

February 27, 2014

*Via E-mail: adrienne.wilson@navy.mil*

Ms. Adrienne Wilson, OPDE3  
NAVFAC SE  
NAS Jacksonville  
PO Box 30, Bldg. 903  
Jacksonville, FL 32212-0030

**Re: Final November 2012 Quarterly Groundwater Monitoring Report, PCA 25 UST Site 119  
Contract Number N69450-11-D-0100-0001  
NAS Jacksonville  
Solutions-IES Project No. 2012.0014.NAVY**

Dear Ms. Wilson:

Please find attached the Final November 2012 Quarterly Groundwater Monitoring Report for PCA 25 UST Site 119 at NAS Jacksonville in Jacksonville, Florida. We have transmitted one CD of the report to you along with one hard copy and one CD to the FDEP and Tim Curtin per this cover letter. When final approval of the document has been received from the FDEP, we will distribute the approval letter under separate cover.

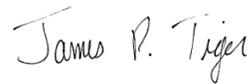
If you have any questions or need any additional information, please feel free to contact us at (919) 873-1060.

Yours truly,

**Solutions-IES**



Jody Overmyer, P.E., PMP  
Project Manager



For: Brian M. Rebar  
Senior Project Manager

cc: Ms. Jennifer Conklin, FDEP (1 HC + 1 CD)  
Mr. Tim Curtin, NAS Jacksonville (1 HC + 1 CD)

**NOVEMBER 2012 QUARTERLY GROUNDWATER MONITORING REPORT**

**PETROLEUM CONTAMINATED AREA 25 UST SITE 119  
NAVAL AIR STATION JACKSONVILLE  
JACKSONVILLE, FLORIDA**

**Contract No. N69450-11-D-0100  
Order No. 0001**

Prepared for:

**NAVFAC SE**  
NAS Jacksonville  
Jacksonville, FL 32212

Prepared by:

**Solutions-IES, Inc.**  
1101 Nowell Rd.  
Raleigh, NC 27607  
[www.solutions-ies.com](http://www.solutions-ies.com)

**Solutions-IES Project No. 2012.0014.NAVY**

**February 26, 2014**





**FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION**

BOB MARTINEZ CENTER  
2600 BLAIRSTONE ROAD  
TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT  
GOVERNOR

HERSCHEL T. VINYARD JR.  
SECRETARY

September 30, 2013

Ms. Adrienne Wilson  
Code OPDE3/AW  
Department of the Navy  
Naval Facilities Southeast  
Attn: Ajax Street, Building 135N  
P.O. Box 30A  
Jacksonville, FL 32212-0030

RE: Draft Revision 2 – Quarterly Groundwater Monitoring Report, November 2012, Petroleum Contaminated Area 25 UST Site 119, Naval Air Station Jacksonville, Jacksonville, Florida

Dear Ms. Wilson:

The Department has completed its review of the Draft Revision 2 – Quarterly Groundwater Monitoring Report, November 2012, Petroleum Contaminated Area (PCA) 25 UST Site 119, Naval Air Station Jacksonville, dated May 14, 2013 (received July 16, 2013), prepared and submitted by Solutions-IES, Inc., under Contract Number N69450-11-D-0100. The Department agrees with the recommendations and approves the report. Please note, groundwater samples collected for volatile organic compound (VOC) analysis should be collected at  $\leq 100$  mL/min per section 2.2.8.1 of DEP-SOP-001/01 FS 2200 Groundwater Sampling Standard Operating Procedures. Please ensure this is complied with in future sampling events

If you have any questions regarding this letter, please contact me at (850) 245-8935.

Sincerely,

A handwritten signature in blue ink that reads 'Jennifer R. Conklin'.

Jennifer R. Conklin  
Remedial Project Manager  
Department of Defense and Brownfields Partnerships  
Bureau of Waste Cleanup

CC: Pete Dao, EPA Region IV, Atlanta  
Tim Curtin, NASJAX  
Jody Overmyer, Solutions-IES, Inc.  
Tim Bahr, FDEP, Tallahassee

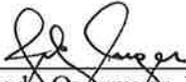
Ms. Adrienne Wilson  
Page 2 of 2  
August 19, 2013

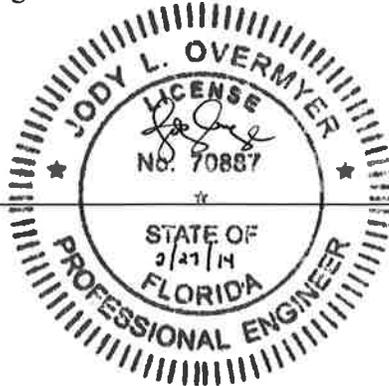
KAW

A handwritten signature in blue ink, appearing to be the initials 'KAW' with a stylized flourish.

SIGNATURE PAGE

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.

  
\_\_\_\_\_  
Jody Overmyer, P.E.  
Project Manager



2/27/14  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Brian Rebar  
Operations Manager

2/26/2014  
\_\_\_\_\_  
Date

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## **1.0 INTRODUCTION**

Solutions-IES, Inc. (Solutions-IES) has been contracted by the Navy (NAVFAC SE) to conduct quarterly groundwater monitoring at Petroleum Contaminated Area (PCA) 25 Underground Storage Tank (UST) Site 119, Naval Air Station (NAS) Jacksonville in Jacksonville, Florida under contract number N69450-11-D-0100 Task Order 0001. This report represents the second quarterly monitoring at PCA 25 UST Site 119 as part of the Monitored Natural Attenuation (MNA) remedy selected for the site and presents a summary of the groundwater monitoring activities from the November 2012 sampling event.

### **1.1 OBJECTIVE**

The objective of this sampling event was to perform quarterly compliance sampling in accordance with the *Sampling and Analysis Plan* (SAP; Solutions-IES, 2012) to determine:

- Whether groundwater at PCA 25 UST Site 119 is eligible for No Further Action (NFA) without Controls under Risk Management Option (RMO) I (i.e., no exceedances of the Florida Department of Environmental Protection [FDEP] groundwater target cleanup levels [GCTLs] for four quarters, including previous monitoring data) as defined in FDEP Chapter 62-770, F.A.C.;
- If NFA with Institutional Controls under RMO II will be required; or
- If continued monitoring to assess MNA is appropriate.

## **2.0 SITE LOCATION, HISTORY AND REGULATORY FRAMEWORK**

### **2.1 SITE LOCATION**

The site is located at the end of Albermarle Avenue east of Taxiway Bravo near the NAS Jacksonville boathouse located on the St. Johns River. The general location of PCA 25 UST Site 119 relative to the greater NAS Jacksonville installation, as well as the NAS Jacksonville and PCA 25 UST Site 119 site boundaries are shown on **Figure 1**.

### **2.2 SITE HISTORY AND REGULATORY FRAMEWORK**

PCA 25 UST Site 119 previously contained two 420,000 gallon Bunker C fuel aboveground storage tanks (ASTs). In April and May of 2004 the two tanks (Tank 120 and Tank 1982) and associated piping were cleaned, demolished, and removed from PCA 25. The majority of associated product lines were drained, flushed, capped, and abandoned in place. During excavation activities, contaminated soil and groundwater was encountered and confirmed by laboratory analytical results. OHC Environmental

Engineering, Inc. recommended a site assessment be conducted to determine the horizontal and vertical extent of contaminants that exceeded the FDEP soil cleanup target levels (SCTLs) and the GCTLs.

Following the recommendation and during a site visit, Mark Peterson of Tetra Tech, Inc. (Tt) (formerly Tetra Tech NUS, Inc.) and Frank Sigona of NAS Jacksonville observed bulk oil in a railroad sump located in the southern section of PCA 25. It was agreed that excess oil in the sump may be a direct result of former piping abandoned in-place from the former UST Site 119 Fuel Transfer Sump. Due to previously confirmed soil and groundwater contamination and the excess bulk oil being present in the sump, it was recommended to conduct further assessment activities to define the source, as well as the vertical and horizontal extent, of soil and groundwater contamination for the site.

A total of 110 soil borings were advanced throughout the PCA 25 area from October 25, 2005, through August 30, 2006. Twenty of the samples that were submitted for laboratory analysis had petroleum constituents detected in excess of their FDEP SCTLs, which included total recoverable petroleum hydrocarbons (TRPH), benzene, chlorobenzene, ethylbenzene, methylene chloride, 1-methylnaphthalene, 2-methylnaphthalene, acenaphthalene, benzo(a)pyrene equivalents and naphthalene. The water table was encountered at approximately 4 feet below ground surface (ft bgs). The groundwater assessment results indicated petroleum constituents in soils were not reflected in groundwater. However, sporadic detections at relatively low concentration of contaminants have been detected in groundwater at the site during quarterly groundwater monitoring events conducted from July 2007 to November 2008.

The primary contaminants of concern (COCs) in groundwater at the site have historically been identified as benzene, vinyl chloride (VC), 1-methylnaphthalene, 2-methylnaphthalene, benzo(a)anthracene, benzo(b)fluoranthene and lead. Currently, six monitoring wells at the site are scheduled to be sampled on a quarterly basis for analysis of the volatile organic compounds (VOCs) benzene and VC, the polynuclear aromatic hydrocarbons (PAHs) 1- & 2-methylnaphthalene, benzo(a)anthracene and benzo(b)fluoranthene, TRPH, and lead. TRPH will be analyzed in groundwater because it is a COC in soil.

### **3.0 GROUNDWATER REMEDY IMPLEMENTATION AND EVALUATION**

The quarterly groundwater monitoring activities described in this report were performed in accordance with the requirements of the SAP (Solutions-IES, 2012). The groundwater monitoring component of the event included visual inspection of the monitoring well network followed by water level measurements,

well purging and sampling, analysis and data evaluation for the six monitoring wells included in the monitoring program for the site.

### 3.1 MONITORING WELL OBSERVATIONS

The condition of the monitoring wells included in the monitoring program was observed during the November 2012 event. The field team noted no issues with the monitoring wells during the November 2012 groundwater sampling event.

### 3.2 SAMPLING AND ANALYSIS

The PCA 25 UST Site 119 quarterly groundwater monitoring event was conducted on November 8, 2012. Groundwater samples were collected from six monitoring wells for laboratory analysis of volatile COCs including benzene and VC, PAH COCs including 1-methylnaphthalene, 2-methylnaphthalene, benzo(a)anthracene, benzo(b)fluoranthene, and TRPH and lead. The samples were sent for analysis to Accutest Laboratories Southeast (Accutest), a National Environmental Laboratory Accreditation Program (NELAP)-certified laboratory located in Orlando, Florida. Locations of the wells are illustrated on **Figure 2**.

#### 3.2.1 Groundwater Elevation

An electronic water level meter with a decontaminated down-hole probe was used to measure water levels in 16 monitoring wells on November 8, 2012. **Table 1** shows the groundwater measurements for the November 2012 sampling event. A shallow groundwater contour map for PCA 25 UST Site 119 is provided as **Figure 3**.

The contours were developed using the current water level data and the monitoring well top-of-casing elevations provided in the *Report of Survey 11-06-04 Nas Jax – PCA 25, PSC 42, OU-3 Monitor Well Survey* prepared by Arc for Tt (Arc, 2011). Based on this information, it appears that the general direction of groundwater flow is towards the southeast, which is consistent with previous reports.

#### 3.2.2 Groundwater Monitoring

Six monitoring wells were purged prior to sampling in general accordance with FDEP Standard Operating Procedure (SOP) FS 2200 for low-flow methodology. Monitoring well purging was performed using a variable speed peristaltic pump and dedicated polyethylene tubing with a YSI Model 556 multi-parameter water quality meter (or equivalent) and flow-through cell assembled in line with the discharge train.

Wells were purged, to the extent possible, at a pumping rate that matched the recharge rate of the well. Purge rate was determined at the start of purging (and each time the rate was adjusted) by measuring discharge into a graduated cylinder. Well purging procedures were based on the position of the well screen relative to the static depth to water (i.e., fully submerged or partially submerged well screen).

Well purging continued until the requisite volume of water, based on the position of the well screen relative to static water level, had been evacuated and field parameters (temperature, pH, specific conductance, turbidity and dissolved oxygen [DO]) stabilized within the limits stated in the SAP. Oxidation-reduction potential (ORP) was also recorded during purging. Water levels in the wells were continuously monitored during purging to maintain minimal drawdown. Samples were collected in laboratory-supplied glassware, labeled, stored on ice and delivered via courier under chain-of-custody procedures to Accutest. Groundwater samples for VOC analysis were collected using reverse-flow peristaltic pump sampling techniques with a flow rate of less than 100 milliliters per minute (mL/min).

### 3.3 GROUNDWATER MONITORING RESULTS AND DISCUSSION

**Table 2** includes a summary of the groundwater laboratory analytical results from the November 2012 sampling event and **Table 3** provides a summary of the groundwater field parameters. The laboratory analytical reports for **Table 2** are included in **Appendix A** and the field parameters for **Table 3** are recorded on the groundwater sampling logs included in **Appendix B**.

#### 3.3.1 Contaminants of Concern

VC and 1-methylnaphthalene were the only COCs reported above the FDEP GCTLs in shallow monitoring wells during the November 2012 event. VC was reported above the FDEP GCTL of 1 microgram per liter ( $\mu\text{g/L}$ ) in shallow monitoring well JAXPCA25-TF-MW11 at a concentration of 1.7  $\mu\text{g/L}$ . 1-Methylnaphthalene was reported above the FDEP GCTL of 28  $\mu\text{g/L}$  in shallow monitoring well JAX25-MW09 at a concentration of 28.8  $\mu\text{g/L}$  (**Table 2**). The exceedance of 1-methylnaphthalene in intermediate well JAX25-MW16I in August 2012 (32.8  $\mu\text{g/L}$ ) was not confirmed in November 2012 (<0.38  $\mu\text{g/L}$ ). Well locations and constituent concentrations that exceed the regulatory limits are shown on **Figure 4**. Historical concentrations are provided in **Table 2**.

#### 3.3.2 Field Parameters

The field parameters measurements can be found on **Table 3**. The following is a discussion of the results recorded in the field. The discussion of the relevance and use of geochemical parameters for

understanding natural attenuation processes is based on protocols for intrinsic bioremediation of fuel hydrocarbons (AFCEE, 1999) and MNA of chlorinated solvents (USEPA, 1998).

