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"2004 ANNUAL OPERATION AND MAINTENANCE STATUS REPORT FOR NUTRIENT INJECTION SYSTEM AT BUILDING 46 FORMER TANKS 46R, 46D, 46SUL AND 46UL NAS CECIL FIELD FL"

3/1/2005

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2004 Annual Operation and Maintenance Status Report

January 1, 2004 to December 31, 2004

NUTRIENT INJECTION SYSTEM

BUILDING 46

Former Tanks 46R, 46D, 46SUL and 46UL

Naval Air Station Cecil Field
Jacksonville, Florida

Contract No. N62467-02-G-0352
Contract Task Order No. 0001

Submitted to:

U.S. Naval Facilities Engineering Command Southern Division

Prepared by:

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March 2005

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We, the undersigned, do hereby affirm that the information contained in this report is accurate and correct to the best of our knowledge and belief.

3/29/05 PG-FL2090, REM-6089

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ACRONYMS

BGS	Below ground surface
BOA	Blanket Ordering Agreement
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
ºC	degrees Celsius
CTO	Contract Task Order
DO	Dissolved Oxygen
EPA	U.S. Environmental Protection Agency
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FID	Flame Ionization Detector
FL PRO	Florida Petroleum Residual Organic
Ft.	Feet
Gal/min.	Gallons per minute
GCTL	Groundwater Cleanup Target Levels
IDW	Investigation Derived Waste
LNAPL	Light Non-Aqueous Phase Liquid
µS/cm	microsiemens per centimeter
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mS/cm	millisiemens per centimeter
MTBE	Methyl-tert-butyl-ether
mV	millivolts
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
n/a	not applicable
ND	Non Detect
NGVD	National Geodetic Vertical Datum
NM	Not measured
NR	Not recorded
NS	Not sampled
NTU	Nephelometric Turbidity Units
O&M	Operation and Maintenance
ORP	Oxidation Reduction Potential
OVA	Organic Vapor Analyzer
PAHs	Polynuclear Aromatic Hydrocarbons
Redox	Oxidation-reduction
SCTL	Soil Cleanup Target Level
SU	Standard Units
TERRAINE	Terraine, Inc.
TRPH	Total Recoverable Petroleum Hydrocarbons

EXECUTIVE SUMMARY

SCOPE

The objective of the remedial action at the Building 46 site is to reduce the concentrations of petroleum-related contaminants in the groundwater and unsaturated soils to target levels specified by Florida Administrative Code (FAC) 62-777.

To treat the impacted soil and groundwater and thereby achieve state-mandated cleanup target levels, a Nutrient Injection System was installed at the site during the period of November 2000 to January 2001. The Nutrient Injection System commenced operation on January 18, 2001.

As a result of anaerobic conditions in the aquifer which were not conducive to biodegradation of the contaminants of concern, nutrient injection was discontinued in April, 2004. Nitrogen and phosphorus are no longer being injected into the subsurface; rather the compressors are currently used to inject air as an oxygen source into the subsurface to enhance the biodegradation of Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX), Naphthalene, Methyl-Tert-Butyl-Ether (MTBE), and Total Recoverable Petroleum Hydrocarbons (TRPH).

The purpose of this Annual O&M Report is to provide a summary of activities performed at the site during the period of January 1, 2004 to December 31, 2004.

CONCLUSIONS AND RECOMMENDATIONS

The fourth quarter 2004 soil sampling results collected from borings SB-1, SB-2, and SB-14 in the soil-contamination area indicate that BTEX, MTBE, naphthalene, and TRPH levels have decreased from the December 2000 baseline soil sampling event. However, some subsurface soil contaminant concentrations are still sporadically exceeding their respective groundwater leachability criteria.

During the December 2000 baseline groundwater sampling event, seven (7) of the fourteen (14) groundwater monitoring wells at the site exhibited groundwater contaminant concentrations greater than the groundwater cleanup target levels (GCTL). At the end of the fourth quarter 2004, groundwater results indicated five (5) wells (CEF-46-1S, -2S, -7I, -13I, and -26I) had contaminant concentrations exceeding the GCTL. In addition, contaminant concentrations from two (2) other wells exceeded the GCTL during the first through third quarters of 2004 (CEF-46-51, and -12I). With minor exceptions, the overall trend for groundwater contaminant concentrations continues to decrease from levels detected during the December 2000 baseline sampling event. LNAPL was not noted in any monitoring well during 2004.

Based on laboratory analytical reports obtained to date, operation of the remediation system should continue and soil and groundwater monitoring should continue until contaminant concentrations are below regulatory limits. Continued injection of air should aid the ongoing biodegradation of site contaminants.

2004 ANNUAL OPERATIONS AND MAINTENANCE STATUS REPORT

BUILDING 46

NAVAL AIR STATION, CECIL FIELD

JACKSONVILLE, FLORIDA

PREPARED FOR:	Gabe Magwood - SOUTHDIV
PREPARED BY:	*TERRAINE, Inc*.
PERIOD OF PERFORMANCE:	January 1, 2004 to December 31, 2004
FIELD TEAM:	Karen Baer, Larry Wolski
CONTRACT NUMBER:	N62467-02-G-0352
TASK ORDER NUMBER:	0001
TASK ORDER MANAGER:	James L. Young, P.G.; REM
SUBMITTAL DATE:	March, 2005

1.0 INTRODUCTION

Terraine, Inc. (TERRAINE) has been contracted by the Department of the Navy, Southern Division Naval Facilities Engineering Command (Southern Division, NAVFAC), to provide Operation and Maintenance (O&M) services at Building 46, Naval Air Station (NAS) Cecil Field, Jacksonville, Florida, under the **Basic Ordering Agreement (BOA) Contract No. N62467-02-G-0352, Contract Task Order (CTO) No. 0001**. The purpose of this 2004 Annual O&M Report is to provide a summary of activities performed at the site during the period of January 1, 2004 to December 31, 2004.

1.1 Purpose

The objective of the remedial action at the Building 46 site is to reduce concentrations of petroleum-related contaminants in the groundwater and unsaturated soils to target levels specified by Florida Administrative Code (FAC) 62-777.

To treat the impacted soil and groundwater and thereby achieve state-mandated cleanup target levels, a Nutrient Injection System was installed at the site during the period of November 2000 to January 2001. The Nutrient Injection System commenced operation on January 18, 2001. A remediation system/technology description and a more detailed site background and history are provided in the First Quarter Operation and Maintenance Status Report submitted by TERRAINE in June 2004.

As a result of anaerobic conditions in the aquifer which were not conducive to biodegradation of the contaminants of concern, nutrient injection was discontinued in April, 2004. Nitrogen and phosphorus are no longer being injected into the subsurface; rather the compressors are currently used to inject air as an oxygen source into the subsurface to enhance the biodegradation of Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX), Naphthalene, Methyl-Tert-Butyl-Ether (MTBE), and Total Recoverable Petroleum Hydrocarbons (TRPH).

1.2 Site Location and Description

A base map illustrating the site location at NAS Cecil Field is included in **Figure 1, Appendix A**. A site map is included in **Figure 2, Appendix A.**

2.0 INVESTIGATION AND METHODOLOGY SUMMARY

2.1 System Performance Monitoring

The system was shut down for monthly system checks and approximately four weeks throughout the year for quarterly sampling activities. Otherwise, the system did not experience any downtime. Site visit O&M logs are provided in **Appendix B**.

2.2 Water Level Measurements

Depth-to-water measurements were recorded on December 1, 2004 at the monitoring wells which were sampled (CEF-46-1S, -2S, -5I, -6D, -7I, -9I, -12I, -13I, -14D, -15I, -21I, -24D, -25I, and -26I). The top-of-casing elevation, depth-to-water measurements, and calculated water level elevations are provided in **Table 1, Appendix C**. The locations of the wells are shown on **Figure 2, Appendix A.**

On December 1, 2004, groundwater flow in the intermediate aquifer was southwest **(Figure 3, Appendix A).** This is consistent with groundwater flow direction noted in the 3rd Quarter 2004 Report. Due to limited data points, groundwater flow in the shallow and deep aquifers could not be determined.

Light Non-Aqueous Phase Liquid (LNAPL) was not noted in any monitoring well during the monitoring period.

2.3 Groundwater Sampling

2.3.1 Methodology

Groundwater sampling was conducted at Building 46 on December 1, 2004. Fourteen (14) wells (CEF-46-1S, -2S, -5I, -6D, -7I, -9I, -12I, -13I, -14D, -15I, -21I, -24D, -25I, and -26I) were purged and sampled using low-flow methodology. Purging of wells consisted of removing groundwater with a Nomad© submersible pump at a flow rate equal to or less than the groundwater recharge rates in the wells until field parameters (temperature, pH, conductivity, turbidity, Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) had stabilized. Water levels in the wells were continuously monitored to maintain drawdown at less than 0.3 feet.

Field analytical tests using Hach© kits were performed during the 4th Quarter 2004 sampling event. Groundwater from each of the fourteen monitoring wells was tested for carbon dioxide, alkalinity, ferrous iron, hydrogen sulfide, and DO.

The results from the field parameters and field analytical tests are summarized on **Table 2, Appendix C.** Copies of the groundwater purging/sampling logs including all field parameter measurements are provided in **Appendix D**.

2.3.2 Chemical Analysis Suite

Groundwater samples from the monitoring wells were laboratory analyzed for the following analyte suite:

- Benzene, Ethylbenzene, Toluene, and Xylenes (BTEX) and Methyl-Tert-Butyl-Ether (MTBE) by U.S. Environmental Protection Agency (EPA) Method 8260B.
- Polynuclear Aromatic Hydrocarbons (PAHs) by EPA Method 8270C.
- Total Recoverable Petroleum Hydrocarbons (TRPH) by Florida Petroleum Residual Organic (FL-PRO).
- Nitrate, Nitrite, and Orthophosphate by EPA series 300.0.

2.4 Soil Sampling

2.4.1 Methodology

Quarterly soil-screening and sampling was conducted on December 1, 2004 during the 4th Quarter monitoring period. Three soil borings, labeled SB-1, SB-2, and SB-14, were installed. The locations of these soil borings is shown in **Figure 2, Appendix A**. The soil was screened using an Organic Vapor Analyzer (OVA) equipped with a Flame Ionization Detector (FID) and a sample was collected for laboratory analysis on December 1, 2004. The water table was encountered at approximately nine (9) feet below land surface. OVA readings are summarized in **Table 3**, **Appendix C.**

2.4.2 Chemical Analysis Suite

Soil collected from the soil borings were laboratory analyzed for the following analyte suite:

- BTEX and MTBE by U.S. Environmental Protection Agency (EPA) Method 8260B
- PAHs by EPA Method 8270C
- TRPH by Florida Petroleum Residual Organic (FL-PRO)

2.5 Investigative Derived Waste

Purge water collected from the monitoring wells during the 4th Quarter sampling event was collected and containerized. All investigative derived waste (IDW) was stored on site in 55-gallon drums and transported to Industrial Water Services in Jacksonville, Florida by Environmental Remediation Services on January 27, 2004.

3.0 SUMMARY OF SAMPLING AND LABORATORY ANALYTICAL RESULTS

3.1 Data Validation

A cursory review of quality control data was performed. This review evaluated data completeness, holding time compliance, laboratory blank contamination, and detection limits. The validation process results in qualifiers that are shown with the analyte concentrations in **Tables 4 and 5, Appendix C**.

3.2 Groundwater Monitoring

The baseline-sampling event, conducted December 20, 2000, revealed that samples from seven (7) of the 14 wells had contaminant concentrations above the GCTLs per Chapter 62-777 FAC. For the fourth quarter of 2004, laboratory reports indicated groundwater sampled from five (5) wells (CEF-46-1S, -2S, -7I, -13I, and -26I) had contaminant concentrations exceeding the GCTLs. In addition, two (2) other wells, CEF-46-5I and -12I had at least one or more contaminant concentrations exceeding the GCTLs during the first and third quarters respectively, but all contaminant concentrations in groundwater sampled from monitoring wells -5I and -12I were below the GCTLs during the fourth quarter 2004. Groundwater analytical results are summarized in **Table 4, Appendix C**.

3.2.1 BTEX/MTBE

With minor exceptions, the overall trend for BTEX appears to be decreasing since the December 2000 baseline sampling event. MTBE also continues to decrease except in groundwater sampled from CEF-46-13I, where MTBE concentrations increased during each quarterly monitoring event in 2004. A brief explanation of BTEX/MTBE incidences and trends is provided below.

Individual BTEX components and MTBE concentrations at well CEF-46-1S exceeded their respective GCTL during all four quarters of monitoring in 2004. Even though BTEX and MTBE concentrations exceeded their GCTL, the concentrations in groundwater sampled from this well appear to be decreasing from baseline levels in December 2000.

Concentrations of ethylbenzene and xylene in groundwater sampled from CEF-46-2S were either below applicable GCTLs or below reporting limits during the first three quarters of monitoring in 2004. However, during fourth quarter monitoring, ethylbenzene and xylene each exceeded their respective GCTL. Benzene at CEF-46-2S decreased from above the GCTL during the first quarter of monitoring to below the reporting limit during the third quarter, but increased above the GCTL during the fourth quarter. Toluene was either below the GCTL or below the reporting limit throughout 2004. MTBE was below the GCTL during the first three quarters of monitoring, but increased above the GCTL during the fourth quarter. With the exception of ethylbenzene, concentration trends for these constituents appear to be decreasing from baseline levels in December 2000.

Benzene exceeded the GCTL at well CEF-46-5I during the first quarter of monitoring in 2004, after which all BTEX components were either below applicable GCTLs or below reporting limits for the remainder of the year. There were no MTBE exceedances in groundwater sampled from CEF-46-5I during 2004.

Benzene, ethylbenzene, xylene, and MTBE exceeded their respective GCTLs in groundwater sampled from monitoring well CEF-46-7I during each quarter of monitoring in 2004. There were no toluene exceedances in groundwater sampled from CEF-46-7I during 2004. Concentration trends for these constituents appear to be downward from baseline levels in December 2000.

MTBE exceeded the GCTL at well CEF-46-12I during the first and second quarters of monitoring in 2004, but was below the GCTL during the third and fourth quarters. BTEX components did not exceed their applicable GCTLs during 2004 in groundwater sampled from this well.

MTBE exceeded the GCTL in groundwater sampled from CEF-46-13I during all four quarters of monitoring in 2004, with concentrations increasing during each quarter throughout the year. BTEX components were below reporting limits during 2004 in groundwater sampled from this well.

Benzene and xylene exceeded their applicable GCTL in groundwater sampled from well CEF-46-26I during all four quarters of monitoring in 2004. Ethylbenzene and toluene were below their GCTLs during the first and fourth quarters, but exceeded their GCTLs during the second and third quarters, respectively. The trend for BTEX concentrations appears decreasing from baseline levels in December 2000. MTBE was below its applicable GCTL during each sampling event in 2004.

3.2.2 PAHs

PAHs continued to exceed applicable GCTLs in samples from three (3) wells during 2004.

Naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene exceeded their respective GCTL at well CEF-46-1S during all four quarters of monitoring in 2004. Naphthalene has exceeded its GCTL since the initial sampling event in December 2000. 1-methylnaphthalene, and 2-methylnaphthalene have each exceeded their GCTLs since the second quarter of 2003.

Naphthalene exceeded its GCTL in groundwater sampled from well CEF-46-2S during the fourth quarter of monitoring in 2004. This represents an increase in naphthalene concentration which had either been below the applicable GCTL or below the reporting limit for the seven previous quarters of monitoring.

An increase in naphthalene also occurred at well CEF-46-7I, which exceeded the GCTL during the fourth quarter of monitoring in 2004. Naphthalene was below the GCTL during the first three quarters of the year.

3.2.3 TRPH

TRPH continued to exceed its GCTL in groundwater sampled from monitoring well CEF-46-1S. During the last eight quarters of monitoring, TRPH detections at this well have been three to five times the GCTL. TRPH detections at all other wells were below the GCTL during 2004.

3.2.4 Nitrate/Nitrite/Orthophosphate

Nitrate and nitrite concentrations were below their respective GCTL or below reporting limits throughout 2004. Orthophosphate does not have a prescribed GCTL. Nitrogen and phosphorous are no longer injected into the subsurface at this site, and the lack of these nutrients in site groundwater may also signify their continued uptake by heterotrophic bacteria.

3.3 Groundwater Field Test Kits/Field Parameter Readings

Field parameters monitored during the 2004 groundwater sampling included pH, conductivity, DO, ORP, temperature, carbon dioxide, alkalinity, ferrous iron, and hydrogen sulfide. Measurements were collected using either a Horiba© multimeter or a Hach© test kit. Field measurements are presented in **Table 2, Appendix C**.

- Groundwater pH: The pH of groundwater from wells screened in the intermediate and deep zones continues to show a decrease since system installation. Many of the recorded pHs from the intermediate and deep wells are below the 6-8 pH unit range that is optimal for bacterial growth. Eight of 14 wells averaged below 4 pH units during the last 4 quarters. The lower pHs can be attributed to acid formation (phosphoric and nitric) resulting from the injection of nutrients along with the possibility of production of metabolic acids and carbon dioxide from microbial degradation activity. Irrespective of the cause, the pH of groundwater in several area monitoring wells continues to be too low to support prolific microbial activity.

Noteworthy are the higher, relatively stable pHs during 2004 in the shallow wells CEF-46-1S (average 6.57 units) and CEF-46-2S (average 6.51 units). In all probability, the added gaseous nutrients have not impacted the shallow zone significantly enough to cause pH imbalances. Also, infiltration from rainfall could be neutralizing any acidic effects in the shallow zone.

- Groundwater Temperature: Groundwater temperatures in all three zones appear to be above 20 degrees centigrade, well within the 10-45 degree range within which microorganisms generally flourish. Temperatures remain stable throughout the year, suggesting that kinetic activity should not be impacted by seasonal changes.

- Conductivity: Conductivity values fluctuated between each monitoring event at each well sampled. At seven wells, these changes were less than 1 millisiemen per centimeter (mS/cm). At the remaining wells, conductivity fluctuations ranged between a low of 1.605 mS/cm at well CEF-46-9I to a high of 18.05 mS/cm at well CEF-46-6D.

- Dissolved Oxygen (DO): DO in groundwater has generally been reduced to concentrations between 0.0 and 0.5 mg/L. In contrast, DO values during the first year of operation (2000) were generally greater than 1.0 mg/L. The observed decrease in DO in some deep wells can be attributed to reconfiguration of airflow in the area to focus on areas of higher contamination. However, the low DO in shallow and intermediate wells that continue to have higher contamination (CEF-46-1S, CEF-46-2S, and CEF-46-7I) is more likely due to the fact that injected air has not been effectively diffusing into the more shallow portions of the aquifer. As a result, much of the shallow-to-deep zones remain anaerobic. The major implication of the anaerobic environment is lowered degradation rates because petroleum constituents such as BTEX, MTBE, and naphthalene are reduced much more gradually under such conditions.

- Oxidation-Reduction Potential: ORP remains low in the two shallow wells, and relatively high in the intermediate and deep wells that are located adjacent to or downgradient from injection wells. The low ORP in the shallow wells is likely because injection is directed towards the intermediate and deep zones of the aquifer. The low shallow well ORPs also could indicate that sulfate reduction and methane fermentation are the most prevalent oxidation-reduction (redox) reactions occurring in the shallow zone. The ORP ranges of the intermediate wells indicate that the injection system is successfully aerating this zone. In some cases, monitoring wells at the edges of the injection system (example, CEF-46-25I), also showed low ORPs, as did a deep well (CEF-46-14D) where there was no nearby deep injection well. In these areas, the injection system appears less effective.

- Carbon Dioxide: Field test results indicate that carbon dioxide levels are highly variable and do not show a specific pattern or trend. In the shallow groundwater zone, carbon dioxide does appear to have decreased since remediation began, reflecting reduced biological activity. However, concentrations fluctuate considerably in the intermediate and deep wells, indicating no discernible change in microbial activity since remediation began.

- Alkalinity: Alkalinity measurements tended to be higher in the two shallow wells than in the intermediate and deep wells. Alkalinity measurements from well CEF-46-1S averaged 152.5 mg/L as $CaCO_3$, while alkalinity in well CEF-46-2S averaged 128.75 mg/L as $CaCO_3$. Alkalinity measurements in the intermediate and deep wells ranged from non-detect to 25 mg/L as $CaCO_3$. The higher alkalinity and therefore higher buffering capacity in the shallow wells is reflected in the more nominal pH ranges measured in these wells. Likewise, the lack of alkalinity in the intermediate and deep wells is reflected in the corresponding lack of buffering capacity and the low pHs measured in intermediate and deep groundwater.

- Ferrous Iron: Ferrous iron tended to fluctuate at each well during 2004. The highest ferrous iron measurement (24 mg/L) was taken at deep well CEF-46-14D, while the lowest ferrous

iron measurement (0.27 mg/L) was taken at intermediate well CEF-46-21I. The iron fluctuations my be related to the low DO trends observed at the site and the general prevalence of anaerobic degradation taking place at specific localities within the area being remediated.

- Hydrogen Sulfide: Measurements of hydrogen sulfide varied widely throughout the site. In some wells, hydrogen sulfide was either not detected at all (CEF-46-21I), or was detected during one or more monitoring events at very low concentrations (0.1 mg/L at six wells). Six wells had measurements as high as 5 mg/L. The differing levels of hydrogen sulfide may signify that anaerobic degradation is occurring at different parts of the site.

3.4 Soil Monitoring

The baseline-sampling event, conducted December 20, 2000, revealed that soil samples collected from the three borings (SB-1, SB-2, SB-14) had contaminant concentrations above the soil cleanup target levels (SCTLs) per Chapter 62-777 FAC. Soil-screening and sampling was conducted on a quarterly basis during 2004. The locations of the soil borings are shown on **Figure 2, Appendix A**. OVA/FID screening results are presented in **Table 3, Appendix C**. Soil analytical results are summarized in **Table 5, Appendix C**.

Fourth quarter 2004 OVA/FID screening at boring SB-1 revealed the highest concentration of organic vapors (620 ppm) six feet below ground surface (bgs). At SB-2, organic vapors were greater than 1,000 ppm from a depth interval of four feet bgs to the bottom of the hole at nine feet bgs. At SB-14, organic vapors were mostly not detected, with a small measurement of 10 ppm at eight feet bgs.

3.4.1 BTEX/MTBE

Soil laboratory analytical results revealed that benzene, ethylbenzene, and toluene concentrations at boring SB-1 were either below their respective SCTLs/groundwater leachability criteria or below reporting limits throughout 2004. Xylene exceeded its leachability criteria during the first three quarters of monitoring, and was below reporting limits during the fourth quarter.

Soil laboratory analytical results revealed that benzene, ethylbenzene, and toluene concentrations at boring SB-2 fluctuated from being below reporting limits to exceeding applicable groundwater leachability criteria. All three constituents exceeded their leachability criteria during the fourth quarter. Xylene exceeded its groundwater leachability criteria during all four quarters of monitoring.

Soil laboratory analytical results revealed that benzene, ethylbenzene, and toluene concentrations at boring SB-14 were either below their respective SCTLs/groundwater leachability criteria or below reporting limits throughout 2004. Xylene exceeded its groundwater leachability criteria during the fourth quarter.

At all three borings, MTBE was below reporting limits during the first, second, and fourth quarters of monitoring, but exceeded its groundwater leachability criteria during the third quarter.

3.4.2 PAHs

Soil laboratory analytical results revealed that PAH concentrations at SB-1 were either below applicable SCTLs/groundwater leachability criteria or below reporting limits during all four quarters of monitoring.

Soil laboratory analytical results revealed that naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene concentrations at SB-2 exceeded their groundwater leachability criteria during the second and fourth quarter of monitoring.

Soil laboratory analytical results revealed that naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene concentrations at SB-14 exceeded their groundwater leachability criteria during third quarter monitoring.

3.4.3 TRPH

Soil laboratory analytical results revealed that TRPH concentrations at SB-1 were either below the SCTL/groundwater leachability criteria during all four quarters of monitoring.

Soil laboratory analytical results revealed that TRPH concentrations at SB-2 exceeded its groundwater leachability criteria during the second and fourth quarter of monitoring.

Laboratory analytical results revealed that TRPH concentrations at SB-14 exceeded its groundwater leachability criteria during third quarter monitoring.

4.0 EVALUATION OF REMEDIATION SYSTEM PERFORMANCE

As a result of anaerobic conditions in the aquifer which were not conducive to biodegradation of the contaminants of concern, both the east and west nutrient injection systems were discontinued in April, 2004. Nitrogen and phosphorus are no longer being injected into the subsurface; rather the compressors are currently used to inject air through the system to provide oxygen for the continued biodegradation of site contaminants. An Active Remediation Status Report Summary is included in **Appendix E.**

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The fourth quarter, 2004 marked the completion of four years of remediation system operation and continued quarterly soil and groundwater monitoring. Because of a decrease in subsurface conditions that favor anaerobic microbial degradation of contaminants, nutrient enhancement at the east and west remediation systems was discontinued in April, 2004. The system now pumps air to the subsurface to provide oxygen only as a biodegradation enhancement. In spite of the scale-back of the remediation system, the 2004 sampling results denote a reduction in contaminant concentrations in both soil and groundwater from the December 2000 baseline sampling results. This indicates that microbial degradation of the petroleum contaminants in soil and groundwater at the site has continued.

The fourth quarter, 2004 soil sampling results collected from borings SB-1, SB-2, and SB-14 in the soil-contamination area indicate that BTEX, MTBE, naphthalene, and TRPH levels have decreased from the December 2000 baseline soil sampling event. However, some subsurface soil contaminant concentrations are still sporadically exceeding their respective groundwater leachability criteria.

During the December 2000 baseline groundwater sampling event, seven of the 14 groundwater monitoring wells at the site exhibited groundwater contaminant concentrations greater than the GCTLs. At the end of the fourth quarter, 2004, groundwater results from five wells (CEF-46-1S, -2S, -7I, -13I, and -26I) had contaminant concentrations exceeding the GCTLs. In addition, contaminant concentrations from two other wells exceeded the GCTLs during the first through third quarters of 2004 (CEF-46-51, and -12I). With minor exceptions, the overall trend for groundwater contaminant concentrations continues to appear to be downward from those in the December 2000 baseline sampling event. LNAPL was not noted in any monitoring well during 2004.

