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NAS CECIL FIELD  
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EMAIL REGARDING U S NAVY RESPONSES TO U S EPA REGION VI COMMENTS ON SITE  
5 FIELD TASK MODIFICATION REPORT WITH ATTACHMENTS NAS CECIL FIELD FL  
3/21/2012  
NAVFAC SOUTHEAST

**NAS Cecil Field**

**OU2, Site 5**

**Response to EPA Comments on the Site 5 Field Task Modification Request form, FTMR 03**

**From:** Boerio, Megan

**Sent:** Wednesday, March 21, 2012 4:23 PM

**To:** Debbie Vaughn-Wright

**Cc:** Sanford, Art F CTR OASN (EI&E), BRAC PMO SE; Grabka, David; Jessica Keener ([keenerj@solutions-ies.com](mailto:keenerj@solutions-ies.com)); Davidson, Mark E CIV NAVFACHQ, BRAC PMO; Jonnet, Mark; [Michael.Halil@CH2M.com](mailto:Michael.Halil@CH2M.com); Martin, Stacin CIV NAVFAC LANT, EV; Harold Taylor; Simcik, Robert

**Subject:** RE: Cecil Field \_ Site 5 FTMR Form for UFP SAP modification \_ DPT Investigation effort (FL5170022474)

Debbie,

Attached, please find a Response to Comments in reply to your comments below. The Site 5 FTMR, Figure 2, and updated SAP worksheets have also been attached to reflect the changes mentioned in the RTC. The SAP worksheets are in red-line form to make the changes more evident. The RTC and attachments will be uploaded to the DWS.

Dave, Please use this version to complete your review if you have not already finished, as all changes will be made for the final version if the responses are acceptable to EPA. If you'd prefer a clean, not red-lined version with these changes incorporated to complete your review, just let me know and I will get it to you.

Thanks,  
Megan

**From:** Debbie Vaughn-Wright [<mailto:Vaughn-Wright.Debbie@epamail.epa.gov>]

**Sent:** Monday, March 19, 2012 12:28 PM

**To:** Simcik, Robert

**Cc:** Sanford, Art F CTR OASN (EI&E), BRAC PMO SE; Grabka, David; Jessica Keener ([keenerj@solutions-ies.com](mailto:keenerj@solutions-ies.com)); Davidson, Mark E CIV NAVFACHQ, BRAC PMO; Jonnet, Mark; Boerio, Megan; [Michael.Halil@CH2M.com](mailto:Michael.Halil@CH2M.com); Martin, Stacin CIV NAVFAC LANT, EV; Harold Taylor

**Subject:** Cecil Field \_ Site 5 FTMR Form for UFP SAP modification \_ DPT Investigation effort (FL5170022474)

Everyone:

Please find attached my comments on the subject document. Basically the Field Task Modification is adequate, but I did have a few comments which I would appreciate being addressed before you go into the field.

*(See attached file: site 5 DPT Field Mod request\_epa comments\_03192012.pdf)*

Thank you,  
Deborah Vaughn-Wright  
U.S. Environmental Protection Agency  
Superfund Division  
404/562-8539 (Direct)  
404/562-8518 (Fax)  
404/272-7466 (Blackberry)

[vaughn-wright.debbie@epa.gov](mailto:vaughn-wright.debbie@epa.gov) (email)

**RESPONSE TO USEPA COMMENT LETTER (DATED: MARCH 19, 20012)  
FIELD TASK MODIFICATION REQUEST FORM FOR DPT INVESTIGATION EFFORT  
OPERABLE UNIT 2, SITE 5  
NAS CECIL FIELD  
JACKSONVILLE, FLORIDA**

Comments are shown in bold font. Responses follow each comment and are shown in regular font. Changes to Field Task Modification Request Form text are italicized and enclosed in quotation marks.

**Comment 1: Worksheet #5: Recommend adding Stacin Martin.**

Response to Comment 1: Stacin will be added as recommended.

**Comment 2: Recommend adding Stacin Martin for Worksheet #7.**

Response to Comment 2: Stacin will be added as recommended.

**Comment 3: Worksheet #11, Section 11.2.4: Is groundwater sampling automatically part of the DPT method? If not, please add Groundwater sampling as a methodology to be used.**

Response to Comment 3: Sampling method is groundwater sampling by DPT. The SOP referred to in Worksheet #21 does discuss collection of groundwater samples. The language was updated to "groundwater sampling by DPT" to be more specific.

**Comment 4: Worksheet #11, Section 11.2.5: Fourth paragraph on page 5 of 31. Refers the reader to Section 11.6. Suggest adding the reader should also see Worksheet #17.**

Response to Comment 4: Text will be revised as recommended.

**Comment 5: Worksheet #14, Section 14.1: Recommend adding collecting groundwater level measurements.**

Response to Comment 5: Agree. Text will be added to identify groundwater elevations will be collected from the temporary and existing area monitoring wells during the field sampling event.

**Comment 6: Worksheet #14, page 11 of 31: Recommend adding collection of groundwater level measurements.**

Response to Comment 6: Text will be revised to include groundwater level measurements as identified in RTC No. 5.

**Comment 7: Worksheet #14, Data Management, page 14 of 31: Is there a master Navy database for all sample data. If yes, then that information should be provided.**

Response to Comment 7: This information about the Navy database (NIRIS) will be added as recommended.

**Comment 8: Worksheet #17, page 19 of 31: Typographical error. "obtianed" should be "obtained"**

Response to Comment 8: This change will be made as noted.

**Comment 9: Worksheet #20, page 21 of 31: Please provide a justification for no QA samples being collected.**

Response to Comment 9: The following was added to the footnotes on Worksheet #20:

*“Quality control samples are not required for the DPT investigation as the DPT investigation results will not be used for closeout decisions, and QC samples are collected during annual sampling to meet the mandatory field QC samples for the site identified in FDEP SOP FQ 1000. Therefore, QC samples will not be collected for the DPT Investigation. See Worksheet #12 of the UFP-SAP regarding QC samples that are required for permanent monitoring well sampling.”*

**Comment 10: Figure 2: was the area to the west of site 5 investigated during the original RI? Recommend placing a DPT across the road.**

Response to Comment 10: This will be added as recommended, and the number of total DPT samples will be updated accordingly throughout the FTMR. Two additional locations will be added.