- The pH in the five shallow groundwater wells ranged from 6.2 to 6.6. The pH in the intermediate well was similar at pH 6.0.
- The temperature ranged from 24.4 to 26.8 °C throughout the aquifer. Bacterial processes function better at warmer temperatures, generally over 25°C.
- Conductivity increases as ion concentrations increase in water. Conductivity is used to ensure that groundwater samples collected are representative of the water comprising the saturated zone in which dissolved contamination is present. If the conductivities of samples collected from different monitoring wells are radically different, the samples may be from different hydrogeologic zones. Conductivity in the five shallow groundwater wells ranged from 319 to 623 microSiemens per centimeter (µS/cm). In the intermediate well, the conductivity was 457 µS/cm.
- DO is required for aerobic respiration; absence of DO (i.e., < 0.5 milligrams per liter [mg/L]) favors anaerobic reductive metabolic processes. Currently, DO ranges from 1.2 to 1.6 mg/L throughout the shallow and intermediate zones.
- The ORP measurements across the site indicate a generally reducing environment, ranging from -165 to -29 millivolts (mV).

### 3.3.3 Monitoring Quality and Performance

Quality assurance/quality control (QA/QC) samples were collected at the following frequency:

QA/QC Sample	Frequency	Quantity Collected	Analysis
Rinsate Blank	1 per event	1	VOCs, PAHs, TRPH,
Trip Blank	1 per cooler of VOCs	2	VOCs

During the November 2012 event, no analytes were reported above the laboratory method detection limits in the trip blank submitted. An estimated quantity of TRPH (163 µg/L) was detected in the rinsate blank submitted in November 2012 which may have biased the sample results. However, all of the reported TRPH concentrations from the site monitoring wells were below the FDEP GCTL. The low concentration of TRPH detected in the rinsate blank does not impact conclusions based on the sample results. The results of the QA/QC samples are provided in the laboratory analytical reports included in **Appendix A**.

## 4.0 CONCLUSIONS

The objectives of this sampling event were to complete the second of four quarterly groundwater monitoring events to determine whether groundwater at PCA 25 UST Site 119 is eligible for NFA Without Controls under RMO I (i.e., no exceedances of the FDEP GCTLs for four quarters, including

previous monitoring data) as defined in FDEP Chapter 62-770, F.A.C.; if NFA with Institutional Controls under RMO II will be required; or if continued monitoring to assess MNA is appropriate.

The groundwater monitoring results from the November 2012 sampling event indicate concentrations of VC and 1-methylnaphthalene in shallow monitoring wells JAXPCA25-TF-MW11 and JAX25-MW09, respectively, above the GCTLs. The current concentration of VC in JAXPCA25-TF-MW11 is the lowest reported since 2008 but represents the fifth consecutive monitoring event where VC was reported above the GCTL. Previous detections of VC in JAXPCA25-TF-MW11 appeared to be relatively stable fluctuating between 3.4 µg/L and 6.5 µg/L since 2008. Additional monitoring will be necessary to determine if the current concentrations represent a decreasing trend toward the GCTL. 1-Methylnaphthalene concentrations in JAX25-MW09 have exhibited historical fluctuations above the GCTL and does not suggest a clear trend.

Based on the November 2012 quarterly groundwater monitoring data, Solutions-IES recommends removing monitoring wells JAX25-MW03 and JAX25-MW13 from the monitoring program since they have not had any exceedances of the GCTLs for the COCs since 2008 and they are upgradient from the wells exhibiting current exceedances of the GCTLs. Monitoring well JAX25-MW07 should be added to the monitoring program to provide additional data downgradient from the impacted wells. Continued quarterly monitoring and reporting is recommended to assess trends in COC concentrations and determine if MNA is occurring at the site.

## 5.0 REFERENCES

AFCEE, 1999. Technical Protocol for Implementing Intrinsic Remediation with Long-Term Monitoring for Natural Attenuation of Fuel Contamination Dissolved in Groundwater, Vol 1. By Wiedemeier et al. for Air Force Center for Environmental Excellence, Brooks Air Force Base, TX.

Arc, 2011. Report of Survey 11-06-04 Nas Jax – PCA 25, PSC 42, OU-3 Monitor Well Survey.

Solutions-IES, 2012. Final Sampling and Analysis Plan, Groundwater Monitoring at Petroleum Contaminated Area 25 UST Site 119 Fuel Transfer Sump, Naval Air Station, Jacksonville, Florida, July 2012.

USEPA, 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water. By Wiedemeier et al., EPA/600/R-98/128; Office of Research and Development, Washington, DC, September 1998.

## **TABLES**

**TABLE 1**

**WATER TABLE ELEVATION SUMMARY  
PCA 25 UST SITE 119  
NAVAL AIR STATION JACKSONVILLE  
JACKSONVILLE, FLORIDA**

Well ID	Screened Interval (ft bls)	Total Depth of Well (ft bls)	Top of Casing Elevation (ft msl)	Date	Depth to Water (ft)	Water Table Elevation (ft msl)
<b>SHALLOW WELLS</b>						
JAX25-MW01	2.5 - 12.5	12.5	7.41	12/2/2005	5.62	1.79
				12/7/2005	5.68	1.73
				1/23/2007	5.76	1.65
				1/25/2007	5.22	2.19
				7/6/2007	5.53	1.88
				5/16/2008	5.66	1.75
				8/13/2008	5.03	2.38
				11/12/2008	5.44	1.97
				8/2/2012	4.64	2.77
11/8/2012	4.93	2.48				
JAX25-MW02	2.5 - 12.5	12.5	7.54	12/2/2005	4.71	2.83
				12/7/2005	4.81	2.73
				1/23/2007	4.88	2.66
				1/25/2007	4.52	3.02
				7/6/2007	4.56	2.98
				5/16/2008	4.82	2.72
				8/13/2008	3.51	4.03
				11/12/2008	4.43	3.11
				8/2/2012	3.54	4.00
11/8/2012	4.01	3.53				
JAX25-MW03	2.7 - 12.7	12.7	8.74	12/2/2005	4.98	3.76
				12/7/2005	5.11	3.63
				1/23/2007	5.19	3.55
				1/25/2007	4.88	3.86
				7/6/2007	4.9	3.84
				5/16/2008	5.27	3.47
				8/13/2008	3.51	5.23
				11/12/2008	4.78	3.96
				8/2/2012	3.92	4.82
11/8/2012	4.31	4.43				
JAX25-MW04	1.5 - 9.5	9.5	8.66	12/2/2005	5.54	3.12
				12/7/2005	5.65	3.01
				1/23/2007	5.73	2.93
				1/25/2007	5.43	3.23
				7/6/2007	5.34	3.32
				5/16/2008	5.73	2.93
				8/13/2008	4.15	4.51
				11/12/2008	5.29	3.37
				8/2/2012	4.37	4.29
11/8/2012	5.05	3.61				
JAX25-MW05	2.0 - 10.0	10	6.49	12/2/2005	3.93	2.56
				12/7/2005	4.12	2.37
				1/23/2007	4.14	2.35
				1/25/2007	3.74	2.75
				7/6/2007	3.56	2.93
				5/16/2008	4.45	2.04
				8/13/2008	NM	NM
				11/12/2008	3.82	2.67
				8/2/2012	3.41	3.08
11/8/2012	3.86	2.63				

**TABLE 1**

**WATER TABLE ELEVATION SUMMARY  
PCA 25 UST SITE 119  
NAVAL AIR STATION JACKSONVILLE  
JACKSONVILLE, FLORIDA**

Well ID	Screened Interval (ft bls)	Total Depth of Well (ft bls)	Top of Casing Elevation (ft msl)	Date	Depth to Water (ft)	Water Table Elevation (ft msl)
JAX25-MW07	2.0 - 10.0	10	6.93	12/2/2005	4.23	2.70
				12/7/2005	4.41	2.52
				1/23/2007	4.59	2.34
				1/25/2007	4.13	2.8
				7/6/2007	4.17	2.76
				5/16/2008	4.72	2.21
				8/13/2008	3.11	3.82
				11/12/2008	3.97	2.96
				8/2/2012	3.47	3.46
11/8/2012	4.09	2.84				
JAX25-MW09	1.0 - 11.0	11	7.13	12/2/2005	4.14	2.99
				12/7/2005	4.28	2.85
				1/23/2007	6.44	0.69
				1/25/2007	3.91	3.22
				7/6/2007	4.25	2.88
				5/16/2008	4.47	2.66
				8/13/2008	3.04	4.09
				11/12/2008	3.96	3.17
				8/2/2012	3.31	3.82
11/8/2012	3.88	3.25				
JAX25-MW11	2.0 - 12.0	12	7.36	12/2/2005	4.81	2.55
				12/7/2005	4.91	2.45
				1/23/2007	5.01	2.35
				1/25/2007	4.68	2.68
				7/6/2007	4.68	2.68
				5/16/2008	4.98	2.38
				8/13/2008	3.69	3.67
				11/12/2008	4.56	2.8
				8/2/2012	3.55	3.81
11/8/2012	4.00	3.36				
JAX25-MW12	2.0 - 11.0	11	7.65	12/2/2005	4.27	3.38
				12/7/2005	4.38	3.27
				1/23/2007	6.51	1.14
				1/25/2007	4.22	3.43
				7/6/2007	4.24	3.41
				5/16/2008	4.98	2.67
				8/13/2008	3.69	3.96
				11/12/2008	4.56	3.09
				8/2/2012	3.41	4.24
11/8/2012	3.86	3.79				
JAX25-MW13	2.3 - 12.3	12.3	8.40	12/2/2005	4.3	4.10
				12/7/2005	4.35	4.05
				1/23/2007	4.46	3.94
				1/25/2007	4.26	4.14
				7/6/2007	4.27	4.13
				5/16/2008	4.58	3.82
				8/13/2008	2.77	5.63
				11/12/2008	4.12	4.28
				8/2/2012	3.35	5.05
11/8/2012	4.04	4.36				

**TABLE 1**

**WATER TABLE ELEVATION SUMMARY  
PCA 25 UST SITE 119  
NAVAL AIR STATION JACKSONVILLE  
JACKSONVILLE, FLORIDA**

Well ID	Screened Interval (ft bls)	Total Depth of Well (ft bls)	Top of Casing Elevation (ft msl)	Date	Depth to Water (ft)	Water Table Elevation (ft msl)
JAX25-MW14	3.0 - 11.0	11	7.70	12/2/2005	4.32	3.38
				12/7/2005	4.85	2.85
				1/23/2007	4.48	3.22
				1/25/2007	NM	NM
				7/6/2007	4.41	3.29
				5/16/2008	4.85	2.85
				8/13/2008	3.44	4.26
				11/12/2008	4.39	3.31
				8/2/2012	4.01	3.69
				11/8/2012	4.16	3.54
JAX25-MW15	0.0 - 10.0	10	8.00	12/2/2005	5.48	2.52
				12/7/2005	4.81	3.19
				1/23/2007	4.51	3.49
				1/25/2007	NM	NM
				7/6/2007	4.18	3.82
				5/16/2008	5.4	2.6
				8/13/2008	3.81	4.19
				11/12/2008	4.9	3.1
				8/2/2012	4.32	3.68
				11/8/2012	4.93	3.07
JAX-PCA25-TF-MW03	2.2 - 12.2	12.2	7.48	8/2/2012	4.31	3.17
				11/8/2012	4.65	2.83
JAX-PCA25-TF-MW04	1.5 - 9.5	9.5	8.57	8/2/2012	3.36	5.21
				11/8/2012	4.14	4.43
JAX-PCA25-TF-MW11	2.0 - 12.0	12	6.72	8/2/2012	5.63	1.09
				11/8/2012	3.98	2.74
<b>INTERMEDIATE WELL</b>						
JAX25-MW16I	20 - 25	25	6.90	8/2/2012	3.85	3.05
				11/8/2012	4.09	2.81

**NOTES:**

ft bgs = Feet below ground surface

ft msl = Feet above mean sea level

NM = Not measured

Data prior to August 2012 was provided by previous consultant.

TABLE 2

SUMMARY OF GROUNDWATER LABORATORY ANALYTICAL RESULTS  
PCA 25 UST SITE 119  
NAVAL AIR STATION JACKSONVILLE  
JACKSONVILLE, FLORIDA

WELL INTERVAL		SHALLOW							SHALLOW							SHALLOW							
Well ID	FDEP	JAX25-MW03							JAX25-MW09							JAX25-MW13							
Sample Date	GCTL	12/7/05	7/5/07	5/13/08	8/12/08	11/12/08	8/2/12	11/8/2012	12/7/05	7/6/07	7/6/07	7/6/07	5/14/08	8/13/08	11/12/08	8/2/12	11/8/2012	12/6/05	7/5/07	5/13/08	8/12/08	8/2/12	11/8/2012
<b>Volatile Organic Compounds (8260B) µg/L</b>																							
Benzene	1	<0.3	<b>0.88 J</b>	<b>0.52 J</b>	<0.52	<0.52	<0.20	<0.21	<b>0.7 J</b>	<b>0.54 J</b>	<b>0.535 J</b>	<b>0.53 J</b>	<0.2	<b>1.2</b>	<0.52	<0.20	<0.21	<0.3	<0.2	<0.2	<0.52	<0.20	<0.21
Vinyl Chloride	1	NA	<0.4	<0.23	<0.25	<0.25	<0.22	<0.44	NA	<0.4	<0.4	<0.4	<0.23	<0.25	<0.25	<b>1.7</b>	<0.44	NA	<0.4	<0.23	<0.25	<0.22	<0.44
<b>Semi-Volatile Organic Compounds (8270D) µg/L</b>																							
1-Methylnaphthalene	28	<b>0.5</b>	<b>0.15 J</b>	<b>0.17</b>	<b>0.07 J</b>	<b>0.11</b>	<0.38	<0.39	<b>63</b>	<b>16</b>	<b>15</b>	<b>14</b>	<b>56</b>	<b>16</b>	<b>24</b>	<0.38	<b>28.8</b>	<b>0.2 J</b>	<b>0.13 J</b>	<b>0.23</b>	<b>0.21</b>	<0.38	<0.38
2-Methylnaphthalene	28	<b>1</b>	<b>0.35 J</b>	<b>0.42</b>	<b>0.16</b>	<b>0.27</b>	<0.38	<0.39	<b>40</b>	<b>18</b>	<b>16.5</b>	<b>15</b>	<b>57</b>	<b>17</b>	<b>24</b>	<0.38	<b>23.6</b>	<0.06	<0.02	<0.038	<0.021	<0.38	<0.38
benzo(a)anthracene	0.05	<0.08	<0.01	<0.015	<0.012	<0.012	<0.038	<0.039	<0.08	<0.01	<0.01	<0.01	<0.014	<0.012	<0.012	<0.038	<0.038	<0.08	<0.01	<0.014	<0.012	<0.038	<0.038
benzo(b)fluoranthene	0.05	<0.08	<0.02	<0.016	<0.015	<0.015	<0.038	<0.039	<0.08	<0.02	<0.02	<0.02	<0.015	<0.015	<0.015	<0.038	<0.038	<0.08	<0.02	<0.015	<0.015	<0.038	<0.038
<b>Total Petroleum Hydrocarbons (FL PRO) µg/L</b>																							
TRPH (C8-C40)	5,000	NA	<b>4,810 J</b>	<b>1,500</b>	<b>1,400</b>	<900	<b>1,650</b>	<b>1,010</b>	NA	<b>970 J</b>	<b>1,075 J</b>	<b>1,180 J</b>	<63	<b>2,100</b>	<b>710</b>	<b>782</b>	<b>2,710</b>	NA	<b>934 J</b>	<b>1,000</b>	<b>520</b>	<b>1,240</b>	<b>1,660</b>
<b>Metals (6010C) µg/L</b>																							
Lead	15	<b>12.2</b>	<b>29</b>	<b>20</b>	<b>9.9</b>	<b>14</b>	<b>7.6</b>	<b>6.1</b>	<0.35	<2	<2	<2	<b>0.56 J</b>	<b>1.6</b>	<b>0.3</b>	<1.0	<1.1	<b>3.2</b>	<2	<b>3.2</b>	<b>2.8</b>	<1.0	<b>2.3 I</b>