5.2 Recommendations

The remediation system should continue to be operated in its current mode and monitoring of soil and groundwater should continue until contaminant concentrations fall below regulatory limits. Even though the nutrient injection systems were shut down in both the east and west injection areas, the continued injection of air should aid the ongoing biodegradation of site contaminants. Measurement of nitrogen as TKN and ammonia-nitrogen, and phosphorus as orthophosphorus and total phosphorus in groundwater are recommended to ensure these nutrients do not go below critical levels for microbial survival. Incremental use of these nutrients should be evaluated in 2005 as aerobic conditions return.

6.0 REFERENCES

Florida Department of Environmental Protection, 1999.
Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C. CEHT/TR-99-01, May.

Terraine, Inc. Third Quarter, 2004 Operations and Maintenance Status Report, Nutrient Injection System, Building 46, Naval Air Station, Cecil Field, Jacksonville, Florida.

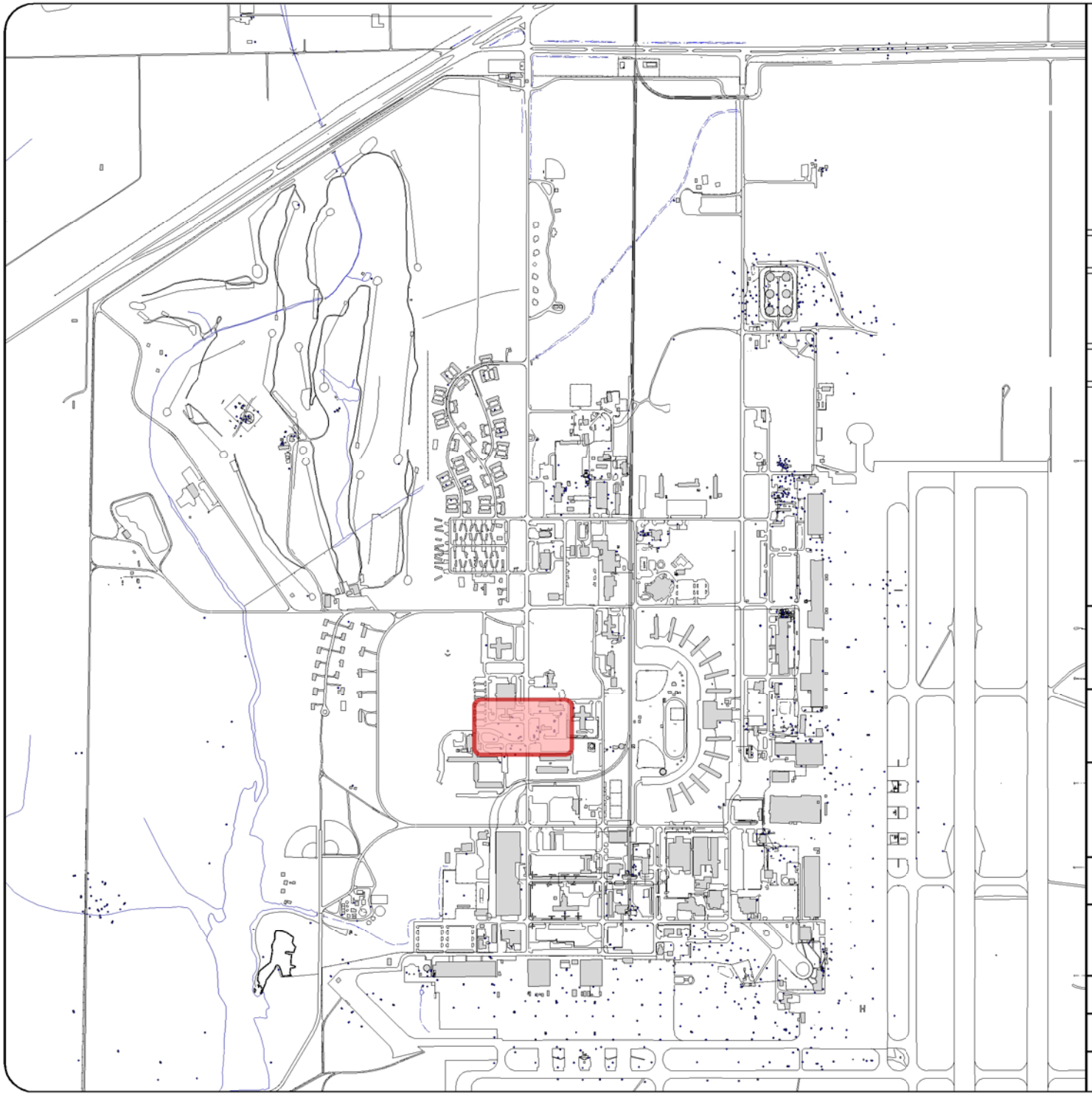
APPENDIX A

FIGURES

Figure 1 *Site Location Map, Building 46*

Figure 2 *Site Map, Building 46*

Figure 3 *Groundwater Elevation Map, Intermediate Zone*



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NOTES

Sources: Environmental IR Gateway (www.sdirport.com)

LEGEND

APPROXIMATE SITE BOUNDARY

0 0.25 0.5

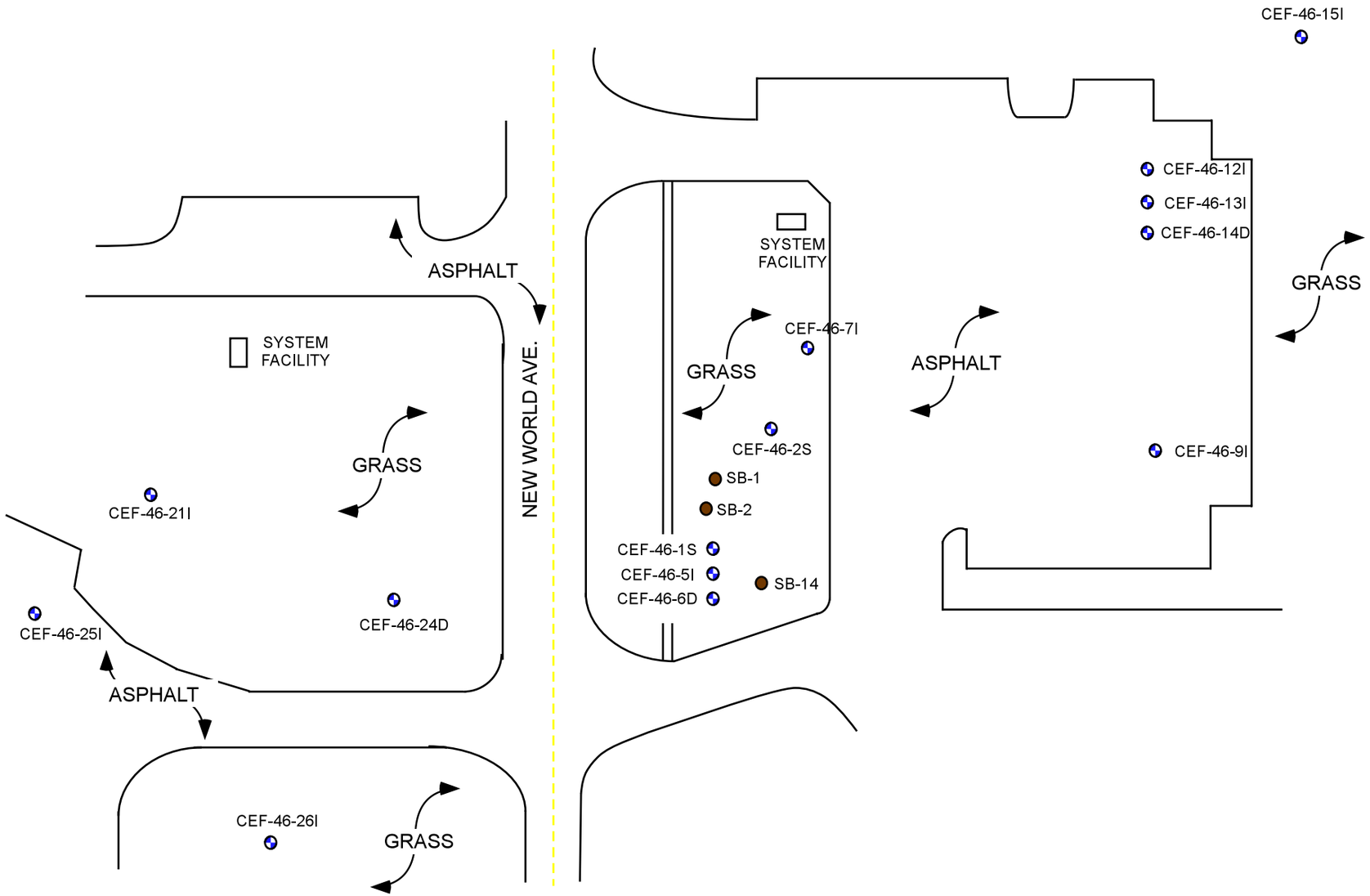
APPROXIMATE SCALE IN MILES

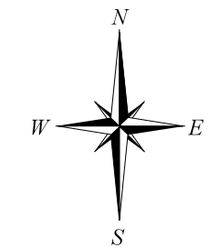
TERRAINE
Environmental Consulting

NAS CECIL FIELD
FIGURE 1: SITE LOCATION MAP
BUILDING 46

Prepared For:
U.S. Naval Facilities Engineering Command, Southern Division

DWN BY: LFW	CHK BY: KBG
SCALE: SEE LEGEND	APR BY: JLY
DATE:10/12/04	FILE: N/A





NOTES

LEGEND

- MONITORING WELL
- SOIL BORING

TERRAINE
Environmental Consulting

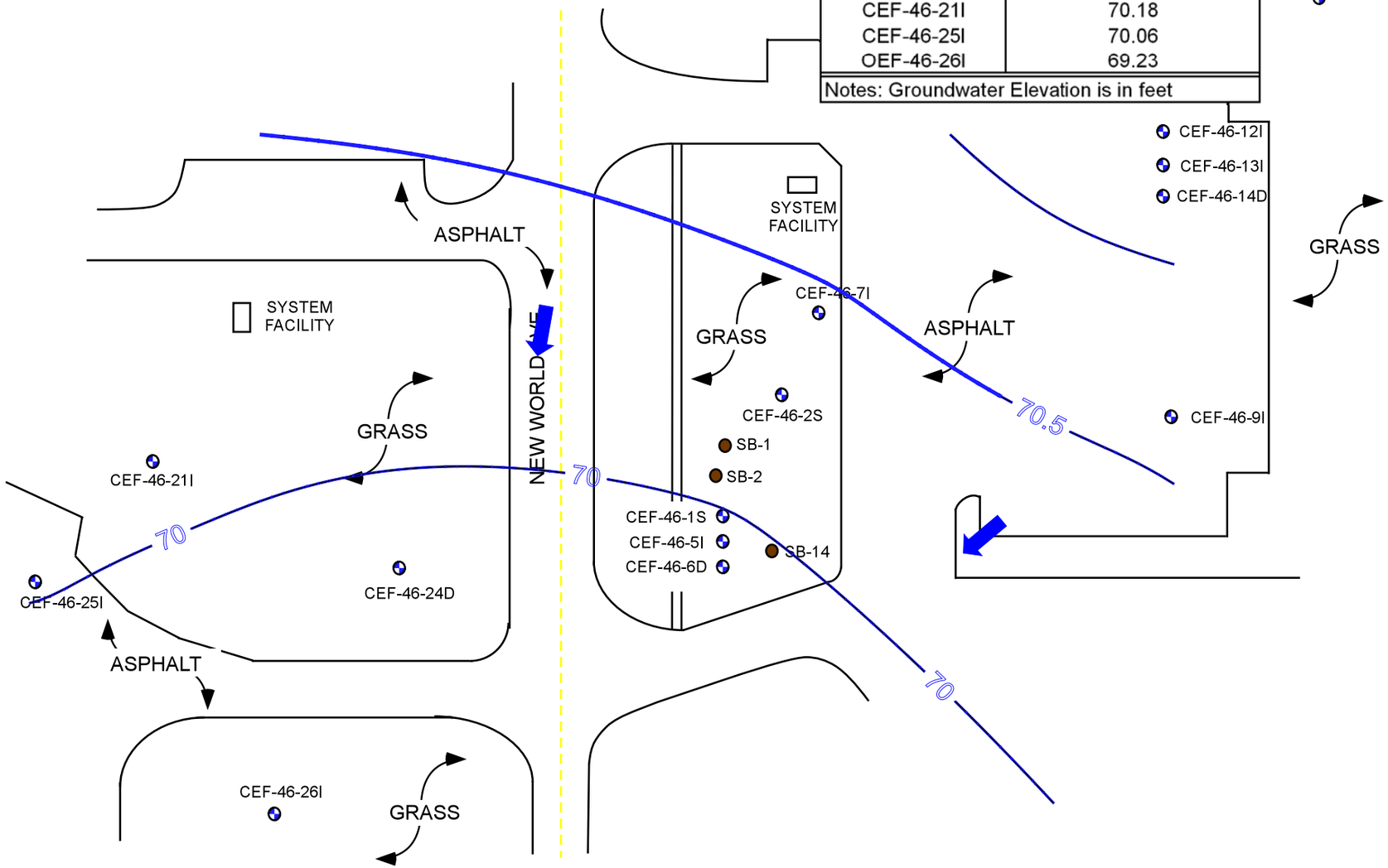
NAS CECIL FIELD
FIGURE 2: SITE MAP
BUILDING 46

Prepared For:
U.S. Naval Facilities Engineering Command, Southern Division

DWN BY: JLY	CHK BY: KBG
SCALE: APPROXIMATE 1" = 30'	APR BY: LFW
DATE: 3/22/05	FILE: 04-41001

Well ID	Groundwater Elevation
CEF-46-5I	69.95
CEF-46-7I	70.42
CEF-46-9I	70.61
CEF-46-12I	71.48
CEF-46-13I	71.27
CEF-46-15I	71.68
CEF-46-21I	70.18
CEF-46-25I	70.06
OEF-46-26I	69.23

Notes: Groundwater Elevation is in feet



N
W E
S

NOTES

CONTOUR PLOT GENERATED USING KRIGING ALGORITHM WITH LINEAR VARIOGRAM MODEL.

LEGEND

- MONITORING WELL
- SOIL BORING
- INDICATES GROUNDWATER FLOW DIRECTION

TERRAINE
Environmental Consulting

NAS CECIL FIELD
FIGURE 3: GROUNDWATER ELEVATION MAP, INTERMEDIATE ZONE
BUILDING 46

Prepared For:
U.S. Naval Facilities Engineering Command, Southern Division

DWN BY: JLY	CHK BY: KBG
SCALE: APPROXIMATE 1" = 30'	APR BY: LFW
DATE: 3/22/05	FILE: 04-41001

APPENDIX B

Site Visit O&M Logs

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 West

Personnel on Site: L E Priester

Date: 1/20/2004

Arrival Time: 10:00 AM

Departure Time: 2:30 PM

Exterior Parameters	Arrival		Departure		Comments
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			8,964.3		Meter is not functioning correctly.
Pressure Hour Meter (Hours)			23,246.8		
Air Supply					
Leg 1 (PSIG)	22		22		
Leg 2 (PSIG)	28		28		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	300/60	AG	700/60	AG	AG Jax
Cylinder 2 (psig, primary/secondary)	700/60	AG	700/60	AG	AG Jax
Cylinder 3 (psig, primary/secondary)	MT		700/60		AG Jax
Flow Meter (CFH)	0.2		0.2		
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.5		0.75		Approximatley 3.0 inches. Added to 4.5
Air Flow (CFM)	1		1		No Change
Air Flow					
Inj. Well I1 (Valve % Open/CFM)	0		0		No change to flow rates.
Inj. Well I2 (Valve % Open/CFM)	25		25		
Inj. Well I3 (Valve % Open/CFM)	0		0		
Inj. Well I4 (Valve % Open/CFM)	25		25		
Inj. Well I5 (Valve % Open/CFM)	25		25		
Inj. Well I8 (Valve % Open/CFM)	25		25		No change to flow rates.
Inj. Well I6 (Valve % Open/CFM)	25		25		Set up for maintenance flow.
Inj. Well I7 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	0		0		

Maintenance Information	Maintenance Performed
Nitrous System Cylinders/Regulators	OK. No leaks.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1 SN 0103706074	OK Checked inlet filters.
#2 SN 0103706070	Turned off.
#3 SN 0103706076	Removed
#4 SN0103706073	Turned off.
Air Legs/ Solenoid Valves	OK.
Ventilation Fan	OK.
Primary Electrical System	OK
PLC-Telemetry	Phone line disconnected
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK

Additional Notes:

Flows continue to be directed towards maintenance of treatment area.

Returned 1 MT

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 East

Personnel on Site: L E Priester

Date: 1/20/2004

Arrival Time: 10:10 AM

Departure Time: 2:30 PM

Exterior Parameters	Arrival		Departure		Comments
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			22,670.9		
Pressure Hour Meter (Hours)			22,587.7		
Air Supply					
Leg 1 (PSIG)		15	15		
Leg 2 (PSIG)		15	15		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	MT	AG	500/70	AG	Returned 2 empties to AG Jax.
Cylinder 2 (psig, primary/secondary)	MT	AG	500/70	AG	
Cylinder 3 (psig, primary/secondary)	500/70	AG	500/70	AG	
Cylinder 4 (psig, primary/secondary)	400/70	AG	400/70	AG	
Cylinder 5 (psig, primary/secondary)	500/70	AG	500/70	AG	
Flow Meter (CFH)		1.5		1	
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.75		0.75		Approximately 4.5 inches. None added.
Air Flow (CFM)	1		1		
Air Flow					
Inj. Well I4 (Valve % Open/CFM)	0		0		No change to air flow distribution to leg 1 .
Inj. Well I5 (Valve % Open/CFM)	100		100		
Inj. Well D9 (Valve % Open/CFM)	0		0		
Inj. Well D10 (Valve % Open/CFM)	0		0		
Inj. Well D11 (Valve % Open/CFM)	0		0		
Inj. Well I2 (Valve % Open/CFM)	0		0		
Inj. Well I3 (Valve % Open/CFM)	100		100		
Inj. Well I6 (Valve % Open/CFM)	100		100		
Inj. Well I7 (Valve % Open/CFM)	100		100		
Inj. Well I8 (Valve % Open/CFM)	0		0		
Inj. Well I1 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		No change to air flow distribution to leg 2 .
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	100		100		
Inj. Well D4 (Valve % Open/CFM)	50		50		
Inj. Well D5 (Valve % Open/CFM)	0		0		
Inj. Well D6 (Valve % Open/CFM)	25		25		
Inj. Well D7 (Valve % Open/CFM)	25		25		
Inj. Well D8 (Valve % Open/CFM)	0		0		

Maintenance Information	Maintenance Performed
Nitrous System Cylinders/Regulators	OK.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1	OK
#2	Turned off
#3	Turned off
#4	Turned off
Air Legs/ Solenoid Valves	OK
Ventilation Fans	OK. Roof fan OK. Verified thermostat function.
Primary Electrical System	OK
PLC-Telemetry	Phone line not functioning.
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK
Additional Notes:	Flow continues to be directed to plume hot spot. Checked filters--OK Returned two nitrous empties to AG Jax.

pHA-ER OPERATION and MAINTENANCE LOG		**Date:**	2/17/2004
Site Name: Cecil Field Site 46 West		**Arrival Time:**	9:30 AM
Personnel on Site:	L E Priester	**Departure Time:**	2:30 PM

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			8,964.1		Meter is not functioning correctly.
Pressure Hour Meter (Hours)			24,003.5		
Air Supply					
Leg 1 (PSIG)	22		22		
Leg 2 (PSIG)	28		28		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	300/60	AG	700/60	AG	AG Jax
Cylinder 2 (psig, primary/secondary)	700/60	AG	700/60	AG	AG Jax
Cylinder 3 (psig, primary/secondary)	MT		700/60		AG Jax
Flow Meter (CFH)	0.2		0.2		
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.5		0.50		Approximatley 3.0 inches. None added
Air Flow (CFM)	1		1		No Change
Air Flow					
Inj. Well I1 (Valve % Open/CFM)	0		0		No change to flow rates.
Inj. Well I2 (Valve % Open/CFM)	25		25		
Inj. Well I3 (Valve % Open/CFM)	0		0		
Inj. Well I4 (Valve % Open/CFM)	25		25		
Inj. Well I5 (Valve % Open/CFM)	25		25		
Inj. Well I8 (Valve % Open/CFM)	25		25		No change to flow rates.
Inj. Well I6 (Valve % Open/CFM)	25		25		Set up for maintenance flow.
Inj. Well I7 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	0		0		

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK. No leaks.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1 SN 0103706074	OK Checked inlet filters.
#2 SN 0103706070	Turned off.
#3 SN 0103706076	Removed
#4 SN0103706073	Turned off.
Air Legs/ Solenoid Valves	OK.
Ventilation Fan	OK.
Primary Electrical System	OK
PLC-Telemetry	Phone line disconnected
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK
Additional Notes:	Flows continue to be directed towards maintenance of treatment area. Returned 1 empty cylinder

PhA-ER Monthly System O&M Progress Report
Building 46 West Unit
January, 2004 O&M Event

1.0 Introduction

Building 46 was the former base gas station that operated from 1946-1987. The station had a total of eight (8) UST's which were all removed in 1988. Contamination assessments conducted in 1997 and 1998 indicates an extensive vadose zone and groundwater impact from the former gas station operations. The plume extends on the east and west sides of New World (former D Avenue). Two MAGNUS (multi application gas nutrient systems) bioremediation systems were installed to treat the east and west portions of the plume. The objective is to treat the source area (former UST location) soil and groundwater contamination to cleanup target levels and the outer plume areas to NA (natural attenuation) standards.

2.0 Description of January 20, 2004, Site Visit, Preventative and Corrective Maintenance- L. E. Priester

- The system was on at main power disconnect and running upon arrival.
- Two nitrous cylinders in place added third cylinder. Pressures and flow OK. Checked for leaks—none detected.
- Checked TEP cylinder fluid level – OK at approximately 0.5 gallons, added to 0.75.. Flow OK at 50%.
- Checked air compressor inlet air filters. Checked for leaks – none detected.
- Ventilation fan working. Verified thermostat function.
- System air flows left in current configuration to maximize flow to area of plume originally outside of treatment zone, as well as maintenance flow to original area.
- System left to continue running on compressor 1. .
- Phone lines are currently not functional.
- System was left on.

3.0 Operation efficiencies

Maximum remedial efficiencies are presently achieved by continuous operations to selected injection wells.

4.0 Remedial progress

Aggregate contaminant mass in the CF46W treatment area has been reduced by 100%. Contamination is evident in the groundwater from MW-26I, outside of the intended treatment area. The Magnus system will continue to operate and be directed to this area

in an attempt to influence the microorganism population and continue contaminant degradation.

4.1 Flow rate monitoring

Air flow rates to injection wells previously were balanced to achieve maximum air flow to the deep injection wells while maintaining air flow to the intermediate wells and were left as set. Flow through TEP cylinder at 50%..

5.0 Recommendations

Re-balance system as needed as future monitoring well laboratory report results are received and analyzed.

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 East

Personnel on Site: L E Priester

Date: 2/17/2004

Arrival Time: 9:30 AM

Departure Time: 2:30 PM

Exterior Parameters	Arrival		Departure		Comments
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			23,425.9		
Pressure Hour Meter (Hours)			23,342.5		
Air Supply					
Leg 1 (PSIG)		15	15		
Leg 2 (PSIG)		15	15		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	MT	AG	500/70	AG	Returned 3 empties to AG Jax.
Cylinder 2 (psig, primary/secondary)	MT	AG	500/70	AG	
Cylinder 3 (psig, primary/secondary)	MT	AG	500/70	AG	
Cylinder 4 (psig, primary/secondary)	400/70	AG	400/70	AG	
Cylinder 5 (psig, primary/secondary)	500/70	AG	500/70	AG	
Flow Meter (CFH)		1.5		1	
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.75		0.75		Approximately 4.5 inches. None added.
Air Flow (CFM)	1		1		
Air Flow					
Inj. Well I4 (Valve % Open/CFM)	0		0		No change to air flow distribution to leg 1 .
Inj. Well I5 (Valve % Open/CFM)	100		100		
Inj. Well D9 (Valve % Open/CFM)	0		0		
Inj. Well D10 (Valve % Open/CFM)	0		0		
Inj. Well D11 (Valve % Open/CFM)	0		0		
Inj. Well I2 (Valve % Open/CFM)	0		0		
Inj. Well I3 (Valve % Open/CFM)	100		100		
Inj. Well I6 (Valve % Open/CFM)	100		100		
Inj. Well I7 (Valve % Open/CFM)	100		100		
Inj. Well I8 (Valve % Open/CFM)	0		0		
Inj. Well I1 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		No change to air flow distribution to leg 2 .
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	100		100		
Inj. Well D4 (Valve % Open/CFM)	50		50		
Inj. Well D5 (Valve % Open/CFM)	0		0		
Inj. Well D6 (Valve % Open/CFM)	25		25		
Inj. Well D7 (Valve % Open/CFM)	25		25		
Inj. Well D8 (Valve % Open/CFM)	0		0		

Maintenance Information	Maintenance Performed
Nitrous System Cylinders/Regulators	OK.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1	OK
#2	Turned off
#3	Turned off
#4	Turned off
Air Legs/ Solenoid Valves	OK
Ventilation Fans	OK. Roof fan OK. Verified thermostat function.
Primary Electrical System	OK
PLC-Telemetry	Phone line not functioning.
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK
Additional Notes:	Flow continues to be directed to plume hot spot. Checked filters--OK Returned three nitrous empties to AG Jax.

PhA-ER Monthly System O&M Progress Report
Building 46 East Unit
January, 2004 O&M Event

1.0 Introduction

Building 46 was the former base gas station that operated from 1946-1987. The station had a total of eight (8) UST's which were all removed in 1988. Contamination assessments conducted in 1997 and 1998 indicates an extensive vadose zone and groundwater impact from the former gas station operations. The plume extends on the east and west sides of New World (former D Avenue). Two MAGNUS (multi application gas nutrient systems) bioremediation systems were installed to treat the east and west portions of the plume. The objective is to treat the source area (former UST locations) soil and groundwater contamination to cleanup target levels and the outer plume areas to NA (natural attenuation) standards.