**TETRA TECH NUS  
FIELD TASK MODIFICATION REQUEST FORM**

LTM/NAS Cecil Field  
Project/Installation Name

CTO JM09, 112G02267  
CTO & Project Number

03  
Task Mod. Number

**SAP for Long Term Monitoring at IR Sites**

**3, 5, 16, 17, 21, 57, and 58, March 2011**

**Site 5**

**2/20/12**

Modification To (e.g. Work Plan)

Site/Sample Location

Date

**Activity Description:** At Site 5, five monitoring wells are being sampled on an annual basis to monitor the groundwater COC concentrations by comparing the results against FDEP Groundwater Cleanup Target Levels (GCTLs) and Natural Attenuation Default Criteria (NADCs). COCs include select volatile organic compounds (VOCs), select semi-volatile organic compounds (SVOCs), and vanadium. In addition to COCs, NA parameters are being collected. Annual LTM results at Site 5 indicate that a few COC concentrations in wells CEF-005-LTM01, CEF-005-LTM02, CEF-005-LTM04, and CEF-005-LTM05 continue to be greater than FDEP GCTLs as shown in Figure 1 (Solutions-IES). Concentrations in upgradient monitoring well CEF-005-LTM01 have exhibited exceedances of contaminants that are not being detected in other wells at the site during recent sampling events, as shown in attached Figure 2. Because CEF-005-LTM01 has been recognized as the upgradient well, and there are currently several COCs with concentrations exceeding GCTLs, USEPA identified the need for an upgradient monitoring well that has contaminant concentrations less than the FDEP GCTLs. Well CEF-005-07S is upgradient of CEF-005-LTM01, but the well is damaged and cannot be sampled. DPT (Direct Push Technology) sampling is recommended to be conducted to delineate the extent of the groundwater contamination plume upgradient of the identified source area. The samples will be analyzed for select VOCs, select SVOCs, and vanadium. The samples will be collected at ten locations at a depth of 10 feet bgs, and at four locations at depths of 10 feet bgs and 20 feet bgs. The DPT sample locations are identified on Figure 2. Based on the results of the DPT groundwater samples, up to three additional monitoring wells may be installed to monitor contamination in this area.

The attached documents provide DPT sampling standards to be used. The Field Guidance document provides the DPT sampling methods to be used, the map identifies the locations of the samples, and the table provides the sample IDs.

**Reason for Change:** The United States Environmental Protection Agency (EPA) provided comments on a basewide 5-Year Review, submitted in April 2011 (Tetra Tech, 2011), that questioned COCs concentrations in upgradient well CEF-005-LTM01 and recommended that further delineation contamination in this area be conducted. During the November 2011 Base Realignment and Closure (BRAC) Cleanup Team (BCT) meeting, it was decided that eighteen groundwater samples would be collected in the area near wells CEF-005-LTM01 and -LTM04 by DPT (BCT, 2011) to investigate and delineate COC contamination in this area.

**Recommended Disposition:** Verification of acceptance of the modification to the SAP to include additional DPT sampling outlined in the attached documents of this FTMR via e-mail approval from Tetra Tech PM, BRAC PMO RPM, and FDEP (attached in project file). All worksheets that required significant changes due to the differences between this DPT Investigation and the existing LTM program described in the UFP-SAP were updated to apply to the DPT Investigation, and are attached to this FTMR.

  
Quality Assurance Manager (QAPP lead developer)

2-22-12  
Date

**Approved Disposition:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Project/Task Order Manager (Signature)

Date

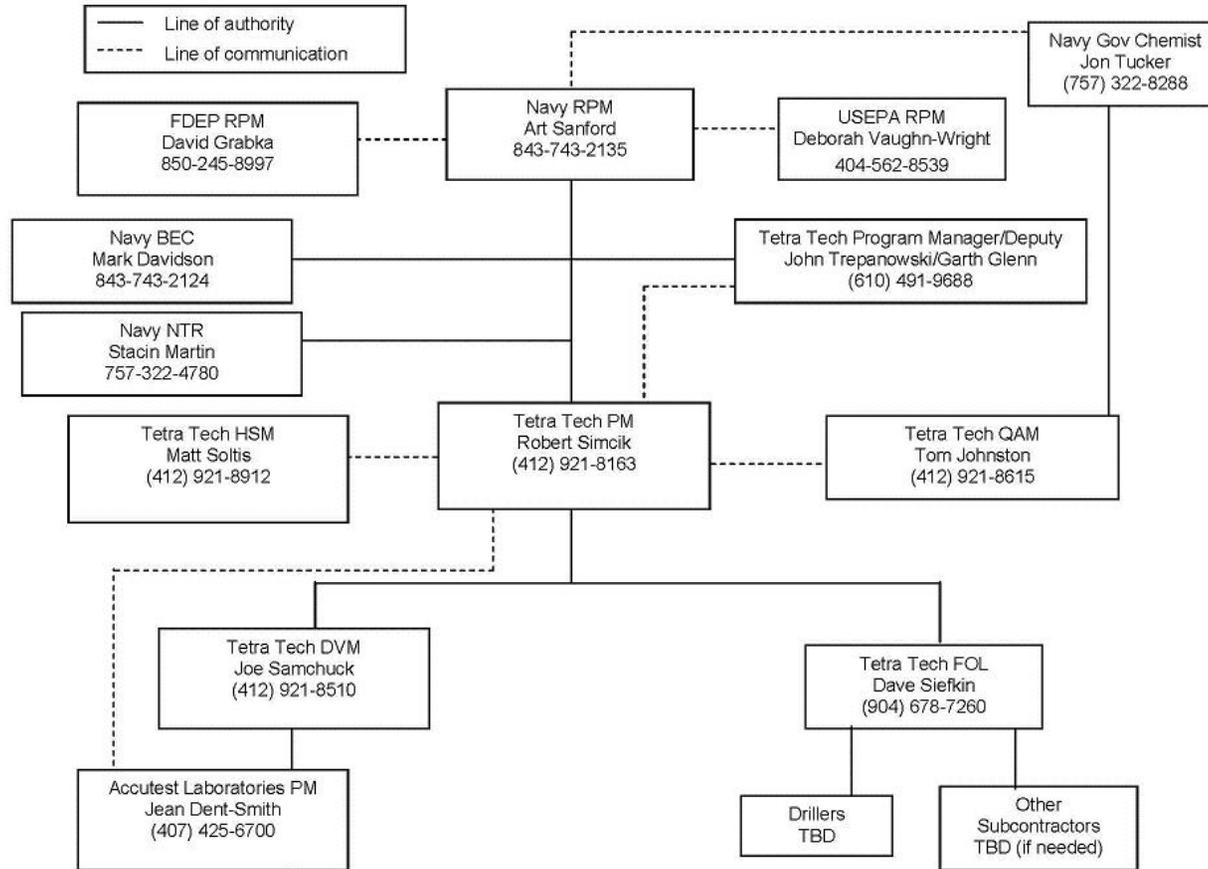
**Distribution:**

Program/Project File – 112G02267  
Project/Task Order Manager – Robert Simcik  
Field Operations Leader – David Siefken  
BRAC PMO RPM – Art Sanford  
CC:  
Mark Davidson – BRAC PMO  
Debbie Vaughn-Wright – USEPA  
David Grabka – FDEP  
Stacin Martin – NAVFAC Atlantic  
Mike Halil – CH2MHill  
Jessica Keener – Solutions-IES