WELL INTERVAL		SHALLOW						SHALLOW					INTERMEDIATE				
Well ID	FDEP	JAX25-MW15						JAXPCA25-TF-MW11					JAX25-MW16I				
Sample Date	GCTL	4/25/06	7/6/07	5/14/08	8/13/08	8/2/12	11/8/2012	5/15/08	8/13/08	11/12/08	8/2/12	11/8/2012	5/15/08	8/13/08	11/12/08	8/2/12	11/8/2012
<b>Volatile Organic Compounds (8260B) µg/L</b>																	
Benzene	1	<0.5	<0.2	<0.2	<0.52	<0.20	<0.21	<0.2	<0.52	<0.52	<0.20	<0.21	<0.2	<0.52	<0.52	<0.20	<0.21
Vinyl Chloride	1	NA	<0.4	<0.23	<0.25	<0.22	<0.44	<b>3.4</b>	<b>6.1</b>	<b>3.8</b>	<b>6.5</b>	<b>1.7</b>	<b>1.4</b>	<b>0.98 J</b>	<0.25	<0.22	<b>0.85 I</b>
<b>Semi-Volatile Organic Compounds (8270D) µg/L</b>																	
1-Methylnaphthalene	28	<b>27.2</b>	<b>2.2 J</b>	<0.037	<0.019	<0.39	<0.38	<0.037	<0.019	<0.019	<0.39	<0.38	<0.037	<0.019	<0.019	<b>32.8</b>	<0.38
2-Methylnaphthalene	28	<0.26	<b>0.03 J</b>	<0.038	<0.021	<0.39	<0.38	<0.038	<0.021	<0.021	<0.39	<0.38	<b>0.044 J</b>	<0.021	<0.021	<b>28</b>	<0.38
benzo(a)anthracene	0.05	<0.053	<0.01	<0.014	<b>0.052</b>	<0.039	<0.038	<0.014	<0.012	<0.012	<0.039	<0.038	<b>0.016 J</b>	<0.012	<0.012	<0.077	<0.038
benzo(b)fluoranthene	0.05	<0.053	<0.02	<0.015	<0.015	<0.039	<0.038	<0.015	<0.015	<0.015	<0.039	<0.038	<b>0.054 J</b>	<0.015	<0.015	<0.077	<0.038
<b>Total Petroleum Hydrocarbons (FL PRO) µg/L</b>																	
TRPH (C8-C40)	5,000	<b>1,430</b>	<b>2,180 J</b>	<62	<62	<b>251</b>	<b>481</b>	<62	<62	<120	<140	<140	<62	<62	<100	<b>4,680</b>	<b>637</b>
<b>Metals (6010C) µg/L</b>																	
Lead	15	<3.4	<2	<b>1.1</b>	<0.2	<1.0	<1.1	<0.2	<b>0.7</b>	<0.2	<1.0	<1.1	<b>6.5</b>	<0.2	<b>1.6</b>	<1.0	<b>1.2 I</b>

## NOTES:

FDEP GCTL = Florida Department of Environmental Protection Groundwater Cleanup Target Level

µg/L = Micrograms per liter

Bold results indicate a reported concentration above the laboratory detection limit.

J, I = Analyte was detected at an estimated concentration

Shaded cells indicate a reported concentration above the FDEP GCTL.

NA = Not available

Data prior to August 2012 was provided by previous consultant.

**TABLE 3**

**SUMMARY OF GROUNDWATER FIELD PARAMETERS  
PCA 25 UST SITE 119  
NAVAL AIR STATION JACKSONVILLE  
JACKSONVILLE, FLORIDA**

Well ID	Date	pH (SU)	DO (mg/L)	Conductivity (µS/cm)	ORP (mV)	Temperature (°C)	Turbidity (NTU)
<b>SHALLOW WELLS</b>							
JAX25-MW03	8/2/2012	6.5	0.3	695	-322	28.5	6
	11/8/2012	6.5	1.4	618	-165	25.1	2
JAX25-MW09	8/2/2012	6.0	0.2	511	-34	28.7	0
	11/8/2012	6.2	1.6	407	-96	24.4	2
JAX25-MW13	8/2/2012	6.5	0.6	621	-155	31.1	2
	11/8/2012	6.5	1.2	623	-59	26.8	3
JAX25-MW15	8/2/2012	6.6	0.5	436	-90	28.9	10
	11/8/2012	6.5	1.2	418	-79	25.9	2
JAX-PCA25-TF-MW11	8/2/2012	6.6	0.5	338	-85	30.1	15
	11/8/2012	6.6	1.2	319	-86	26.1	1
<b>INTERMEDIATE WELL</b>							
JAX25-MW16I	8/2/2012	6.3	0.2	544	-119	30.1	7
	11/8/2012	6.0	1.6	457	-29	24.9	1

**NOTES:**

SU = Standard Unit

DO = Dissolved oxygen

mg/L = Milligrams per liter

µS/cm = MicroSiemens per centimeter

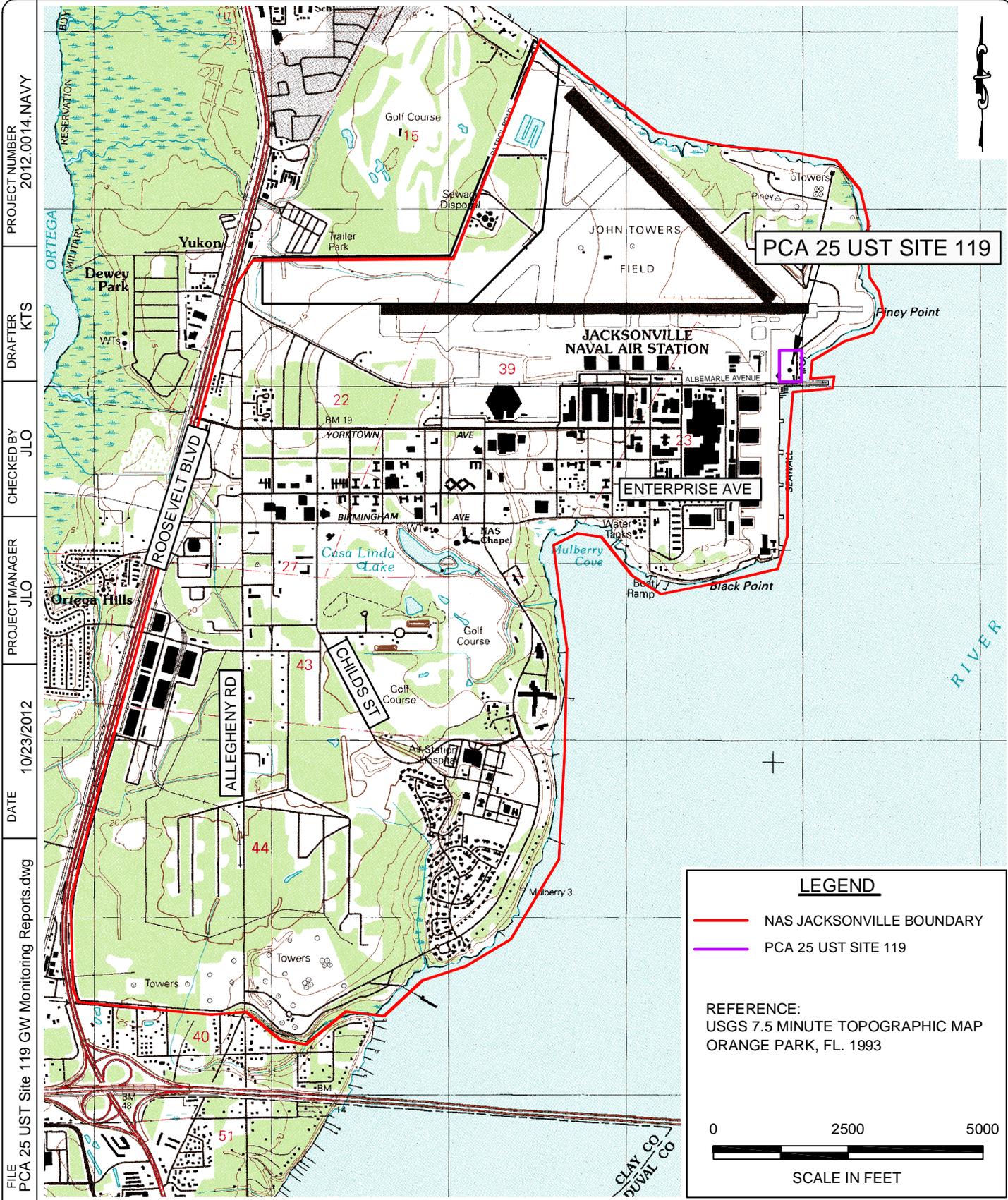
ORP = Oxidation/reduction potential

mV = Millivolts

°C = Degrees Celsius

NTU = Nephelometric turbidity units

## **FIGURES**



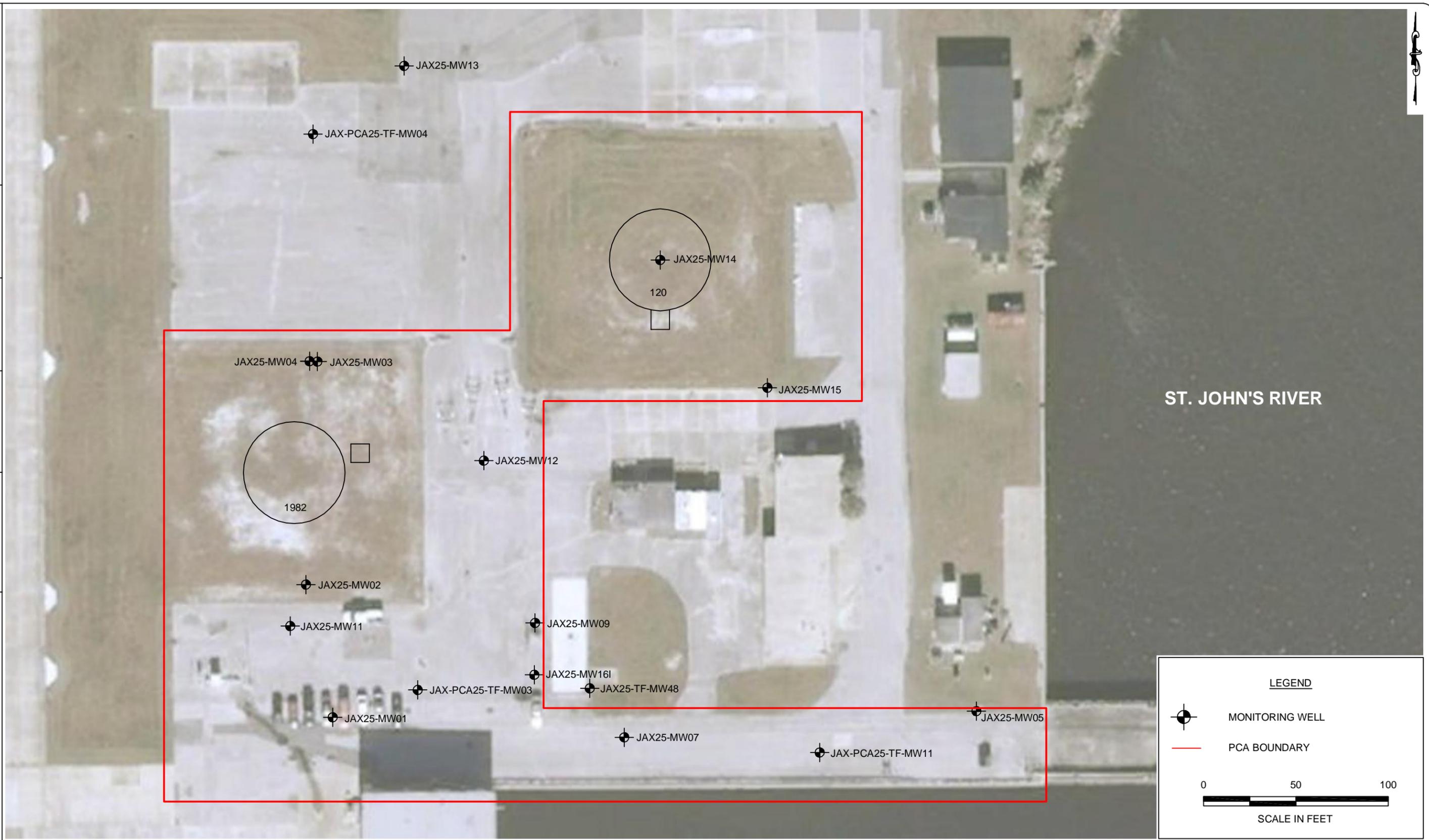
FILE PCA 25 UST Site 119 GW Monitoring Reports.dwg  
DATE 10/23/2012  
PROJECT MANAGER JLO  
CHECKED BY JLO  
DRAFTER KTS  
PROJECT NUMBER 2012.0014.NAVY

**Solutions-IES**  
Industrial & Environmental Services  
1101 NOWELL ROAD  
RALEIGH, NORTH CAROLINA 27607  
TEL.: (919) 873-1060 FAX.: (919) 873-1074

