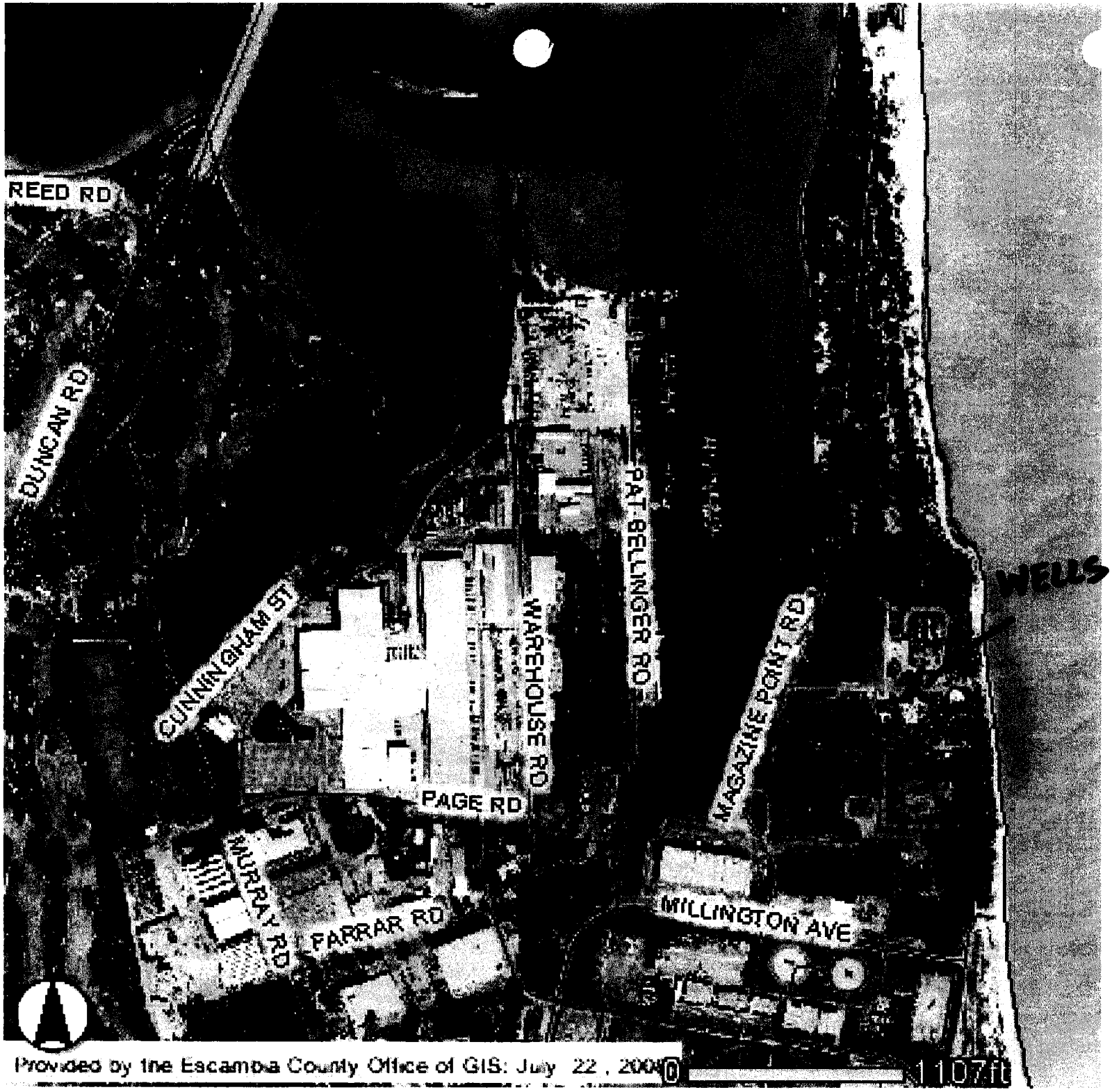
Which is ___ Ft. [ ] Above [ ] Below Land Surface

Casing: [ ] Black Steel [ ] Galv. [X] PVC Other _____

[ ] Open Hole [ ] Screen Casing Diameter & Depth (Ft.)	Depth (Ft.) From	To	DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes. Note cavities, depth to producing zones. Color / Grain Size / Type of Material
Diameter 3/4"			
From 0			Same as SI-01
To 37			
			T2008019338
Diameter ___			
From ___			
To ___			
Screen [X] or			
Liner [ ] or			
Casing [ ]			
Diameter 3/4			
From 37			
To 42			
Cased Depth			
Total Depth	42		

Driller's Name: *(print or type)* Joshua Clay

NWFWMD Form 114. Rev. 11/1/95 White – NWFWMD; Yellow – Owner; Pink – Drilling Contractor


REED RD
DUNCAN RD
CUNNINGHAM ST
WAREHOUSE RD
PAT BELLINGER RD
MAGAZINE POINT RD
WELLS
PAGE RD
MURRAY RD
FARRAR RD
WILLINGTON AVE
Provided by the Escambia County Office of GIS: July 22, 2004
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