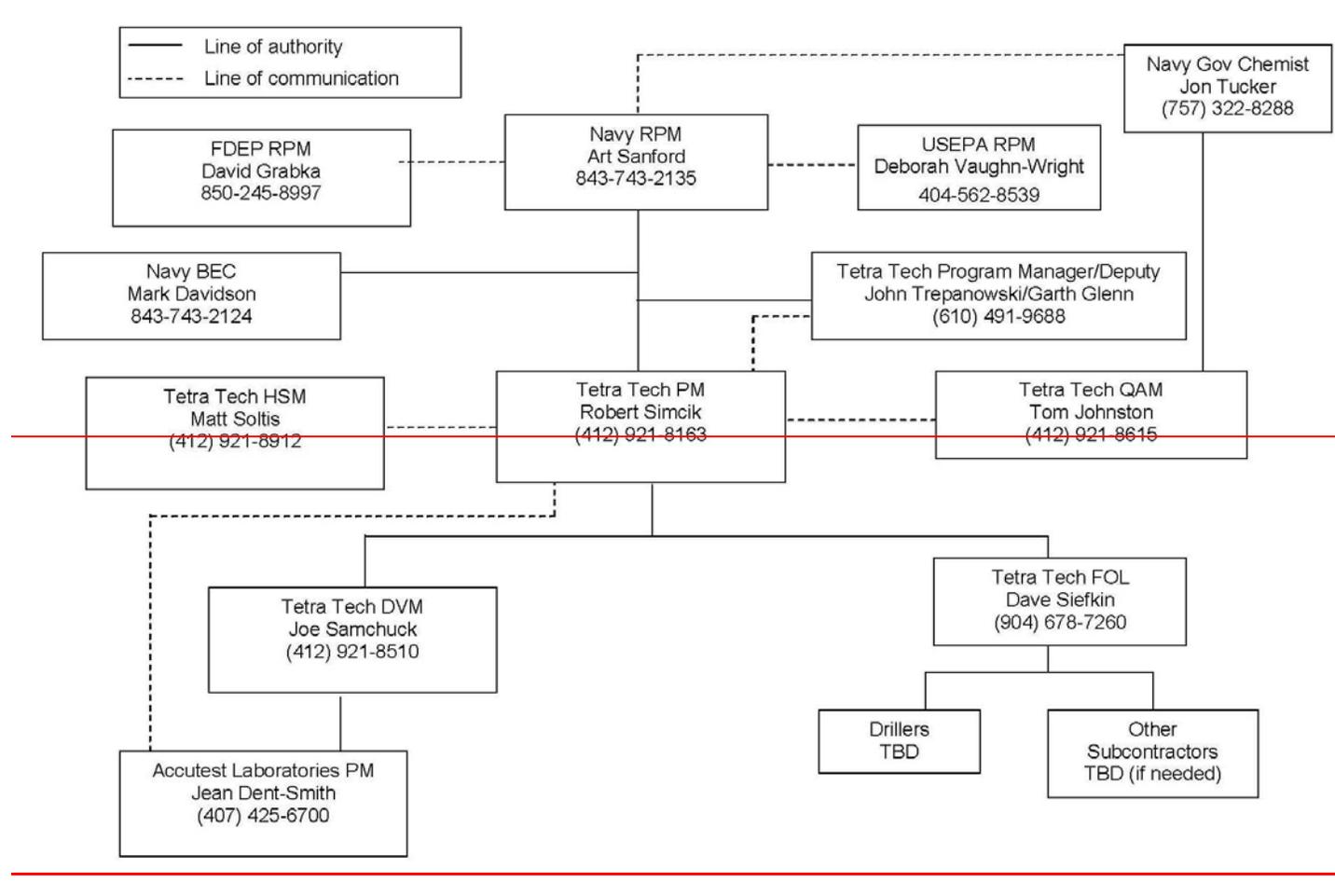
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**SAP Worksheet #5 -- Project Organizational Chart**

[\(UFP-QAPP Manual Section 2.4.1\)](#)



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**SAP Worksheet #7 -- Personnel Responsibilities and Qualifications Table**

(UFP-QAPP Manual Section 2.4.3)

<u>Name</u>	<u>Title/ Role</u>	<u>Organizational Affiliation</u>	<u>Responsibilities</u>
<u>Art Sanford</u>	<u>Navy RPM</u>	<u>BRAC PMO SE</u>	<p><u>Functions as primary Navy interface with the Tetra Tech PM, Solutions-IES PM, and Regulatory RPMs.</u></p> <ul style="list-style-type: none"> <li><u>Oversees Tetra Tech and Solutions-IES management of project.</u></li> <li><u>Provides Navy input through participation in technical meetings, review of SAP and project documents, and regular discussion with Tetra Tech PM, Solutions-IES PM, and Regulatory RPMs.</u></li> </ul>
<u>Mark Davidson</u>	<u>Navy BEC</u>	<u>BRAC PMO SE</u>	<u>Functions to support elevated issues as identified by the Navy RPM</u>
<u>Stacin Martic</u>	<u>Navy Technical Representative (Navy NTR)</u>	<u>NAVFAC Atlantic</u>	<u>Functions to provide technical and contract support.</u>
<u>Deborah Vaughn-Wright</u>	<u>Regulatory RPM</u>	<u>USEPA Region 4</u>	<p><u>Functions as BCT member providing input when requested.</u></p> <ul style="list-style-type: none"> <li><u>Provides input through participation in technical meetings and regular discussion with Navy RPM, but does not have direct regulatory input in the Petroleum Program.</u></li> </ul>
<u>David Grabka</u>	<u>Regulatory RPM</u>	<u>FDEP</u>	<p><u>Functions as primary regulatory interface with the Navy RPM.</u></p> <ul style="list-style-type: none"> <li><u>Provides regulatory input through participation in technical meetings, review of SAP and project documents, and regular discussion with Navy RPM.</u></li> <li><u>Provides approval of documents in accordance with the requirements of the current Amended Site Management Plan (SMP) for former NAS Cecil Field.</u></li> </ul>
<u>Jessica Keener</u>	<u>PM</u>	<u>Solutions-IES</u>	<u>Oversees project, manages financial, schedule, and technical day-to-day activities of the project. Ensures timely resolution of project-related technical, quality, and safety questions associated with Solutions-IES operations.</u>
<u>Robert Simcik</u>	<u>PM</u>	<u>Tetra Tech</u>	<p><u>Functions as the primary Tetra Tech interface with the Navy RPM, Tetra Tech office personnel, laboratory points of contact, and Solutions-IES PM.</u></p> <p><u>Maintains contact with Navy RPM and Solutions-IES PM regarding any field or laboratory work that may affect Tetra Tech responsibilities and projects.</u></p>
<u>Dawn Marshall</u>	<u>FOL</u>	<u>Solutions-IES</u>	<u>Supervises, coordinates, and performs field sampling activities.</u>
<u>Tom Johnston, PhD</u>	<u>QAM</u>	<u>Tetra Tech</u>	<ul style="list-style-type: none"> <li><u>Ensures that this SAP meets Tetra Tech, Navy, USEPA and FLDEP requirements.</u></li> <li><u>Approves SAP and ensures that quality aspects of the CLEAN program are implemented.</u></li> </ul>
<u>M. Tony Lieberman</u>	<u>QAM</u>	<u>Solutions-IES</u>	<u>Ensures quality aspects of the SAP and Solutions-IES BOA are implemented, documented, and maintained.</u>