SITE VICINITY MAP  
PCA 25 UST SITE 119  
NAVAL AIR STATION JACKSONVILLE  
JACKSONVILLE, FLORIDA

FIGURE:  
1

FILE PCA 25 UST Site 119 GW Monitoring Reports.dwg DATE 10/23/2012 PROJECT MANAGER JLO CHECKED BY JLO DRAFTER KTS PROJECT NUMBER 2012.0014.NAVY



ST. JOHN'S RIVER

**LEGEND**

 MONITORING WELL  
 PCA BOUNDARY

0                      50                      100  
  
 SCALE IN FEET

**Solutions-IES**  
 Industrial & Environmental Services  
 1101 NOWELL ROAD  
 RALEIGH, NORTH CAROLINA 27607  
 TEL.: (919) 873-1060 FAX.: (919) 873-1074

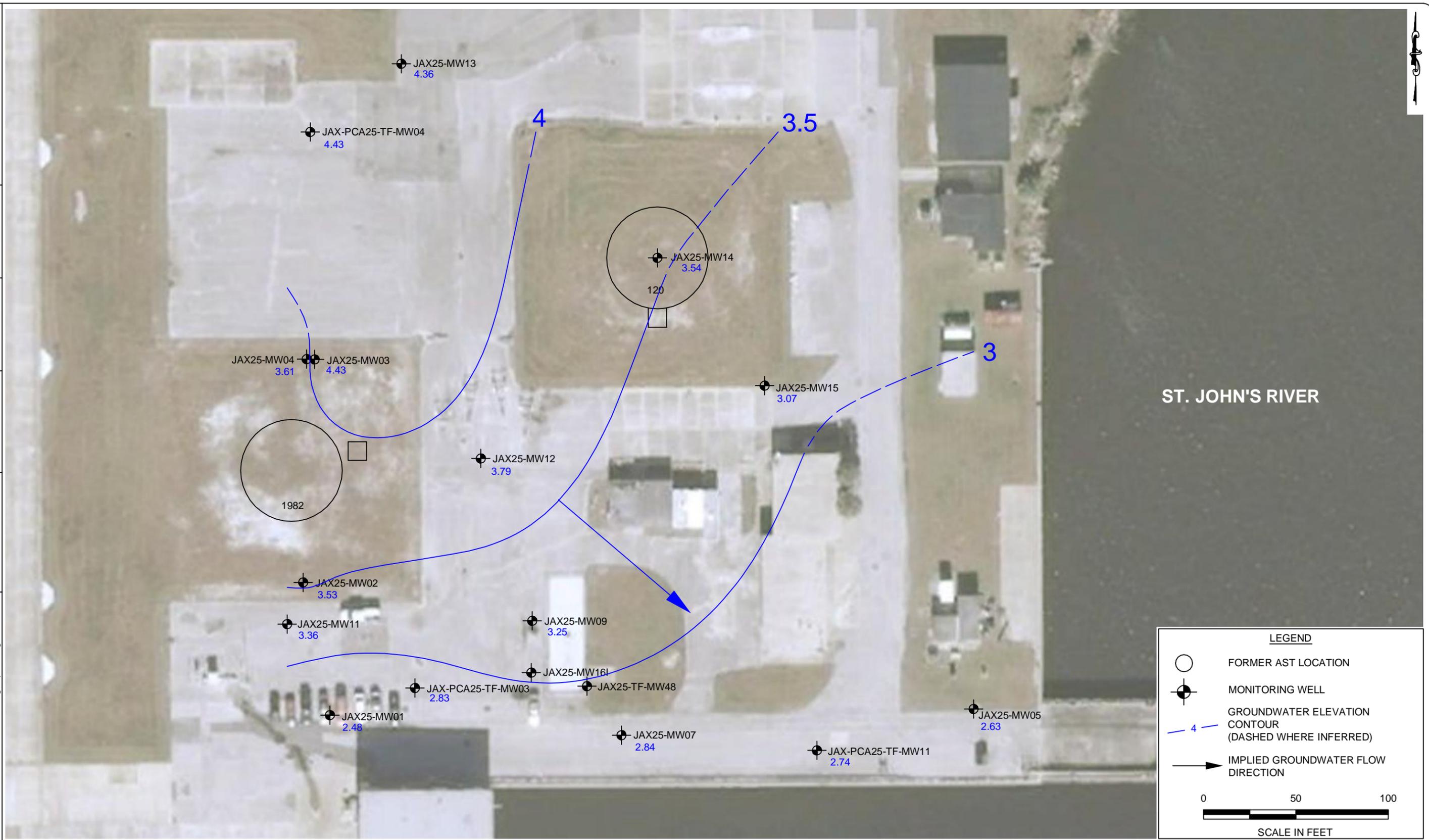
NOTES:  
 1) WELL COORDINATES PROVIDED BY TETRA TECH, INC.  
 2) AERIAL PHOTOGRAPH FROM GOOGLE EARTH, 2007.  
 3) FORMER TANK LOCATIONS SHOWN ARE APPROXIMATE.

PCA 25 UST SITE 119  
 NAVAL AIR STATION JACKSONVILLE  
 JACKSONVILLE, FLORIDA

SITE MAP

FIGURE:  
 2

FILE PCA 25 UST Site 119 GW Monitoring Reports.dwg  
 DATE 1/7/2013  
 PROJECT MANAGER JLO  
 CHECKED BY JPT  
 DRAFTER KTS  
 PROJECT NUMBER 2012.0014.NAVY



NOTES:  
 1) WELL COORDINATES PROVIDED BY TETRA TECH, INC.  
 2) AERIAL PHOTOGRAPH FROM GOOGLE EARTH, 2007.

PCA 25 UST SITE 119  
 NAVAL AIR STATION JACKSONVILLE  
 JACKSONVILLE, FLORIDA

GROUNDWATER CONTOUR MAP  
 NOVEMBER 2012

FIGURE:  
 3



PROJECT NUMBER  
2012.0014.NAVY

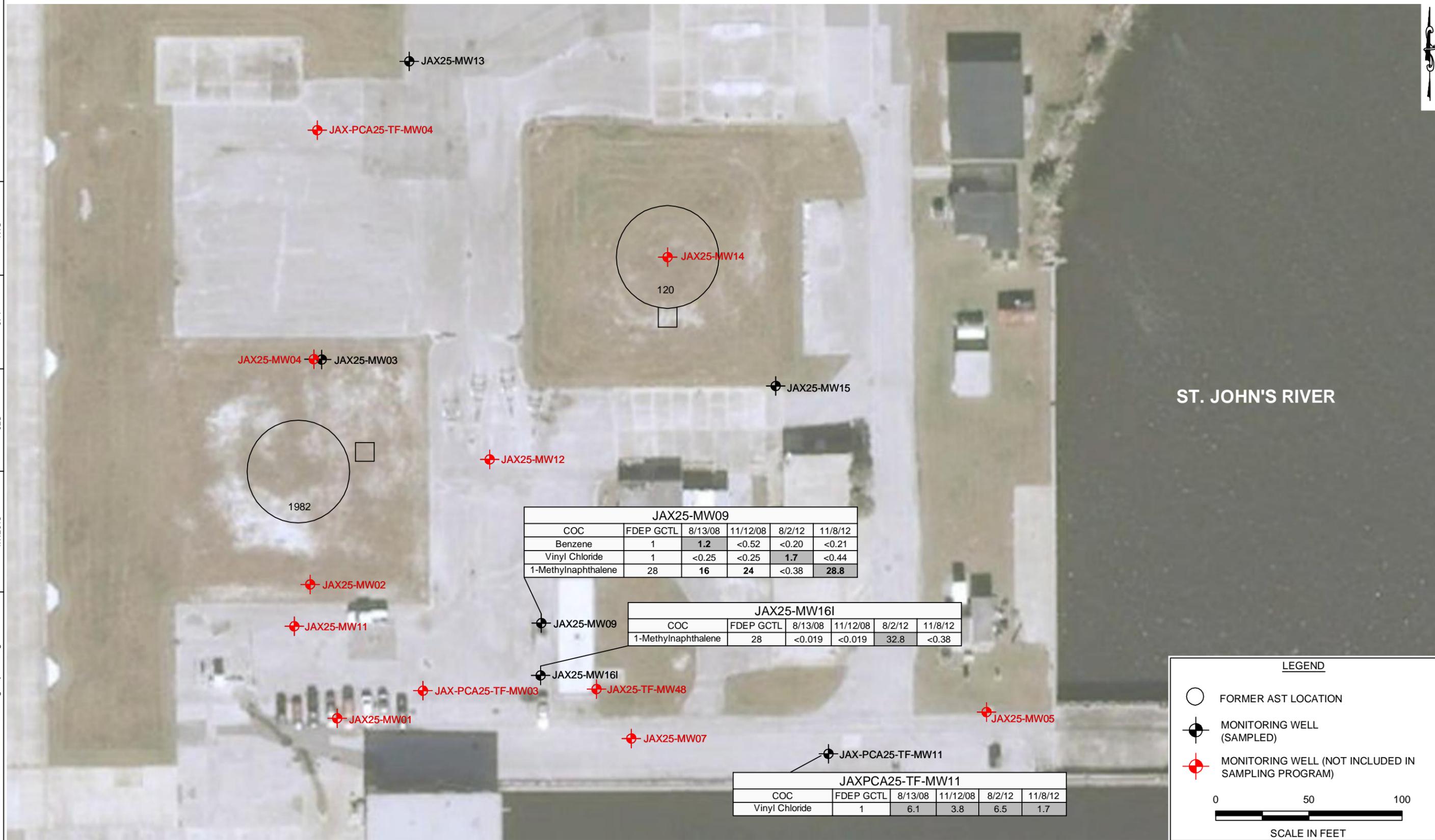
DRAFTER  
KTS

CHECKED BY  
JPT

PROJECT MANAGER  
JLO

DATE  
1/7/2013

FILE  
PCA 25 UST Site 119 GW Monitoring Reports.dwg



ST. JOHN'S RIVER

JAX25-MW09					
COC	FDEP GCTL	8/13/08	11/12/08	8/2/12	11/8/12
Benzene	1	1.2	<0.52	<0.20	<0.21
Vinyl Chloride	1	<0.25	<0.25	1.7	<0.44
1-Methylnaphthalene	28	16	24	<0.38	28.8

JAX25-MW16I					
COC	FDEP GCTL	8/13/08	11/12/08	8/2/12	11/8/12
1-Methylnaphthalene	28	<0.019	<0.019	32.8	<0.38

JAXPCA25-TF-MW11					
COC	FDEP GCTL	8/13/08	11/12/08	8/2/12	11/8/12
Vinyl Chloride	1	6.1	3.8	6.5	1.7

**LEGEND**

- FORMER AST LOCATION
- ⊕ MONITORING WELL (SAMPLED)
- ⊕ MONITORING WELL (NOT INCLUDED IN SAMPLING PROGRAM)

0 50 100  
SCALE IN FEET

**Solutions-IES**  
Industrial & Environmental Services  
1101 NOWELL ROAD  
RALEIGH, NORTH CAROLINA 27607  
TEL.: (919) 873-1060 FAX.: (919) 873-1074

NOTES:  
1) WELL COORDINATES PROVIDED BY TETRA TECH, INC.  
2) AERIAL PHOTOGRAPH FROM GOOGLE EARTH, 2007.  
3) CONCENTRATIONS SHOWN IN ug/L.

PCA 25 UST SITE 119  
NAVAL AIR STATION JACKSONVILLE  
JACKSONVILLE, FLORIDA

CONTAMINANT CONCENTRATION MAP

FIGURE:  
4

**APPENDIX A**  
LABORATORY ANALYTICAL REPORTS

**Technical Report for**

**Solutions-IES, Inc**

**NAS Jax-PCA 25 UST Site 119**

**2012.0014/2**

**Accutest Job Number: F98825**

**Sampling Dates: 11/05/12 - 11/08/12**

**Report to:**

**Solutions-IES, Inc**  
**1101 Nowell Rd**  
**Raleigh, NC 27606**  
**jovermyer@solutions-ies.com; MarshallD@solutions-ies.com**  
**ATTN: Jody Overmyer**

**Total number of pages in report: 73**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

  
**Harry Behzadi, Ph.D.**  
**Laboratory Director**

**Client Service contact: Jean Dent-Smith 407-425-6700**

Certifications: FL (E83510), LA (03051), KS (E-10327), IA (366), IL (200063), NC (573), NJ (FL002), SC (96038001)  
DoD ELAP (L-A-B L2229), CA (04226CA), TX (T104704404), AK, AR, GA, KY, MA, NV, OK, UT, VA, WA, WI

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Test results relate only to samples analyzed.

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## Sample Summary

Solutions-IES, Inc

**Job No:** F98825

NAS Jax-PCA 25 UST Site 119

Project No: 2012.0014/2

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
F98825-1	11/08/12	16:22 JK	11/10/12	AQ	Ground Water	JAX25-MW03-20121108
F98825-2	11/08/12	11:49 JK	11/10/12	AQ	Ground Water	JAX25-MW09-20121108
F98825-3	11/08/12	15:25 JK	11/10/12	AQ	Ground Water	JAX25-MW13-20121108
F98825-4	11/08/12	14:14 JK	11/10/12	AQ	Ground Water	JAX25-MW15-20121108
F98825-5	11/08/12	12:35 JK	11/10/12	AQ	Ground Water	JAX25-MW16I-20121108
F98825-6	11/08/12	13:01 JK	11/10/12	AQ	Ground Water	JAX-PCA25-TF-MW11-20121108
F98825-7	11/05/12	16:00 JK	11/10/12	AQ	Equipment Blank	JAX25-RINSE BLANK
F98825-8	11/08/12	00:00 JK	11/10/12	AQ	Trip Blank Water	JAX25-TRIP BLANK

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** Solutions-IES, Inc

**Job No:** F98825

**Site:** NAS Jax-PCA 25 UST Site 119

**Report Date** 11/21/2012 10:21:14 AM

7 Samples and 1 Trip Blank were collected between 11/05/2012 and 11/08/2012 and were received at Accutest on 11/10/2012 properly preserved, at 2.6 Deg. C and intact. These Samples received an Accutest job number of F98825. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

**Matrix:** AQ

**Batch ID:** VC3618

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F99011-13MS, F99011-13MSD were used as the QC samples indicated.

**Matrix:** AQ

**Batch ID:** VZ502

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F98727-3MS, F98727-3MSD were used as the QC samples indicated.

### Extractables by GCMS By Method SW846 8270D BY SIM

**Matrix:** AQ

**Batch ID:** OP44401

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F98768-3MS, F98768-3MSD were used as the QC samples indicated.