2.0 Description of January 20, 2004 Site Visit, Preventative and Corrective Maintenance. L.E. Priester

- The system was on at the main power disconnect and running upon arrival.
- Checked status of Nitrous Oxide. Reset the pressures and flow. Checked for leaks—none detected. Removed two empty cylinders and returned to Air Gas Jax.
- Checked the TEP level in the cylinder-- the level was OK at approximately 0.70 gallons. System left at 50% bypass flow.
- Compressor operation checked—OK.
- Compressor intake filters were checked.
- Compressor cowl screws were checked and tightened if necessary.
- The roof top ventilation fan was checked, and operation of the thermostat verified.
- All valves and directed flow remain the same. Checked for system leaks—none detected.
- Documented power and pressure hour meter readings.
- Phone line is currently not functional/ disconnected.
- Replaced compressor 4 with remanufactured unit to allow for compressor maintenance.
- Secured system trailer.
- System left on and running.

3.0 Operation efficiencies

Maximum remedial efficiencies are presently achieved by pulsed operations to selected injection wells. Flow has been adjusted based on the most recent laboratory data to shift more air and nutrient into hot zone area and less to peripheral injection wells.

4.0 Remedial progress

Latest data continues to demonstrate a decline in BTEX concentrations in the original source area (shallow to intermediate zone). Total contaminant concentration reductions are approximately 85% overall.

4.1 Flow rate monitoring

Air flow rates to injection wells are based on the most recent laboratory data to concentrate flow to the remaining areas of contamination.

5.0 Recommendations

Re-balance system as needed as future monitoring well laboratory report results are received and analyzed.

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 West

Personnel on Site: L E Priester

Date: 3/22/2004 3/23/2004

Arrival Time: 10:00 AM 12:00 PM

Departure Time: 3:00 AM 2:30 PM

Exterior Parameters	Arrival		Departure		Comments
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			9,031.1		Meter is not functioning correctly.
Pressure Hour Meter (Hours)			24,504.2		System shut down for sampling during the month
Air Supply					
Leg 1 (PSIG)	22		22		
Leg 2 (PSIG)	28		28		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	300/60	AG	700/60	AG	AG Jax
Cylinder 2 (psig, primary/secondary)	MT	AG	700/60	AG	AG Jax
Cylinder 3 (psig, primary/secondary)	MT		700/60		AG Jax
Flow Meter (CFH)	0.2		0.2		
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.45		0.75		
Air Flow (CFM)	1		1		No Change
Air Flow					
Inj. Well I1 (Valve % Open/CFM)	0		0		No change to flow rates.
Inj. Well I2 (Valve % Open/CFM)	25		25		
Inj. Well I3 (Valve % Open/CFM)	0		0		
Inj. Well I4 (Valve % Open/CFM)	25		25		
Inj. Well I5 (Valve % Open/CFM)	25		25		
Inj. Well I8 (Valve % Open/CFM)	25		25		No change to flow rates.
Inj. Well I6 (Valve % Open/CFM)	25		25		Set up for maintenance flow.
Inj. Well I7 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	0		0		

Maintenance Information	Maintenance Performed
Nitrous System Cylinders/Regulators	OK. No leaks.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1 SN 0103706074	OK Checked inlet filters.
#2 SN 0103706070	Turned off.
#3 SN 0103706076	Removed
#4 SN0103706073	Turned off.
Air Legs/ Solenoid Valves	OK.
Ventilation Fan	OK.
Primary Electrical System	OK
PLC-Telemetry	Phone line disconnected
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK

Additional Notes:

Flows continue to be directed towards maintenance of treatment area.

Returned 2 empty cylinder

PhA-ER Monthly System O&M Progress Report
Building 46 West Unit
February, 2004 O&M Event

1.0 Introduction

Building 46 was the former base gas station that operated from 1946-1987. The station had a total of eight (8) UST's which were all removed in 1988. Contamination assessments conducted in 1997 and 1998 indicates an extensive vadose zone and groundwater impact from the former gas station operations. The plume extends on the east and west sides of New World (former D Avenue). Two MAGNUS (multi application gas nutrient systems) bioremediation systems were installed to treat the east and west portions of the plume. The objective is to treat the source area (former UST location) soil and groundwater contamination to cleanup target levels and the outer plume areas to NA (natural attenuation) standards.

2.0 Description of February 17, 2004, Site Visit, Preventative and Corrective Maintenance- L. E. Priester

- The system was on at main power disconnect and running upon arrival.
- Three nitrous cylinders in place added third cylinder. Replaced one empty cylinder. Pressures and flow OK. Checked for leaks—none detected.
- Checked TEP cylinder fluid level – OK at approximately 0.50 gallons.. Flow OK at 50%.
- Checked air compressor inlet air filters. Checked for leaks – none detected.
- Ventilation fan working. Verified thermostat function.
- System air flows left in current configuration to maximize flow to area of plume originally outside of treatment zone, as well as maintenance flow to original area.
- System left to continue running on compressor 1. .
- Phone lines are currently not functional/disconnected.
- System was left on.

3.0 Operation efficiencies

Maximum remedial efficiencies are presently achieved by continuous operations to selected injection wells.

4.0 Remedial progress

Aggregate contaminant mass in the CF46W treatment area has been reduced by 100%. Contamination is evident in the groundwater from MW-26I, outside of the intended

treatment area. The Magnus system will continue to operate and be directed to this area in an attempt to influence the microorganism population and continue contaminant degradation.

4.1 Flow rate monitoring

Air flow rates to injection wells previously were balanced to achieve maximum air flow to the deep injection wells while maintaining air flow to the intermediate wells and were left as set. Flow through TEP cylinder at 50%..

5.0 Recommendations

Re-balance system as needed as future monitoring well laboratory report results are received and analyzed.

pHA-ER OPERATION and MAINTENANCE LOG		**Date:**	3/22/2004 3/23/2004
Site Name: Cecil Field Site 46 East		**Arrival Time:**	10:00 AM 12:00 PM
Personnel on Site:	L E Priester	**Departure Time:**	3:00 AM 2:30 PM

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			23,926.4		System turned off for sampling during the past month
Pressure Hour Meter (Hours)			23,842.9		
Air Supply					
Leg 1 (PSIG)		15	15		
Leg 2 (PSIG)		15	15		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	MT	AG	500/70	AG	Returned 3 empties to AG Jax.
Cylinder 2 (psig, primary/secondary)	MT	AG	500/70	AG	
Cylinder 3 (psig, primary/secondary)	MT	AG	500/70	AG	
Cylinder 4 (psig, primary/secondary)	400/70	AG	400/70	AG	
Cylinder 5 (psig, primary/secondary)	500/70	AG	500/70	AG	
Flow Meter (CFH)		1.5		1	
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.6		0.75		
Air Flow (CFM)	1		1		
Air Flow					
Inj. Well I4 (Valve % Open/CFM)	0		0		No change to air flow distribution to leg 1 .
Inj. Well I5 (Valve % Open/CFM)	100		100		
Inj. Well D9 (Valve % Open/CFM)	0		0		
Inj. Well D10 (Valve % Open/CFM)	0		0		
Inj. Well D11 (Valve % Open/CFM)	0		0		
Inj. Well I2 (Valve % Open/CFM)	0		0		
Inj. Well I3 (Valve % Open/CFM)	100		100		
Inj. Well I6 (Valve % Open/CFM)	100		100		
Inj. Well I7 (Valve % Open/CFM)	100		100		
Inj. Well I8 (Valve % Open/CFM)	0		0		
Inj. Well I1 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		No change to air flow distribution to leg 2 .
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	100		100		
Inj. Well D4 (Valve % Open/CFM)	50		50		
Inj. Well D5 (Valve % Open/CFM)	0		0		
Inj. Well D6 (Valve % Open/CFM)	25		25		
Inj. Well D7 (Valve % Open/CFM)	25		25		
Inj. Well D8 (Valve % Open/CFM)	0		0		

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1	OK
#2	Turned off
#3	Turned off
#4	Turned off
Air Legs/ Solenoid Valves	OK
Ventilation Fans	OK. Roof fan OK. Verified thermostat function.
Primary Electrical System	OK
PLC-Telemetry	Phone line not functioning.
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK
Additional Notes:	Flow continues to be directed to plume hot spot. Checked filters--OK Returned three nitrous empties to AG Jax.

PhA-ER Monthly System O&M Progress Report
Building 46 East Unit
February, 2004 O&M Event

1.0 Introduction

Building 46 was the former base gas station that operated from 1946-1987. The station had a total of eight (8) UST's which were all removed in 1988. Contamination assessments conducted in 1997 and 1998 indicates an extensive vadose zone and groundwater impact from the former gas station operations. The plume extends on the east and west sides of New World (former D Avenue). Two MAGNUS (multi application gas nutrient systems) bioremediation systems were installed to treat the east and west portions of the plume. The objective is to treat the source area (former UST locations) soil and groundwater contamination to cleanup target levels and the outer plume areas to NA (natural attenuation) standards.

2.0 Description of February 17, 2004 Site Visit, Preventative and Corrective Maintenance. L.E. Priester

- The system was on at the main power disconnect and running upon arrival.
- Checked status of Nitrous Oxide. Reset the pressures and flow. Checked for leaks—none detected. Removed three empty cylinders and returned to Air Gas Jax.
- Checked the TEP level in the cylinder-- the level was OK at approximately 0.75 gallons. System left at 50% bypass flow.
- Compressor operation checked—OK.
- Compressor intake filters were checked.
- Compressor cowl screws were checked and tightened if necessary.
- The roof top ventilation fan was checked, and operation of the thermostat verified.
- All valves and directed flow remain the same. Checked for system leaks—none detected.
- Documented power and pressure hour meter readings.
- Phone line is currently not functional/ disconnected.
- Secured system trailer.
- System left on and running.

3.0 Operation efficiencies

Maximum remedial efficiencies are presently achieved by pulsed operations to selected injection wells. Flow has been adjusted based on the most recent laboratory data to shift more air and nutrient into hot zone area and less to peripheral injection wells.

4.0 Remedial progress

Latest data continues to demonstrate a decline in BTEX concentrations in the original source area (shallow to intermediate zone). Total contaminant concentration reductions are approximately 85% overall.

4.1 Flow rate monitoring

Air flow rates to injection wells are based on the most recent laboratory data to concentrate flow to the remaining areas of contamination.

5.0 Recommendations

Re-balance system as needed as future monitoring well laboratory report results are received and analyzed.

PhA-ER Monthly System O&M Progress Report
Building 46 West Unit
March 22-23, 2004 O&M Event

1.0 Introduction

Building 46 was the former base gas station that operated from 1946-1987. The station had a total of eight (8) UST's which were all removed in 1988. Contamination assessments conducted in 1997 and 1998 indicates an extensive vadose zone and groundwater impact from the former gas station operations. The plume extends on the east and west sides of New World (former D Avenue). Two MAGNUS (multi application gas nutrient systems) bioremediation systems were installed to treat the east and west portions of the plume. The objective is to treat the source area (former UST location) soil and groundwater contamination to cleanup target levels and the outer plume areas to NA (natural attenuation) standards.

2.0 Description of March 22-23, 2004, Site Visit, Preventative and Corrective Maintenance- L. E. Priester

- The system was on at main power disconnect and running upon arrival.
- Three nitrous cylinders in place. Replaced two empty cylinders. Pressures and flow OK. Checked for leaks—none detected.
- Checked TEP cylinder fluid level – OK at approximately 0.45 gallons added to .75 gallons. Flow OK at 50%.
- Checked air compressor inlet air filters. Checked for leaks – none detected.
- Ventilation fan working. Verified thermostat function.
- System air flows left in current configuration to maximize flow to area of plume originally outside of treatment zone, as well as maintenance flow to original area.
- System left to continue running on compressor 1.
- Phone lines are currently not functional/disconnected.
- System was left on.

3.0 Operation efficiencies

Maximum remedial efficiencies are presently achieved by continuous operations to selected injection wells.

4.0 Remedial progress

Aggregate contaminant mass in the CF46W treatment area has been reduced by 100%. Contamination is evident in the groundwater from MW-26I, outside of the intended treatment area. The Magnus system will continue to operate and be directed to this area

in an attempt to influence the microorganism population and continue contaminant degradation.

4.1 Flow rate monitoring

Air flow rates to injection wells previously were balanced to achieve maximum air flow to the deep injection wells while maintaining air flow to the intermediate wells and were left as set. Flow through TEP cylinder at 50%.

5.0 Recommendations

Re-balance system as needed as future monitoring well laboratory report results are received and analyzed.

PhA-ER Monthly System O&M Progress Report
Building 46 East Unit
March, 2004 O&M Event

1.0 Introduction

Building 46 was the former base gas station that operated from 1946-1987. The station had a total of eight (8) UST's which were all removed in 1988. Contamination assessments conducted in 1997 and 1998 indicates an extensive vadose zone and groundwater impact from the former gas station operations. The plume extends on the east and west sides of New World (former D Avenue). Two MAGNUS (multi application gas nutrient systems) bioremediation systems were installed to treat the east and west portions of the plume. The objective is to treat the source area (former UST locations) soil and groundwater contamination to cleanup target levels and the outer plume areas to NA (natural attenuation) standards.

2.0 Description of March 22-23, 2004 Site Visit, Preventative and Corrective Maintenance. L.E. Priester

- The system was on at the main power disconnect and running upon arrival.
- Checked status of Nitrous Oxide. Reset the pressures and flow. Checked for leaks—none detected. Removed three empty cylinders and returned to Air Gas Jax.
- Checked the TEP level in the cylinder-- the level was OK at approximately 0.6 gallons added to 0.75. System left at 50% bypass flow.
- Compressor operation checked—OK.
- Compressor intake filters were checked.
- Compressor cowl screws were checked and tightened if necessary.
- The roof top ventilation fan was checked, and operation of the thermostat verified.
- All valves and directed flow remain the same. Checked for system leaks—none detected.
- Documented power and pressure hour meter readings.
- Phone line is currently not functional/ disconnected.
- Secured system trailer.
- System left on and running.

3.0 Operation efficiencies

Maximum remedial efficiencies are presently achieved by pulsed operations to selected injection wells. Flow has been adjusted based on the most recent laboratory data to shift more air and nutrient into hot zone area and less to peripheral injection wells.

4.0 Remedial progress

Latest data continues to demonstrate a decline in BTEX concentrations in the original source area (shallow to intermediate zone). Total contaminant concentration reductions are approximately 85% overall.

4.1 Flow rate monitoring

Air flow rates to injection wells are based on the most recent laboratory data to concentrate flow to the remaining areas of contamination.

5.0 Recommendations

Re-balance system as needed as future monitoring well laboratory report results are received and analyzed.

pHA-ER OPERATION and MAINTENANCE LOG		**Date:**	4/23/2004
Site Name: Cecil Field Site 46 West		**Arrival Time:**	10:00 AM
Personnel on Site:	L E Priester	**Departure Time:**	3:00 AM

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			9,041.0		Meter is not functioning correctly.
Pressure Hour Meter (Hours)			25,218.0		
Air Supply					
Leg 1 (PSIG)	22		22		
Leg 2 (PSIG)	28		28		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	300/60	AG	None	AG	AG Jax
Cylinder 2 (psig, primary/secondary)	300/60	AG	None	AG	AG Jax
Cylinder 3 (psig, primary/secondary)	MT		None		AG Jax
Flow Meter (CFH)	0.2		0.2		
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.55		0.55		TEP turned off per Navy
Air Flow (CFM)	1		1		
Air Flow					
Inj. Well I1 (Valve % Open/CFM)	0		0		No change to flow rates.
Inj. Well I2 (Valve % Open/CFM)	25		25		
Inj. Well I3 (Valve % Open/CFM)	0		0		
Inj. Well I4 (Valve % Open/CFM)	25		25		
Inj. Well I5 (Valve % Open/CFM)	25		25		
Inj. Well I8 (Valve % Open/CFM)	25		25		No change to flow rates.
Inj. Well I6 (Valve % Open/CFM)	25		25		Set up for maintenance flow.
Inj. Well I7 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	0		0		

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK. No leaks.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1 SN 0103706074	OK Checked inlet filters.
#2 SN 0103706070	Turned off.
#3 SN 0103706076	Removed
#4 SN0103706073	Turned off.
Air Legs/ Solenoid Valves	OK.
Ventilation Fan	OK.
Primary Electrical System	OK
PLC-Telemetry	Phone line disconnected
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK
Additional Notes:	Flows continue to be directed towards maintenance of treatment area. Removed all Nitous Oxide cylinders per Navy (Magwood)

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 East

Personnel on Site: L E Priester

Date: 4/23/2004

Arrival Time: 10:00 AM

Departure Time: 3:00 AM

Exterior Parameters	Arrival		Departure		Comments
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			24,640.3		System turned off for sampling during the past month
Pressure Hour Meter (Hours)			24,556.9		
Air Supply					
Leg 1 (PSIG)		15	15		
Leg 2 (PSIG)		15	15		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	MT	AG	None		Returned 3 empties to AG Jax.
Cylinder 2 (psig, primary/secondary)	MT	AG	None		
Cylinder 3 (psig, primary/secondary)	MT	AG	None		
Cylinder 4 (psig, primary/secondary)	400/70	AG	None		
Cylinder 5 (psig, primary/secondary)	500/70	AG	None		
Flow Meter (CFH)		1.5		1	
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.6		0.75		Turned Off per Navy
Air Flow (CFM)	1		1		
Air Flow					
Inj. Well I4 (Valve % Open/CFM)	0		0		No change to air flow distribution to leg 1 .
Inj. Well I5 (Valve % Open/CFM)	100		100		
Inj. Well D9 (Valve % Open/CFM)	0		0		
Inj. Well D10 (Valve % Open/CFM)	0		0		
Inj. Well D11 (Valve % Open/CFM)	0		0		
Inj. Well I2 (Valve % Open/CFM)	0		0		
Inj. Well I3 (Valve % Open/CFM)	100		100		
Inj. Well I6 (Valve % Open/CFM)	100		100		
Inj. Well I7 (Valve % Open/CFM)	100		100		
Inj. Well I8 (Valve % Open/CFM)	0		0		
Inj. Well I1 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		No change to air flow distribution to leg 2 .
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	100		100		
Inj. Well D4 (Valve % Open/CFM)	50		50		
Inj. Well D5 (Valve % Open/CFM)	0		0		
Inj. Well D6 (Valve % Open/CFM)	25		25		
Inj. Well D7 (Valve % Open/CFM)	25		25		
Inj. Well D8 (Valve % Open/CFM)	0		0		

Maintenance Information	Maintenance Performed
Nitrous System Cylinders/Regulators	OK.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1	OK
#2	Turned off
#3	Turned off
#4	Turned off
Air Legs/ Solenoid Valves	OK
Ventilation Fans	OK. Roof fan OK. Verified thermostat function.
Primary Electrical System	OK
PLC-Telemetry	Phone line not functioning.
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK
Additional Notes:	Flow continues to be directed to plume hot spot. Checked filters--OK Removed all Nitrous Oxide Cylinders per Navy (Magwood)

pHA-ER OPERATION and MAINTENANCE LOG		**Date:**	5/17/2004
Site Name: Cecil Field Site 46 West		**Arrival Time:**	11:30 AM
Personnel on Site:	L E Priester	**Departure Time:**	3:00 PM

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			9,041.5		Meter is not functioning correctly.
Pressure Hour Meter (Hours)			25,848.6		
Air Supply					
Leg 1 (PSIG)	22		22		
Leg 2 (PSIG)	28		28		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	None		None		AG Jax
Cylinder 2 (psig, primary/secondary)	None		None		AG Jax
Cylinder 3 (psig, primary/secondary)	None		None		AG Jax
Flow Meter (CFH)	0.2		0.2		
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.55		0.55		TEP turned off per Navy
Air Flow (CFM)	1		1		
Air Flow					
Inj. Well I1 (Valve % Open/CFM)	0		0		No change to flow rates.
Inj. Well I2 (Valve % Open/CFM)	25		25		
Inj. Well I3 (Valve % Open/CFM)	0		0		
Inj. Well I4 (Valve % Open/CFM)	25		25		
Inj. Well I5 (Valve % Open/CFM)	25		25		
Inj. Well I8 (Valve % Open/CFM)	25		25		No change to flow rates.
Inj. Well I6 (Valve % Open/CFM)	25		25		Set up for maintenance flow.
Inj. Well I7 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	0		0		

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK. No leaks.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1 SN 0103706074	OK Checked inlet filters.
#2 SN 0103706070	Turned off.
#3 SN 0103706076	Removed
#4 SN0103706073	Turned off.
Air Legs/ Solenoid Valves	OK.
Ventilation Fan	OK.
Primary Electrical System	OK
PLC-Telemetry	Phone line disconnected
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK
Additional Notes:	Flows continue to be directed towards maintenance of treatment area. Removed all Nitous Oxide cylinders per Navy (Magwood) in March 2004 Removed three compressors for maintenance. Left new 6LDH for spare

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 East

Personnel on Site: L E Priester

Date: 5/17/2004

Arrival Time: 11:30 AM

Departure Time: 3:00 PM

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			25,271.3		System turned off for sampling during the past month
Pressure Hour Meter (Hours)			25,187.8		
Air Supply					
Leg 1 (PSIG)		15	15		
Leg 2 (PSIG)		15	15		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	MT	AG	None		Returned 3 empties to AG Jax.
Cylinder 2 (psig, primary/secondary)	MT	AG	None		
Cylinder 3 (psig, primary/secondary)	MT	AG	None		
Cylinder 4 (psig, primary/secondary)	400/70	AG	None		
Cylinder 5 (psig, primary/secondary)	500/70	AG	None		
Flow Meter (CFH)		1.5		1	
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.6		0.75		Turned Off per Navy
Air Flow (CFM)	1		1		
Air Flow					
Inj. Well I4 (Valve % Open/CFM)	0		0		No change to air flow distribution to leg 1 .
Inj. Well I5 (Valve % Open/CFM)	100		100		
Inj. Well D9 (Valve % Open/CFM)	0		0		
Inj. Well D10 (Valve % Open/CFM)	0		0		
Inj. Well D11 (Valve % Open/CFM)	0		0		
Inj. Well I2 (Valve % Open/CFM)	0		0		
Inj. Well I3 (Valve % Open/CFM)	100		100		
Inj. Well I6 (Valve % Open/CFM)	100		100		
Inj. Well I7 (Valve % Open/CFM)	100		100		
Inj. Well I8 (Valve % Open/CFM)	0		0		
Inj. Well I1 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		No change to air flow distribution to leg 2 .
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	100		100		
Inj. Well D4 (Valve % Open/CFM)	50		50		
Inj. Well D5 (Valve % Open/CFM)	0		0		
Inj. Well D6 (Valve % Open/CFM)	25		25		
Inj. Well D7 (Valve % Open/CFM)	25		25		
Inj. Well D8 (Valve % Open/CFM)	0		0		

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1	OK
#2	Turned off
#3	Turned off
#4	Turned off
Air Legs/ Solenoid Valves	OK
Ventilation Fans	OK. Roof fan OK. Verified thermostat function.
Primary Electrical System	OK
PLC-Telemetry	Phone line not functioning.
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK

Additional Notes:

Flow continues to be directed to plume hot spot.
Checked filters--OK
Removed all Nitrous Oxide Cylinders per Navy (Magwood)

Removed ome compressor with bad motor for maintenance. Left new 6LDH for spare
Pulled 7LDH for use in Hawthorne

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 West

Personnel on Site: L E Priester, J Whitaker

Date: 6/21/2004
Arrival Time: 11:30 AM
Departure Time: 3:00 PM

Exterior Parameters	Arrival		Departure		Comments
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			9,099.1		Meter is not functioning correctly.
Pressure Hour Meter (Hours)			26,359.9		
Air Supply					
Leg 1 (PSIG)	22		22		
Leg 2 (PSIG)	28		28		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	None		None		AG Jax
Cylinder 2 (psig, primary/secondary)	None		None		AG Jax
Cylinder 3 (psig, primary/secondary)	None		None		AG Jax
Flow Meter (CFH)	0.2		0.2		
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.55		0.55		TEP turned off per Navy
Air Flow (CFM)	1		1		
Air Flow					
Inj. Well I1 (Valve % Open/CFM)	0		0		No change to flow rates.
Inj. Well I2 (Valve % Open/CFM)	25		25		
Inj. Well I3 (Valve % Open/CFM)	0		0		
Inj. Well I4 (Valve % Open/CFM)	25		25		
Inj. Well I5 (Valve % Open/CFM)	25		25		
Inj. Well I8 (Valve % Open/CFM)	25		25		No change to flow rates.
Inj. Well I6 (Valve % Open/CFM)	25		25		Set up for maintenance flow.
Inj. Well I7 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	0		0		

Maintenance Information	Maintenance Performed
Nitrous System Cylinders/Regulators	OK. No leaks.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1 SN 0103706074	OK Checked inlet filters.
#2 SN 0103706070	Turned off.
#3 SN 0103706076	Removed
#4 SN0103706073	Turned off.
Air Legs/ Solenoid Valves	OK.
Ventilation Fan	OK.
Primary Electrical System	OK
PLC-Telemetry	Phone line disconnected
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK

Additional Notes:

Flows continue to be directed towards maintenance of treatment area.
Removed all Nitous Oxide cylinders per Navy (Magwood) in March 2004
Removed three compressors for maintenance. Left new 6LDH for spare

pHA-ER OPERATION and MAINTENANCE LOG		**Date:**	6/21/2004
Site Name: Cecil Field Site 46 East		**Arrival Time:**	11:30 AM
Personnel on Site:	L E Priester	**Departure Time:**	3:00 PM
	J Whitaker		