Project-Specific SAP Field Task Modification  
Site Name/Project Name: OU2, Site 5  
Site Location: NAS Cecil Field, Jacksonville, Florida

Title: FTMR for DPT Investigation, Site 5  
Revision: 1  
February 2012

<u>Name</u>	<u>Title/ Role</u>	<u>Organizational Affiliation</u>	<u>Responsibilities</u>
<u>Peggy Churchill</u>	<u>DQO Facilitator</u>	<u>Tetra Tech</u>	<u>Coordinates the DQO process and facilitates discussion during DQO meeting with the BCT. Reviews SAP.</u>
<u>Walt Beckwith</u>	<u>HSM</u>	<u>Solutions-IES</u>	<u>Oversees Project and Solutions-IES BOA Program Health and Safety Program.</u>
<u>Jean Dent-Smith</u>	<u>Laboratory PM</u>	<u>Accutest</u>	<u>Coordinates analyses with laboratory chemists, ensures that scope of work is followed, provides QA of data packages, and communicates with Solutions-IES project staff.</u>

**SAP Worksheet #9 -- Project Scoping Session Participants Sheet**

(UFP-QAPP Manual Section 2.5.1)

Project Name: Former NAS Cecil Field PM: Rob Simcik		Site Name: IR Site 5 Site Location: Jacksonville, Florida			
<b>Date of Session:</b> November 9, 2011 <b>Scoping Session Purpose:</b> NAS Cecil Field Base Realignment and Closure (BRAC) Cleanup Team (BCT) Meeting, including discussion on the work plan to delineate contamination around upgradient well CEF-005-LTM01.					
Name	Title	Affiliation	Phone #	E-Mail Address	Project Role
Debbie Vaughn-Wright	USEPA Remediation Project Manager (RPM)	USEPA Region 4	(404) 562-8539	Vaughn-Wright.Debbie@epamail.epa.gov	EPA RPM
David Grabka	FDEP RPM	FDEP	(850) 245-8997	David.Grabka@dep.state.fl.us	FDEP RPM
Megan Boerio	Project Engineer	Tetra Tech	(412) 921-7271	megan.boerio@tetrattech.com	Project Engineer
Robert Simcik, PE	PM	Tetra Tech	(412) 921-8361	rob.simcik@tetrattech.com	Tetra Tech PM
Mark Jonnet	Project Environmental Geographic Information System (EGIS) Specialist	Tetra Tech	(412) 921-8622	Mark.Jonnet@tetrattech.com	EGIS/Engineer
Art Sanford	Navy RPM	BRAC PMO	(843) 743-2135	art.sanford.ctr@navy.mil	Navy RPM
Mark Davidson	BRAC Environmental Coordinator (BEC)	BRAC PMO	(843) 743-2124	mark.e.davidson@navy.mil	BEC
Stacin Martin	LANT RPM	NAVFAC LANT	(757) 322-4780	stacin.martin@navy.mil	LANT RPM
Jessica Keener	Basic Ordering Agreement (BOA) Project Manager	Solutions-IES	(919) 873-1060 ext. 126	keenerj@solutions-ies.com	BOA RPM
Mike Halil	CH2M Hill PM Remedial Action Contactor (RAC)	CH2MHill	(904) 777-4812 ext. 233	Michael.Halil@CH2M.com	RAC RPM

**Comments/Decisions:**

The group discussed the concentrations detected in upgradient well CEF-005-LTM01 in September 2009, September 2010, and September 2011. Tetra Tech was directed to investigate the source of contamination and install permanent wells to address the concern. The team discussed two potential paths forward, including a DPT investigation in the area of the well in question, and the abandonment and reinstalling/resampling of CEF-005-LTM01 and the damaged well CEF-005-07S. The decision was for a

DPT investigation to be conducted, with 18 groundwater samples being collected and analyzed for select VOCs, SVOCs, and vanadium. Based on the results of the DPT investigation, additional monitoring wells could be installed and added to the monitoring program.

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**Action Items:**

Tetra Tech to submit an Abbreviated Work Plan and do the DPT sampling as proposed during the meeting presentation.

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**SAP Worksheet #11 -- Project Quality Objectives/Systematic Planning Process Statements**

[\(UFP-QAPP Manual Section 2.6.1\)](#)

**11.1 PROBLEM DEFINITIONS**

**11.1.B Sites 5 – Oil Disposal Area Northwest**

Previous investigations at OU 2, Site 5 indicate the presence of VOC, SVOC, and vanadium groundwater contamination from past operating practices in groundwater at and downgradient of Site 5. LTM consisting of annual collection and analysis of groundwater samples is being conducted to verify whether contaminants are migrating offsite at unacceptable concentrations and whether NA is occurring, and LTM must continue. During recent sampling events, contamination in the upgradient well (CEF-005-LTM01) has been detected, indicating that the original conceptual site model (CSM) has changed. Additional investigation is needed to determine the extent of contamination upgradient of Site 5 so the Project Team can update the conceptual site model (CSM), that will provide the basis for determining whether and how the LTM program must be modified.

**11.2 INFORMATION INPUTS**

**11.2.1 Previously Collected Data and COCs**

The usable data from previous investigations and LTM events and the results of this DPT investigation are needed to evaluate current site conditions, contaminant trends, and to delineate the contamination in the northern portion of the site. The full list of analytes is listed by site in [Worksheet #15](#). The required analyses as agreed upon by the BCT are presented below.

**11.2.2 Required Analyses and Frequency of Monitoring by Site**

Site 5 – Oil Disposal Area Northwest		
Matrix	Analytes	Frequency
Groundwater	7 VOCs, 4 SVOCs, Vanadium, NA parameters	DPT investigation is a one-time event

**11.2.3 Analytical Methods**

Analytical methods were selected to be the same as those used previously, or at least comparable to previously used analytical methods with respect to precision, accuracy, representativeness, comparability,

completeness, and sensitivity (PARCCS) parameters. See [Worksheets #20](#) and [#23](#) for a list of the analytical methods applicable to each site.

#### 11.2.4 Sampling Methods

The sampling method for this investigation is [groundwater sampling by DPT](#). See [Worksheet #21](#) for a list of sampling methods.

#### 11.2.5 Project Action Levels

Project action levels (PALs) for groundwater are the FDEP GCTLs from Florida State Rule Chapter 62-777 Table I. The GCTLs can be found online at [http://www.dep.state.fl.us/waste/quick\\_topics/rules/documents/62-777/TableIGroundwaterCTLs4-17-05.pdf](http://www.dep.state.fl.us/waste/quick_topics/rules/documents/62-777/TableIGroundwaterCTLs4-17-05.pdf). Several of the GCTLs are the state primary standards, which can be found online at <http://www.dep.state.fl.us/water/drinkingwater/standard.htm>.