RPD(s) for MSD for Benzo(a)anthracene are outside control limits for sample OP44401-MSD. Probable cause due to sample non-homogeneity.

**Matrix:** AQ

**Batch ID:** OP44416

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F98778-2MS, F98778-2MSD were used as the QC samples indicated.

Sample(s) F98825-3 has surrogates outside control limits. Probable cause due to matrix interference.

F98825-3 for Nitrobenzene-d5: Outside control limits due to matrix interference.

### Extractables by GC By Method FLORIDA-PRO

**Matrix:** AQ

**Batch ID:** OP44403

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F98805-7MS, F98805-7MSD were used as the QC samples indicated.

**Matrix:** AQ

**Batch ID:** OP44424

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F98760-1MS, F98760-1MSD were used as the QC samples indicated.

## Metals By Method SW846 6010C

**Matrix:** AQ

**Batch ID:** MP24072

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F98825-1DUP, F98825-1MS, F98825-1MSD, F98825-1PS, F98825-1SDL were used as the QC samples for metals.

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used

Narrative prepared by:

\_\_\_\_\_  
Lovelie Metzgar, QA Assistant (signature on file)

Date: November 21, 2012

## Summary of Hits

**Job Number:** F98825  
**Account:** Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119  
**Collected:** 11/05/12 thru 11/08/12



Lab Sample ID	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
<b>F98825-1</b>	<b>JAX25-MW03-20121108</b>					
TPH (C8-C40)		1.01	0.24	0.14	mg/l	FLORIDA-PRO
Lead		6.1	5.0	1.1	ug/l	SW846 6010C
<b>F98825-2</b>	<b>JAX25-MW09-20121108</b>					
1-Methylnaphthalene		28.8	0.96	0.38	ug/l	SW846 8270D BY SIM
2-Methylnaphthalene		23.6	0.96	0.38	ug/l	SW846 8270D BY SIM
TPH (C8-C40)		2.71	0.24	0.14	mg/l	FLORIDA-PRO
<b>F98825-3</b>	<b>JAX25-MW13-20121108</b>					
TPH (C8-C40)		1.66	0.24	0.14	mg/l	FLORIDA-PRO
Lead		2.3 I	5.0	1.1	ug/l	SW846 6010C
<b>F98825-4</b>	<b>JAX25-MW15-20121108</b>					
TPH (C8-C40)		0.481	0.24	0.14	mg/l	FLORIDA-PRO
<b>F98825-5</b>	<b>JAX25-MW16I-20121108</b>					
Vinyl chloride		0.85 I	1.0	0.44	ug/l	SW846 8260B
TPH (C8-C40)		0.637	0.24	0.14	mg/l	FLORIDA-PRO
Lead		1.2 I	5.0	1.1	ug/l	SW846 6010C
<b>F98825-6</b>	<b>JAX-PCA25-TF-MW11-20121108</b>					
Vinyl chloride		1.7	1.0	0.44	ug/l	SW846 8260B
<b>F98825-7</b>	<b>JAX25-RINSE BLANK</b>					
TPH (C8-C40)		0.163 I	0.24	0.14	mg/l	FLORIDA-PRO
<b>F98825-8</b>	<b>JAX25-TRIP BLANK</b>					

No hits reported in this sample.

Sample Results

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Report of Analysis

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## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW03-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-1	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C090921.D	1	11/20/12	WV	n/a	n/a	VC3618
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

**VOA Special List**

CAS No.	Compound	Result	PQL	MDL	Units	Q
71-43-2	Benzene	0.21 U	1.0	0.21	ug/l	
75-01-4	Vinyl chloride	0.44 U	1.0	0.44	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		87-116%
17060-07-0	1,2-Dichloroethane-D4	110%		76-127%
2037-26-5	Toluene-D8	99%		86-112%
460-00-4	4-Bromofluorobenzene	101%		84-120%

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result >= MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.1  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW03-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-1	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270D BY SIM SW846 3510C	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W068620.D	1	11/14/12	MG	11/12/12	OP44401	SW3321
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1020 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	PQL	MDL	Units	Q
56-55-3	Benzo(a)anthracene	0.039 U	0.20	0.039	ug/l	
205-99-2	Benzo(b)fluoranthene	0.039 U	0.20	0.039	ug/l	
90-12-0	1-Methylnaphthalene	0.39 U	0.98	0.39	ug/l	
91-57-6	2-Methylnaphthalene	0.39 U	0.98	0.39	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	66%		42-108%
321-60-8	2-Fluorobiphenyl	61%		40-106%
1718-51-0	Terphenyl-d14	71%		39-121%

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.1  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW03-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-1	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO SW846 3510C	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ZF54408.D	1	11/13/12	FEA	11/12/12	OP44403	GZF2016
Run #2							

	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	PQL	MDL	Units	Q
	TPH (C8-C40)	1.01	0.24	0.14	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	72%		38-122%		

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.1  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW03-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-1	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

### Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	6.1	5.0	1.1	ug/l	1	11/12/12	11/13/12 LM	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA10312

(2) Prep QC Batch: MP24072

PQL = Practical Quantitation Limit  
 MDL = Method Detection Limit

U = Indicates a result < MDL  
 I = Indicates a result > = MDL but < PQL

4.1  
 4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW09-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-2	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C090922.D	1	11/20/12	WV	n/a	n/a	VC3618
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

**VOA Special List**

CAS No.	Compound	Result	PQL	MDL	Units	Q
71-43-2	Benzene	0.21 U	1.0	0.21	ug/l	
75-01-4	Vinyl chloride	0.44 U	1.0	0.44	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		87-116%
17060-07-0	1,2-Dichloroethane-D4	108%		76-127%
2037-26-5	Toluene-D8	99%		86-112%
460-00-4	4-Bromofluorobenzene	101%		84-120%

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result >= MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.2  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW09-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-2	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270D BY SIM SW846 3510C	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W068587.D	1	11/13/12	MG	11/12/12	OP44401	SW3319
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	PQL	MDL	Units	Q
56-55-3	Benzo(a)anthracene	0.038 U	0.19	0.038	ug/l	
205-99-2	Benzo(b)fluoranthene	0.038 U	0.19	0.038	ug/l	
90-12-0	1-Methylnaphthalene	28.8	0.96	0.38	ug/l	
91-57-6	2-Methylnaphthalene	23.6	0.96	0.38	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	86%		42-108%
321-60-8	2-Fluorobiphenyl	45%		40-106%
1718-51-0	Terphenyl-d14	68%		39-121%

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.2  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW09-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-2	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO SW846 3510C	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ZF54409.D	1	11/13/12	FEA	11/12/12	OP44403	GZF2016
Run #2							

	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	PQL	MDL	Units	Q
	TPH (C8-C40)	2.71	0.24	0.14	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	65%		38-122%		

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.2  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW09-20121108 <b>Lab Sample ID:</b> F98825-2 <b>Matrix:</b> AQ - Ground Water <b>Project:</b> NAS Jax-PCA 25 UST Site 119	<b>Date Sampled:</b> 11/08/12 <b>Date Received:</b> 11/10/12 <b>Percent Solids:</b> n/a
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4.2  
4

### Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	1.1 U	5.0	1.1	ug/l	1	11/12/12	11/13/12 LM	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA10312

(2) Prep QC Batch: MP24072

PQL = Practical Quantitation Limit  
 MDL = Method Detection Limit

U = Indicates a result < MDL  
 I = Indicates a result > = MDL but < PQL

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW13-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-3	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C090923.D	1	11/20/12	WV	n/a	n/a	VC3618
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

**VOA Special List**

CAS No.	Compound	Result	PQL	MDL	Units	Q
71-43-2	Benzene	0.21 U	1.0	0.21	ug/l	
75-01-4	Vinyl chloride	0.44 U	1.0	0.44	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		87-116%
17060-07-0	1,2-Dichloroethane-D4	100%		76-127%
2037-26-5	Toluene-D8	97%		86-112%
460-00-4	4-Bromofluorobenzene	99%		84-120%

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result >= MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.3  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW13-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-3	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270D BY SIM SW846 3510C	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W068601.D	1	11/13/12	MG	11/12/12	OP44416	SW3320
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	PQL	MDL	Units	Q
56-55-3	Benzo(a)anthracene	0.038 U	0.19	0.038	ug/l	
205-99-2	Benzo(b)fluoranthene	0.038 U	0.19	0.038	ug/l	
90-12-0	1-Methylnaphthalene	0.38 U	0.96	0.38	ug/l	
91-57-6	2-Methylnaphthalene	0.38 U	0.96	0.38	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	121% <sup>a</sup>		42-108%
321-60-8	2-Fluorobiphenyl	89%		40-106%
1718-51-0	Terphenyl-d14	98%		39-121%

(a) Outside control limits due to matrix interference.

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.3  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW13-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-3	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO SW846 3510C	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP103809.D	1	11/13/12	FEA	11/13/12	OP44424	GOP2697
Run #2							

	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	PQL	MDL	Units	Q
	TPH (C8-C40)	1.66	0.24	0.14	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	92%		38-122%		

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.3  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW13-20121108 <b>Lab Sample ID:</b> F98825-3 <b>Matrix:</b> AQ - Ground Water <b>Project:</b> NAS Jax-PCA 25 UST Site 119	<b>Date Sampled:</b> 11/08/12 <b>Date Received:</b> 11/10/12 <b>Percent Solids:</b> n/a
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4.3  
4

**Total Metals Analysis**

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	2.3 I	5.0	1.1	ug/l	1	11/12/12	11/13/12 LM	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA10312

(2) Prep QC Batch: MP24072

PQL = Practical Quantitation Limit  
 MDL = Method Detection Limit

U = Indicates a result < MDL  
 I = Indicates a result > = MDL but < PQL



## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW15-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-4	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270D BY SIM SW846 3510C	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W068602.D	1	11/13/12	MG	11/12/12	OP44416	SW3320
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	PQL	MDL	Units	Q
56-55-3	Benzo(a)anthracene	0.038 U	0.19	0.038	ug/l	
205-99-2	Benzo(b)fluoranthene	0.038 U	0.19	0.038	ug/l	
90-12-0	1-Methylnaphthalene	0.38 U	0.96	0.38	ug/l	
91-57-6	2-Methylnaphthalene	0.38 U	0.96	0.38	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	86%		42-108%
321-60-8	2-Fluorobiphenyl	79%		40-106%
1718-51-0	Terphenyl-d14	76%		39-121%

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.4  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW15-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-4	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO SW846 3510C	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP103810.D	1	11/13/12	FEA	11/13/12	OP44424	GOP2697
Run #2							

	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	PQL	MDL	Units	Q
	TPH (C8-C40)	0.481	0.24	0.14	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	92%		38-122%		

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.4  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW15-20121108 <b>Lab Sample ID:</b> F98825-4 <b>Matrix:</b> AQ - Ground Water <b>Project:</b> NAS Jax-PCA 25 UST Site 119	<b>Date Sampled:</b> 11/08/12 <b>Date Received:</b> 11/10/12 <b>Percent Solids:</b> n/a
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**Total Metals Analysis**

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	1.1 U	5.0	1.1	ug/l	1	11/12/12	11/13/12 LM	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA10312

(2) Prep QC Batch: MP24072

PQL = Practical Quantitation Limit  
 MDL = Method Detection Limit

U = Indicates a result < MDL  
 I = Indicates a result > = MDL but < PQL

4.4  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW16I-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-5	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C090925.D	1	11/20/12	WV	n/a	n/a	VC3618
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

**VOA Special List**

CAS No.	Compound	Result	PQL	MDL	Units	Q
71-43-2	Benzene	0.21 U	1.0	0.21	ug/l	
75-01-4	Vinyl chloride	0.85	1.0	0.44	ug/l	I

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		87-116%
17060-07-0	1,2-Dichloroethane-D4	107%		76-127%
2037-26-5	Toluene-D8	100%		86-112%
460-00-4	4-Bromofluorobenzene	99%		84-120%

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result >= MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.5  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW16I-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-5	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270D BY SIM SW846 3510C	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W068603.D	1	11/13/12	MG	11/12/12	OP44416	SW3320
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	PQL	MDL	Units	Q
56-55-3	Benzo(a)anthracene	0.038 U	0.19	0.038	ug/l	
205-99-2	Benzo(b)fluoranthene	0.038 U	0.19	0.038	ug/l	
90-12-0	1-Methylnaphthalene	0.38 U	0.96	0.38	ug/l	
91-57-6	2-Methylnaphthalene	0.38 U	0.96	0.38	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	76%		42-108%
321-60-8	2-Fluorobiphenyl	71%		40-106%
1718-51-0	Terphenyl-d14	77%		39-121%

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.5  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW16I-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-5	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO SW846 3510C	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP103811.D	1	11/13/12	FEA	11/13/12	OP44424	GOP2697
Run #2							

	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	PQL	MDL	Units	Q
	TPH (C8-C40)	0.637	0.24	0.14	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	100%		38-122%		

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.5  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-MW16I-20121108 <b>Lab Sample ID:</b> F98825-5 <b>Matrix:</b> AQ - Ground Water <b>Project:</b> NAS Jax-PCA 25 UST Site 119	<b>Date Sampled:</b> 11/08/12 <b>Date Received:</b> 11/10/12 <b>Percent Solids:</b> n/a
--	---

4.5  
4

### Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	1.2 I	5.0	1.1	ug/l	1	11/12/12	11/13/12 LM	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA10312

(2) Prep QC Batch: MP24072

PQL = Practical Quantitation Limit  
 MDL = Method Detection Limit

U = Indicates a result < MDL  
 I = Indicates a result > = MDL but < PQL

## Report of Analysis

<b>Client Sample ID:</b> JAX-PCA25-TF-MW11-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-6	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C090926.D	1	11/20/12	WV	n/a	n/a	VC3618
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

**VOA Special List**

CAS No.	Compound	Result	PQL	MDL	Units	Q
71-43-2	Benzene	0.21 U	1.0	0.21	ug/l	
75-01-4	Vinyl chloride	1.7	1.0	0.44	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		87-116%
17060-07-0	1,2-Dichloroethane-D4	106%		76-127%
2037-26-5	Toluene-D8	98%		86-112%
460-00-4	4-Bromofluorobenzene	102%		84-120%

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result >= MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.6  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX-PCA25-TF-MW11-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-6	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270D BY SIM SW846 3510C	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W068604.D	1	11/13/12	MG	11/12/12	OP44416	SW3320
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	PQL	MDL	Units	Q
56-55-3	Benzo(a)anthracene	0.038 U	0.19	0.038	ug/l	
205-99-2	Benzo(b)fluoranthene	0.038 U	0.19	0.038	ug/l	
90-12-0	1-Methylnaphthalene	0.38 U	0.96	0.38	ug/l	
91-57-6	2-Methylnaphthalene	0.38 U	0.96	0.38	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	69%		42-108%
321-60-8	2-Fluorobiphenyl	63%		40-106%
1718-51-0	Terphenyl-d14	78%		39-121%