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			25,782.4		System turned off for sampling during the past month
Pressure Hour Meter (Hours)			25,698.9		
Air Supply					
Leg 1 (PSIG)		15	15		
Leg 2 (PSIG)		15	15		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	MT	AG	None		Returned 3 empties to AG Jax.
Cylinder 2 (psig, primary/secondary)	MT	AG	None		
Cylinder 3 (psig, primary/secondary)	MT	AG	None		
Cylinder 4 (psig, primary/secondary)	400/70	AG	None		
Cylinder 5 (psig, primary/secondary)	500/70	AG	None		
Flow Meter (CFH)		1.5		1	
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.6		0.75		Turned Off per Navy
Air Flow (CFM)	1		1		
Air Flow					
Inj. Well I4 (Valve % Open/CFM)	0		0		No change to air flow distribution to leg 1 .
Inj. Well I5 (Valve % Open/CFM)	100		100		
Inj. Well D9 (Valve % Open/CFM)	0		0		
Inj. Well D10 (Valve % Open/CFM)	0		0		
Inj. Well D11 (Valve % Open/CFM)	0		0		
Inj. Well I2 (Valve % Open/CFM)	0		0		
Inj. Well I3 (Valve % Open/CFM)	100		100		
Inj. Well I6 (Valve % Open/CFM)	100		100		
Inj. Well I7 (Valve % Open/CFM)	100		100		
Inj. Well I8 (Valve % Open/CFM)	0		0		
Inj. Well I1 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		No change to air flow distribution to leg 2 .
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	100		100		
Inj. Well D4 (Valve % Open/CFM)	50		50		
Inj. Well D5 (Valve % Open/CFM)	0		0		
Inj. Well D6 (Valve % Open/CFM)	25		25		
Inj. Well D7 (Valve % Open/CFM)	25		25		
Inj. Well D8 (Valve % Open/CFM)	0		0		

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1	OK
#2	Turned off
#3	Turned off
#4	Turned off
Air Legs/ Solenoid Valves	OK
Ventilation Fans	OK. Roof fan OK. Verified thermostat function.
Primary Electrical System	OK
PLC-Telemetry	Phone line not functioning.
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK
Additional Notes:	Flow continues to be directed to plume hot spot. Checked filters--OK Removed all Nitrous Oxide Cylinders per Navy (Magwood) Left new 6LDH for spare. Pulled 7LDH for use in Hawthorne

pHA-ER OPERATION and MAINTENANCE LOG		**Date:**	7/19/2004
Site Name: Cecil Field Site 46 West		**Arrival Time:**	11:30 AM
Personnel on Site:	L E Priester	**Departure Time:**	3:00 PM
	J Whitaker		

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			9,099.1		Meter is not functioning correctly.
Pressure Hour Meter (Hours)			27,031.7		
Air Supply					
Leg 1 (PSIG)	22		22		
Leg 2 (PSIG)	28		28		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	None		None		AG Jax
Cylinder 2 (psig, primary/secondary)	None		None		AG Jax
Cylinder 3 (psig, primary/secondary)	None		None		AG Jax
Flow Meter (CFH)	0.2		0.2		
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.55		0.55		TEP turned off per Navy
Air Flow (CFM)	1		1		
Air Flow					
Inj. Well I1 (Valve % Open/CFM)	0		0		No change to flow rates.
Inj. Well I2 (Valve % Open/CFM)	25		25		
Inj. Well I3 (Valve % Open/CFM)	0		0		
Inj. Well I4 (Valve % Open/CFM)	25		25		
Inj. Well I5 (Valve % Open/CFM)	25		25		
Inj. Well I8 (Valve % Open/CFM)	25		25		No change to flow rates.
Inj. Well I6 (Valve % Open/CFM)	25		25		Set up for maintenance flow.
Inj. Well I7 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	0		0		

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK. No leaks.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1 SN 0103706074	OK Checked inlet filters.
#2 SN 0103706070	Turned off.
#3 SN 0103706076	Removed
#4 SN0103706073	Turned off.
Air Legs/ Solenoid Valves	OK.
Ventilation Fan	OK.
Primary Electrical System	OK
PLC-Telemetry	Phone line disconnected
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK
Additional Notes:	Relaced one compressor with new 6LDH. Flows continue to be directed towards maintenance of treatment area. Removed all Nitous Oxide cylinders per Navy (Magwood) in March 2004

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 East

Personnel on Site: L E Priester, J Whitaker

Date: 7/19/2004
Arrival Time: 11:30 AM
Departure Time: 3:00 PM

Exterior Parameters	Arrival		Departure		Comments
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			26,454.3		
Pressure Hour Meter (Hours)			26,370.8		
Air Supply					
Leg 1 (PSIG)		15	15		
Leg 2 (PSIG)		15	15		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	MT	AG	None		Returned 3 empties to AG Jax.
Cylinder 2 (psig, primary/secondary)	MT	AG	None		Nitrous off per Navy
Cylinder 3 (psig, primary/secondary)	MT	AG	None		
Cylinder 4 (psig, primary/secondary)	400/70	AG	None		
Cylinder 5 (psig, primary/secondary)	500/70	AG	None		
Flow Meter (CFH)		1.5		1	
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.6		0.75		Turned Off per Navy
Air Flow (CFM)	1		1		
Air Flow					
Inj. Well I4 (Valve % Open/CFM)	0		0		No change to air flow distribution to leg 1 .
Inj. Well I5 (Valve % Open/CFM)	100		100		
Inj. Well D9 (Valve % Open/CFM)	0		0		
Inj. Well D10 (Valve % Open/CFM)	0		0		
Inj. Well D11 (Valve % Open/CFM)	0		0		
Inj. Well I2 (Valve % Open/CFM)	0		0		
Inj. Well I3 (Valve % Open/CFM)	100		100		
Inj. Well I6 (Valve % Open/CFM)	100		100		
Inj. Well I7 (Valve % Open/CFM)	100		100		
Inj. Well I8 (Valve % Open/CFM)	0		0		
Inj. Well I1 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		No change to air flow distribution to leg 2 .
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	100		100		
Inj. Well D4 (Valve % Open/CFM)	50		50		
Inj. Well D5 (Valve % Open/CFM)	0		0		
Inj. Well D6 (Valve % Open/CFM)	25		25		
Inj. Well D7 (Valve % Open/CFM)	25		25		
Inj. Well D8 (Valve % Open/CFM)	0		0		

Maintenance Information	Maintenance Performed
Nitrous System Cylinders/Regulators	OK.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1	OK
#2	Turned off
#3	Turned off
#4	Turned off
Air Legs/ Solenoid Valves	OK
Ventilation Fans	OK. Roof fan OK. Verified thermostat function.
Primary Electrical System	OK
PLC-Telemetry	Phone line not functioning.
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK

Additional Notes:

Flow continues to be directed to plume hot spot.
Checked filters--OK
Removed all Nitrous Oxide Cylinders per Navy (Magwood)

One three phase 6LDH is in trailer for spare.
Pulled 7LDH for use in Hawthorne

pHA-ER OPERATION and MAINTENANCE LOG		Date:	8/23/2004
Site Name: Cecil Field Site 46 West		Arrival Time:	3:00 PM
Personnel on Site:	L E Priester	Departure Time:	5:00 PM
	J Whitaker		

Exterior Parameters	Arrival		Departure		Comments
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			9,099.1		Meter is not functioning correctly.
Pressure Hour Meter (Hours)			27,871.4		
Air Supply					
Leg 1 (PSIG)	22		22		
Leg 2 (PSIG)	28		28		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	None		None		AG Jax
Cylinder 2 (psig, primary/secondary)	None		None		AG Jax
Cylinder 3 (psig, primary/secondary)	None		None		AG Jax
Flow Meter (CFH)	0.2		0.2		
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.55		0.55		TEP turned off per Navy
Air Flow (CFM)	0		0		
Air Flow					
Inj. Well I1 (Valve % Open/CFM)	0		0		No change to flow rates.
Inj. Well I2 (Valve % Open/CFM)	25		25		
Inj. Well I3 (Valve % Open/CFM)	0		0		
Inj. Well I4 (Valve % Open/CFM)	25		25		
Inj. Well I5 (Valve % Open/CFM)	25		25		
Inj. Well I8 (Valve % Open/CFM)	25		25		No change to flow rates.
Inj. Well I6 (Valve % Open/CFM)	25		25		Set up for maintenance flow.
Inj. Well I7 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	0		0		

Maintenance Information	Maintenance Performed
Nitrous System Cylinders/Regulators	OK. No leaks.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1 SN 0103706074	OK Checked inlet filters.
#2 SN 0103706070	Turned off.
#3 SN 0103706076	Removed
#4 SN0103706073	Turned off.
Air Legs/ Solenoid Valves	OK.
Ventilation Fan	OK.
Primary Electrical System	OK
PLC-Telemetry	Phone line disconnected
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK
Additional Notes:	Flows continue to be directed towards maintenance of treatment area. Removed all Nitous Oxide cylinders per Navy (Magwood) in March 2004

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 East

Personnel on Site: L E Priester

Date: 8/23/2004

Arrival Time: 3:00 PM

Departure Time: 5:00 PM

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			27,294.4		
Pressure Hour Meter (Hours)			27,210.9		
Air Supply					
Leg 1 (PSIG)		15	15		
Leg 2 (PSIG)		15	15		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	None	AG	None		Returned 3 empties to AG Jax.
Cylinder 2 (psig, primary/secondary)	None	AG	None		Nitrous off per Navy
Cylinder 3 (psig, primary/secondary)	None	AG	None		
Cylinder 4 (psig, primary/secondary)	None	AG	None		
Cylinder 5 (psig, primary/secondary)	None	AG	None		
Flow Meter (CFH)		1.5		1	
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.75		0.75		Turned Off per Navy
Air Flow (CFM)	0		0		
Air Flow					
Inj. Well I4 (Valve % Open/CFM)	0		0		No change to air flow distribution to leg 1 .
Inj. Well I5 (Valve % Open/CFM)	100		100		
Inj. Well D9 (Valve % Open/CFM)	0		0		
Inj. Well D10 (Valve % Open/CFM)	0		0		
Inj. Well D11 (Valve % Open/CFM)	0		0		
Inj. Well I2 (Valve % Open/CFM)	0		0		
Inj. Well I3 (Valve % Open/CFM)	100		100		
Inj. Well I6 (Valve % Open/CFM)	100		100		
Inj. Well I7 (Valve % Open/CFM)	100		100		
Inj. Well I8 (Valve % Open/CFM)	0		0		
Inj. Well I1 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		No change to air flow distribution to leg 2 .
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	100		100		
Inj. Well D4 (Valve % Open/CFM)	50		50		
Inj. Well D5 (Valve % Open/CFM)	0		0		
Inj. Well D6 (Valve % Open/CFM)	25		25		
Inj. Well D7 (Valve % Open/CFM)	25		25		
Inj. Well D8 (Valve % Open/CFM)	0		0		

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK.
Nitrous Oxide Solenoid Valve	OK
TEP System	OK. IV 100%, OV 100%, BPV 50%
AC Gast M853 Mod 5K49ZN4223	
#1	OK
#2	Turned off
#3	Turned off
#4	Turned off
Air Legs/ Solenoid Valves	OK
Ventilation Fans	OK. Roof fan OK. Verified thermostat function.
Primary Electrical System	OK
PLC-Telemetry	Phone line not functioning.
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK
Additional Notes:	Flow continues to be directed to plume hot spot. Checked filters--OK Removed all Nitrous Oxide Cylinders per Navy (Magwood) in March 2004 One three phase 6LDH is in trailer for spare.

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 West

Personnel on Site: L E Priester

Date: 9/21/2004

Arrival Time: 12:00 PM

Departure Time: 2:00 PM

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	Off		Off		
Power Hour Meter (Hours)			9,099.1		Meter is not functioning correctly.
Pressure Hour Meter (Hours)			28,038.4		
Air Supply					
Leg 1 (PSIG)	0		0		
Leg 2 (PSIG)	0		0		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	None		None		AG Jax No Nitrous Oxide per Navy
Cylinder 2 (psig, primary/secondary)	None		None		AG Jax
Cylinder 3 (psig, primary/secondary)	None		None		AG Jax
Flow Meter (CFH)	0		0		
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.55		0.55		TEP turned off per Navy
Air Flow (CFM)	0		0		
Air Flow					
Inj. Well I1 (Valve % Open/CFM)	0	0	0	0	No change to flow rates.
Inj. Well I2 (Valve % Open/CFM)	25	0	25	0	
Inj. Well I3 (Valve % Open/CFM)	0	0	0	0	
Inj. Well I4 (Valve % Open/CFM)	25	0	25	0	
Inj. Well I5 (Valve % Open/CFM)	25	0	25	0	
Inj. Well I8 (Valve % Open/CFM)	25	0	25	0	No change to flow rates.
Inj. Well I6 (Valve % Open/CFM)	25	0	25	0	Set up for maintenance flow.
Inj. Well I7 (Valve % Open/CFM)	0	0	0	0	
Inj. Well D1 (Valve % Open/CFM)	100	0	100	0	
Inj. Well D2 (Valve % Open/CFM)	100	0	100	0	
Inj. Well D3 (Valve % Open/CFM)	0	0	0	0	

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK. No N2O
Nitrous Oxide Solenoid Valve	OK. No N2O
TEP System	OK -Off
AC Gast M853 Mod 5K49ZN4223	
#1 SN 0103706074	OK Checked inlet filters.
#2 SN 0103706070	Turned off.
#3 SN 0103706076	Removed
#4 SN0103706073	Turned off.
Air Legs/ Solenoid Valves	OK.
Ventilation Fan	OK.
Primary Electrical System	OK
PLC-Telemetry	Phone line disconnected
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK
Additional Notes:	Systems shut down - Terraine sampling monitoring wells Flows continue to be directed towards maintenance of treatment area. Removed all Nitous Oxide cylinders per Navy (Magwood) in March 2004

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 East

Personnel on Site: L E Priester

Date: 9/21/2004

Arrival Time: 12:00 PM

Departure Time: 2:00 PM

Exterior Parameters	Arrival		Departure		Comments
Power Disconnect (On/Off)	Off		Off		
Power Hour Meter (Hours)			27,461.4		
Pressure Hour Meter (Hours)			27,377.9		
Air Supply					
Leg 1 (PSIG)		0	0		
Leg 2 (PSIG)		0	0		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	None	AG	None		Returned 3 empties to AG Jax.
Cylinder 2 (psig, primary/secondary)	None	AG	None		Nitrous off per Navy
Cylinder 3 (psig, primary/secondary)	None	AG	None		
Cylinder 4 (psig, primary/secondary)	None	AG	None		
Cylinder 5 (psig, primary/secondary)	None	AG	None		
Flow Meter (CFH)		0		0	
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.75		0.75		Turned Off per Navy
Air Flow (CFM)	0		0		
Air Flow					
Inj. Well I4 (Valve % Open/CFM)	0	0	0	0	No change to air flow distribution to leg 1 .
Inj. Well I5 (Valve % Open/CFM)	100	0	100	0	
Inj. Well D9 (Valve % Open/CFM)	0	0	0	0	
Inj. Well D10 (Valve % Open/CFM)	0	0	0	0	
Inj. Well D11 (Valve % Open/CFM)	0	0	0	0	
Inj. Well I2 (Valve % Open/CFM)	0	0	0	0	
Inj. Well I3 (Valve % Open/CFM)	100	0	100	0	
Inj. Well I6 (Valve % Open/CFM)	100	0	100	0	
Inj. Well I7 (Valve % Open/CFM)	100	0	100	0	
Inj. Well I8 (Valve % Open/CFM)	0	0	0	0	
Inj. Well I1 (Valve % Open/CFM)	0	0	0	0	
Inj. Well D1 (Valve % Open/CFM)	100	0	100	0	No change to air flow distribution to leg 2 .
Inj. Well D2 (Valve % Open/CFM)	100	0	100	0	
Inj. Well D3 (Valve % Open/CFM)	100	0	100	0	
Inj. Well D4 (Valve % Open/CFM)	50	0	50	0	
Inj. Well D5 (Valve % Open/CFM)	0	0	0	0	
Inj. Well D6 (Valve % Open/CFM)	25	0	25	0	
Inj. Well D7 (Valve % Open/CFM)	25	0	25	0	
Inj. Well D8 (Valve % Open/CFM)	0	0	0	0	

Maintenance Information	Maintenance Performed
Nitrous System Cylinders/Regulators	OK-Off
Nitrous Oxide Solenoid Valve	OK-Off
TEP System	OK-Off
AC Gast M853 Mod 5K49ZN4223	
#1	OK
#2	Turned off
#3	Turned off
#4	Turned off
Air Legs/ Solenoid Valves	OK
Ventilation Fans	OK. Roof fan OK. Verified thermostat function.
Primary Electrical System	OK
PLC-Telemetry	Phone line not functioning.
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK

Additional Notes:

System turned off - Terraine sampling
Flow continues to be directed to plume hot spot.
Checked filters--OK
Removed all Nitrous Oxide Cylinders per Navy (Magwood) in March 2004

One three phase 6LDH is in trailer for spare.

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 West

Personnel on Site: I. E Priester

Date: 10/18/2004

Arrival Time: 1:30 PM

Departure Time: 4:00 AM

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			9,209.1		Meter is not functioning correctly.
Pressure Hour Meter (Hours)			28,160.9		
Air Supply					
Leg 1 (PSIG)	50		50		
Leg 2 (PSIG)	50		50		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	None		None		AG Jax No Nitrous Oxide per Navy
Cylinder 2 (psig, primary/secondary)	None		None		AG Jax
Cylinder 3 (psig, primary/secondary)	None		None		AG Jax
Flow Meter (CFH)	0		0		
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.55		0.55		TEP turned off per Navy
Air Flow (CFM)	0		0		
Air Flow					
Inj. Well I1 (Valve % Open/CFM)	0		0		No change to flow rates.
Inj. Well I2 (Valve % Open/CFM)	25		25		
Inj. Well I3 (Valve % Open/CFM)	0		0		
Inj. Well I4 (Valve % Open/CFM)	25		25		
Inj. Well I5 (Valve % Open/CFM)	25		25		
Inj. Well I8 (Valve % Open/CFM)	25		25		No change to flow rates.
Inj. Well I6 (Valve % Open/CFM)	25		25		Set up for maintenance flow.
Inj. Well I7 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	0		0		

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK. No N2O
Nitrous Oxide Solenoid Valve	OK. No N2O
TEP System	OK -Off
AC Gast M853 Mod 5K49ZN4223	
#1 SN 0103706074	OK Checked inlet filters.
#2 SN 0103706070	Turned off.
#3 SN 0103706076	Removed
#4 SN0103706073	Turned off.
Air Legs/ Solenoid Valves	OK.
Ventilation Fan	OK.
Primary Electrical System	OK
PLC-Telemetry	Phone line disconnected
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK

Additional Notes:

Flows continue to be directed towards maintenance of treatment area.
Removed all Nitous Oxide cylinders per Navy (Magwood) in March 2004

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 East

Personnel on Site: L E Priester

Date: 10/18/2004

Arrival Time: 1:30 PM

Departure Time: 4:00 AM

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			28,099.7		
Pressure Hour Meter (Hours)			28,016.3		
Air Supply					
Leg 1 (PSIG)		50	50		
Leg 2 (PSIG)		50	50		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	None		None		
Cylinder 2 (psig, primary/secondary)	None		None		Nitrous off per Navy
Cylinder 3 (psig, primary/secondary)	None		None		
Cylinder 4 (psig, primary/secondary)	None		None		
Cylinder 5 (psig, primary/secondary)	None		None		
Flow Meter (CFH)		0		0	
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.75		0.75		Turned Off per Navy
Air Flow (CFM)	0		0		
Air Flow					
Inj. Well I4 (Valve % Open/CFM)	0		0		No change to air flow distribution to leg 1 .
Inj. Well I5 (Valve % Open/CFM)	100		100		
Inj. Well D9 (Valve % Open/CFM)	0		0		
Inj. Well D10 (Valve % Open/CFM)	0		0		
Inj. Well D11 (Valve % Open/CFM)	0		0		
Inj. Well I2 (Valve % Open/CFM)	0		0		
Inj. Well I3 (Valve % Open/CFM)	100		100		
Inj. Well I6 (Valve % Open/CFM)	100		100		
Inj. Well I7 (Valve % Open/CFM)	100		100		
Inj. Well I8 (Valve % Open/CFM)	0		0		
Inj. Well I1 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		No change to air flow distribution to leg 2 .
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	100		100		
Inj. Well D4 (Valve % Open/CFM)	50		50		
Inj. Well D5 (Valve % Open/CFM)	0		0		
Inj. Well D6 (Valve % Open/CFM)	25		25		
Inj. Well D7 (Valve % Open/CFM)	25		25		
Inj. Well D8 (Valve % Open/CFM)	0		0		

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK-Off
Nitrous Oxide Solenoid Valve	OK-Off
TEP System	OK-Off
AC Gast M853 Mod 5K49ZN4223	
#1	OK
#2	Turned off
#3	Turned off
#4	Turned off
Air Legs/ Solenoid Valves	OK
Ventilation Fans	OK. Roof fan OK. Verified thermostat function.
Primary Electrical System	OK
PLC-Telemetry	Phone line not functioning.
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK

Additional Notes:

Flow continues to be directed to plume hot spot.
Checked filters--OK
Removed all Nitrous Oxide Cylinders per Navy (Magwood) in March 2004

One three phase 6LDH is in trailer for spare.

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 West

Personnel on Site: L E Priester

Date: 11/15/2004

Arrival Time: 1:30 PM

Departure Time: 4:00 AM

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			9,209.1		Meter is not functioning correctly.
Pressure Hour Meter (Hours)			28,834.4		
Air Supply					
Leg 1 (PSIG)	50		50		
Leg 2 (PSIG)	50		50		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	None		None		AG Jax No Nitrous Oxide per Navy
Cylinder 2 (psig, primary/secondary)	None		None		AG Jax
Cylinder 3 (psig, primary/secondary)	None		None		AG Jax
Flow Meter (CFH)	0		0		
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.55		0.55		TEP turned off per Navy
Air Flow (CFM)	0		0		
Air Flow					
Inj. Well I1 (Valve % Open/CFM)	0		0		No change to flow rates.
Inj. Well I2 (Valve % Open/CFM)	25		25		
Inj. Well I3 (Valve % Open/CFM)	0		0		
Inj. Well I4 (Valve % Open/CFM)	25		25		
Inj. Well I5 (Valve % Open/CFM)	25		25		
Inj. Well I8 (Valve % Open/CFM)	25		25		No change to flow rates.
Inj. Well I6 (Valve % Open/CFM)	25		25		Set up for maintenance flow.
Inj. Well I7 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	0		0		

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK. No N2O
Nitrous Oxide Solenoid Valve	OK. No N2O
TEP System	OK -Off
AC Gast M853 Mod 5K49ZN4223	
#1 SN 0103706074	OK Checked inlet filters.
#2 SN 0103706070	Turned off.
#3 SN 0103706076	Removed
#4 SN0103706073	Turned off.
Air Legs/ Solenoid Valves	OK.
Ventilation Fan	OK.
Primary Electrical System	OK
PLC-Telemetry	Phone line disconnected
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK

Additional Notes:

Flows continue to be directed towards maintenance of treatment area.
Removed all Nitous Oxide cylinders per Navy (Magwood) in March 2004

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 East

Personnel on Site: L E Priester

Date: 11/15/2004

Arrival Time: 1:30 PM

Departure Time: 4:00 AM

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			28,773.2		
Pressure Hour Meter (Hours)			28,689.7		
Air Supply					
Leg 1 (PSIG)		50	50		
Leg 2 (PSIG)		50	50		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	None		None		
Cylinder 2 (psig, primary/secondary)	None		None		Nitrous off per Navy
Cylinder 3 (psig, primary/secondary)	None		None		
Cylinder 4 (psig, primary/secondary)	None		None		
Cylinder 5 (psig, primary/secondary)	None		None		
Flow Meter (CFH)		0		0	
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.75		0.75		Turned Off per Navy
Air Flow (CFM)	0		0		
Air Flow					
Inj. Well I4 (Valve % Open/CFM)	0		0		No change to air flow distribution to leg 1 .
Inj. Well I5 (Valve % Open/CFM)	100		100		
Inj. Well D9 (Valve % Open/CFM)	0		0		
Inj. Well D10 (Valve % Open/CFM)	0		0		
Inj. Well D11 (Valve % Open/CFM)	0		0		
Inj. Well I2 (Valve % Open/CFM)	0		0		
Inj. Well I3 (Valve % Open/CFM)	100		100		
Inj. Well I6 (Valve % Open/CFM)	100		100		
Inj. Well I7 (Valve % Open/CFM)	100		100		
Inj. Well I8 (Valve % Open/CFM)	0		0		
Inj. Well I1 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		No change to air flow distribution to leg 2 .
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	100		100		
Inj. Well D4 (Valve % Open/CFM)	50		50		
Inj. Well D5 (Valve % Open/CFM)	0		0		
Inj. Well D6 (Valve % Open/CFM)	25		25		
Inj. Well D7 (Valve % Open/CFM)	25		25		
Inj. Well D8 (Valve % Open/CFM)	0		0		

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK-Off
Nitrous Oxide Solenoid Valve	OK-Off
TEP System	OK-Off
AC Gast M853 Mod 5K49ZN4223	
#1	OK
#2	Turned off
#3	Turned off
#4	Turned off
Air Legs/ Solenoid Valves	OK
Ventilation Fans	OK. Roof fan OK. Verified thermostat function.
Primary Electrical System	OK
PLC-Telemetry	Phone line not functioning.
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK

Additional Notes:

Flow continues to be directed to plume hot spot.
Checked filters--OK
Removed all Nitrous Oxide Cylinders per Navy (Magwood) in March 2004

One three phase 6LDH is in trailer for spare.