In addition to GCTLs, vanadium concentrations from this investigation must be compared to the Inorganic Background Data Set (IBDS) values to determine whether the vanadium concentrations exceed the background concentration range. The IBDS values are base-specific background screening levels statistically determined by Harding Lawson Associates (HLA) in 1998 from data collected throughout NAS Cecil Field (HLA, 1998).

A full list of project action levels (PALs) is included within [Worksheet # 15](#). The BCT has ensured that the selected laboratory's Limits of Quantitation (LOQs) are generally low enough to measure constituent concentrations in site media that are less than the PALs in order to conduct comparisons of site data to the PALs. Results of a magnitude between the LOQ and detection limit (DL) will be "J" flagged to indicate that the reported results are less precise than results that are greater than the LOQ. The BCT will accept these analytical results as usable (without additional qualification) unless quality evaluations indicate that the data quality has been compromised. If, for any analyte in any site medium, the PAL is less than the laboratory DL, the BCT accepts the laboratory LOQ as the PAL for decision making purposes, as is suggested in "Guidance for the Selection of Analytical Methods for the Evaluation of Practical Quantitation Limits" (FDEP, 2006).

Given the exploratory nature of this investigation, field QC samples are not required. Instead, agreement of results across sampling locations and with previous data will be used to identify outliers that indicate a potential data quality concerns and adherence to sample collection and analysis protocols will be monitored closely. See also Section 11.6 [and Worksheet #17](#).

### 11.3 STUDY BOUNDARIES

Data must be collected in the vicinity of the upgradient well (CEF-005-LTM-01) and well CEF-005--07S to investigate recent detections of contamination where it was not expected.

The temporal constraint for this investigation is the amount of time that is required to mobilize to the site, collect ~~48-20~~ DPT samples, and demobilize. This is a one-time DPT sampling event.

Figure 10B-1 in the UFP-SAP presents the locations of the target groundwater populations and the relationship of these populations to Site 5. The vertical and horizontal boundaries of the DPT investigation are limited to the sampling point locations shown on Figure 2.

### 11.4 ANALYTIC APPROACH

A direct comparison of concentrations in the groundwater DPT samples will be made against the appropriate action levels, including IBDS values (vanadium only). PALs are detailed for each COC in [Worksheet #15](#).

The decision rules for this investigation are as follows:

#### Decision Rule #1:

If any COC groundwater concentrations in the DPT samples exceed their respective GCTL (and, for vanadium, the vanadium IBDS), then update the CSM and determine the most appropriate location(s) for additional monitoring well(s) to provide an upgradient well outside the delineated groundwater plume with no GCTL exceedances for the analyzed COCs and proceed with the normal LTM program; otherwise, replace well CEF-005-07S and sample the replacement well then proceed to Decision Rule 2.

Note. Installation of new upgradient wells in response to a GCTL exceedance may include, for example, reinstallation of CEF-005-07S as well as installation of no more than three new wells. The intent will be to select a location where groundwater is not contaminated and where at least one upgradient well can be installed. The Project Team does not expect to install more than three wells as the site is relatively small and there are existing LTM wells at the site.

#### Decision Rule #2:

If the replacement well for CEF-005-07S yields at least one COC concentration greater than its GCTL (or in the case of vanadium also its IBDS), then convene the project team to re-evaluate the CSM and determine an appropriate path forward; otherwise, continue with the normal LTM program and use CEF-005-07S as the upgradient well.

## **11.5 PERFORMANCE CRITERIA**

This monitoring program depends heavily on biased sampling where sample locations have been preselected for the DPT investigation. Direct comparisons of measured concentrations to PALs are prescribed. Measurement performance criteria were chosen to be comparable to previous work completed at Site 5 to improve data comparability. After data are collected, the BCT will use the data review criteria and the criteria described in [Worksheet #37](#) of the SAP to determine whether data of sufficient type, quantity, and quality have been collected to support project objectives. The tendency will be to declare the data set to be sufficient if all intended data have been collected and no significant quality issues are identified. If any data gaps are identified, the BCT will determine, based on the number and severity of data gaps, whether to collect more data or to accept the limitations incurred as a result of the data gaps.

## **11.6 PLAN FOR OBTAINING DATA**

The sampling design is presented in [Worksheet #17](#).

**SAP Worksheet #12 -- Measurement Performance Criteria Table**

[\(UFP-QAPP Manual Section 2.6.2\)](#)

**Measurement Performance Criteria Table – Field QC Samples**

No blanks or duplicates are required for the DPT sampling event. See Worksheet #12 of the UFP-SAP regarding QC samples for permanent monitoring well sampling.

## **SAP Worksheet #14 -- Summary of Project Tasks**

[\(UFP-QAPP Manual Section 2.8.1\)](#)

### **14.1 FIELD INVESTIGATION TASK PLAN**

Sampling at Site 5 includes the following tasks:

- Mobilization/Demobilization
- Site-Specific Health and Safety Training
- Monitoring Equipment Calibration
- DPT Groundwater Sampling
- Well Abandonment
- Permanent Monitoring Well Installation
- Groundwater Level Measurements
- Groundwater Sampling
- Investigation-Derived Waste (IDW) Management
- Field Decontamination Procedures
- Field Documentation Procedures

Additional project activities include the following tasks:

- Analytical Tasks
- Data Management
- Data Review

### **Mobilization/Demobilization**

Mobilization shall consist of the delivery of all equipment, materials, and supplies to the site, the complete assembly in satisfactory working order of all such equipment at the site, and the satisfactory storage at the site of all such materials and supplies. Tetra Tech will coordinate with the

Base to identify locations for the storage of equipment and supplies. Site-specific Health and Safety Training will be provided to all subcontractors as part of the site mobilization.

Demobilization shall consist of the prompt and timely removal of all equipment, materials, and supplies from the site following completion of the work. Demobilization includes the cleanup and removal of IDW generated during the conduct of the investigation.

### **Site-Specific Health and Safety Training**

Site-specific health and safety training will be provided to all field staff and subcontractors as part of the site mobilization and is also addressed in [Worksheet #8](#) of the UFP-SAP. A photoionization detector (PID) will be used as field instrumentation for health and safety purposes.

### **Monitoring Equipment Calibration**

These procedures are described in [Worksheet #22](#).

### **DPT Groundwater Sampling**

Groundwater samples will be collected by DPT. [Worksheets #17](#) and [#18](#) specify the groundwater sample locations and analytes for this investigation. [Worksheet #23](#) specifies the analytical methods to be used.