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.6  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX-PCA25-TF-MW11-20121108	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-6	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO SW846 3510C	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP103812.D	1	11/13/12	FEA	11/13/12	OP44424	GOP2697
Run #2							

	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	PQL	MDL	Units	Q
	TPH (C8-C40)	0.14 U	0.24	0.14	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	75%		38-122%		

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.6  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX-PCA25-TF-MW11-20121108 <b>Lab Sample ID:</b> F98825-6 <b>Matrix:</b> AQ - Ground Water <b>Project:</b> NAS Jax-PCA 25 UST Site 119	<b>Date Sampled:</b> 11/08/12 <b>Date Received:</b> 11/10/12 <b>Percent Solids:</b> n/a
--	---

4.6  
4

### Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	1.1 U	5.0	1.1	ug/l	1	11/12/12	11/13/12 LM	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA10312

(2) Prep QC Batch: MP24072

PQL = Practical Quantitation Limit  
 MDL = Method Detection Limit

U = Indicates a result < MDL  
 I = Indicates a result > = MDL but < PQL

## Report of Analysis

<b>Client Sample ID:</b> JAX25-RINSE BLANK	<b>Date Sampled:</b> 11/05/12
<b>Lab Sample ID:</b> F98825-7	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Equipment Blank	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z11375.D	1	11/18/12	NMC	n/a	n/a	VZ502
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

**VOA Special List**

CAS No.	Compound	Result	PQL	MDL	Units	Q
71-43-2	Benzene	0.21 U	1.0	0.21	ug/l	
75-01-4	Vinyl chloride	0.44 U	1.0	0.44	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		87-116%
17060-07-0	1,2-Dichloroethane-D4	105%		76-127%
2037-26-5	Toluene-D8	101%		86-112%
460-00-4	4-Bromofluorobenzene	104%		84-120%

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result >= MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.7  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-RINSE BLANK	<b>Date Sampled:</b> 11/05/12
<b>Lab Sample ID:</b> F98825-7	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Equipment Blank	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8270D BY SIM SW846 3510C	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W068563.D	1	11/12/12	MG	11/12/12	OP44401	SW3319
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	PQL	MDL	Units	Q
56-55-3	Benzo(a)anthracene	0.038 U	0.19	0.038	ug/l	
205-99-2	Benzo(b)fluoranthene	0.038 U	0.19	0.038	ug/l	
90-12-0	1-Methylnaphthalene	0.38 U	0.96	0.38	ug/l	
91-57-6	2-Methylnaphthalene	0.38 U	0.96	0.38	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	88%		42-108%
321-60-8	2-Fluorobiphenyl	77%		40-106%
1718-51-0	Terphenyl-d14	97%		39-121%

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.7  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-RINSE BLANK	<b>Date Sampled:</b> 11/05/12
<b>Lab Sample ID:</b> F98825-7	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Equipment Blank	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO SW846 3510C	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ZF54410.D	1	11/13/12	FEA	11/12/12	OP44403	GZF2016
Run #2							

	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	PQL	MDL	Units	Q
	TPH (C8-C40)	0.163	0.24	0.14	mg/l	I
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	75%		38-122%		

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.7  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-RINSE BLANK <b>Lab Sample ID:</b> F98825-7 <b>Matrix:</b> AQ - Equipment Blank <b>Project:</b> NAS Jax-PCA 25 UST Site 119	<b>Date Sampled:</b> 11/05/12 <b>Date Received:</b> 11/10/12 <b>Percent Solids:</b> n/a
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**Total Metals Analysis**

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	1.1 U	5.0	1.1	ug/l	1	11/12/12	11/13/12 LM	SW846 6010C <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA10312

(2) Prep QC Batch: MP24072

PQL = Practical Quantitation Limit  
 MDL = Method Detection Limit

U = Indicates a result < MDL  
 I = Indicates a result > = MDL but < PQL

4.7  
4

## Report of Analysis

<b>Client Sample ID:</b> JAX25-TRIP BLANK	<b>Date Sampled:</b> 11/08/12
<b>Lab Sample ID:</b> F98825-8	<b>Date Received:</b> 11/10/12
<b>Matrix:</b> AQ - Trip Blank Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> NAS Jax-PCA 25 UST Site 119	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C090927.D	1	11/20/12	WV	n/a	n/a	VC3618
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

**VOA Special List**

CAS No.	Compound	Result	PQL	MDL	Units	Q
71-43-2	Benzene	0.21 U	1.0	0.21	ug/l	
75-01-4	Vinyl chloride	0.44 U	1.0	0.44	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		87-116%
17060-07-0	1,2-Dichloroethane-D4	108%		76-127%
2037-26-5	Toluene-D8	99%		86-112%
460-00-4	4-Bromofluorobenzene	102%		84-120%

U = Not detected      MDL - Method Detection Limit  
 PQL = Practical Quantitation Limit  
 L = Indicates value exceeds calibration range

I = Result >= MDL but < PQL    J = Estimated value  
 V = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.8  
4

## Misc. Forms

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5

## Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody



**ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION**

ACCUTEST'S JOB NUMBER: F98825 CLIENT: SOLUTIONS INC. PROJECT: PCA 25  
 DATE/TIME RECEIVED: 1/10/12 8:00 (MM/DD/YY 24:00) NUMBER OF COOLERS RECEIVED: 4  
 METHOD OF DELIVERY: FEDEX UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER  
 AIRBILL NUMBERS: \_\_\_\_\_

**COOLER INFORMATION**

- CUSTODY SEAL NOT PRESENT OR NOT INTACT
- CHAIN OF CUSTODY NOT RECEIVED (COC)
- ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- TEMPERATURE CRITERIA NOT MET
- WET ICE PRESENT

**TRIP BLANK INFORMATION**

- TRIP BLANK PROVIDED
- TRIP BLANK NOT PROVIDED
- TRIP BLANK NOT ON COC
- TRIP BLANK INTACT
- TRIP BLANK NOT INTACT
- RECEIVED WATER TRIP BLANK
- RECEIVED SOIL TRIP BLANK

**MISC. INFORMATION**

NUMBER OF ENCORES ? 25-GRAM \_\_\_\_\_ 5-GRAM \_\_\_\_\_  
 NUMBER OF 5035 FIELD KITS ? \_\_\_\_\_  
 NUMBER OF LAB FILTERED METALS ? \_\_\_\_\_

**TEMPERATURE INFORMATION**

IR THERM ID \_\_\_\_\_ CORR. FACTOR \_\_\_\_\_  
 OBSERVED TEMPS: 3.0 3.2 2.8 2.4  
 CORRECTED TEMPS: 2.4 2.6 3.2 2.8

**SAMPLE INFORMATION**

- SAMPLE LABELS PRESENT ON ALL BOTTLES
- INCORRECT NUMBER OF CONTAINERS USED
- SAMPLE RECEIVED IMPROPERLY PRESERVED
- INSUFFICIENT VOLUME FOR ANALYSIS
- DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- ID'S ON COC DO NOT MATCH LABEL
- VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- SAMPLE CONTAINER(S) RECEIVED BROKEN
- % SOLIDS JAR NOT RECEIVED
- 5035 FIELD KIT FROZEN WITHIN 48 HOUR'S
- RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

SUMMARY OF COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

TECHNICIAN SIGNATURE/DATE [Signature] 1/11-10-12 REVIEWER SIGNATURE/DATE [Signature] 1/10/12  
 NF 12/10 receipt confirmation 122910.xls

5.1  
5

**Job Change Order:** F98825\_11/13/2012

<b>Requested Date:</b>	11/13/2012	<b>Received Date:</b>	11/10/2012
<b>Account Name:</b>	Solutions-IES, Inc	<b>Due Date:</b>	11/19/2012
<b>Project</b>	NAS Jax-PCA 25 UST Site 119	<b>Deliverable:</b>	COMMBN
<b>CSR:</b>	JDS	<b>TAT (Days):</b>	1

**Sample #:**  
F98825-1-6

**Change:** Client would like to add "08" as an extension to each sample ID. Revised COC has been submitted. Thank you.

**Above Changes Per:** client, Jody Overmyer, via e-mail

**Date:** 11/13/2012

**F98825: Chain of Custody  
Page 3 of 4**

To Client: This Change Order is confirmation of the revisions, previously discussed with the Accutest Client Service

Page 1 of 1



## GC/MS Volatiles

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## QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

## Method Blank Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VZ502-MB	Z11374.D	1	11/18/12	NMC	n/a	n/a	VZ502

The QC reported here applies to the following samples:

Method: SW846 8260B

F98825-7

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.21	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.44	ug/l	

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	102%	87-116%
17060-07-0	1,2-Dichloroethane-D4	105%	76-127%
2037-26-5	Toluene-D8	101%	86-112%
460-00-4	4-Bromofluorobenzene	104%	84-120%

## Method Blank Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC3618-MB	C090908.D	1	11/20/12	WV	n/a	n/a	VC3618

The QC reported here applies to the following samples:

Method: SW846 8260B

F98825-1, F98825-2, F98825-3, F98825-4, F98825-5, F98825-6, F98825-8

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.21	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.44	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	100% 87-116%
17060-07-0	1,2-Dichloroethane-D4	104% 76-127%
2037-26-5	Toluene-D8	99% 86-112%
460-00-4	4-Bromofluorobenzene	102% 84-120%

# Blank Spike Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VZ502-BS	Z11372.D	1	11/18/12	NMC	n/a	n/a	VZ502

The QC reported here applies to the following samples:

Method: SW846 8260B

F98825-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	26.8	107	83-124
75-01-4	Vinyl chloride	25	29.7	119	57-153

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	103%	87-116%
17060-07-0	1,2-Dichloroethane-D4	103%	76-127%
2037-26-5	Toluene-D8	101%	86-112%
460-00-4	4-Bromofluorobenzene	103%	84-120%

\* = Outside of Control Limits.

# Blank Spike Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC3618-BS	C090907.D	1	11/20/12	WV	n/a	n/a	VC3618

The QC reported here applies to the following samples:

Method: SW846 8260B

F98825-1, F98825-2, F98825-3, F98825-4, F98825-5, F98825-6, F98825-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.5	98	83-124
75-01-4	Vinyl chloride	25	26.3	105	57-153

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	99%	87-116%
17060-07-0	1,2-Dichloroethane-D4	103%	76-127%
2037-26-5	Toluene-D8	99%	86-112%
460-00-4	4-Bromofluorobenzene	100%	84-120%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F98727-3MS	Z11380.D	20	11/18/12	NMC	n/a	n/a	VZ502
F98727-3MSD	Z11381.D	20	11/18/12	NMC	n/a	n/a	VZ502
F98727-3	Z11379.D	20	11/18/12	NMC	n/a	n/a	VZ502

The QC reported here applies to the following samples:

Method: SW846 8260B

F98825-7

CAS No.	Compound	F98727-3 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20 U	500	526	105	513	103	3	83-124/11
75-01-4	Vinyl chloride	20 U	500	495	99	484	97	2	57-153/22

CAS No.	Surrogate Recoveries	MS	MSD	F98727-3	Limits
1868-53-7	Dibromofluoromethane	103%	102%	103%	87-116%
17060-07-0	1,2-Dichloroethane-D4	105%	105%	105%	76-127%
2037-26-5	Toluene-D8	100%	101%	101%	86-112%
460-00-4	4-Bromofluorobenzene	102%	102%	104%	84-120%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F99011-13MS	C090917.D	1	11/20/12	WV	n/a	n/a	VC3618
F99011-13MSD	C090918.D	1	11/20/12	WV	n/a	n/a	VC3618
F99011-13 <sup>a</sup>	C090910.D	1	11/20/12	WV	n/a	n/a	VC3618

The QC reported here applies to the following samples:

Method: SW846 8260B

F98825-1, F98825-2, F98825-3, F98825-4, F98825-5, F98825-6, F98825-8

CAS No.	Compound	F99011-13 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	25.3	101	22.6	90	11	83-124/11
75-01-4	Vinyl chloride	1.0 U	25	22.1	88	21.3	85	4	57-153/22

CAS No.	Surrogate Recoveries	MS	MSD	F99011-13	Limits
1868-53-7	Dibromofluoromethane	102%	101%	101%	87-116%
17060-07-0	1,2-Dichloroethane-D4	110%	107%	104%	76-127%
2037-26-5	Toluene-D8	95%	98%	99%	86-112%
460-00-4	4-Bromofluorobenzene	97%	96%	104%	84-120%

(a) Sample was not preserved to a pH < 2.

\* = Outside of Control Limits.