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 West

Personnel on Site: L E Priester

Date: 12/13/2004

Arrival Time: 2:30 PM

Departure Time: 4:30 PM

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			9,278.4		Meter is not functioning correctly.
Pressure Hour Meter (Hours)			29,291.5		
Air Supply					
Leg 1 (PSIG)	50		50		
Leg 2 (PSIG)	50		50		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	None		None		AG Jax No Nitrous Oxide per Navy
Cylinder 2 (psig, primary/secondary)	None		None		AG Jax
Cylinder 3 (psig, primary/secondary)	None		None		AG Jax
Flow Meter (CFH)	0		0		
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.55		0.55		TEP turned off per Navy
Air Flow (CFM)	0		0		
Air Flow					
Inj. Well I1 (Valve % Open/CFM)	0		0		No change to flow rates.
Inj. Well I2 (Valve % Open/CFM)	25		25		
Inj. Well I3 (Valve % Open/CFM)	0		0		
Inj. Well I4 (Valve % Open/CFM)	25		25		
Inj. Well I5 (Valve % Open/CFM)	25		25		
Inj. Well I8 (Valve % Open/CFM)	25		25		No change to flow rates.
Inj. Well I6 (Valve % Open/CFM)	25		25		Set up for maintenance flow.
Inj. Well I7 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	0		0		

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK. No N2O
Nitrous Oxide Solenoid Valve	OK. No N2O
TEP System	OK -Off
AC Gast M853 Mod 5K49ZN4223	
#1 SN 0103706074	OK Checked inlet filters.
#2 SN 0103706070	Turned off.
#3 SN 0103706076	Removed
#4 SN0103706073	Turned off.
Air Legs/ Solenoid Valves	OK.
Ventilation Fan	OK.
Primary Electrical System	OK
PLC-Telemetry	Phone line disconnected
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK

Additional Notes:

Flows continue to be directed towards maintenance of treatment area.
Removed all Nitous Oxide cylinders per Navy (Magwood) in March 2004

pHA-ER OPERATION and MAINTENANCE LOG

Site Name: Cecil Field Site 46 East

Personnel on Site: L E Priester

Date: 12/13/2004

Arrival Time: 2:30 PM

Departure Time: 4:30 PM

Exterior Parameters	**Arrival**		**Departure**		**Comments**
Power Disconnect (On/Off)	On		On		
Power Hour Meter (Hours)			29,230.4		
Pressure Hour Meter (Hours)			29,146.9		
Air Supply					
Leg 1 (PSIG)		50	50		
Leg 2 (PSIG)		50	50		
Nitrous Oxide					
Cylinder 1 (psig, primary/secondary)	None		None		
Cylinder 2 (psig, primary/secondary)	None		None		Nitrous off per Navy
Cylinder 3 (psig, primary/secondary)	None		None		
Cylinder 4 (psig, primary/secondary)	None		None		
Cylinder 5 (psig, primary/secondary)	None		None		
Flow Meter (CFH)		0		0	
Adjunct Gas					
Cylinder 1 (psig, primary/secondary)	NA		NA		
Flow Meter					
TEP					
Gallons (US, Liq.)	0.75		0.75		Turned Off per Navy
Air Flow (CFM)	0		0		
Air Flow					
Inj. Well I4 (Valve % Open/CFM)	0		0		No change to air flow distribution to leg 1 .
Inj. Well I5 (Valve % Open/CFM)	100		100		
Inj. Well D9 (Valve % Open/CFM)	0		0		
Inj. Well D10 (Valve % Open/CFM)	0		0		
Inj. Well D11 (Valve % Open/CFM)	0		0		
Inj. Well I2 (Valve % Open/CFM)	0		0		
Inj. Well I3 (Valve % Open/CFM)	100		100		
Inj. Well I6 (Valve % Open/CFM)	100		100		
Inj. Well I7 (Valve % Open/CFM)	100		100		
Inj. Well I8 (Valve % Open/CFM)	0		0		
Inj. Well I1 (Valve % Open/CFM)	0		0		
Inj. Well D1 (Valve % Open/CFM)	100		100		No change to air flow distribution to leg 2 .
Inj. Well D2 (Valve % Open/CFM)	100		100		
Inj. Well D3 (Valve % Open/CFM)	100		100		
Inj. Well D4 (Valve % Open/CFM)	50		50		
Inj. Well D5 (Valve % Open/CFM)	0		0		
Inj. Well D6 (Valve % Open/CFM)	25		25		
Inj. Well D7 (Valve % Open/CFM)	25		25		
Inj. Well D8 (Valve % Open/CFM)	0		0		

Maintenance Information	**Maintenance Performed**
Nitrous System Cylinders/Regulators	OK-Off No N20
Nitrous Oxide Solenoid Valve	OK-Off No N20
TEP System	OK-Off
AC Gast M853 Mod 5K49ZN4223	
#1	OK
#2	Turned off
#3	Turned off
#4	Turned off
Air Legs/ Solenoid Valves	OK
Ventilation Fans	OK. Roof fan OK. Verified thermostat function.
Primary Electrical System	OK
PLC-Telemetry	Phone line not functioning.
Relay Assembly	OK
Pressure Switch	OK
Flow Switch	OK

Additional Notes:

Flow continues to be directed to plume hot spot.
Checked filters--OK
Removed all Nitrous Oxide Cylinders per Navy (Magwood) in March 2004

One three phase 6LDH is in trailer for spare.

APPENDIX C

TABLES

Table 1	*Groundwater Elevation and Free Product Data*
Table 2	*Monitoring Well Field Measurements*
Table 3	*OVA Readings Summary*
Table 4	*Groundwater Analytical Results*
Table 5	*Soil Analytical Results*

TABLE 1
GROUNDWATER ELEVATION & FREE PRODUCT DATA

BUILDING 46 NUTRIENT INJECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Well Identification	Well Total Depth (Feet BGS)	Date	Top of Casing Elevation (Feet)	Depth to Product (Feet)	Depth to Water (Feet)	Water Level Elevation (Feet)
CEF-46-1S	14.24	12/21/00	79.08	No Product	4.94	74.14
		03/14/03		No Product	2.55	76.53
		06/09/03		No Product	2.40	76.68
		09/03/03		No Product	3.42	75.66
		12/11/03		No Product	5.20	73.88
		03/18/04		No Product	5.92	73.16
		06/08/04		No Product	7.80	71.28
		09/21/04		No Product	3.42	75.66
		12/01/04		No Product	7.06	72.02
CEF-46-2S	13.88	12/21/00	79.08	No Product	5.02	74.06
		03/14/03		No Product	2.55	76.53
		06/05/03		No Product	3.75	75.33
		09/03/03		No Product	2.70	76.38
		12/11/03		No Product	5.04	74.04
		03/18/04		No Product	6.02	73.06
		06/08/04		No Product	7.80	71.28
		09/21/04		No Product	3.75	75.33
		12/01/04		No Product	7.02	72.06
CEF-46-5I	49.65	12/21/00	79.18	No Product	5.81	73.37
		03/14/03		No Product	3.40	75.78
		06/05/03		No Product	4.90	74.28
		09/03/03		No Product	6.25	72.93
		12/11/03		No Product	6.64	72.54
		03/18/04		No Product	7.89	71.29
		06/08/04		No Product	9.40	69.78
		09/21/04		No Product	5.71	73.47
		12/01/04		No Product	9.23	69.95
CEF-46-6D	79.82	12/21/00	79.17	No Product	7.40	71.77
		03/14/03		No Product	6.50	72.67
		06/09/03		No Product	8.00	71.17
		09/03/03		No Product	5.82	73.35
		12/10/03		No Product	7.30	71.87
		03/16/04		No Product	10.60	68.57
		06/08/04		No Product	11.69	67.48
		09/21/04		No Product	7.46	71.71
		12/01/04		No Product	9.72	69.45
CEF-46-7I	29.68	12/21/00	79.02	No Product	5.45	73.57
		03/14/03		No Product	3.30	75.72
		06/09/03		No Product	3.20	75.82
		09/03/03		No Product	2.80	76.22
		12/11/03		No Product	5.84	73.18
		03/18/04		No Product	7.40	71.62
		06/08/04		No Product	8.80	70.22
		09/21/04		No Product	4.95	74.07
		12/01/04		No Product	8.60	70.42
CEF-46-9I	48.81	12/21/00	79.05	No Product	5.67	73.38
		03/14/03		No Product	2.55	76.50
		06/04/03		No Product	4.10	74.95
		09/03/03		No Product	3.32	75.73
		12/11/03		No Product	5.79	73.26
		03/16/04		No Product	7.20	71.85
		06/08/04		No Product	8.92	70.13
		09/21/04		No Product	5.29	73.76
		12/01/04		No Product	8.44	70.61
CEF-46-12I	29.61	12/21/00	78.73	No Product	5.23	73.50
		03/14/03		No Product	2.10	76.63
		06/05/03		No Product	3.30	75.43
		09/03/03		No Product	2.90	75.83
		12/11/03		No Product	5.45	73.28
		03/18/04		No Product	6.45	72.28
		06/08/04		No Product	8.10	70.63
		09/21/04		No Product	4.30	74.43
		12/01/04		No Product	7.25	71.48

TABLE 1
GROUNDWATER ELEVATION & FREE PRODUCT DATA

BUILDING 46 NUTRIENT INJECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Well Identification	Well Total Depth (Feet BGS)	Date	Top of Casing Elevation (Feet)	Depth to Product (Feet)	Depth to Water (Feet)	Water Level Elevation (Feet)
CEF-46-13I	39.56	12/21/00	78.87	No Product	5.43	73.44
		03/14/03		No Product	2.31	76.56
		06/05/03		No Product	3.50	75.37
		09/03/03		No Product	3.10	75.77
		12/11/03		No Product	5.90	72.97
		03/18/04		No Product	6.85	72.02
		06/08/04		No Product	8.61	70.26
		09/21/04		No Product	4.65	74.22
		12/01/04		No Product	7.60	71.27
CEF-46-14D	78.79	12/21/00	78.88	No Product	6.86	72.02
		03/14/03		No Product	4.20	74.68
		06/04/03		No Product	6.15	72.73
		09/03/03		No Product	5.15	73.73
		12/10/03		No Product	7.20	71.68
		03/16/04		No Product	8.72	70.16
		06/08/04		No Product	9.75	69.13
		09/21/04		No Product	5.34	73.54
		12/01/04		No Product	7.66	71.22
CEF-46-15I	29.77	12/21/00	79.75	No Product	6.33	73.42
		03/13/03		No Product	3.47	76.28
		06/04/03		No Product	4.54	75.21
		09/03/03		No Product	4.22	75.53
		12/10/03		No Product	6.53	73.22
		03/16/04		No Product	7.40	72.35
		06/08/04		No Product	9.22	70.53
		09/21/04		No Product	5.20	74.55
		12/01/04		No Product	8.07	71.68
CEF-46-21I	29.70	12/21/00	79.33	No Product	6.02	73.31
		03/13/03		No Product	2.79	76.54
		06/05/03		No Product	4.18	75.15
		09/03/03		No Product	3.70	75.63
		12/11/03		No Product	7.50	71.83
		03/18/04		No Product	8.35	70.98
		06/08/04		No Product	10.10	69.23
		09/21/04		No Product	5.80	73.53
		12/01/04		No Product	9.15	70.18
CEF-46-24D	90.45	12/21/00	78.74	No Product	7.30	71.44
		03/14/03		No Product	13.78	64.96
		06/05/03		No Product	6.40	72.34
		09/03/03		No Product	4.97	73.77
		12/10/03		No Product	7.40	71.34
		03/16/04		No Product	8.95	69.79
		06/08/04		No Product	10.68	68.06
		09/21/04		No Product	6.31	72.43
		12/01/04		No Product	9.11	69.63
CEF-46-25I	50.45	12/21/00	79.17	No Product	6.25	72.92
		03/13/03		No Product	2.49	76.68
		06/04/03		No Product	3.98	75.19
		09/03/03		No Product	3.50	75.67
		12/10/03		No Product	5.98	73.19
		03/16/04		No Product	8.30	70.87
		06/08/04		No Product	10.03	69.14
		09/21/04		No Product	5.61	73.56
		12/01/04		No Product	9.11	70.06
CEF-46-26I	47.76	12/21/00	79.43	No Product	7.09	72.34
		03/14/03		No Product	3.82	75.61
		06/05/03		No Product	4.30	75.13
		09/03/03		No Product	3.73	75.70
		12/11/03		No Product	6.65	72.78
		03/18/04		No Product	8.05	71.38
		06/08/04		No Product	10.40	69.03
		09/21/04		No Product	6.56	72.87
		12/01/04		No Product	10.20	69.23

BGS = Below Ground Surface
Elevation is referenced to National Geodetic Vertical Datum 1929 (NGVD 1929)
Depth-to-product measured from top of casing
Depth-to-water measured from top of casing

TABLE 2
GROUNDWATER FIELD ANALYTICAL RESULTS

BUILDING 46 NUTRIENT INJECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Well	Date	pH	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)*	Oxidation Reduction Potential (mV)	Temperature (°C)	Carbon Dioxide (mg/L)	Alkalinity as $CaCO_3$ (mg/L)	Ferrous Iron (mg/L)	Hydrogen Sulfide (mg/L)	Dissolved Oxygen (mg/L) **
CEF-46-1S	12/21/00	6.20	0.512	1.05	NM	22.70	NM	200	1.4	1.0	NM
	03/14/03	7.54	2.520	0.89	-204.00	20.77	ND	100	2.2	5.0	NM
	06/09/03	6.39	1.730	ND	-238.00	25.28	Interference	140	3.2	5.0	NM
	09/03/03	6.27	0.201	2.03	-364.00	27.53	Interference	205	1.0	5.0	NM
	12/11/03	5.98	0.234	ND	-332.00	23.15	400	250	1.4	5.0	ND
	03/18/04	6.48	0.220	NM	-278.00	22.33	Interference	175	2.0	5.0	ND
	06/08/04	6.00	1.920	0.04	-296.00	26.24	Interference	130	1.0	5.0	ND
	09/21/04	7.42	0.122	0.00	-234.00	27.97	Interference	100	5.4	5.0	ND
	12/01/04	6.39	2.404	0.15	-356.90	26.07	362	205	ND	5.0	ND
CEF-46-2S	12/21/00	6.20	0.962	1.06	NM	23.20	352	720	1.0	ND	NM
	03/14/03	7.08	1.620	1.60	-112.00	20.88	310	165	2.2	0.1	NM
	06/05/03	6.44	1.860	ND	NM	24.66	228	195	2.2	0.3	NM
	09/03/03	6.25	1.480	0.03	-132.00	27.94	245	160	2.0	0.3	NM
	12/11/03	6.47	1.070	0.40	-258.00	23.85	218	190	1.0	1.0	0.6
	03/18/04	6.80	0.123	NM	-111.00	20.09	231	190	1.4	0.7	ND
	06/08/04	5.73	0.855	0.16	-145.00	25.17	154	95	4.8	ND	3.0
	09/21/04	7.06	0.142	0.03	-153.00	26.76	157	130	3.8	2.0	ND
	12/01/04	6.45	2.454	0.06	-215.20	25.63	88	100	0.63	5.00	ND
CEF-46-5I	12/21/00	5.60	0.140	1.10	NM	23.20	183	100	1.8	1.0	NM
	03/14/03	3.54	5.810	2.05	393.00	25.23	ND	ND	4.2	ND	NM
	06/05/03	2.00	4.840	0.23	407.00	26.92	Interference	ND	9.9	ND	NM
	09/03/03	2.74	4.450	0.04	320.00	27.29	Interference	ND	10.0	ND	NM
	12/11/03	2.84	4.480	4.01	331.00	22.90	568	ND	6.0	ND	ND
	03/18/04	2.48	4.074	NM	NM	25.00	172	ND	4.2	ND	ND
	06/08/04	2.28	5.216	0.10	503.60	27.25	93	ND	15.0	ND	15.0
	09/21/04	6.04	0.103	0.05	-61.80	26.85	171	5	4.8	0.1	ND
	12/01/04	4.48	0.638	0.23	267.70	26.86	Interference	ND	7.2	0.1	ND
CEF-46-6D	12/21/00	9.71	0.180	6.51	NM	23.50	8	120	0.4	0.3	NM
	03/14/03	3.23	8.600	2.64	404.00	25.71	ND	ND	4.2	ND	NM
	06/09/03	2.69	9.740	0.09	77.00	27.97	Interference	ND	7.0	ND	NM
	09/03/03	2.70	8.759	0.37	335.00	27.71	Interference	ND	10.0	ND	NM
	12/10/03	2.62	0.790	ND	376.00	23.95	Interference	ND	5.4	ND	0.8
	03/16/04	2.53	0.746	6.00	NM	24.60	263	ND	ND	3.0	ND
	06/08/04	2.42	8.973	0.09	431.60	26.46	Interference	ND	9.8	ND	15.0
	09/21/04	2.37	10.411	0.23	434.30	26.45	109	ND	9.8	0.1	ND
	12/01/04	2.59	18.791	0.15	437.10	27.16	118	ND	7.6	0.1	ND
CEF-46-7I	12/21/00	4.90	0.510	1.11	NM	25.40	317	60	0.6	0.3	NM
	03/14/03	3.23	0.250	5.24	360.00	23.41	121	ND	1.8	ND	NM
	06/09/03	3.80	0.191	1.05	278.00	26.12	233	ND	2.2	ND	NM
	09/03/03	4.51	0.226	0.12	81.00	27.32	143	ND	4.0	2.0	NM
	12/11/03	5.19	0.180	0.67	-170.00	23.07	70	25	3.7	2.0	ND
	03/18/04	4.89	0.230	NM	120.00	24.42	75	15	4.0	ND	ND
	06/08/04	3.67	0.089	0.24	256.00	25.91	99	ND	4.4	ND	ND
	09/21/04	3.55	0.085	0.00	163.00	26.80	68	5	10.0	ND	ND
	12/01/04	5.62	0.175	0.06	-50.60	26.45	217	10	5.8	1.0	ND
CEF-46-9I	12/20/00	5.29	0.079	1.47	NM	24.60	84.6	20	0.8	0.3	NM
	03/14/03	5.47	0.914	1.35	64.00	25.40	ND	ND	2.2	1.0	NM
	06/04/03	4.75	1.090	0.60	-8.00	25.73	Interference	ND	6.0	1.0	NM
	09/03/03	3.74	1.040	0.84	18.00	26.85	Interference	ND	3.8	1.0	NM
	12/10/03	3.64	1.010	6.21	-100.00	26.29	Interference	ND	5.2	0.5	ND
	03/16/04	3.67	0.165	NM	199.00	25.08	Interference	ND	2.8	2.0	ND
	06/08/04	3.58	1.770	0.14	68.00	25.99	Interference	ND	8.0	5.0	3.0
	09/21/04	3.50	1.401	0.17	-18.20	25.99	Interference	ND	8.4	3.0	ND
	12/01/04	3.68	NM	0.11	-74.80	26.09	370	ND	4.5	3.0	ND
CEF-46-12I	12/20/00	5.57	0.160	1.91	NM	26.50	193.6	80	0.8	2.0	NM
	03/14/03	3.38	0.178	3.92	333.00	26.07	96	ND	2.2	ND	NM
	06/05/03	4.22	0.155	1.65	117.00	26.33	168	ND	1.0	ND	NM
	09/03/03	4.71	0.308	0.00	164.00	27.88	136	5	0.0	ND	NM
	12/11/03	4.97	0.310	0.61	129.00	23.96	84	1	2.2	0.1	0.8
	03/18/04	5.33	0.129	0.60	NM	24.90	86	5	3.5	0.1	0.6
	06/08/04	4.69	0.142	0.47	162.00	26.48	122	5	3.0	ND	13.0
	09/21/04	4.65	0.245	0.01	124.00	24.84	115	5	3.0	ND	ND
	12/01/04	5.30	0.661	0.12	133.40	26.37	45	5	1.4	ND	ND

TABLE 2
GROUNDWATER FIELD ANALYTICAL RESULTS

BUILDING 46 NUTRIENT INJECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Well	Date	pH	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)*	Oxidation Reduction Potential (mV)	Temperature (°C)	Carbon Dioxide (mg/L)	Alkalinity as $CaCO_3$ (mg/L)	Ferrous Iron (mg/L)	Hydrogen Sulfide (mg/L)	Dissolved Oxygen (mg/L) **
CEF-46-13I	12/20/00	5.40	0.120	1.23	NM	25.00	188	20	1.4	5.0	NM
	03/14/03	6.29	0.110	0.99	-31.00	25.90	280	ND	2.5	5.0	NM
	06/05/03	3.71	0.643	0.00	1.00	26.44	Interference	ND	3.6	5.0	NM
	09/03/03	3.81	0.999	0.36	57.00	28.50	Interference	ND	2.4	2.0	NM
	12/11/03	3.93	0.990	1.11	160.00	24.10	Interference	ND	3.2	5.0	ND
	03/18/04	3.76	1.282	0.50	NM	25.60	Interference	ND	3.0	0.3	ND
	06/08/04	3.08	1.170	0.34	286.00	26.73	Interference	ND	3.6	ND	1.0
	09/21/04	4.96	0.588	0.17	-32.00	26.20	Interference	ND	7.8	5.0	ND
	12/01/04	3.93	0.931	0.06	37.70	26.53	Interference	ND	0.73	5.00	ND
CEF-46-14D	12/20/00	5.87	0.109	1.52	NM	24.90	84	540	2.4	0.3	NM
	03/14/03	6.26	0.098	0.85	-33.00	25.32	180	15	2.5	5.0	NM
	06/04/03	5.77	0.106	0.17	-39.00	26.14	186	20	2.3	2.0	NM
	09/03/03	4.82	0.215	0.86	-54.00	27.66	155	20	2.2	5.0	NM
	12/10/03	5.36	0.282	0.07	-62.00	25.92	136	10	2.4	1.0	ND
	03/16/04	5.43	0.105	0.80	NM	25.60	154	20	24.0	5.0	ND
	06/08/04	5.17	0.109	0.10	-58.90	26.00	NM	NM	NM	NM	NM
	09/21/04	5.26	0.125	0.16	-159.20	25.37	120	15	4.8	3.0	ND
	12/01/04	5.51	0.239	0.42	-174.00	25.41	176	25	2.4	0.1	ND
CEF-46-15I	12/20/00	5.01	0.108	1.27	NM	22.20	86.6	40	3.2	1.0	NM
	03/13/03	4.64	0.191	0.90	328.00	22.79	343	ND	3.2	ND	NM
	06/04/03	1.76	0.172	0.59	92.00	22.89	368	10	3.3	ND	NM
	09/03/03	3.99	0.369	0.45	195.00	24.16	367	ND	2.8	ND	NM
	12/10/03	4.00	0.290	6.16	99.00	23.64	124	1	3.5	0.1	5.0
	03/16/04	4.30	0.501	NM	241.00	22.91	324	ND	3.0	ND	ND
	06/08/04	4.26	0.168	0.22	193.30	22.89	317	15	3.8	ND	3.0
	09/21/04	4.25	0.179	0.27	-55.00	23.27	319	ND	3.5	ND	ND
	12/01/04	4.42	0.347	0.19	-91.40	23.69	143	15	3.4	0.1	ND
CEF-46-21I	12/20/00	4.86	0.047	1.35	NM	23.20	9.4	60	0.8	ND	NM
	03/13/03	3.75	0.713	2.35	397.00	23.94	0.0	ND	3.0	ND	NM
	06/05/03	3.12	0.798	0.00	251.00	24.22	Interference	ND	3.9	0.7	NM
	09/03/03	3.34	0.406	2.82	449.00	26.30	115	ND	1.6	ND	NM
	12/11/03	3.58	0.476	3.43	407.00	23.07	89	ND	1.6	ND	2.0
	03/18/04	3.81	0.162	2.10	NM	23.00	91	ND	2.4	ND	1.0
	06/08/04	3.39	0.147	0.86	406.00	23.91	78	ND	1.4	ND	13.0
	09/21/04	2.61	0.147	0.44	317.00	24.62	69	ND	0.8	ND	ND
	12/01/04	3.89	0.334	2.30	439.10	24.76	54	ND	0.27	ND	ND
CEF-46-24D	12/20/00	6.15	0.129	0.13	NM	21.90	16.4	60	2.3	0.1	NM
	03/14/03	3.70	2.530	2.23	402.00	27.46	ND	ND	4.0	ND	NM
	06/05/03	0.36	3.160	0.36	250.00	28.22	Interference	ND	5.9	ND	NM
	09/03/03	3.20	2.110	0.21	282.00	27.68	Interference	ND	5.4	ND	NM
	12/10/03	3.24	0.200	0.30	308.00	26.18	Interference	ND	3.8	ND	ND
	03/16/04	3.45	1.285	0.60	NM	27.60	Interference	ND	4.2	0.1	ND
	06/08/04	3.09	1.564	0.20	386.40	27.04	Interference	ND	7.2	0.1	ND
	09/21/04	3.74	1.218	0.44	17.20	26.06	Interference	ND	9.6	0.3	ND
	12/01/04	3.74	2.133	0.33	211.60	24.52	Interference	ND	8.5	0.3	ND
CEF-46-25I	12/20/00	5.81	0.167	2.88	NM	24.60	20.6	120	0.6	5.0	NM
	03/13/03	6.16	1.420	1.03	-58.00	25.35	ND	ND	4.5	5.0	NM
	06/04/03	5.98	1.440	0.00	-87.00	25.76	ND	ND	6.0	5.0	NM
	09/03/03	3.77	0.910	0.53	-107.00	26.43	Interference	ND	3.8	5.0	NM
	12/10/03	3.95	0.860	5.82	-198.00	24.15	Interference	ND	3.5	5.0	ND
	03/16/04	3.74	0.179	NM	-2.00	23.99	Interference	ND	5.4	5.0	ND
	06/08/04	3.53	2.054	0.13	-92.90	25.15	Interference	ND	6.2	5.0	ND
	09/21/04	3.66	1.736	0.41	-97.40	24.31	Interference	ND	NM	2.0	ND
	12/01/04	3.72	3.586	0.08	-153.10	24.20	Interference	ND	7.8	5.0	ND
CEF-46-26I	12/20/00	8.53	0.099	0.03	NM	23.10	24.2	NM	1.4	NM	NM
	03/14/03	6.34	0.063	4.66	3.00	26.88	ND	ND	4.6	5.0	NM
	06/05/03	3.31	2.880	0.00	-2.00	24.60	Interference	ND	9.0	5.0	NM
	09/03/03	3.40	1.990	0.12	111.00	25.14	Interference	ND	7.8	5.0	NM
	12/11/03	3.52	0.224	0.00	151.00	22.18	Interference	ND	3.0	5.0	ND
	03/18/04	3.51	0.268	NM	203.00	22.45	Interference	ND	5.0	5.0	ND
	06/08/04	2.43	3.460	0.32	284.00	24.34	Interference	ND	4.0	1.0	4.0
	09/21/04	3.69	0.280	0.00	91.00	23.88	Interference	ND	10.0	5.0	ND
	12/01/04	2.62	6.045	0.11	371.60	23.43	Interference	ND	3.33	5.00	ND

* Horiba Multimeter
**Dissolved Oxygen Hach Test Kit
ND = Non Detect
NM = Not Measured