Prior to sampling, decontaminated DPT rods and a sealed-screen groundwater sampler will be advanced to the appropriate depth. Once at the appropriate depth, the screen will be exposed on the groundwater sampler and groundwater will be allowed to fill the sampling device. Dedicated sampling tubing will be lowered to the appropriate depth and a peristaltic pump will be used to draw the groundwater to the ground surface. Purging of the groundwater sampler will be conducted and a water quality meter will be used to monitor groundwater stabilization parameters. A significant effort will be made to obtain adequate turbidity levels in groundwater during purging; however, it should be noted that desirable turbidity levels are difficult to achieve with this method of groundwater sampling. As described in FDEP SOP 001/01 FS 2212, if naturally occurring conditions prevent purged groundwater from attaining turbidity levels less than the acceptable level of 20 Nephelometric Turbidity Units (NTUs), the sample may still be collected at the discretion of the sampling team leader and the results will be assessed with respect to a potential turbidity-associated bias (FDEP, 2008). After sample collection, the DPT rods and sealed-screen groundwater sampler will be removed from the sampling

point and decontaminated to prevent cross-contamination of groundwater samples. Following sample collection, the groundwater samples will be placed on ice and delivered via FedEx under chain of custody to the selected laboratory for analysis.

### **Well Abandonment**

The well identified for abandonment will be sealed and the well casing removed in accordance with the Tetra Tech SOP GH-2.9. Well abandonment paper work will be completed and filed as required.

### **Permanent Monitoring Well Installation**

Monitoring well(s) will be installed and developed for groundwater sampling according to the Tetra Tech SOP GH-2.8. The well will be constructed in a manner similar to the existing wells at Site 5. The well will be installed to a depth of 13 feet below ground surface, with a 10-foot screen, from 3-feet to 13-feet.

### **Groundwater Level Measurement**

Groundwater level measurements will be conducted from all temporary and permanent wells prior to samples being collected. Temporary well points will be allowed to equilibrate for 15 minutes or more prior to water level measurement.

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### **Groundwater Sampling – Permanent Wells**

Groundwater samples will be collected using low-flow purging techniques (discharge rate of less than 1 liter per minute) with a peristaltic pump using Teflon tubing dedicated to each well. When a well is developed for sampling, a water quality meter will be used to monitor pH, ORP, DO, turbidity, and conductivity. All groundwater samples will be collected using the procedures specified in FS 2200, Groundwater Sampling (FDEP, 2008a). [Worksheets #17](#) and [#18](#) specify the groundwater sample locations and analytes for this investigation. [Worksheet #23](#) specifies the analytical methods to be used.

Prior to groundwater sample collection, the monitoring well will be purged. Both purging and sampling operations will be conducted at a flow rate that results in a groundwater turbidity measurement of 20 nephelometric turbidity units (NTUs) or less (inherent turbidity will be minimized to the greatest extent possible using low flow techniques; individual well conditions and local geology may preclude meeting the 20 NTU criteria).

The sample aliquot for VOC analysis will be the last one collected; the Teflon tubing will be slowly pulled out of the well to minimize agitation of the water in the monitoring well, and then the contents of the tubing will be transferred to a VOC vial. After collection, the samples will be placed in a cooler, chilled with ice, and shipped under chain-of-custody protocol to the off-site laboratory for analysis.

### **Investigation-Derived Waste Management**

IDW generated during the activities will be managed in accordance with the HASP and will be conducted in an environmentally responsible manner consistent with NAS Cecil Field and regulatory requirements (e.g., designation of staging areas). The objectives of the IDW management are to:

- Manage IDW in a manner that prevents contamination of uncontaminated areas (by IDW), and that is protective of human health and the environment.
- Minimize IDW, thereby reducing costs and the potential for human or ecological exposure to contaminated materials.
- Comply with federal and state requirements that are ARARs.

Used personal protective equipment (PPE), such as gloves, will be bagged and disposed of as regular trash in an appropriate facility waste container.

### **Field Decontamination Procedures**

Decontamination of major equipment and sampling equipment will be in general accordance with FS 1000, Cleaning / Decontamination Procedures (FDEP, 2008b).

### **Field Documentation Procedures**

Pre-preserved, certified-clean bottleneare will be supplied by the subcontracted laboratory. Matrix-specific sample logsheets will be maintained for each sample collected. In addition, sample collection information will be recorded in bound field notebooks or specific field forms. Samples will be packaged and shipped according to FS 1000, General Sampling Procedures (FDEP, 2008b).

Field documentation will include a summary of all field activities which will be properly recorded in a bound logbook with consecutively numbered pages that cannot be removed. Logbooks will be assigned to field personnel and will be stored in a secured area when not in use.

At a minimum, the following information will be recorded in the site logbook:

- Name of the person to whom the logbook is assigned.
- Project name.
- Project start date.
- Names and responsibilities of on-site project personnel including subcontractor personnel.
- Arrival/departure of site visitors.
- Arrival/departure of equipment.
- Sampling activities and sample log sheet references.
- Description of subcontractor activities.
- Sample pick-up information, including chain-of-custody numbers, air bill numbers, carrier, time, and date.
- Description of borehole or monitoring well installation activities and operations.
- Health and safety issues.
- Description of photographs including date, time, photographer, roll and picture number, location, and compass direction of photograph.

All entries will be written in ink and no erasures will be made. If an incorrect entry is made, striking a single line through the incorrect information will make the correction; the person making the correction will initial and date the change.

### Analytical Tasks

Accutest is a current Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) accredited laboratory. A copy of the laboratory certification for Accutest can be found in [Appendix B](#) of the UFP-SAP. Analyses will be performed in accordance with the analytical methods identified in Worksheet #19 of the SAP. Accutest is expected to meet the PALs to the extent identified in Worksheet #15. Accutest will perform chemical analysis following laboratory-specific SOPs (Worksheets #19 and #23) developed based on the analytical methods listed in Worksheets #19 and #30 of the SAP. Copies of the Laboratory SOPs are included in [Appendix B](#) of the SAP.

### Data Management

Data Handling and Management - After the field investigation is completed, the field sampling log sheets will be organized by date and filed in the project file. The field logbooks for this project will be used only for this site, and will also be categorized and maintained in the project file after the completion of the field program. Project personnel completing concurrent field sampling activities may maintain multiple field logbooks. When possible, logbooks will be segregated by sampling activity. The field logbooks will be titled based on date and activity. The data handling procedures to be followed by the laboratories will meet the requirements of the technical specification. The electronic data results will be downloaded into the Tetra Tech database, and will also be uploaded to the comprehensive Navy database, Navy Installation Restoration Information Solution (NIRIS).

Data Tracking and Control - The Tetra Tech PM (or designee) is responsible for the overall tracking and control of data generated for the project.

- **Data Tracking:** Data is tracked from its generation to its archiving in the project-specific files. The Tetra Tech PM (or designee) is responsible for tracking the samples collected and shipped to the subcontracted laboratory. Upon receipt of the data packages from the analytical laboratory, the PM will verify that the data packages are complete and results for all samples have been delivered by the analytical laboratory.
- **Data Storage, Archiving, and Retrieval:** After the data are verified, the data packages are entered into the file system and archived in secure files. The field records including field logbooks, sample logs, chain-of-custody records, and field calibration logs will be submitted by the FOL to be entered into the file system prior to archiving in secure project files. At the completion of the Navy contract, the records will be stored by Tetra Tech and eventually handed over to NAVFAC. The data will also be archived in secure files.