## GC/MS Semi-volatiles

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### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

## Method Blank Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44401-MB	W068562.D	1	11/12/12	MG	11/12/12	OP44401	SW3319

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

F98825-1, F98825-2, F98825-7

CAS No.	Compound	Result	RL	MDL	Units	Q
56-55-3	Benzo(a)anthracene	ND	0.20	0.040	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	0.040	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	0.40	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.40	ug/l	

CAS No.	Surrogate Recoveries	Limits	
4165-60-0	Nitrobenzene-d5	82%	42-108%
321-60-8	2-Fluorobiphenyl	73%	40-106%
1718-51-0	Terphenyl-d14	85%	39-121%

7.1.1  
7

## Method Blank Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44416-MB	W068595.D	1	11/13/12	MG	11/12/12	OP44416	SW3320

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

F98825-3, F98825-4, F98825-5, F98825-6

CAS No.	Compound	Result	RL	MDL	Units	Q
56-55-3	Benzo(a)anthracene	ND	0.20	0.040	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	0.040	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	0.40	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.40	ug/l	

CAS No.	Surrogate Recoveries	Limits	
4165-60-0	Nitrobenzene-d5	87%	42-108%
321-60-8	2-Fluorobiphenyl	78%	40-106%
1718-51-0	Terphenyl-d14	94%	39-121%

## Method Blank Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44401-MB	W068614.D	1	11/14/12	MG	11/12/12	OP44401	SW3321

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

F98825-1, F98825-2, F98825-7

CAS No.	Compound	Result	RL	MDL	Units	Q
56-55-3	Benzo(a)anthracene	ND	0.20	0.040	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	0.040	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	0.40	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.40	ug/l	

CAS No.	Surrogate Recoveries	Limits	
4165-60-0	Nitrobenzene-d5	79%	42-108%
321-60-8	2-Fluorobiphenyl	70%	40-106%
1718-51-0	Terphenyl-d14	82%	39-121%

# Method Blank Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44416-MB	W068621.D	1	11/14/12	MG	11/12/12	OP44416	SW3321

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

F98825-3, F98825-4, F98825-5, F98825-6

CAS No.	Compound	Result	RL	MDL	Units	Q
56-55-3	Benzo(a)anthracene	ND	0.20	0.040	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	0.040	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	0.40	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.40	ug/l	

CAS No.	Surrogate Recoveries	Limits	
4165-60-0	Nitrobenzene-d5	88%	42-108%
321-60-8	2-Fluorobiphenyl	78%	40-106%
1718-51-0	Terphenyl-d14	91%	39-121%

## Method Blank Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44401-MB	R37281.D	1	11/15/12	MG	11/12/12	OP44401	SR1762

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

F98825-1, F98825-2, F98825-7

CAS No.	Compound	Result	RL	MDL	Units	Q
56-55-3	Benzo(a)anthracene	ND	0.20	0.040	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	0.040	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	0.40	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.40	ug/l	

CAS No.	Surrogate Recoveries	Limits	
4165-60-0	Nitrobenzene-d5	67%	42-108%
321-60-8	2-Fluorobiphenyl	72%	40-106%
1718-51-0	Terphenyl-d14	93%	39-121%

# Blank Spike Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44401-BS	W068561.D	1	11/12/12	MG	11/12/12	OP44401	SW3319

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

F98825-1, F98825-2, F98825-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
56-55-3	Benzo(a)anthracene	5	3.8	76	64-105
205-99-2	Benzo(b)fluoranthene	5	4.0	80	64-109
90-12-0	1-Methylnaphthalene	10	7.3	73	53-101
91-57-6	2-Methylnaphthalene	10	7.2	72	52-101

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	89%	42-108%
321-60-8	2-Fluorobiphenyl	81%	40-106%
1718-51-0	Terphenyl-d14	90%	39-121%

\* = Outside of Control Limits.

# Blank Spike Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44416-BS	W068594.D	1	11/13/12	MG	11/12/12	OP44416	SW3320

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

F98825-3, F98825-4, F98825-5, F98825-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
56-55-3	Benzo(a)anthracene	5	3.5	70	64-105
205-99-2	Benzo(b)fluoranthene	5	3.5	70	64-109
90-12-0	1-Methylnaphthalene	10	6.3	63	53-101
91-57-6	2-Methylnaphthalene	10	6.1	61	52-101

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	89%	42-108%
321-60-8	2-Fluorobiphenyl	78%	40-106%
1718-51-0	Terphenyl-d14	83%	39-121%

\* = Outside of Control Limits.

7.2.2  
 7

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44401-MS	W068588.D	1	11/13/12	MG	11/12/12	OP44401	SW3319
OP44401-MSD	W068589.D	1	11/13/12	MG	11/12/12	OP44401	SW3319
F98768-3	W068569.D	1	11/12/12	MG	11/12/12	OP44401	SW3319

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

F98825-1, F98825-2, F98825-7

CAS No.	Compound	F98768-3 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
56-55-3	Benzo(a)anthracene	0.20 U	9.62	6.6	69	8.0	83	19*	64-105/18
205-99-2	Benzo(b)fluoranthene	0.20 U	9.62	7.0	73	8.2	85	16	64-109/20
90-12-0	1-Methylnaphthalene	0.98 U	19.2	12.4	64	15.3	80	21	53-101/28
91-57-6	2-Methylnaphthalene	0.98 U	19.2	12.2	63	15.1	79	21	52-101/28

CAS No.	Surrogate Recoveries	MS	MSD	F98768-3	Limits
4165-60-0	Nitrobenzene-d5	75%	95%	86%	42-108%
321-60-8	2-Fluorobiphenyl	68%	87%	76%	40-106%
1718-51-0	Terphenyl-d14	79%	97%	89%	39-121%

\* = Outside of Control Limits.

7.3.1  
 7

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44416-MS	W068610.D	1	11/13/12	MG	11/12/12	OP44416	SW3320
OP44416-MSD	W068611.D	1	11/13/12	MG	11/12/12	OP44416	SW3320
F98778-2	W068597.D	1	11/13/12	MG	11/12/12	OP44416	SW3320

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

F98825-3, F98825-4, F98825-5, F98825-6

CAS No.	Compound	F98778-2 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
56-55-3	Benzo(a)anthracene	0.19 U	9.62	7.4	77	7.3	76	1	64-105/18
205-99-2	Benzo(b)fluoranthene	0.19 U	9.62	7.3	76	7.3	76	0	64-109/20
90-12-0	1-Methylnaphthalene	0.96 U	19.2	13.7	71	13.1	68	4	53-101/28
91-57-6	2-Methylnaphthalene	0.96 U	19.2	13.6	71	13.1	68	4	52-101/28

CAS No.	Surrogate Recoveries	MS	MSD	F98778-2	Limits
4165-60-0	Nitrobenzene-d5	90%	86%	84%	42-108%
321-60-8	2-Fluorobiphenyl	84%	76%	78%	40-106%
1718-51-0	Terphenyl-d14	87%	84%	90%	39-121%

\* = Outside of Control Limits.

7.3.2  
 7

## GC Semi-volatiles

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### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

# Method Blank Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44403-MB	ZF54392.D	1	11/13/12	FEA	11/12/12	OP44403	GZF2016

The QC reported here applies to the following samples:

Method: FLORIDA-PRO

F98825-1, F98825-2, F98825-7

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	ND	0.25	0.15	mg/l	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	78% 38-122%

# Method Blank Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44424-MB	OP103808.D 1		11/13/12	FEA	11/13/12	OP44424	GOP2697

The QC reported here applies to the following samples:

Method: FLORIDA-PRO

F98825-3, F98825-4, F98825-5, F98825-6

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	ND	0.25	0.15	mg/l	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	93% 38-122%

# Method Blank Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44424-MB	ZF54456.D	1	11/14/12	FEA	11/13/12	OP44424	GZF2016

The QC reported here applies to the following samples:

Method: FLORIDA-PRO

F98825-3, F98825-4, F98825-5, F98825-6

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	ND	0.25	0.15	mg/l	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	78% 38-122%

# Blank Spike Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44403-BS	ZF54391.D	1	11/13/12	FEA	11/12/12	OP44403	GZF2016

The QC reported here applies to the following samples:

Method: FLORIDA-PRO

F98825-1, F98825-2, F98825-7

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH (C8-C40)	0.85	0.598	70	54-110

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	72%	38-122%

8.2.1

8

\* = Outside of Control Limits.

# Blank Spike Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44424-BS	OP103807.D	1	11/13/12	FEA	11/13/12	OP44424	GOP2697

The QC reported here applies to the following samples:

Method: FLORIDA-PRO

F98825-3, F98825-4, F98825-5, F98825-6

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH (C8-C40)	0.85	0.620	73	54-110

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	76%	38-122%

8.2.2

8

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44403-MS	ZF54398.D	1	11/13/12	FEA	11/12/12	OP44403	GZF2016
OP44403-MSD	ZF54399.D	1	11/13/12	FEA	11/12/12	OP44403	GZF2016
F98805-7	ZF54397.D	1	11/13/12	FEA	11/12/12	OP44403	GZF2016

The QC reported here applies to the following samples:

Method: FLORIDA-PRO

F98825-1, F98825-2, F98825-7

CAS No.	Compound	F98805-7 mg/l	Spike Q mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (C8-C40)	1.76	1.63	3.27	92	2.87	68	13	54-110/28

CAS No.	Surrogate Recoveries	MS	MSD	F98805-7	Limits
84-15-1	o-Terphenyl	74%	71%	71%	38-122%

8.3.1  
8

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** F98825  
**Account:** SIESNCR Solutions-IES, Inc  
**Project:** NAS Jax-PCA 25 UST Site 119

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP44424-MS	OP103814.D	1	11/13/12	FEA	11/13/12	OP44424	GOP2697
OP44424-MSD	OP103815.D	1	11/13/12	FEA	11/13/12	OP44424	GOP2697
F98760-1	OP103813.D	1	11/13/12	FEA	11/13/12	OP44424	GOP2697

The QC reported here applies to the following samples:

Method: FLORIDA-PRO

F98825-3, F98825-4, F98825-5, F98825-6

CAS No.	Compound	F98760-1 mg/l	Spike Q mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (C8-C40)	0.24 U	1.63	1.48	91	1.26	77	16	54-110/28

CAS No.	Surrogate Recoveries	MS	MSD	F98760-1	Limits
84-15-1	o-Terphenyl	92%	77%	94%	38-122%

\* = Outside of Control Limits.

## Metals Analysis

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### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: F98825  
Account: SIESNCR - Solutions-IES, Inc  
Project: NAS Jax-PCA 25 UST Site 119

QC Batch ID: MP24072  
Matrix Type: AQUEOUS

Methods: SW846 6010C  
Units: ug/l

Prep Date: 11/12/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	15	15		
Antimony	6.0	1.3	1.3		
Arsenic	10	1.6	2.5		
Barium	200	1	1		
Beryllium	4.0	.5	.5		
Cadmium	5.0	.5	.5		
Calcium	1000	50	50		
Chromium	10	1.8	2		
Cobalt	50	.5	.5		
Copper	25	1	1		
Iron	300	29	29		
Lead	5.0	1.1	1.1	0.0	<5.0
Magnesium	5000	74	74		
Manganese	15	.7	.7		
Molybdenum	50	.6	1		
Nickel	40	.5	.5		
Potassium	10000	200	200		
Selenium	10	2	2		
Silver	10	.5	.5		
Sodium	10000	500	500		
Strontium	10	.5	.5		
Thallium	10	1.3	1.3		
Tin	50	.7	1.8		
Titanium	10	.9	1		
Vanadium	50	.5	1		
Zinc	20	3	5		

Associated samples MP24072: F98825-1, F98825-2, F98825-3, F98825-4, F98825-5, F98825-6, F98825-7

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

9.1.1  
9

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F98825  
 Account: SIESNCR - Solutions-IES, Inc  
 Project: NAS Jax-PCA 25 UST Site 119

QC Batch ID: MP24072  
 Matrix Type: AQUEOUS

Methods: SW846 6010C  
 Units: ug/l

Prep Date: 11/12/12 11/12/12

Metal	F98825-1 Original	DUP	RPD	QC Limits	F98825-1 Original MS	Spikelot MPFLICP1	% Rec	QC Limits	
Aluminum									
Antimony									
Arsenic	anr								
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	6.1	7.3	17.9	0-20	6.1	529	500	104.6	80-120
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP24072: F98825-1, F98825-2, F98825-3, F98825-4, F98825-5, F98825-6, F98825-7

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

9.1.2  
 9

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F98825  
 Account: SIESNCR - Solutions-IES, Inc  
 Project: NAS Jax-PCA 25 UST Site 119

QC Batch ID: MP24072  
 Matrix Type: AQUEOUS

Methods: SW846 6010C  
 Units: ug/l

Prep Date: 11/12/12

Metal	F98825-1 Original MSD	SpikeLot MPFLICP1 % Rec	MSD RPD	QC Limit		
Aluminum						
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead	6.1	526	500	104.0	0.6	20
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP24072: F98825-1, F98825-2, F98825-3, F98825-4, F98825-5, F98825-6, F98825-7

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

9.1.2  
 9

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F98825  
 Account: SIESNCR - Solutions-IES, Inc  
 Project: NAS Jax-PCA 25 UST Site 119

QC Batch ID: MP24072  
 Matrix Type: AQUEOUS

Methods: SW846 6010C  
 Units: ug/l

Prep Date: 11/12/12

Metal	BSP Result	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	496	500	99.2	80-120
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP24072: F98825-1, F98825-2, F98825-3, F98825-4, F98825-5, F98825-6, F98825-7

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested

9.1.3  
 9

SERIAL DILUTION RESULTS SUMMARY

Login Number: F98825  
 Account: SIESNCR - Solutions-IES, Inc  
 Project: NAS Jax-PCA 25 UST Site 119

QC Batch ID: MP24072  
 Matrix Type: AQUEOUS

Methods: SW846 6010C  
 Units: ug/l

Prep Date: 11/12/12

Metal	F98825-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	6.10	6.40	4.9	0-10
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP24072: F98825-1, F98825-2, F98825-3, F98825-4, F98825-5, F98825-6, F98825-7

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested

9.1.4  
**9**

POST DIGESTATE SPIKE SUMMARY

Login Number: F98825  
 Account: SIESNCR - Solutions-IES, Inc  
 Project: NAS Jax-PCA 25 UST Site 119

QC Batch ID: MP24072  
 Matrix Type: AQUEOUS

Methods: SW846 6010C  
 Units: ug/l

Prep Date:

11/12/12

Metal	Sample ml	Final ml	F98825-1 Raw	PS Corr.** ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	9.8	10	6.1	5.978	59.5	0.2	2.5	50	107.0 80-120
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP24072: F98825-1, F98825-2, F98825-3, F98825-4, F98825-5, F98825-6, F98825-7

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (\*\*) Corr. sample result = Raw \* (sample volume / final volume)  
 (anr) Analyte not requested

9.15  
**9**

**APPENDIX B**  
GROUNDWATER SAMPLING LOGS



**Solutions-IES, Inc. / Florida Department of Environmental Protection  
GROUNDWATER SAMPLING LOG**

SITE NAME: PCA 25 UST Site 119	SITE LOCATION: NAS Jacksonville	Solutions-IES Project No.: 2012.0014.NAVY
WELL NO: JAX25-MW09	SAMPLE ID: JAX25-MW09 - <u>20121108</u> <small>(4 digit year 2 digit month 2digit)</small>	DATE: <u>11/8/12</u>

**PURGING DATA**

WELL DIAMETER (inches): <u>2</u>	TUBING DIAMETER (inches): <u>3/16</u>	WELL SCREEN INTERVAL DEPTH: <u>1</u> feet to <u>11</u> feet	STATIC DEPTH TO WATER (feet): <u>3.88</u>	PURGE PUMP TYPE OR BAILER: <u>Peristaltic</u>
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (                      feet -                      feet) X                      gallons/foot = <u>4.3 L</u> gallons				
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) =                      gallons + (                      gallons/foot X                      feet) +                      gallons =                      gallons				
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): <u>8</u>	FINAL PUMP OR TUBING DEPTH IN WELL (feet): <u>8</u>	PURGING INITIATED AT: <u>1050</u>	PURGING ENDED AT: <u>1146</u>	TOTAL VOLUME PURGED (gallons): <u>10.24</u>