TABLE 3
OVA RESULTS

BUILDING 46
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Soil Boring No.	Date	Feet bls	OVA/FID Unfiltered	OVA/FID Filtered	OVA/FID Net
SB-1	12/1/2004	2	3.8 ppm	NM	3.8 ppm
	12/1/2004	4	ND	ND	ND
	12/1/2004	6	620 ppm	19 ppm	601 ppm
	12/1/2004	8	400 ppm	56 ppm	344 ppm
SB-2	12/1/2004	2	880 ppm	540 ppm	340 ppm
	12/1/2004	4	>1000 ppm	100 ppm	> 900 ppm
	12/1/2004	6	>1000 ppm	84 ppm	> 916 ppm
	12/1/2004	8	>1000 ppm	74 ppm	> 926 ppm
	12/1/2004	9	>1000 ppm	52 ppm	> 948 ppm
SB-14	12/1/2004	2	ND	ND	ND
	12/1/2004	4	ND	ND	ND
	12/1/2004	6	ND	ND	ND
	12/1/2004	8	10 ppm	NM	10 ppm
	12/1/2004	9	ND	ND	ND

bls = below land surface
ppm = parts per million
NM = Not Measured
ND = Nondetect

TABLE 4
GROUNDWATER ANALYTICAL RESULTS

BUILDING 46 NUTRIENT INJECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Well	Date	Benzene	Ethyl Benzene	Toluene	Xylene	BETX	Methyl tert-butyl ether	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (a) anthracene	Chrysene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Indeno (1, 2, 3-cd) pyrene	Dibenzo (a,h) anthracene	Benzo (g,h,i) perylene	Nitrate (mg/L)	Nitrite (mg/L)	Phosphate (mg/L)	TRPH (ug/L)
CEF-46-1S	12/21/00	13000	2900	40000	19000	74900	NA	550	N/A	N/A	1.4	<1.1	0.98	<1.1	<1.1	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	0.085 J	0.15	<1	23000
	01/25/01	0.28	0.44	1.4	3.2	5.32	<1.0	<1.0	N/A	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.60	0.2	0.25	290
	03/14/03	592	1160	1190	4580	7522	619	496	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<0.100	0.15	<0.100	77000
	06/09/03	262	626	318	1070	2276	511	947	136	162	<0.10	0.29	0.22	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	33200
	09/03/03	350	735	575	2920	4580	365	661	133	126	<0.10	0.45	0.26	0.48	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	38300
	12/11/03	430	982	1410	3540	6362	432	501	89	117	<0.10	0.26	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.30	<0.100	39600
	03/18/04	401	741	1160	2280	4582	486	508	61.5	98.5	<0.10	0.24	<0.10	0.18	0.27	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.30	<0.100	16200
	06/08/04	163	484	194	526	1367	310	342	36.6	76.5	<5.10	<2.04	<2.04	<5.10	<1.02	<1.02	<5.10	<0.204	<0.204	<0.204	<0.510	<0.204	<0.204	<0.204	<0.204	<0.100	<0.005	0.083 ?	15400
	09/21/04	54.8Y	321Y	97.4Y	2140Y	2613.2Y	276Y	252 J3Y	24.2 J3Y	64.2 J3Y	<5.49 J3Y	<2.20 J3Y	<2.20 J3Y	<5.49Y	<1.10Y	<1.10Y	<5.49Y	<0.220Y	<2.20Y	<0.220Y	<0.549Y	<0.220Y	<0.220Y	<0.220Y	<2020 J3Y	<0.02Y	<0.005Y	0.389Y	33300Y
	12/01/04	153	601.5	163.9	779	1697.4	216.1	621.4	65.6	143	<0.235	<0.165	<0.347	<0.110	0.204 I	<0.106	<0.102	<0.150	<0.084	<0.102	<0.259	<0.167	<0.133	<0.094	<0.160	<0.018	<0.005	0.099	25200
CEF-46-2S	12/21/00	300	72	51	200	623	NA	230	N/A	N/A	<1.1	5.5	3.1	0.35	<1.1	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.60	<0.4	0.22	3100
	01/25/01	7.3	0.96	1.5	3.3	13.06	7.1	11	N/A	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.083	<0.40	<1.0	540
	03/14/03	<1.0	<1.0	<1.0	<1.0	<1.0	156	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.100	0.100	<0.100	1370
	06/05/03	<1.00	<1.0	<1.0	<1.0	<1.0	54.5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	339
	09/03/03	<1.00	<1.0	<1.0	<1.0	<1.0	21.3	0.24	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	339
	12/11/03	<1.00	<1.0	<1.0	<3.0	<1.0	21.7	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.30	<0.100	796
	03/18/04	12.4	<1.0	<1.0	3.7	16.1	24.3	1.4	0.16	0.21	<0.10	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.30	<0.100	436
	06/08/04	3.72	<1.00	<1.00	<1.00	3.72	26.1	0.643 I	<2.04	<2.04	<5.10	0.398 I	<2.04	<5.10	<1.02	<1.02	<5.10	<0.204	<0.204	<0.204	<0.510	<0.204	<0.204	<0.204	<2.04	<0.10	<0.005	0.150 ?	530
	09/21/04	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	8.32Y	<2.17 J3Y	<2.17 J3Y	<2.17 J3Y	<2.17 J3Y	<2.17 J3Y	<2.17 J3Y	<5.43Y	<1.09Y	<1.09Y	<5.43Y	<0.217Y	<2.17Y	<0.217Y	<0.543Y	<0.217Y	<0.217Y	<0.217Y	<2.17 J3Y	0.1Y	0.005Y	0.027 ?Y	0.26Y
	12/01/04	118	134.6	0.5700 I	136	389.17	135.8	81.30	4.56 I	<0.214	<0.235	2.32 I	2.00 I	<0.110	<0.118	<0.106	<0.102	<0.150	<0.084	<0.102	<0.259	<0.167	<0.133	<0.094	<0.160	<0.018	0.007	0.08	2450
CEF-46-5I	12/21/00	850	38	13	150	1051	NA	1.6	N/A	N/A	<1.1	<1.1	<1.1	<1.1	<1.1	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.6	<0.4	<1.0	<550
	01/25/01	180	7.4	3.1	31	221.5	<1.0	<1.0	N/A	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.60	<0.40	<1.0	<520
	03/14/03	<1.0	<1.0	<1.0	9.0	9.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.100	0.35	3.92	<200
	06/05/03	<1.00	<1.0	<1.0	5.2	5.2	4.6	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.30	<0.30	<0.282	<106
	09/03/03	<1.00	<1.0	<1.0	6.6	6.6	66.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.30	0.965	333
	12/11/03	<1.00	<1.0	<1.0	4.1	4.1	70	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.30	1.31	456
	03/18/04	1.4	<1.0	1.1	3.9	6.4	28.4	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.600	<0.60	<0.100	242
	06/08/04	<1.00	<1.00	<1.00	<1.00	<1.00	2.3	<2.04	<2.04	<2.04	<5.10	<2.04	<2.04	<5.10	<1.02	<1.02	<5.10	<0.204	<2.04	<0.204	<0.510	<0.204	<0.204	<0.204	<2.04	<0.100	0.46	2.09 ?	<200
	09/21/04	<1.00Y	1.61Y	<1.00Y	2.93Y	4.54Y	<1.00Y	<2.20 J3Y	<2.20 J3Y	<2.20 J3Y	<5.49 J3Y	<2.20 J3Y	<2.20 J3Y	<5.49Y	<1.10Y	<1.10Y	<5.49Y	<0.220Y	<2.20Y	<0.220Y	<0.549Y	<0.220Y	<0.220Y	<0.220Y	<2.20 J3Y	<0.02Y	0.118Y	0.103Y	<200Y
	12/01/04	<0.143	0.4400 I	<0.1417	<0.220	0.4400 I	<0.2359	<0.23	<0.206	<0.216	<0.237	<0.167	<0.127	<0.111	<0.120	<0.107	<0.103	<0.152	<0.085	<0.103	<0.262	<0.168	<0.134	<0.095	<0.162	<0.018	<0.005	<0.003	120 I V
CEF-46-6D	12/21/00	2.8	9.9	6	18	36.7	NA	3.5	N/A	N/A	<1.1	<1.1	<1.1	<1.1	<1.1	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.6	<0.4	0.22	<560
	02/08/01	<1.0	<1.0	<1.0	<1.0	<4.0	<1.0	<1.1	N/A	N/A	<1.1	<1.1	<1.1	<1.1	<1.1	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.60	<0.40	<1.0	<500
	03/14/03	<1.0	<1.0	<1.0	6.0	6.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.100	0.270	4.61	274
	06/09/03	<1.00	<1.0	<1.0	8.7	8.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.674	<200
	09/03/03	<1.00	<1.0	<1.0	3.3	3.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.31	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.300	<0.30	5.81	<225
	12/10/03	<1.00	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.100	0.33	1.34	<200
	03/16/04	<1.00	<1.0	<1.0	<3.0	<3.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.500	<1.00	<0.100	<100
	06/08/04	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.04	<2.04	<2.04	<5.10	<2.04	<2.04	<5.10	<1.02	<1.02	<5.10	<0.204	<2.04	<0.204	<0.510	<0.204	<0.204	<0.204	<2.04	<0.100	0.102	0.127 ?	<200
	09/21/04	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<2.15 J3Y	<2.15 J3Y	<2.15 J3Y	<5.38 J3Y	<2.15 J3Y	<2.15 J3Y	<5.38Y	<1.08Y	<1.08Y	<5.38Y	<0.215Y	<2.15Y	<0.215Y	<0.538Y	<0.215Y	<0.215Y	<0.215Y	<2.15 J3Y	<0.02Y	0.008Y	0.013 ?Y	<220Y
	12/01/04	<0.143	1.180 I	<0.1417	1.35 I	2.53 I	<0.2359	<0.23	<0.208	<0.219	<0.240	<0.169	<0.128	<0.112	<0.121	<0.108	<0.104	<0.153	<0.085	<0.104	<0.265	<0.170	<0.135	<0.096	<0.164	<0.018	<0.084	22.5	140 I V
CEF-46-7I	12/21/00	9100	2800	17000	15000	43900	NA	260	N/A	N/A	0.86	<1.1	0.7	<1.1	<1.1	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.6	<0.4	<1.0	13000
	02/22/01	6500	1400	10000	7900	25800	6100	120	N/A	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.6	<0.4	<1.0	17000
	03/14/03	945	150	86.5	904	2086	4380	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.100	<0.100	<0.100	5480
	06/09/03	678	123	51.6	752	1604.6	4190	32.4	0.42	0.24	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<0.100	4080
	09/03/03	832	158	<10.0	697	1687.0	5140	123	6.12	7.92	<0.10	<0.10	0.14	0.47	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.10	<0.100	2530
	12/11/03	734	111	5	290	1140.0	5820	96.2	4.76	6.28	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.30	<0.100	5410
	03/18/04	386	66	8.5 ?	414	874.5	3460	2.15	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.60	<0.100	1900
	06/08/04	208	42.7	11.3	330	592.0	3080	3.34	<2.04	<2.04	<5.10	<2.04	<2.04	<5.10	<1.02	<1.02	<5.10	<0.204	<2.04	<0.204	<0.510	<0.204	<0.204	<0.204	<2.04	<0.100	0.022	0.073 ?	650
	09/21/04	494Y	38.1Y	9.99Y	387Y	929.09Y	2190Y	0.242 J3, IY	<2.20 J3Y	<2.20 J3Y	<5.49 J3Y	<2.20 J3Y	<2.20 J3Y	<5.49Y	<1.10Y	<1.10Y	<5.49Y	<0.220Y	<2.20Y	<0.220Y	<0.549Y	<0.220Y	<0.220Y	<0.220Y	<2.20 J3Y	<0.02Y	0.016Y	0.028 ?Y	980Y
	12/01/04	833	144.9	10.30	631	1619.2	1943	131.2	5.18	8.13	<0.230	<0.162	<0.123	<0.107	<0.116	<0.104	<0.100	<0.147	<0.082	<0.100	<0.254	<0.163	<0.130	<0.092	<0.157	0.018	0.034	0.012	1770
CEF-46-9I	12/20/00	<1.0	<1.0	<1.0	<1.0	<4.0	NA	<1.1	N/A	N/A	<1.1	<1.1	<1.1	<1.1	<1.1	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.6	<0.4	<1.0	<570
	01/25/01	<1.0	<1.0	<1.0	<1.0	<4.0	1.3	<1.0	N/A	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.60	<0.40	<1.0	<500
	03/14/03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.100	0.170	<0.100	<200
	06/04/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.30	0.411	<211
	09/03/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	0.22	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.100	<0.30	<0.100	<225
	12/10/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	0.22	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.100	0.180	0.308	<200
	03/16/04	<1.00	<1.0	<1.0	<3.0	<3.0	<1.0	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.300	<0.30	<0.100	<111
	06/08/04	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.20	<2.20	<2.20	<5.49	<2.20	<2.20	<5.49	<2.20	<1.10	<5.49	<0.220	<2.20	<0.220	<0.549	<0.220	<0.220	<0.220	<2.20	<0.100	<0.005	0.055 ?	<210
	09/21/04	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	3.92Y	<2.20 J3Y	<2.20 J3Y	<2.20 J3Y	<5.49 J3Y	<2.20 J3Y	<2.20 J3Y	<5.49Y	<1.10Y	<1.10Y	<5.49Y	<0.220Y	<2.20Y	<0.220Y	<0.549Y	<0.220Y	<0.220Y	<0.220Y	<2.20 J3Y	<0.02Y	<0.005Y	0.018 ?Y	220Y
	12/01/04	<0.143	0.5500 I	<0.1417	0.440 I	0.990 I	28.85	0.32 I	<0.202	<0.212	<0.232	<0.164	<0.124	<0.108	<0.117	<0.105	<0.101	<0.149	<0.083	<0.101	<0.257	<0.165	<0.131	<0.093	<0.159	<0.018	<0.005	0.013	80 I V
CEF-46-12I	12/20/00	<1.0	<1.0	<1.0	<1.0	<4.0	NA	<1.1	N/A	N/A	<1.1	<1.1	<1.1	<1.1	<1.1	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.6	<0.4	<1.0	<530
	01/24/01	<1.0	<1.0	<1.0	<1.0	<4.0	14	<1.0	N/A	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.60	<0.40	<1.0	<520
	03/14/03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.100	<0.100	<0.100	<200
	06/05/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<100
	09/03/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.30	<0.100	<225
	12/11/03	<1.00	<1.0	<1.0	<3.0	<1.0	2.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.30	<0.100	<200
	03/18/04	<1.00	<1.0	<1.0	<3.0	<3.0	79.9	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.600	<0.60	<0.100	<222
	06/08/04	<1.00	<1.00	<1.00	<1.00	<1.00	502	<2.20	<2.20	<2.20	<5.49	<2.20	<2.20	<5.49	<1.10	<1.10	<5.49	<0.220	<2.20	<0.220	<0.549	<0.220	<0.220	<0.220	<2.20	0.028 ?	0.014	0.017 ?	<200
	09/21/04	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	18.9Y	<2.00 J3Y	<2.00 J3Y	<2.00 J3Y	<5.00 J3Y	<2.00 J3Y	<2.00 J3Y	<5.00Y	<1.00Y	<1.00Y	<5.00Y	<0.200Y	<2.00Y	<0.200Y	<0.500Y	<0.200Y	<0.200Y	<0.200Y	<0.200 J3Y	<0.02Y	<0.005Y	0.052 ?Y	<200Y
	12/01/04	<0.143	<0.2010	<0.1417	<0.220	<0.220	8.480	<0.22	<0.200	<0.210	<0.230	<0.162	<0.123	<0.107	<0.116	<0.104	<0.100	<0.147	<0.082	<0.100	<0.254	<0.163	<0.130	<0.092	<0.157	0.046	0.006	0.017	240 I V
Groundwater Criteria [1]		1	30	40	20	n/a	50	20	20	20	210	20	280	210	2100	280	210	0.2	4.8	0.2	0.5	0.2	0.2	0.2	210	10,000	1000	n/a	5000
Natural Attenuation Default Source [1]		100	300	400	200	n/a	500	200	200	200	2100	200	2800	2100	21000	2800	2100	20	480	20	50	20	20	20	2100	100000	10000	n/a	50000

TABLE 4
GROUNDWATER ANALYTICAL RESULTS

BUILDING 46 NUTRIENT INJECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Well	Date	Benzene	Ethyl Benzene	Toluene	Xylene	BETX	Methyl tert-butyl ether	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (a) anthracene	Chrysene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Indeno (1, 2, 3-cd) pyrene	Dibenzo (a,h) anthracene	Benzo (g,h,i) perylene	Nitrate (mg/L)	Nitrite (mg/L)	Phosphate (mg/L)	TRPH (ug/L)
CEF-46-13I	12/20/00	<1.0	<1.0	<1.0	0.45	0.45	NA	0.89	N/A	N/A	<1.1	<1.1	<1.1	<1.1	<1.1	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.6	<0.4	<1.0	<540
	01/24/01	<1.0	<1.0	1.5	0.62	2.12	280	0.6	N/A	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.60	<0.40	<1.0	320
	03/14/03	<1.0	<1.0	<1.0	<1.0	<1.0	318	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.100	<0.100	<0.100	276
	06/05/03	1.10	<1.0	<1.0	<1.0	1.1	254	0.19	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<100
	09/03/03	<1.00	<1.0	<1.0	<1.0	<1.0	240	0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.30	<0.100	<225
	12/11/03	<1.00	<1.0	<1.0	<0.30	<1.0	114	0.5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.60	<0.100	208
	03/18/04	<1.00	<1.0	<1.0	<3.0	<3.0	60.7	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.600	<0.30	<0.100	<250
	06/08/04	<1.00	<1.00	<1.00	<1.00	<1.00	83.8	<2.02	<2.02	<2.02	<5.05	<2.02	<2.02	<5.05	<1.01	<1.01	<5.05	<0.202	<2.02	<0.202	<0.505	<0.202	<0.202	<0.202	<2.02	<0.02	<0.005	0.078 ?	<220
	09/21/04	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	149Y	<2.22 J3Y	<2.22 J3Y	<2.22 J3Y	<5.56 J3Y	<2.22 J3Y	<2.22 J3Y	<5.56Y	<1.11Y	<1.11Y	<5.56Y	<0.222Y	<2.22Y	<0.222Y	<0.556Y	<0.222Y	<0.222Y	<0.222Y	<2.22 J3Y	<0.02Y	<0.005Y	0.013?Y	<200Y
	12/01/04	<0.143	0.9000 I	<0.1417	1.29 I	2.19 I	337.5	<0.22	<0.202	<0.212	<0.232	<0.164	<0.124	<0.108	<0.117	<0.105	<0.101	<0.149	<0.083	<0.101	<0.257	<0.165	<0.131	<0.093	<0.159	<0.018	<0.005	0.017	150 I V
CEF-46-14D	12/20/00	<1.0	<1.0	0.42	0.37	0.79	NA	<1.1	N/A	N/A	<1.1	<1.1	<1.1	<1.1	<1.1	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	0.088	<0.4	0.26	<550
	01/24/01	<1.0	<1.0	<1.0	0.23	0.23	<1.0	<1.0	N/A	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.60	<0.40	0.17	<530
	03/14/03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.100	<0.100	0.102	248
	06/04/03	<1.00	<1.0	<1.0	<1.0	<1.0	1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.102	<211
	09/03/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.30	0.188	<225
	12/10/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.100	0.176	<200
	03/16/04	<1.00	<1.0	<1.0	<3.0	<3.0	4.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.10	<0.100	<100
	06/08/04	<1.00	<1.00	<1.00	<1.00	<1.00	2.4	<2.20	<2.20	<2.20	<5.49	<2.20	<2.20	<5.49	<1.10	<1.10	<5.49	<0.220	<2.20	<0.220	<0.549	<0.220	<0.220	<0.220	<2.20	0.018 ?	<0.005	0.134 ?	<220
	09/21/04	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	2.97Y	<2.20 J3Y	<2.20 J3Y	<2.20 J3Y	<5.49 J3Y	<2.20 J3Y	<2.20 J3Y	<5.49Y	<1.10Y	<1.10Y	<5.49Y	<0.220Y	<2.20Y	<0.220Y	<0.549Y	<0.220Y	<0.220Y	<0.220Y	<2.20 J3Y	<0.02 QY	<0.005Y	0.144Y	<200Y
	12/01/04	<0.143	<0.2010	<0.1417	<0.220	<0.220	2.500	<0.22	<0.204	<0.214	<0.235	<0.165	<0.126	<0.110	<0.118	<0.106	<0.102	<0.150	<0.084	<0.102	<0.259	<0.167	<0.133	<0.094	<0.160	<0.018	<0.005	0.161	80 I V
CEF-46-15I	12/20/00	<1.0	<1.0	<1.0	<1.0	<4.0	NA	<1.1	N/A	N/A	<1.1	<1.1	<1.1	<1.1	<1.1	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.6	<0.4	<1.0	<550
	01/24/01	0.17	<1.0	<1.0	<1.0	0.17	<1.0	<1.0	N/A	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.60	<0.40	<1.0	<530
	03/13/03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<0.100	<0.100	<0.100	<200
	06/04/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<222
	09/03/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.42	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.10	<0.100	<225
	12/10/03	<1.00	<1.0	<1.0	<3.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.42	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.100	<0.100	<200
	03/16/04	<1.00	<1.0	<1.0	<3.0	<3.0	<1.0	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.100	<0.10	<0.100	<100
	06/08/04	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.20	<2.20	<2.20	<5.49	<2.20	<2.20	<5.49	<1.10	<1.10	<5.49	<0.220	<2.20	<0.220	<0.549	<0.220	<0.220	<0.220	<2.20	0.021 ?	<0.005	0.005 ?	<220
	09/21/04	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<2.11Y	<2.11 J3Y	<2.11 J3Y	<5.26Y	<2.11Y	<2.11Y	<5.26Y	<1.05Y	<1.05Y	<5.26Y	<0.211Y	<2.11Y	<0.211Y	<0.526Y	<0.211Y	<0.211Y	<0.211Y	<2.11Y	<0.02 QY	<0.005Y	0.006 ?Y	<220Y
	12/01/04	<0.143	<0.2010	<0.1417	<0.220	<0.220	<0.2359	<0.23	<0.206	<0.216	<0.237	<0.167	<0.127	<0.111	<0.120	<0.107	<0.103	<0.152	<0.085	<0.103	<0.262	<0.168	<0.134	<0.095	<0.162	<0.018	<0.005	0.005 I	110 I V
CEF-46-21I	12/20/00	<1.0	<1.0	<1.0	<1.0	<4.0	NA	<1.1	N/A	N/A	<1.1	<1.1	<1.1	<1.1	<1.1	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.6	<0.4	<1.0	<550
	01/25/01	0.25	<1.0	0.7	<1.0	0.95	<1.0	<1.0	N/A	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.60	<0.40	<1.0	300
	03/13/03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<0.100	<0.100	<0.100	<200
	06/05/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<100
	09/03/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	0.18	0.27	0.2	<0.10	0.5	0.67	2.82	0.16	0.35	0.16	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.16	<0.10	<0.100	308
	12/11/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.10	<0.100	<200
	03/18/04	<1.00	<1.0	<1.0	<3.0	<3.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.300	<0.30	<0.100	<222
	06/08/04	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.04	<2.04	<2.04	<5.10	<2.04	<2.04	<5.10	<1.02	<1.02	<5.10	<0.204	<2.04	<0.204	<0.510	<0.204	<0.204	<0.204	<2.04	<0.020	<0.005	0.010 ?	<200
	09/21/04	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<2.20Y	<2.20 J3Y	<2.20 J3Y	<5.49Y	<2.20Y	<2.20Y	<5.49Y	<1.10Y	<1.10Y	<5.49Y	<0.220Y	<2.20Y	<0.220Y	<0.549Y	<0.220Y	<0.220Y	<0.220Y	<2.20Y	<0.04 QY	<0.005Y	0.006Y	<220Y
	12/01/04	<0.143	<0.2010	<0.1417	<0.220	<0.220	<0.2359	<0.23	<0.206	<0.216	<0.237	<0.167	<0.127	<0.111	<0.120	<0.107	<0.103	<0.152	<0.085	<0.103	<0.262	<0.168	<0.134	<0.095	<0.162	<0.018	<0.005	0.007	100 I V
CEF-46-24D	12/20/00	<1.0	<1.0	0.47	0.41	0.88	NA	<1.1	N/A	N/A	<1.1	<1.1	<1.1	<1.1	<1.1	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.6	<0.4	0.18	<500
	01/25/01	8.3	0.81	1	2	12.11	<1.0	<1.0	N/A	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.60	<0.40	0.19	<510
	03/14/03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.100	0.21	0.841	<200
	06/05/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.438	<100
	09/03/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.30	0.212	<225
	12/10/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	0.16	0.119	<200
	03/16/04	<1.00	<1.0	<1.0	<3.0	<3.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.300	<0.10	<0.100	<100
	06/08/04	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.20	<2.20	<2.20	<5.49	<2.20	<2.20	<5.49	<1.10	<1.10	<5.49	<0.220	<2.20	<0.220	<0.549	<0.220	<0.220	<0.220	<2.20	0.018 ?	<0.005	0.679 ?	<200
	09/21/04	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<2.04Y	<2.04 J3Y	<2.04 J3Y	<5.10Y	<2.04Y	<2.04Y	<5.10Y	<1.02Y	<1.02Y	<5.10Y	<0.204Y	<2.04Y	<0.204Y	<0.510Y	<0.204Y	<0.204Y	<0.204Y	<0.204Y	<0.02 QY	<0.005Y	0.02?Y	<200Y
	12/01/04	<0.143	<0.2010	<0.1417	<0.220	<0.220	<0.2359	0.40 I	<0.200	<0.210	<0.230	<0.162	<0.123	<0.107	<0.116	<0.104	<0.100	<0.147	<0.082	<0.100	<0.254	<0.163	<0.130	<0.092	<0.157	<0.018	<0.005	<0.003	130 I V
CEF-46-25I	12/20/00	<1.0	<1.0	<1.0	<1.0	<4.0	NA	<1.1	N/A	N/A	<1.1	<1.1	<1.1	<1.1	<1.1	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.6	<0.4	<1.0	<560
	01/25/01	0.25	<1.0	<1.0	0.42	0.67	<1.0	<1.0	N/A	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.60	<0.40	<1.0	320
	03/13/03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<0.100	0.15	<0.100	<200
	06/04/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<200
	09/03/03	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.300	<0.30	<0.100	<225
	12/10/03	<1.00	<1.0	<1.0	<3.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.100	<0.100	<200
	03/16/04	<1.00	<1.0	<1.0	<3.0	<3.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.300	<0.10	<0.100	<111
	06/08/04	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.02	<2.02	<2.02	<5.05	<2.02	<2.02	<5.05	<1.01	<1.01	<5.05	<0.202	<2.02	<0.202	<0.505	<0.202	<0.202	<0.202	<2.02	<0.020	<0.005	0.040 ?	<200
	09/21/04	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<1.00Y	<2.11Y	<2.11 J3Y	<2.11 J3Y	<5.26Y	<2.11Y	<2.11Y	<5.26Y	<1.05Y	<1.05Y	<5.26Y	<0.211Y	<2.11Y	<0.211Y	<0.526Y	<0.211Y	<0.211Y	<0.211Y	<2.11Y	<0.02 QY	<0.005Y	0.035 ?Y	<220Y
	12/01/04	<0.143	0.4800 I	<0.1417	<0.220	0.4800 I	<0.2359	<0.22	<0.204	<0.214	<0.235	<0.165	<0.126	<0.110	<0.118	<0.106	<0.102	<0.150	<0.084	<0.102	<0.259	<0.167	<0.133	<0.094	<0.160	<0.018	<0.005	<0.027	100 I V
CEF-46-26I	12/20/00	1300	78	41	310	1729	NA	<1.1	N/A	N/A	<1.1	<1.1	<1.1	<1.1	<1.1	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.6	<0.4	<1.0	<530
	01/25/01	2400	270	100	820	3590	<5.0	<1.0	N/A	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.60	<0.40	<1.0	890
	03/14/03	866	23.3	5.4	199	1094	15.9	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.100	0.35	<0.100	628
	06/05/03	845	30	<10.0	314	1189	21	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	598
	09/03/03	902	24	<10.0	347	1273	17.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.300	<0.10	<0.100	488
	12/11/03	693	16.5	7.9	198	915	19.4	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.300	<0.30	<0.100	954
	03/18/04	870	8.3	6.3 ?	162	1046.6	20.3	<2.20	<2.20	<2.20	<5.49	<2.20	<2.20	<5.49	<1.10	<1.10	<5.49	<0.220	<2.20	<0.220	<0.549	<0.220	<0.220	<0.220	<2.20	0.02	<0.005	0.071 ?	380
	06/08/04	832	87.9	47.7	371	1338.6	25.4	0.13	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.60	<0.100	524
	09/21/04	184Y	27.7Y	7.84Y	233Y	452.54Y	141Y	<2.04Y	<2.04 J3Y	<2.04 J3Y	<5.10Y	<2.04Y	<2.04Y	<5.10Y	<1.02Y	<1.02Y	<5.10Y	<0.204Y	<2.04Y	<0.204Y	<0.510Y	<0.204Y	<0.204Y	<0.204Y	<2.04Y	<0.02 QY	<0.005Y	0.047 ?Y	280Y
	12/01/04	168	16.67	6.42	128	319.09	12.05	0.56 I	<0.206	<0.216	<0.237	<0.167	<0.127	<0.111	<0.120	<0.107	<0.103	<0.152	<0.085	<0.103	<0.262	<0.168	<0.134	<0.095	<0.162	<0.018	<0.005	0.03	1500
Groundwater Criteria [1]		1	30	40	20	n/a	50	20	20	20	210	20	280	210	2100	280	210	0.2	4.8	0.2	0.5	0.2	0.2	0.2	210	10,000	1000	n/a	5000
Natural Attenuation Default Source [1]		100	300	400	200	n/a	500	200	200	200	2100	200	2800	2100	21000	2800	2100	20	480	20	50	20	20	20	2100	100000	10000	n/a	50000