- **Data Security:** The project files are restricted to designated personnel only. Access to the data files is restricted to qualified personnel only. File and data backup procedures are routinely performed.

Assessment and Oversight – Refer to Worksheet #32 of the UFP-SAP for assessment findings and corrective actions and Worksheet #33 of the UFP-SAP for QA management reports.

#### **Data Review**

Data verification is described in Worksheet #34 of the UFP-SAP. Data validation is described in Worksheets #35 and #36 of the UFP-SAP. Usability assessment is described in Worksheet #37 of the UFP-SAP.

**SAP Worksheet #15 -- Reference Limits and Evaluation Table - Site 5 -- Oil Disposal Area Northwest**

(UFP-QAPP Manual Section 2.8.1)

Matrix: Groundwater  
 Analytical Group: VOCs

Analyte	CAS Number	PAL (µg/L)	PAL Reference <sup>1</sup>	PQLG (µg/L)	Laboratory-specific		
					LOQ (µg/L)	LOD <sup>2</sup> (µg/L)	DL <sup>2</sup> (µg/L)
1,1-Dichloroethene	75-35-4	7	GCTL	2.3	1	0.29	0.29
Benzene	71-43-2	1	GCTL	0.3	1	0.21	0.21
cis-1,2-Dichloroethene	156-59-2	70	GCTL	23.3	1	0.32	0.32
trans-1,2-Dichloroethene	156-60-5	100	GCTL	33.3	1	0.34	0.34
Trichloroethene	79-01-6	3	GCTL	1.0	1	0.24	0.24
Vinyl Chloride	75-01-4	1	GCTL	0.3	1	0.28	0.28
Total Xylenes	1330-20-7	20	GCTL	6.7	3	0.54	0.54

1 PALs are defined as: GCTL – FDEP Groundwater Cleanup Target Levels, F.A.C. 62-777 Table I, April 2005.

2 Results will be reported to the LOQ and DL. Currently, the Accutest LIMs system only accommodates two values for reporting. The LOD is included to satisfy the requirements of the DoD QSM Version 4.1.

Matrix: Groundwater  
 Analytical Group: SVOCs

Analyte	CAS Number	PAL (µg/L)	PAL Reference <sup>1</sup>	PQLG (µg/L)	Laboratory-specific		
					LOQ (µg/L)	LOD <sup>3</sup> (µg/L)	DL <sup>3</sup> (µg/L)
1-Methylnaphthalene	90-12-0	28	GCTL	9.3	5	1	0.78
2-Methylnaphthalene	91-57-6	28	GCTL	9.3	5	1	0.7
<b>4-Methylphenol</b>	<b>106-44-5</b>	<b>3.5</b>	<b>GCTL</b>	<b>1.2</b>	<b>5<sup>2</sup></b>	<b>1.6<sup>2</sup></b>	<b>1.5</b>
Naphthalene	91-20-3	14	GCTL	4.7	5	1	0.7

- 1 PALs are defined as: GCTL – FDEP Groundwater Cleanup Target Levels, F.A.C. 62-777 Table I, April 2005.
- 2 The LOQ, LOD, and DL are for 3&4-Methylphenol. 3-Methylphenol & 4-Methylphenol co-elute and are reported as 3&4-Methylphenol.
- 3 Results will be reported to the LOQ and DL. Currently, the Accutest LIMs system only accommodates two values for reporting. The LOD is included to satisfy the requirements of the DoD QSM Version 4.1.

Bolded rows indicate that the PAL is between the Laboratory LOQ and DL. The Project Team has agreed to accept this data for decision making if results below the LOQ are “J” qualified and the results are discussed in the uncertainties section of the Risk Assessment.

Matrix: Groundwater  
 Analytical Group: Metals

Analyte	CAS Number	PAL (µg/L)	PAL Reference <sup>1</sup>	PQLG (µg/L)	Laboratory-specific		
					LOQ (µg/L)	LOD <sup>2</sup> (µg/L)	DL <sup>2</sup> (µg/L)
<b>Vanadium</b>	<b>7440-62-2</b>	<b>4.5</b>	<b>IBDS</b>	<b>1.5</b>	<b>50</b>	<b>2</b>	<b>0.382</b>

- 1 PALs are defined as: IBDS – NAS Cecil Field Inorganic Background Data Set, (HLA, 1998).
- 2 Results will be reported to the LOQ and DL. Currently, the Accutest LIMs system only accommodates two values for reporting. The LOD is included to satisfy the requirements of the DoD QSM Version 4.1.

Bolded rows indicate that the PAL is between the Laboratory LOQ and DL. The Project Team has agreed to accept this data for decision making if results below the LOQ are “J” qualified and the results are discussed in the uncertainties section of the Risk Assessment.

**SAP Worksheet #16 -- Project Schedule / Timeline Table**

[\(UFP-QAPP Manual Section 2.8.2\)](#)

Activities	Organization	Dates (MM/DD/YYYY)		Deliverable	Draft Deliverable Due Date
		Anticipated Date(s) of Initiation	Anticipated Date of Completion		
Approval of Site 5 DPT Investigation Work Plan (FTMR)	USEPA and FDEP	02/27/2012	03/27/2012	NA	NA
Mobilization to Site 5	Drilling Subcontractor	04/02/2012	04/02/2012	NA	NA
DPT Sampling	Drilling Subcontractor	04/03/2012	04/05/2012	NA	NA
Demobilization	Drilling Subcontractor	04/05/2012	04/05/2012	NA	NA
Analysis of groundwater samples	Accutest	04/06/2012	04/27/2012	NA	NA
Report Preparation and Presentation of data to BCT	Tetra Tech	04/28/2012	05/11/2012	Technical Memorandum – Site 5 Plume Delineation DPT Investigation	05/11/2012

### **SAP Worksheet #17 -- Sampling Design and Rationale**

[\(UFP-QAPP Manual Section 3.1.1\)](#)

The objective of the sampling designs is to obtain data that fulfills the DQOs presented in [Worksheet #11](#). ~~Fifteen~~<sup>seventeen</sup> DPT sampling points (from which ~~198~~ total samples will be collected) have been identified as shown on [Figure 2](#). Tetra Tech will procure and oversee the services of a qualified drilling subcontractor to perform the DPT sampling point installation. The layout is designed in a grid using 50 foot intervals between sampling points so that a better understanding of the contamination in the area will be obtained. Two additional DPT samples will be collected west of the grid, across the road, to determine if Site-related contamination exists in the area. Utility clearance will be conducted and verified via hand auger to a depth of 5-feet. The sampling points are located in primarily unpaved areas. The objective of the sampling of the replacement well for CEF-005-07S will be to determine if the replacement well is an appropriate upgradient well for the LTM program at Site 5.

Groundwater sampling will be conducted in accordance with Florida Department of Environmental Protection (FDEP) and Tetra Tech standard operating procedures (SOPs), as indicated in [Worksheet #21](#) of this FTMR.