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (mL)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) μmhos/cm or μS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	ORP (mV)	COLOR (describe)	ODOR (describe)
<u>1050</u>	<u>-</u>	<u>-</u>	<u>100</u>	<u>3.88</u>	<u>-</u>	<u>24.40</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
<u>1140</u>	<u>9.0</u>	<u>9.0</u>	<u>200</u>	<u>3.98</u>	<u>6.14</u>	<u>24.42</u>	<u>407</u>	<u>18.8 / 1.58</u>	<u>1.64</u>	<u>-90.9</u>	<u>Clear</u>	<u>-</u>
<u>1143</u>	<u>.6</u>	<u>9.6</u>	<u>200</u>	<u>3.99</u>	<u>6.14</u>	<u>24.42</u>	<u>407</u>	<u>18.8 / 1.56</u>	<u>1.73</u>	<u>-94.8</u>	<u>clear</u>	<u>-</u>
<u>1146</u>	<u>.6</u>	<u>10.2</u>	<u>200</u>	<u>3.99</u>	<u>6.15</u>	<u>24.48</u>	<u>407</u>	<u>18.6 / 1.55</u>	<u>1.61</u>	<u>-95.6</u>	<u>clear</u>	<u>-</u>
<u>1149</u>	<u>Sample time</u>											

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88  
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016  
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

**SAMPLING DATA**

SAMPLED BY (PRINT) / AFFILIATION: <u>Jeff Kone / TT</u>	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: <u>1149</u>	SAMPLING ENDED AT: <u>1210</u>
PUMP OR TUBING DEPTH IN WELL (feet): <u>8</u>	TUBING MATERIAL CODE: <u>PE</u>	FIELD-FILTERED: Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	FILTER SIZE: _____ μm
FIELD DECONTAMINATION: PUMP Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	TUBING Y <input type="checkbox"/> N <input checked="" type="checkbox"/> (replaced or dedicated)	DUPLICATE: Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
	<u>3</u>	<u>CG</u>	<u>40ml</u>	<u>HCl</u>			<u>VOC</u>	<u>RFPP</u>	<u>200</u>
	<u>2</u>	<u>AG</u>	<u>1L</u>	<u>-</u>			<u>PAH</u>	<u>APP</u>	
	<u>2</u>	<u>AG</u>	<u>1L</u>	<u>H2SO4</u>			<u>TRPH</u>	<u>APP</u>	
	<u>1</u>	<u>PE</u>	<u>.5L</u>	<u>HNO3</u>			<u>Pb</u>	<u>APP</u>	

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)  
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

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

**Solutions-IES, Inc. / Florida Department of Environmental Protection  
GROUNDWATER SAMPLING LOG**

SITE NAME: PCA 25 UST Site 119	SITE LOCATION: NAS Jacksonville	Solutions-IES Project No.: 2012.0014.NAVY
WELL NO: JAX-PCA25-TF-MW11	SAMPLE ID: JAX-PCA25-TF-MW11 - <u>20121108</u> <small>(4 digit year 2 digit month 2digit)</small>	DATE: <u>11/8/12</u>

**PURGING DATA**

WELL DIAMETER (inches): <u>2</u>	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <u>2</u> feet to <u>12</u> feet	STATIC DEPTH TO WATER (feet): <u>3.98</u>	PURGE PUMP TYPE OR BAILER:								
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY <small>(only fill out if applicable)</small> = ( <u>12 - 3.98</u> feet - <u>3.98</u> feet ) X <u>4.84</u> gallons/foot = <u>4.84</u> gallons												
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME <small>(only fill out if applicable)</small> = <u>        </u> gallons + ( <u>        </u> gallons/foot X <u>        </u> feet ) + <u>        </u> gallons = <u>        </u> gallons												
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): <u>8</u>	FINAL PUMP OR TUBING DEPTH IN WELL (feet): <u>8</u>	PURGING INITIATED AT: <u>1220</u>	PURGING ENDED AT: <u>1256</u>	TOTAL VOLUME PURGED (gallons): <u>7.2L</u>								
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (mL)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) $\mu$ mhos/cm or $\mu$ S/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	ORP (mV)	COLOR (describe)	ODOR (describe)
<u>1220</u>	<u>—</u>	<u>—</u>	<u>200</u>	<u>3.98</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
<u>1250</u>	<u>6.0</u>	<u>6.0</u>	<u>200</u>	<u>4.15</u>	<u>6.57</u>	<u>26.06</u>	<u>319</u>	<u>15.5/1.22</u>	<u>2.00</u>	<u>-85.5</u>	<u>—</u>	<u>—</u>
<u>1253</u>	<u>.6</u>	<u>6.6</u>	<u>200</u>	<u>4.15</u>	<u>6.57</u>	<u>26.06</u>	<u>319</u>	<u>15.0/1.22</u>	<u>1.28</u>	<u>-85.7</u>	<u>—</u>	<u>—</u>
<u>1256</u>	<u>.6</u>	<u>7.2</u>	<u>200</u>	<u>4.16</u>	<u>6.56</u>	<u>26.08</u>	<u>319</u>	<u>15.0/1.22</u>	<u>0.94</u>	<u>-85.7</u>	<u>—</u>	<u>—</u>
<u>1301</u>	<u>sample - fine</u>											
WELL CAPACITY (Gallons Per Foot): 0.76" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88												
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016												
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)												

**SAMPLING DATA**

SAMPLED BY (PRINT) / AFFILIATION: <u>Jeff Kone / TT</u>	SAMPLER(S) SIGNATURE(S): 	SAMPLING INITIATED AT: <u>1301</u>	SAMPLING ENDED AT: <u>1325</u>							
PUMP OR TUBING DEPTH IN WELL (feet): <u>8</u>	TUBING MATERIAL CODE: <u>PE</u>	FIELD-FILTERED: Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	FILTER SIZE: <u>        </u> $\mu$ m							
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	TUBING Y <input checked="" type="checkbox"/> N <input type="checkbox"/> (replaced or dedicated)	DUPLICATE: Y <input checked="" type="checkbox"/> N <input type="checkbox"/>								
SAMPLE CONTAINER SPECIFICATION		SAMPLE PRESERVATION		INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)				
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
	<u>3</u>	<u>CG</u>	<u>40 ml</u>	<u>HCl</u>				<u>VOC</u>	<u>RFPP</u>	<u>200</u>
	<u>2</u>	<u>AG</u>	<u>1L</u>	<u>—</u>				<u>PAH</u>	<u>APP</u>	
	<u>2</u>	<u>AG</u>	<u>1L</u>	<u>HAsO4</u>				<u>TRPH</u>	<u>APP</u>	
	<u>1</u>	<u>PE</u>	<u>.5L</u>	<u>HNO3</u>				<u>Pb</u>	<u>APP</u>	
REMARKS:										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)										

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

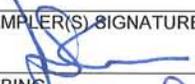
**Solutions-IES, Inc. / Florida Department of Environmental Protection  
GROUNDWATER SAMPLING LOG**

SITE NAME: PCA 25 UST Site 119	SITE LOCATION: NAS Jacksonville	Solutions-IES Project No.: 2012.0014.NAVY
WELL NO: JAX25-MW13	SAMPLE ID: JAX25-MW13 - <u>20121108</u> <small>(4 digit year, 2 digit month, 2 digit)</small>	DATE: <u>11/8/12</u>

**PURGING DATA**

WELL DIAMETER (inches): <u>2</u>	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <u>2.3</u> feet to <u>12.3</u> feet	STATIC DEPTH TO WATER (feet): <u>4.05</u>	PURGE PUMP TYPE OR BAILER:								
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (                      feet -                      feet ) X                      gallons/foot = <u>4.99L</u> gallons												
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) =                      gallons + (                      gallons/foot X                      feet ) +                      gallons =                      gallons												
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): <u>8</u>	FINAL PUMP OR TUBING DEPTH IN WELL (feet): <u>8</u>	PURGING INITIATED AT: <u>1455</u>	PURGING ENDED AT: <u>1521</u>	TOTAL VOLUME PURGED (gallons): <u>5.2</u>								
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (mL)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) $\mu$ mhos/cm or $\mu$ S/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	ORP (mV)	COLOR (describe)	ODOR (describe)
<u>1455</u>	-	-	<u>200</u>	<u>4.05</u>								
<u>1515</u>	<u>4.0</u>	<u>4.0</u>	<u>200</u>	<u>4.19</u>	<u>6.46</u>	<u>26.79</u>	<u>623</u>	<u>14.1/1.16</u>	<u>2.66</u>	<u>-54.6</u>	-	-
<u>1518</u>	<u>.6</u>	<u>4.6</u>	<u>200</u>	<u>4.19</u>	<u>6.46</u>	<u>26.79</u>	<u>623</u>	<u>14.0/1.15</u>	<u>2.44</u>	<u>-56.6</u>	-	-
<u>1521</u>	<u>.6</u>	<u>5.2</u>	<u>200</u>	<u>4.19</u>	<u>6.46</u>	<u>26.77</u>	<u>623</u>	<u>14.1/1.17</u>	<u>2.59</u>	<u>-59.0</u>	-	-
<u>1525</u>	<u>Sample time</u>											
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)												

**SAMPLING DATA**

SAMPLED BY (PRINT) / AFFILIATION: <u>Jeff Krone / ITT</u>			SAMPLER(S) SIGNATURE(S): 			SAMPLING INITIATED AT: <u>1525</u>		SAMPLING ENDED AT: <u>1600</u>	
PUMP OR TUBING DEPTH IN WELL (feet): <u>8</u>			TUBING MATERIAL CODE: <u>PE</u>		FIELD-FILTERED: Y <input checked="" type="radio"/> N <input type="radio"/>		FILTER SIZE: _____ $\mu$ m		
FIELD DECONTAMINATION: PUMP Y <input checked="" type="radio"/> N <input type="radio"/>			TUBING Y <input checked="" type="radio"/> N <input type="radio"/> (replaced or dedicated)			DUPLICATE: Y <input checked="" type="radio"/> N <input type="radio"/>			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
	<u>3</u>	<u>CG</u>	<u>40 ml</u>	<u>HCl</u>			<u>VOC</u>	<u>RFPP</u>	<u>200</u>
	<u>2</u>	<u>AG</u>	<u>1L</u>	<u>-</u>			<u>PAH</u>	<u>APP</u>	<u>1</u>
	<u>2</u>	<u>AG</u>	<u>1L</u>	<u>H2SO4</u>			<u>TRPH</u>	<u>APP</u>	<u>1</u>
	<u>1</u>	<u>PE</u>	<u>.5L</u>	<u>HNO3</u>			<u>Pb</u>	<u>APP</u>	<u>1</u>
REMARKS:									
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)									
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)									

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

**Solutions-IES, Inc. / Florida Department of Environmental Protection  
GROUNDWATER SAMPLING LOG**

SITE NAME: PCA 25 UST Site 119	SITE LOCATION: NAS Jacksonville	Solutions-IES Project No.: 2012.0014.NAVY
WELL NO: JAX25-MW15	SAMPLE ID: JAX25-MW15 - <u>20121108</u> <small>(4 digit year 2 digit month 2 digit)</small>	DATE: <u>11/08/12</u>

**PURGING DATA**

WELL DIAMETER (inches): <u>2</u>	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to <u>105</u> feet	STATIC DEPTH TO WATER (feet): <u>4.93</u>	PURGE PUMP TYPE OR BAILER:								
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = ( <u>        </u> feet - <u>        </u> feet) X <u>        </u> gallons/foot = <u>3.97L</u> gallons												
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) = <u>        </u> gallons + ( <u>        </u> gallons/foot X <u>        </u> feet) + <u>        </u> gallons = <u>        </u> gallons												
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): <u>8</u>	FINAL PUMP OR TUBING DEPTH IN WELL (feet): <u>8</u>	PURGING INITIATED AT: <u>1345</u>	PURGING ENDED AT: <u>1411</u>	TOTAL VOLUME PURGED (gallons): <u>5.2L</u>								
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (mL)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) $\mu$ mhos/cm or $\mu$ S/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	ORP (mV)	COLOR (describe)	ODOR (describe)
<u>1345</u>	<u>—</u>	<u>—</u>	<u>200</u>	<u>4.93</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
<u>1405</u>	<u>4.0</u>	<u>4.0</u>	<u>200</u>	<u>5.24</u>	<u>6.45</u>	<u>25.90</u>	<u>420</u>	<u>14.1/1.17</u>	<u>7.34</u>	<u>-79.0</u>	<u>—</u>	<u>—</u>
<u>1408</u>	<u>.6</u>	<u>4.6</u>	<u>200</u>	<u>5.25</u>	<u>6.45</u>	<u>25.91</u>	<u>419</u>	<u>14.2/1.18</u>	<u>2.93</u>	<u>-79.3</u>	<u>—</u>	<u>—</u>
<u>1411</u>	<u>.6</u>	<u>5.2</u>	<u>200</u>	<u>5.25</u>	<u>6.45</u>	<u>25.88</u>	<u>4.18</u>	<u>14.1/1.17</u>	<u>2.28</u>	<u>-79.2</u>	<u>—</u>	<u>—</u>
<u>1414</u>	<u>Sample time</u>											
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 6" = 1.02; 8" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016												
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)												

**SAMPLING DATA**

SAMPLED BY (PRINT) / AFFILIATION: <u>Jeff Krone / TT</u>		SAMPLER(S) SIGNATURE(S): <u>JK</u>		SAMPLING INITIATED AT: <u>1414</u>	SAMPLING ENDED AT: <u>1435</u>			
PUMP OR TUBING DEPTH IN WELL (feet): <u>8</u>		TUBING MATERIAL CODE: <u>PE</u>	FIELD-FILTERED: Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	FILTER SIZE: <u>        </u> $\mu$ m				
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> N <input type="checkbox"/> TUBING Y <input checked="" type="checkbox"/> N <input type="checkbox"/> (replaced or dedicated)		DUPLICATE: Y <input type="checkbox"/> N <input checked="" type="checkbox"/>						
SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		
	<u>3</u>	<u>CG</u>	<u>40ml</u>	<u>HCl</u>			<u>RFPP</u>	<u>200</u>
	<u>2</u>	<u>AG</u>	<u>1L</u>	<u>-</u>			<u>APP</u>	<u>1</u>
	<u>2</u>	<u>AG</u>	<u>1L</u>	<u>H<sub>2</sub>SO<sub>4</sub></u>			<u>APP</u>	<u>1</u>
	<u>1</u>	<u>PE</u>	<u>.5L</u>	<u>HNO<sub>3</sub></u>			<u>APP</u>	<u>1</u>
REMARKS:								
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)								
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)								

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