All values reported in ug/L
1 = Ch 62-777 F.A.C Groundwater Cleanup Target Levels (GCTL) reported in ug/L
Concentrations exceed their respective GCTL value

NS = Not Sampled
N/A = Not Analyzed
? = Rejected during data validation
"V" = the analyte was detected in both the sample and the associated method blank

I= The reported value is between the laborotory method and detection limit
J3 = The reported value failed to meet the established quality control criteria for either precision and/or accuracy
Q= Sample was represerved out of hold time due to preservative with nitric acid instead of sulfuric acid. The lab error did not impact validity of reported values
Y = Sample was received into laboratory out of acceptable temperature range.

TABLE 5
SOIL ANALYTICAL RESULTS

BUILDING 46 NUTRIENT INJECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Soil Boring Number	Sample Date	Benzene	Ethyl Benzene	Toluene	Xylene	BETX	Methyl tert-butyl ether	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	1-Methylnapthalene	2-Methylnaphthalene	Pyrene	Benzo (a) anthracene	Chrysene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Indeno (1, 2, 3-cd) pyrene	Dibenzo (a,h) anthracene	Benzo (g,h,i) perylene	TRPH
SB-1	01/04/01	<0.9	65	14	390	469	3.1	73	<0.18	<1.8	1.235	0.67	<0.18	0.179	--	--	0.039	<.018	0.48	0.02	0.0243	0.0102	0.0063	<0.018	<0.018	9900
	06/27/01	0.61	34	9.1	110	153.71	<0.0012	1.4	<0.18	0.16	0.15	0.15	<0.18	0.051	--	--	0.012	0.022	0.19	0.012	0.013	0.0056	0.0073	<0.018	0.0049	150
	09/20/01	0.65	6.1	0.69	40	47.44	<0.15	8.8	<0.2	<0.2	<0.2	0.28	<0.2	0.11	--	--	0.019	<0.02	0.15	0.034	0.026	0.018	0.011	0.026	0.024	1500
	12/12/01	0.069	0.13	0.013	0.55	0.762	0.0084	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.02	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	19
	03/07/02	3	67	7.1	200	277.1	<1.2	23	<0.19	<0.19	<0.19	0.27	<0.19	0.057	--	--	0.0057	0.023	0.26	<0.019	<0.19	0.0053	<0.019	<0.019	<0.019	1600
	06/20/02	0.15	7.9	0.82	27	35.87	<.11	5.2	<0.18	<0.18	0.92 J	0.086 J	<0.18	0.024 J	--	--	<0.018	<0.018	0.04	<0.018	<0.018	.0035 J	.0038 J	<0.018	<0.018	180
	09/26/02	2.17	97.7	10.7	532	642.57	<1.19	21.1	<0.20	<0.20	<0.20	0.27 J	<0.20	0.054 J	--	--	0.017 J	0.032 J	<0.020	0.015 J	0.022 J	<0.020	<0.020	0.017 J	0.012 J	800
	12/13/02	0.153	4.17	0.406	27.8	32.5	<0.166	2.84	<0.68	<0.68	<0.143	<0.0436	<0.0449	0.0517	<1.02	3.02	0.0251	<0.00885	<0.0102	<0.0122	<0.0116	<0.0068	<0.0292	<0.0204	<0.0517	151
	03/15/03	<0.034	0.155	<0.034	0.794	0.949	<0.169	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	0.089	0.132	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	65.3
	06/09/03	0.1869	1.526	0.2224	3.082	5.017	<0.252	0.0805	0.00432	0.00864	0.0755	0.0502	0.0176	0.00943	0.62	0.976	0.0118	<0.00393	<0.00393	<0.00393	<0.00393	<0.00393	<0.00393	<0.00393	<0.00393	27.7
	09/04/03	0.0226	1.8	0.043	1.48	3.346	0.011	0.231	<0.0033	0.00561	0.0531	0.0182	0.00528	0.00561	0.615	0.985	0.0066	<0.0033	<0.0033	0.00462	0.00363	0.0066	0.00825	0.0033	0.00924	34.6
	12/11/03	0.486	1.11	0.572	12	14.168	0.228	2.11	<0.0033	0.0099	0.0356	0.0238	0.0191	0.0158	1.72	2.9	0.0122	<0.0033	<0.0033	0.0102	0.00726	0.0142	0.0116	<0.0033	<0.00957	154
	03/18/04	0.0021	0.0597	0.0218	0.333	0.417	<0.006	0.277	<0.00398	<0.00398	0.0131	0.0123	<0.00398	0.00796	0.322	0.704	<0.00398	<0.00398	<0.00398	<0.00398	<0.00398	<0.00398	<0.00398	<0.00398	<0.00398	12.3
	06/07/04	<0.514	<0.514	<0.514	3.2	3.200	<0.514	<0.0998	<0.0998	<0.0998	<0.0998	<0.0998	<0.0998	<0.0998	0.175	0.4	<0.150	<0.0998	<0.0998	<0.0998	<0.0998	<0.0998	<0.0998	<0.0998	<0.0998	13.2
	09/20/04	<0.256Y	<0.256Y	<0.256Y	0.273Y	0.273Y	0.418Y	<0.100Y	<0.100 Y	<0.100 J3Y	<0.100 J3Y	<0.100 Y	<0.100Y	<0.100Y	<0.100 J3Y	<0.150 J3Y	<0.150Y	<0.100Y	<0.100Y	<0.100Y	<0.100Y	<0.100Y	<0.100Y	<0.100Y	<0.100Y	9.9Y
	12/01/04	<0.000596	<0.0005623	<0.0005623	<0.000874	<0.000874	<0.0005827	<0.07708	<0.06734	<0.07411	<0.09095	<0.05945	<0.02727	<0.02912	<0.06959	<0.07128	<0.03468 j3	<0.01810	<0.02000	<0.01776	<0.01776	<0.02057	<0.02164	<0.02196	<0.01735	85.3
SB-2	01/04/01	7.1	120	10	610	747.1	3.8	38.5	<0.18	<0.18	0.515	0.66	<0.18	0.173	--	--	0.044	0.0425	<0.018	0.01685	0.02945	0.0215	<0.018	<0.018	0.0255	3900
	06/27/01	1.4	57	47	420	525.4	<0.0011	0.84	0.17	1	0.46	0.59	0.086	0.21	--	--	0.046	0.077	0.071	0.026	0.037	0.019	0.0072	<0.019	0.0091	1300
	09/20/01	0.51	32	6	290	328.51	<0.12	7.4	<0.2	2.1	<0.20	0.58	<0.2	0.2	--	--	0.049	0.076	0.16	0.026	<0.020	0.02	<0.020	<0.020	<0.020	430
	12/12/01	<11	99	110	620	829	<11	34	<0.2	0.12	0.38	0.23	<0.2	0.043	--	--	0.018	0.017	0.15	0.01	0.0066	0.007	<0.020	0.0081	0.015	1800
	03/07/02	1.7	38	24	430	493.7	<1	24	<0.19	<0.19	<0.19	0.47	<0.19	0.085	--	--	0.012	0.049	<0.019	0.027	0.051	0.026	0.051	<0.019	0.015	2000
	06/20/02	0.14	2.8	6	72	80.94	<.12	11	<0.17	<0.17	<0.17	0.2	0.1 J	0.065 J	--	--	0.015 J	0.028 J	0.075	0.013 J	0.018 J	0.010 J	<0.017	<0.017	<0.017	550
	09/26/02	0.746 J	9.15	22	274	305.15	<1.2	20.5	<0.19	<0.19	<0.19	0.99	<0.19	0.17 J	--	--	0.060 J	0.12 J	<0.019	0.030 J	0.042 J	0.029	0.0079 J	0.032 J	0.016 J	970
	12/13/02	<0.611	8.01	12.8	80.7	101.51	<3.06	9.98	<0.661	<0.661	<0.139	0.0582	<0.0436	<0.0139	2.13	9.78	0.0906	<0.00859	<0.00991	<0.0119	<0.0112	<0.00661	<0.0284	<0.0198	<0.0502	428
	03/15/03	1.32	43.1	31.1	322	398	<0.532	10.7	<0.066	0.079	<0.066	0.317	0.066	<0.066	7.59	12.9	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	997
	06/09/03	0.4545	11.07	0.4463	75.58	88	<0.413	11.2	0.033	0.0632	0.136	0.206	0.058	0.0333	7.06	12	0.0425	0.00953	0.0123	0.0107	0.00556	0.0111	0.0107	<0.00397	0.0115	288
	09/04/03	0.717	18.6	3.05	115	137	<0.466	10.7	0.0304	0.0544	0.108	0.141	0.0403	0.0188	5.99	9.95	0.0224	0.00825	0.00528	<0.0033	<0.0033	0.00627	<0.0033	<0.0033	0.00528	453
	12/11/03	0.0442	14.9	10.4	192	217	0.008	39.2	0.109	0.17	0.311	0.414	0.117	0.0696	21.1	39.5	0.101	0.0459	0.0221	0.0191	0.0122	0.0284	0.0158	<0.0033	0.0188	1010
	03/18/04	0.0028	1.46	0.0389	6.52	8.0217	0.015	1.1	0.0253	<0.00422	0.0611	0.0769	<0.00422	0.011	1.65	2.93	0.0143	<0.00422	<0.00422	<0.00422	<0.00422	<0.00422	<0.00422	<0.00422	<0.00422	48.2
	06/07/04	<0.467	<0.467	<0.467	8.26	8.2600	<0.467	3.32	<0.100	0.115	0.183	0.27	<0.100	<0.100	7.13	13.4	<0.150	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	657
	09/20/04	<0.280Y	4.31Y	<0.280Y	21Y	25.431Y	0.366Y	1.35Y	<0.100Y	<0.100 J3Y	<0.100 J3Y	<0.100Y	<0.100Y	<0.100Y	0.794 J3Y	1.740 J3Y	<0.150Y	<0.100Y	<0.100Y	<0.100Y	<0.100Y	<0.100Y	<0.100Y	<0.100Y	<0.100Y	155Y
	12/01/04	0.249	28.94	41.13	178.000	248.319	<0.05174	9.700	<0.06734	<0.07411	<0.09095	0.09700 I	<0.02727	<0.02912	4.163	9.567	<0.03468 J3	<0.01810	<0.020000	<0.01776	<0.01776	<0.02057	<0.02164	<0.02196	<0.01735	645
SB-14	01/04/01	<0.001	<0.001	0.011	0.0077	0.0187	0.0081	0.23	<0.18	<0.18	<0.18	<0.18	<0.18	<0.018	--	--	<0.018	<0.018	0.785	0.0145	0.008	0.0115	0.0075	0.0101	0.016	43
	06/27/01	0.1	0.16	<0.0011	0.15	0.41	0.015	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	0.014	--	--	<0.019	<0.019	0.44	0.0059	0.0072	0.019	<0.019	0.023	<0.019	270
	09/20/01	0.0025	0.0025	0.002	0.0024	0.0094	<0.0012	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.020	--	--	<0.020	<0.020	0.32	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	55
	12/12/01	0.11	0.18	0.014	0.71	1.014	0.012	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.019	--	--	<0.019	<0.019	0.058	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	65
	03/07/02	0.054	0.045	<0.0011	0.032	0.131	0.0021	0.56	<0.19	<0.19	<0.19	<0.19	<0.19	0.011	--	--	<0.019	<0.019	1.2	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	120
	06/20/02	<0.11	110 J	<0.11	110 J	220	<0.11	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.018	--	--	<0.018	<0.018	1.4 J	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	23
	09/26/02	<0.001	0.0288	<0.001	0.0321	0.0609	0.00268	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	0.011 J	--	--	0.0099 J	<0.019	0.38 J	0.03	0.018 J	0.062 J	<0.019	0.059 J	<0.019	117
	12/13/02	<0.125	0.402	0.602	0.602	1.606	<0.314	<2.08	<2.08	<2.08	<0.439	<1.34	<1.38	<0.439	<3.14	<3.14	<0.565	<0.271	<0.314	<0.376	<0.355	<0.208	<0.898	<0.627	<1.59	192
	03/15/03	0.138	0.823	0.087	0.966	2.01	<0.140	0.185	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	0.228	0.429	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	51.2
	06/09/03	0.0099	0.1241	0.02	0.1563	0.31	0.006	6.2	0.0334	0.0645	0.137	0.154	0.0523	0.0556	6.15	10.8	0.0499	0.0277	0.0265	0.0319	0.0242	0.0292	0.0292	0.013	0.0299	413
	09/04/03	0.0046	0.0045	0.0061	0.0083	0.0235	<0.005	0.553	<0.0033	<0.0033	0.00627	0.00594	<0.0033	<0.0033	0.353	0.543	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033	0.00627	54.5
	12/11/03	0.0147	0.0016	0.0011	0.0055	0.0229	<0.005	1.01	0.0155	<0.0033	0.00891	0.00759	0.0132	0.0287	0.49	0.795	0.0337	0.0234	0.0191	0.0241	0.0241	0.0419	0.0333	0.0162	0.0376	126
	03/18/04	0.0012	0.0063	0.0019	0.0027	0.0121	<0.006	0.0085	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	0.00628	0.0144	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	0.0103	20.7
	06/07/04	<0.455	<0.455	<0.455	<0.455	<0.455	<0.455	1.67	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.368	0.69	<0.150	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	116
	09/20/04	<0.450Y	<0.450Y	<0.450Y	<0.450Y	<0.450Y	0.612Y	15.1Y	<0.100Y	0.328 J3Y	0.433 J3Y	0.905Y	0.940 IY	0.103Y	8.560 J3Y	16.900 J3Y	0.215Y	<0.100Y	0.0463 IY	<0.100Y	<0.100Y	<0.100Y	<0.100Y	<0.100Y	<0.100Y	633Y
	12/01/04	<0.000707	0.07285	0.002564	0.218	0.2934	< 0.0006913	0.9073	<0.06734	<0.07411	<0.09095	<0.05945	<0.02727	<0.02912	0.3703	0.829	<0.03468	<0.01810	<0.02000	<0.01776	<0.01776	<0.02057	<0.02164	<0.02196	<0.01735	19.2
Direct Exposure Residential[1]		1.1	1100	380	5900	n/a	3200	40	1100	1900	2200	2000	18000	2900	68	80	2200	1.4	140	1.4	15	0.1	1.5	0.1	2300	340
Leachability from GW Criteria[1]		0.007	0.6	0.5	0.2	n/a	0.2	1.7	27	2.1	160	250	2500	1200	2.2	6.1	880	3.2	77	10	25	8	28	30	32000	340

Y = The sample was received into laboratory out of acceptable temperature range.
I = The reported value is between the laboratory method detection limit and the laboratory practicial quantitation limit.
J = Estimated value
J3 = The reported value failed to meet the established quality control criteria for either precision and/or accuracy.
All values reported in mg/kg
1 = Ch 62-777 F.A.C Soil Cleanup Target Levels (SCTL) reported in mg/kg
Highlighted values indicate compounds that exceed the SCTL or the Leachability Criteria

APPENDIX D

December 2004 Groundwater Sampling Logs

GROUNDWATER PURGING & SAMPLING LOG

TERRAINE
Environmental Consulting

Project Information

Project No: 04-41001/3	Project Name: Building 46 - Cecil Field LTM/RAO	
Technician 1: Karen Baer	Technician 2:	Weather: Cloudy
Sampling ID: 04-41001/3:CEF-46-12I:12/1/04		
Notes:		

Well Information

Well ID: **CEF-46-12I**	Sampling Date: **12/1/2004**	
Well Diam (in): 2.0	Total Well Depth (ft): 29.61	Well Screen Interval (ft):
TOC Elevation (ft msl): 78.73	Northing: 0	Easting: 0
Static Depth to Water (ft): 7.25	Well Capacity (gal): 0.00	

Purge Setup

Purge Method: Nomad Submersible	Tubing Material: PPE		Pump Set at (ft): 26.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 09:38	Purge End: 09:51	Total Volume Purged (gal): 1.00	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Color	Odor
09:44	7.35	0.40	0.06	0.31	26.14	653.0	5.33	139.1	36.10	yellow	none
09:47	7.35	0.70	0.10	0.19	26.25	658.0	5.32	136.3	31.50		
09:50	7.35	1.00	0.10	0.14	26.34	660.0	5.31	134.4	27.00		

Sampling Data

Sample Information

Sample Date: 12/1/2004
Sample Start Time: 09:51
Sample End Time: 10:10
Field Filtered: ☐
Duplicate: ☐

Final Purge Readings

DO (mg/L): 0.12
Temp (*C): 26.37
SEC (uS/cm): 661
pH: 5.3
ORP (mV): 133.4
Turb (NTU): 25.8

Hach Field Data (mg/L)

DO: 0
CO2: 45
Alkalinity: 5
Ferrous Iron: 1.4
H2S: 0
Manganese:
Sulfate:
Sulfide:
Nitrate:

CHEMetrics Field Data (mg/L)

DO High Range:
DO High Range:
CO2 High Range:
CO2 Low Range:
Alkalinity High Range:
Alkalinity Low Range:

Lab Analyses/Methods:

"BTEX/MTBE, Nitrate/Nitrite, Orthophosphate, PAHs, TRPH"

Technician Initials

GROUNDWATER PURGING & SAMPLING LOG

TERRAINE
Environmental Consulting

Project Information

Project No: 04-41001/3	Project Name: Building 46 - Cecil Field LTM/RAO	
Technician 1: Karen Baer	Technician 2:	Weather: Cloudy
Sampling ID: 04-41001/3:CEF-46-13I:12/1/04		
Notes:		

Well Information

Well ID: **CEF-46-13I**	Sampling Date: **12/1/2004**	
Well Diam (in): 2.0	Total Well Depth (ft): 39.56	Well Screen Interval (ft):
TOC Elevation (ft msl): 78.87	Northing: 0	Easting: 0
Static Depth to Water (ft): 7.60	Well Capacity (gal): 0.00	

Purge Setup

Purge Method: Nomad Submersible	Tubing Material: PPE		Pump Set at (ft): 36.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 10:18	Purge End: 10:31	Total Volume Purged (gal): 1.30	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Color	Odor
10:24	7.70	0.50	0.08	0.28	26.68	988.0	3.75	101.3	7.52	clear	sulfuric
10:27	7.70	0.80	0.10	0.10	26.63	948.0	3.88	64.8	4.20		
10:30	7.70	1.30	0.13	0.07	26.58	934.0	3.93	45.0	2.41		

Sampling Data

Sample Information

Sample Date: 12/1/2004
Sample Start Time: 10:31
Sample End Time: 11:02
Field Filtered: ☐
Duplicate: ☐

Final Purge Readings

DO (mg/L): 0.06
Temp (*C): 26.53
SEC (uS/cm): 931
pH: 3.93
ORP (mV): 37.7
Turb (NTU): 1.92

Hach Field Data (mg/L)

DO: 0
CO2: Interferen
Alkalinity: 0
Ferrous Iron: 0.73
H2S: 5
Manganese:
Sulfate:
Sulfide:
Nitrate:

CHEMetrics Field Data (mg/L)

DO High Range:
DO High Range:
CO2 High Range:
CO2 Low Range:
Alkalinity High Range:
Alkalinity Low Range:

Lab Analyses/Methods:

"BTEX/MTBE, Nitrate/Nitrite, Orthophosphate, PAHs, TRPH"

Technician Initials

GROUNDWATER PURGING & SAMPLING LOG

TERRAINE
Environmental Consulting

Project Information

Project No: 04-41001/3	Project Name: Building 46 - Cecil Field LTM/RAO	
Technician 1: Larry Wolski	Technician 2:	Weather: Cloudy
Sampling ID: 04-41001/3:CEF-46-14D:12/1/04		
Notes:		

Well Information

Well ID: **CEF-46-14D**	Sampling Date: **12/1/2004**	
Well Diam (in): 2.0	Total Well Depth (ft): 78.79	Well Screen Interval (ft):
TOC Elevation (ft msl): 78.88	Northing: 0	Easting: 0
Static Depth to Water (ft): 7.66	Well Capacity (gal): 0.00	

Purge Setup

Purge Method: Nomad Submersible	Tubing Material: PPE		Pump Set at (ft): 75.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 09:31	Purge End: 09:43	Total Volume Purged (gal): 0.60	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Color	Odor
09:36	8.45	0.30	0.06	1.05	25.00	238.0	5.55	-144.9	8.46	clear	sulfuric
09:39	8.49	0.40	0.03	0.68	25.18	238.0	5.55	-157.0	8.66		
09:42	8.48	0.60	0.06	0.50	25.37	240.0	5.52	-169.6	6.35		

Sampling Data

Sample Information

Sample Date: 12/1/2004
Sample Start Time: 09:43
Sample End Time: 09:58
Field Filtered: ☐
Duplicate: ☐

Final Purge Readings

DO (mg/L): 0.42
Temp (*C): 25.41
SEC (uS/cm): 239
pH: 5.51
ORP (mV): -174
Turb (NTU): 4.59

Hach Field Data (mg/L)

DO: 0
CO2: 176
Alkalinity: 25
Ferrous Iron: 2.4
H2S: 0.1
Manganese:
Sulfate:
Sulfide:
Nitrate:

CHEMetrics Field Data (mg/L)

DO High Range:
DO High Range:
CO2 High Range:
CO2 Low Range:
Alkalinity High Range:
Alkalinity Low Range:

Lab Analyses/Methods:

"PAHs, TRPH, VOCs"

Technician Initials

GROUNDWATER PURGING & SAMPLING LOG

TERRAINE
Environmental Consulting

Project Information

Project No: 04-41001/3	Project Name: Building 46 - Cecil Field LTM/RAO	
Technician 1: Larry Wolski	Technician 2:	Weather: Cloudy
Sampling ID: 04-41001/3:CEF-46-15I:12/1/04		
Notes:		

Well Information

Well ID: **CEF-46-15I**	Sampling Date: **12/1/2004**	
Well Diam (in): 2.0	Total Well Depth (ft): 29.77	Well Screen Interval (ft):
TOC Elevation (ft msl): 79.75	Northing: 0	Easting: 0
Static Depth to Water (ft): 8.07	Well Capacity (gal): 0.00	

Purge Setup

Purge Method: Nomad Submersible	Tubing Material: PPE		Pump Set at (ft): 27.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 08:46	Purge End: 09:00	Total Volume Purged (gal): 1.50	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Color	Odor
08:50	8.44	0.30	0.07	0.74	23.27	321.0	4.59	-64.3	73.40	milky	sulfuric
08:53	8.39	0.70	0.13	0.43	23.45	330.0	4.53	-74.5	45.70		
08:56	8.42	1.10	0.13	0.29	23.58	340.0	4.46	-88.8	26.10		
08:59	8.45	1.50	0.13	0.23	23.67	346.0	4.43	-89.5	15.00		

Sampling Data

Sample Information

Sample Date: 12/1/2004
Sample Start Time: 09:00
Sample End Time: 09:17
Field Filtered: ☐
Duplicate: ☐

Final Purge Readings

DO (mg/L): 0.19
Temp (*C): 23.69
SEC (uS/cm): 347
pH: 4.42
ORP (mV): -91.4
Turb (NTU): 15.4

Hach Field Data (mg/L)

DO: 0
CO2: 143
Alkalinity: 15
Ferrous Iron: 3.4
H2S: 0.1
Manganese:
Sulfate:
Sulfide:
Nitrate:

CHEMetrics Field Data (mg/L)

DO High Range:
DO High Range:
CO2 High Range:
CO2 Low Range:
Alkalinity High Range:
Alkalinity Low Range:

Lab Analyses/Methods:

"PAHs, TRPH, VOCs"

Technician Initials

GROUNDWATER PURGING & SAMPLING LOG

TERRAINE
Environmental Consulting

Project Information

Project No: 04-41001/3	Project Name: Building 46 - Cecil Field LTM/RAO	
Technician 1: Karen Baer	Technician 2:	Weather: Partly Cloudy
Sampling ID: 04-41001/3:CEF-46-1S:12/1/04		
Notes:		

Well Information

Well ID: **CEF-46-1S**	Sampling Date: **12/1/2004**	
Well Diam (in): 2.0	Total Well Depth (ft): 14.24	Well Screen Interval (ft):
TOC Elevation (ft msl): 79.08	Northing: 0	Easting: 0
Static Depth to Water (ft): 7.06	Well Capacity (gal): 0.00	

Purge Setup

Purge Method: Nomad Submersible	Tubing Material: PPE		Pump Set at (ft): 9.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 13:46	Purge End: 14:13	Total Volume Purged (gal): 1.50	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Color	Odor
14:06	8.70	1.10	0.05	0.15	26.03	2,172.0	6.36	-350.9	31.00	black	strong HC
14:10	8.80	1.40	0.07	0.18	26.04	2,326.0	6.38	-354.8	16.00		
14:12	8.80	1.50	0.05	0.15	26.05	2,386.0	6.38	-355.8	14.40		

Sampling Data

Sample Information

Sample Date: 12/1/2004
Sample Start Time: 14:13
Sample End Time: 14:35
Field Filtered: ☐
Duplicate: ☐

Final Purge Readings

DO (mg/L): 0.15
Temp (*C): 26.07
SEC (uS/cm): 2404
pH: 6.39
ORP (mV): -356.9
Turb (NTU): 13.3

Hach Field Data (mg/L)

DO: 0
CO2: 362
Alkalinity: 205
Ferrous Iron: 0
H2S: 5
Manganese:
Sulfate:
Sulfide:
Nitrate:

CHEMetrics Field Data (mg/L)

DO High Range:
DO High Range:
CO2 High Range:
CO2 Low Range:
Alkalinity High Range:
Alkalinity Low Range:

Lab Analyses/Methods:

"BTEX/MTBE, Nitrate/Nitrite, Orthophosphate, PAHs, TRPH"

Technician Initials

GROUNDWATER PURGING & SAMPLING LOG

TERRAINE
Environmental Consulting

Project Information

Project No: 04-41001/3	Project Name: Building 46 - Cecil Field LTM/RAO	
Technician 1: Karen Baer	Technician 2:	Weather: "Cloudy, Cool, Sunny"
Sampling ID: 04-41001/3:CEF-46-21I:12/1/04		
Notes:		

Well Information

Well ID: **CEF-46-21I**	Sampling Date: **12/1/2004**	
Well Diam (in): 2.0	Total Well Depth (ft): 28.50	Well Screen Interval (ft):
TOC Elevation (ft msl): 79.31	Northing: 0	Easting: 0
Static Depth to Water (ft): 9.15	Well Capacity (gal): 0.00	

Purge Setup

Purge Method: Nomad Submersible	Tubing Material: PPE		Pump Set at (ft): 26.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 08:46	Purge End: 09:05	Total Volume Purged (gal): 1.40	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Color	Odor
08:52	9.25	0.40	0.06	2.78	24.23	407.0	3.67	473.5	9.14	clear	none
08:56	9.25	0.60	0.05	2.41	24.59	368.0	3.79	468.1	8.67		
08:59	9.25	1.00	0.13	2.33	24.70	346.0	3.82	461.6	9.07		
09:03	9.25	1.40	0.10	2.30	24.74	339.0	3.87	446.6	6.95		

Sampling Data

Sample Information

Sample Date: 12/1/2004
Sample Start Time: 09:05
Sample End Time: 09:32
Field Filtered: ☐
Duplicate: ☐

Final Purge Readings

DO (mg/L): 2.3
Temp (*C): 24.76
SEC (uS/cm): 334
pH: 3.89
ORP (mV): 439.1
Turb (NTU): 10.2

Hach Field Data (mg/L)

DO: 0
CO2: 54
Alkalinity: 0
Ferrous Iron: 0.27
H2S: 0
Manganese:
Sulfate:
Sulfide:
Nitrate:

CHEMetrics Field Data (mg/L)

DO High Range:
DO High Range:
CO2 High Range:
CO2 Low Range:
Alkalinity High Range:
Alkalinity Low Range:

Lab Analyses/Methods:

"BTEX/MTBE, Nitrate/Nitrite, Orthophosphate, PAHs, TRPH"

Technician Initials

GROUNDWATER PURGING & SAMPLING LOG

TERRAINE
Environmental Consulting

Project Information

Project No: 04-41001/3	Project Name: Building 46 - Cecil Field LTM/RAO	
Technician 1: Larry Wolski	Technician 2:	Weather: "Cloudy, Light rain"
Sampling ID: 04-41001/3:CEF-46-24D:12/1/04		
Notes:		

Well Information

Well ID: **CEF-46-24D**	Sampling Date: **12/1/2004**	
Well Diam (in): 2.0	Total Well Depth (ft): 90.45	Well Screen Interval (ft):
TOC Elevation (ft msl): 78.74	Northing: 0	Easting: 0
Static Depth to Water (ft): 9.11	Well Capacity (gal): 0.00	

Purge Setup

Purge Method: Nomad Submersible	Tubing Material: PPE		Pump Set at (ft): 85.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 11:53	Purge End: 12:05	Total Volume Purged (gal): 0.60	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Color	Odor
11:57	9.22	0.30	0.07	0.97	24.48	2,118.0	3.73	202.3	34.40	clear	sulfuric
12:01	9.19	0.50	0.05	0.71	24.64	2,135.0	3.74	212.7	25.00		
12:04	9.18	0.60	0.03	0.35	24.52	2,134.0	3.74	209.6	18.60		

Sampling Data

Sample Information

Sample Date: 12/1/2004
Sample Start Time: 12:05
Sample End Time: 12:05
Field Filtered: ☐
Duplicate: ☐

Final Purge Readings

DO (mg/L): 0.33
Temp (*C): 24.52
SEC (uS/cm): 2133
pH: 3.74
ORP (mV): 211.6
Turb (NTU): 17.8

Hach Field Data (mg/L)

DO: 0
CO2: Interferen
Alkalinity: 0
Ferrous Iron: 8.5
H2S: 0.3
Manganese:
Sulfate:
Sulfide:
Nitrate:

CHEMetrics Field Data (mg/L)

DO High Range:
DO High Range:

CO2 High Range:
CO2 Low Range:

Alkalinity High Range:
Alkalinity Low Range:

Lab Analyses/Methods:

"PAHs, TRPH, VOCs"

Technician Initials

GROUNDWATER PURGING & SAMPLING LOG

TERRAINE
Environmental Consulting

Project Information

Project No: 04-41001/3	Project Name: Building 46 - Cecil Field LTM/RAO	
Technician 1: Larry Wolski	Technician 2:	Weather: "Cloudy, Light rain"
Sampling ID: 04-41001/3:CEF-46-25I:12/1/04		
Notes:		

Well Information

Well ID: **CEF-46-25I**	Sampling Date: **12/1/2004**	
Well Diam (in): 2.0	Total Well Depth (ft): 50.45	Well Screen Interval (ft):
TOC Elevation (ft msl): 79.17	Northing: 0	Easting: 0
Static Depth to Water (ft): 9.11	Well Capacity (gal): 0.00	

Purge Setup

Purge Method: Nomad Submersible	Tubing Material: PPE		Pump Set at (ft): 48.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 10:58	Purge End: 11:22	Total Volume Purged (gal): 1.80	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Color	Odor
11:02	9.23	0.30	0.07	0.55	22.97	1,875.0	3.55	-6.0	8.96	clear	sulfuric
11:05	9.22	0.40	0.03	0.35	23.12	2,014.0	3.68	-74.4	10.90		
11:09	9.27	0.60	0.05	0.20	23.96	2,453.0	3.82	-116.8	11.50		
11:12	9.29	0.80	0.06	0.08	24.28	2,772.0	3.84	-141.4	7.32		
11:15	9.29	1.30	0.16	0.08	24.33	3,051.0	3.80	-153.6	3.91		
11:18	9.26	1.50	0.06	0.06	24.19	3,410.0	3.74	-155.5	2.79		
11:21	9.25	1.80	0.10	0.07	24.19	3,549.0	3.73	-153.1	2.69		

Sampling Data

Sample Information

Sample Date: 12/1/2004
Sample Start Time: 11:22
Sample End Time: 11:23
Field Filtered: ☐
Duplicate: ☐

Final Purge Readings

DO (mg/L): 0.08
Temp (*C): 24.2
SEC (uS/cm): 3586
pH: 3.72
ORP (mV): -153.1
Turb (NTU): 2.66

Hach Field Data (mg/L)

DO: 0
CO2: Interferen
Alkalinity: 0
Ferrous Iron: 7.8
H2S: 5
Manganese:
Sulfate:
Sulfide:
Nitrate:

CHEMetrics Field Data (mg/L)

DO High Range:
DO High Range:
CO2 High Range:
CO2 Low Range:
Alkalinity High Range:
Alkalinity Low Range:

Lab Analyses/Methods:

"PAHs, TRPH, VOCs"

Technician Initials

GROUNDWATER PURGING & SAMPLING LOG

TERRAINE Environmental Consulting

Project Information

Project No: 04-41001/3	Project Name: Building 46 - Cecil Field LTM/RAO	
Technician 1: Karen Baer	Technician 2:	Weather: "Cloudy, Light rain"
Sampling ID: 04-41001/3:CEF-46-26I:12/1/04		
Notes:		

Well Information

Well ID: **CEF-46-26I**	Sampling Date: **12/1/2004**	
Well Diam (in): 2.0	Total Well Depth (ft): 47.76	Well Screen Interval (ft):
TOC Elevation (ft msl): 79.43	Northing: 0	Easting: 0
Static Depth to Water (ft): 10.20	Well Capacity (gal): 0.00	

Purge Setup

Purge Method: Nomad Submersible	Tubing Material: PPE		Pump Set at (ft): 44.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 12:03	Purge End: 12:18	Total Volume Purged (gal): 1.20	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Color	Odor
12:08	10.25	0.50	0.10	0.81	23.14	5,980.0	2.62	375.2	6.54	clear	slight HC
12:11	10.25	0.70	0.06	0.21	23.07	5,953.0	2.61	375.1	3.93		
12:14	10.25	0.90	0.06	0.14	23.30	5,972.0	2.61	374.6	3.36		
12:18	10.25	1.20	0.07	0.11	23.41	5,993.0	2.61	373.6	3.92		

Sampling Data

Sample Information

Sample Date: 12/1/2004
Sample Start Time: 12:18
Sample End Time: 12:37
Field Filtered: ☐
Duplicate: ☐

Final Purge Readings

DO (mg/L): 0.11
Temp (*C): 23.43
SEC (uS/cm): 6045
pH: 2.62
ORP (mV): 371.6
Turb (NTU): 4.87

Hach Field Data (mg/L)

DO: 0
CO2: Interferen
Alkalinity: 0
Ferrous Iron: 3.33
H2S: 5
Manganese:
Sulfate:
Sulfide:
Nitrate:

CHEMetrics Field Data (mg/L)

DO High Range:
DO High Range:
CO2 High Range:
CO2 Low Range:
Alkalinity High Range:
Alkalinity Low Range:

Lab Analyses/Methods:

"BTEX/MTBE, Nitrate/Nitrite, Orthophosphate, PAHs, TRPH"

Technician Initials

GROUNDWATER PURGING & SAMPLING LOG

TERRAINE
Environmental Consulting

Project Information

Project No: 04-41001/3	Project Name: Building 46 - Cecil Field LTM/RAO	
Technician 1: Karen Baer	Technician 2:	Weather: "Cloudy, Light rain"
Sampling ID: 04-41001/3:CEF-46-2S:12/1/04		
Notes:		

Well Information

Well ID: **CEF-46-2S**	Sampling Date: **12/1/2004**	
Well Diam (in): 2.0	Total Well Depth (ft): 13.88	Well Screen Interval (ft):
TOC Elevation (ft msl): 79.08	Northing: 0	Easting: 0
Static Depth to Water (ft): 7.02	Well Capacity (gal): 0.00	

Purge Setup

Purge Method: Nomad Submersible	Tubing Material: PPE		Pump Set at (ft): 9.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 11:10	Purge End: 11:24	Total Volume Purged (gal): 1.80	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Color	Odor
11:16	7.60	1.30	0.21	0.09	25.69	2,661.0	6.41	-182.7	43.40	turbid	slight HC
11:19	7.41	1.60	0.10	0.07	25.54	2,522.0	6.43	-200.0	43.00		
11:22	7.35	1.80	0.06	0.06	25.57	2,465.0	6.44	-211.5	42.90		

Sampling Data

Sample Information

Sample Date: 12/1/2004
Sample Start Time: 11:24
Sample End Time: 11:58
Field Filtered: ☐
Duplicate: ☐

Final Purge Readings

DO (mg/L): 0.06
Temp (*C): 25.63
SEC (uS/cm): 2454
pH: 6.45
ORP (mV): -215.2
Turb (NTU): 42.8

Hach Field Data (mg/L)

DO: 0
CO2: 88
Alkalinity: 100
Ferrous Iron: 0.63
H2S: 5
Manganese:
Sulfate:
Sulfide:
Nitrate:

CHEMetrics Field Data (mg/L)

DO High Range:
DO High Range:
CO2 High Range:
CO2 Low Range:
Alkalinity High Range:
Alkalinity Low Range:

Lab Analyses/Methods:

"BTEX/MTBE, Nitrate/Nitrite, Orthophosphate, PAHs, TRPH"

Technician Initials

GROUNDWATER PURGING & SAMPLING LOG

TERRAINE
Environmental Consulting

Project Information

Project No: 04-41001/3	Project Name: Building 46 - Cecil Field LTM/RAO	
Technician 1: Larry Wolski	Technician 2:	Weather: "Cloudy, Sunny"
Sampling ID: 04-41001/3:CEF-46-5I:12/1/04		
Notes:		

Well Information

Well ID: **CEF-46-5I**	Sampling Date: **12/1/2004**	
Well Diam (in): 2.0	Total Well Depth (ft): 49.65	Well Screen Interval (ft):
TOC Elevation (ft msl): 79.18	Northing: 0	Easting: 0
Static Depth to Water (ft): 9.23	Well Capacity (gal): 0.00	

Purge Setup

Purge Method: Peristaltic	Tubing Material: PPE		Pump Set at (ft): 35.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 13:12	Purge End: 13:40	Total Volume Purged (gal): 1.10	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Color	Odor
13:28	9.42	0.30	0.01	0.77	25.87	604.0	4.30	306.2	59.10	turbid	none
13:32	9.43	0.40	0.02	0.47	26.32	547.0	4.50	282.1	47.60		
13:35	9.51	0.70	0.10	0.29	26.82	531.0	4.68	249.6	53.10		
13:39	9.47	1.10	0.10	0.24	26.85	557.0	4.54	263.6	48.60		

Sampling Data

Sample Information

Sample Date: 12/1/2004
Sample Start Time: 13:40
Sample End Time: 13:58
Field Filtered: ☐
Duplicate: ☐

Final Purge Readings

DO (mg/L): 0.23
Temp (*C): 26.86
SEC (uS/cm): 638
pH: 4.48
ORP (mV): 267.7
Turb (NTU): 43.6

Hach Field Data (mg/L)

DO: 0
CO2: Interferen
Alkalinity: 0
Ferrous Iron: 7.2
H2S: 0.1
Manganese:
Sulfate:
Sulfide:
Nitrate:

CHEMetrics Field Data (mg/L)

DO High Range:
DO High Range:
CO2 High Range:
CO2 Low Range:
Alkalinity High Range:
Alkalinity Low Range:

Lab Analyses/Methods:

"PAHs, TRPH, VOCs"

Technician Initials

GROUNDWATER PURGING & SAMPLING LOG

TERRAINE
Environmental Consulting

Project Information

Project No: 04-41001/3	Project Name: Building 46 - Cecil Field LTM/RAO	
Technician 1: Larry Wolski	Technician 2:	Weather: Sunny
Sampling ID: 04-41001/3:CEF-46-6D:12/1/04		
Notes:		

Well Information

Well ID: **CEF-46-6D**	Sampling Date: **12/1/2004**	
Well Diam (in): 2.0	Total Well Depth (ft): 79.82	Well Screen Interval (ft):
TOC Elevation (ft msl): 79.17	Northing: 0	Easting: 0
Static Depth to Water (ft): 9.72	Well Capacity (gal): 0.00	

Purge Setup

Purge Method: Nomad Submersible	Tubing Material: PPE		Pump Set at (ft): 35.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 12:39	Purge End: 12:54	Total Volume Purged (gal): 0.60	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Color	Odor
12:45	10.42	0.30	0.05	0.53	26.19	17,601.0	2.57	440.3	43.20	clear	sulfuric
12:49	10.69	0.50	0.05	0.24	26.88	18,353.0	2.58	437.9	31.40		
12:52	10.84	0.60	0.03	0.18	27.03	18,727.0	2.59	437.2	26.50		

Sampling Data

Sample Information

Sample Date:	12/1/2004
Sample Start Time:	12:54
Sample End Time:	13:11
Field Filtered:	☐
Duplicate:	☐

Final Purge Readings

DO (mg/L):	0.15
Temp (*C):	27.16
SEC (uS/cm):	18791
pH:	2.59
ORP (mV):	437.1
Turb (NTU):	25.9

Hach Field Data (mg/L)

DO:	0
CO2:	118
Alkalinity:	0
Ferrous Iron:	7.6
H2S:	0.1
Manganese:	
Sulfate:	
Sulfide:	
Nitrate:	

CHEMetrics Field Data (mg/L)

DO High Range:
DO High Range:

CO2 High Range:
CO2 Low Range:

Alkalinity High Range:
Alkalinity Low Range:

Lab Analyses/Methods:

"PAHs, TRPH, VOCs"

Technician Initials

GROUNDWATER PURGING & SAMPLING LOG

TERRAINE
Environmental Consulting

Project Information

Project No: 04-41001/3	Project Name: Building 46 - Cecil Field LTM/RAO	
Technician 1: Karen Baer	Technician 2:	Weather:
Sampling ID: 04-41001/3:CEF-46-7I:12/1/04		
Notes:		

Well Information

Well ID: **CEF-46-7I**	Sampling Date: **12/1/2004**	
Well Diam (in): 2.0	Total Well Depth (ft): 29.68	Well Screen Interval (ft):
TOC Elevation (ft msl): 79.02	Northing: 0	Easting: 0
Static Depth to Water (ft): 8.60	Well Capacity (gal): 0.00	

Purge Setup

Purge Method: Nomad Submersible	Tubing Material: PPE		Pump Set at (ft): 26.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 12:59	Purge End: 13:14	Total Volume Purged (gal): 0.80	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Color	Odor
13:07	9.50	0.40	0.05	0.27	26.18	179.0	5.63	-36.3	1,000.00	turbid	strong HC
13:10	9.70	0.60	0.06	0.10	26.22	175.0	5.62	-42.9	1,000.00		
13:14	9.70	0.80	0.06	0.08	26.38	175.0	5.62	-48.6	1,000.00		

Sampling Data

Sample Information

Sample Date: 12/1/2004
Sample Start Time: 13:14
Sample End Time: 13:39
Field Filtered: ☐
Duplicate: ☐

Final Purge Readings

DO (mg/L): 0.06
Temp (*C): 26.45
SEC (uS/cm): 175
pH: 5.62
ORP (mV): -50.6
Turb (NTU): 1000

Hach Field Data (mg/L)

DO: 0
CO2: 217
Alkalinity: 10
Ferrous Iron: 5.8
H2S: 1
Manganese:
Sulfate:
Sulfide:
Nitrate:

CHEMetrics Field Data (mg/L)

DO High Range:
DO High Range:
CO2 High Range:
CO2 Low Range:
Alkalinity High Range:
Alkalinity Low Range:

Lab Analyses/Methods:

"BTEX/MTBE, Nitrate/Nitrite, Orthophosphate, PAHs, TRPH"

Technician Initials

GROUNDWATER PURGING & SAMPLING LOG

TERRAINE
Environmental Consulting

Project Information

Project No: 04-41001/3	Project Name: Building 46 - Cecil Field LTM/RAO	
Technician 1: Larry Wolski	Technician 2:	Weather: Cloudy
Sampling ID: 04-41001/3:CEF-46-9I:12/1/04		
Notes:		

Well Information

Well ID: **CEF-46-9I**	Sampling Date: **12/1/2004**	
Well Diam (in): 2.0	Total Well Depth (ft): 48.81	Well Screen Interval (ft):
TOC Elevation (ft msl): 79.05	Northing: 0	Easting: 0
Static Depth to Water (ft): 8.44	Well Capacity (gal): 0.00	

Purge Setup

Purge Method: Nomad Submersible	Tubing Material: PPE		Pump Set at (ft): 46.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 10:12	Purge End: 10:25	Total Volume Purged (gal): 0.80	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Color	Odor
10:18	8.46	0.30	0.05	0.86	25.74	1,233.0	3.62	-38.2	23.60	clear	sulfuric
10:21	8.47	0.50	0.06	0.32	25.96	1,322.0	3.68	-60.4	22.40		
10:24	8.48	0.80	0.10	0.12	26.07	1,390.0	3.68	-72.6	19.50		

Sampling Data

Sample Information

Sample Date:	12/1/2004
Sample Start Time:	10:25
Sample End Time:	10:39
Field Filtered:	☐
Duplicate:	☐

Final Purge Readings

DO (mg/L):	0.11
Temp (*C):	26.09
SEC (uS/cm):	NM
pH:	3.68
ORP (mV):	-74.8
Turb (NTU):	16.7

Hach Field Data (mg/L)

DO:	0
CO2:	370
Alkalinity:	0
Ferrous Iron:	4.5
H2S:	3
Manganese:	
Sulfate:	
Sulfide:	
Nitrate:	

CHEMetrics Field Data (mg/L)

DO High Range:
DO High Range:

CO2 High Range:
CO2 Low Range:

Alkalinity High Range:
Alkalinity Low Range:

Lab Analyses/Methods:

"PAHs, TRPH, VOCs"

Technician Initials

APPENDIX E

Active Remediation Status Report Summary

Active Remediation
Annual Status Report Summary

DEP Form # 62-785.900(5)

Form Title: Active Remediation Annual Status Report Summary

Effective Date:

Site Name Building 46 **FDEP BF Site ID No.** _____

Location NAS Cecil Field, Jacksonville, Florida **Appplicable Dates** 01/01/04 to 12/21/04

RAP Approval Date ___/___/___ **System Startup Date** 1/18/01

Media Contaminated: X **Groundwater** X **Soil**

Estimated Total Mass Recovered or Remediated This Period ____ **(lbs)**

Method of Groundwater Remediation:

Amount of Mass Removed _____ (gals)

Pump-and-Treat
- Design Flow Rate _____ (gpm)
- Actual Flow Rate _____ (gpm)
- Total Vol. Recovered to Date _____ (1000 gal)

In Situ Air Sparging
- Design Air Flow Rate _____ (cfm)
- Actual Air Flow Rate _____ (cfm)
- Estimated Radius of Influence _____ (ft)

Biosparging
- Design Flow Rate _____ (gpm)
- Actual Flow Rate _____ (gpm)

Bioremediation

Other _____

Estimated Total Mass Recovered or Remediated This Period: _____ (lbs)
- Mass Removed by Pump-and-Treat _____ (lbs)
- Mass Removed by VES and/or AS _____ (lbs)
- Mass Removed by FP Recovery _____ (lbs)
- Other Estimated Mass Removed _____ (lbs) (specify method: _____)

Concentration of Total VOAs in Designated Wells at End of:

	This Period	Previous Period
MW-1S	1913 ppb	6794 ppb
MW-2S	524 ppb	21.7 ppb
MW-7I	1813 ppb	6960 ppb
MW-26I	331 ppb	1113 ppb

Method of Soil Remediation:

Vapor Extraction System (VES)
- Design Air Flow Rate _____ (cfm)
- Actual Air Flow Rate _____ (cfm)
- Estimated Radius of Influence _____ (ft)
- Air Emissions Treatment
  Discontinued / date ___/___/___ Ongoing

Soil Bioventing
- Design Air Flow Rate _____ (cfm)
- Actual Air Flow Rate _____ (cfm)

In Situ Bioremediation

Other PHOster Nutrient Injection System

Free Product Present: Yes No
- Volume Recovered to Date _____ (gal)

Estimated Time of Cleanup for Active Remediation: 1625 (days)
- Estimated time of cleanup based on target level concentration C and on the exponential decay equation, $\mathbf{C_1 = C_0\, e^{xt_1}}$, where C_1 = present concentration at the most contaminated source well (ppb); C_0 = highest initial concentration of applicable chemical of concern at system startup (ppb); x = decay coefficient; and t_1 = length of time between initial and present concentration (days). A semi-log plot for cleanup times should be provided.

Cleanup Time Predicted in RAP: __ (days) [explain below, difference between RAP and calculated]

O & M Problems: Yes No (if yes, provide explanation below)
- No. of scheduled O & M visits 12
- Down-time 28 (days)
- No. of unscheduled O & M visits _____

Description of O & M Problems:

Short Description of Effectiveness of Cleanup: Contaminants are decreasing and general downward trends have been observed even though some locations show concentrations greater than site GCTLs.

Recommendations and Proposed Modifications: Continue operation of current system, evaluate nutrient and air requirements periodically and modify as required to optimize aerobic conditions