**SAP Worksheet #18 -- Sampling Locations and Methods/SOP Requirements Table**

(UFP-QAPP Manual Section 3.1.1)

Sampling Location / ID Number	Matrix	Depth (units)	Analytical Group	Number of Samples (identify field duplicates)	Sampling SOP Reference
CEF-005-DPT01 through CEF-005-DPT18 <del>DPT18</del> <u>DPT20</u>	Groundwater	NA	Laboratory Analyses: 7 VOCs, 4 SVOCs, vanadium	<del>48</del> <u>20</u>	FT1000 and FS2200 and SA-2.5

The replacement well for CEF-005-07S may also be included, and if so, the groundwater sampled would be analyzed for the same 12 parameters.

**SAP Worksheet #20 -- Field Quality Control Sample Summary Table**

(UFP-QAPP Manual Section 3.1.1)

Matrix	Analytical Group	No. of Sampling Locations	No. of Field Duplicates	No. of MS/MSDs <sup>1</sup>	No. of Field Blanks	No. of Equip. Blanks	No. of [Volatile Organic Aromatic (VOA)] Trip Blanks	No. of PT Samples	Total No. of Samples to Lab
<b>SITE 5 – OIL DISPOSAL AREA NORTHWEST</b>									
Groundwater	7 VOCs	1820	NA	NA	NA	NA	NA	NA	1820
	4 SVOCs	1820	NA	NA	NA	NA	NA	NA	1820
	Vanadium	1820	NA	NA	NA	NA	NA	NA	1820

~~Quality control samples are not required for the DPT investigation as the DPT investigation results will not be used for closeout decisions, and QC samples are collected during annual sampling to meet the mandatory field QC samples for the site identified in FDEP SOP FQ 1000. Therefore, QC samples will not be collected for the DPT Investigation. See Worksheet #12 of the UFP-SAP regarding QC samples that are required for permanent monitoring well sampling.~~

~~1 Quality control samples will not be collected for the DPT investigation.~~

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**SAP Worksheet #21 -- Project Sampling SOP References Table**

(UFP-QAPP Manual Section 3.1.2)

Reference Number	Title, Revision Date and / or Number <sup>1</sup>	Originating Organization of Sampling SOP	Equipment Type	Modified for Project Work? (Y/N)	Comments
FS2200	Groundwater Sampling	FDEP	Peristaltic pump	N	
FT1000 (plus series)	Field Testing General and Series including pH, Specific Conductance, Salinity, Temperature, DO, ORP, and Turbidity	FDEP	Multi-parameter water quality meter	N	
FC1000	Field Decontamination	FDEP	Decontamination Equipment (scrub brushes, phosphate free detergent, de-ionized water)	N	
SA-2.5	Direct-Push Technology (Geoprobe®/Hydropunch™)	Tetra Tech	Peristaltic pump, polyethylene tubing, DPT rig	N	
GH-2.9	Well Abandonment	Tetra Tech	Sealing materials, drill rig, tremie pipe	N	
GH-2.8	Groundwater Monitoring Well Installation	Tetra Tech	Drilling and installation equipment, drive point installation tools, hydrogeologic equipment	N	

<sup>1</sup> FDEP SOPs can be downloaded from <http://www.dep.state.fl.us/labs/bars/sas/qa/sops.htm>

**SAP Worksheet #22 -- Field Equipment Calibration, Maintenance, Testing, and Inspection Table**

(UFP-QAPP Manual Section 3.1.2.4)

Field Equipment	Activity	Frequency	Acceptance Criteria	Corrective Action	Resp. Person	SOP Reference	Comments
PID	Calibration and Visual Inspection	Daily	Manufacturer's Guidance	Replace	FOL or designee	Manufacturer's Guidance	
Multi-Parameter Water Quality Meter	Visual Inspection, Calibration	Daily	Manufacturer's Guidance	Replace	FOL or designee	FDEP FT 1000 through 1500 and Manufacturer's Guidance	
LaMotte Model 2008 (or similar) Turbidity Meter	Visual Inspection, Calibration	Daily	RPD of $\pm 10\%$ (Six measurements of two successive samples of a 20 NTU standard)  Accuracy of $\pm 10\%$ at 20 NTU (Mean of the measured values must be 18 to 22 NTU)	Replace	FOL or designee	FT 1600, Field Measurement of Turbidity (FDEP) and Manufacturer's Guidance	If an acceptable turbidity meter model is not used, submittal of an Alternate Test Procedure application is required

**SAP Worksheet #23 -- Analytical SOP References Table**

(UFP-QAPP Manual Section 3.2.1)

Lab SOP Number	Title, Revision Date, and / or Number	Definitive or Screening Data	Matrix and Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work? <sup>1</sup> (Y/N)
OP 021.7	Standard Operating Procedure for the Introduction of Volatile Organics Analytes Using Purge-and-Trap, July 2009	Definitive	VOC Preparation Groundwater	N/A	Accutest	N
MS 005.6	Analysis of Volatile Organics by GC/MS, July 2009	Definitive	VOC Analysis Groundwater	Gas Chromatograph / Mass Spectrometer (GC/MS)	Accutest	N
OP 006.7	Standard Operating Procedure for the Extraction of Base-Neutral and Acid (BNAs) Extractables from Water Samples, June 2009	Definitive	SVOC Preparation Groundwater	N/A	Accutest	N
MS 006.7	Analysis of Semivolatile Organics by GC/MS, July 2009	Definitive	SVOC Analysis Groundwater	GC/MS	Accutest	N

Lab SOP Number	Title, Revision Date, and / or Number	Definitive or Screening Data	Matrix and Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work? <sup>1</sup> (Y/N)
MET 103.8	Digestion of Water Samples for Metals Analysis by ICP, April 2009	Definitive	Metals Digestion Groundwater	N//A	Accutest	N
MET 100.10	Metals by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP), April 2009	Definitive	Metals Analysis Groundwater	Inductively Coupled Plasma – Atomic Emission Spectrometer (ICP-AES)	Accutest	N

Laboratory SOPs are included as [Appendix B](#).

**SAP Worksheet #25 -- Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table**

(UFP-QAPP Manual Section 3.2.3)

Instrument / Equipment	Maintenance Activity	Testing Activity	Inspection Activity	Frequency	Acceptance Criteria	Corrective Action	Responsible Person <sup>2</sup>	SOP Reference <sup>1</sup>
GC/MS	Injector port, column maintenance, source cleaning.	VOCs SVOCs	Leak test, column and injector port inspection, source insulator integrity.	Need for maintenance determined by passing calibration and BFB and DFTPP tunes.	Passing BFB and DFTPP tunes and CCV, passing Internal Standard response.	Column clipping and/or reconditioning, seal and liners replacement, filaments and insulators as needed	Analyst	MS 005.6 MS 006.7
ICP-AES	Torch, nebulizer, spray chamber, autosampler, and pump tubing maintenance.	Metals	Check connections, flush lines, and clean nebulizer.	Frequency determined by instrument remaining in calibration and free of interference.	Acceptable calibration or CCV	Reconnect sample pathways, recalibrate, re-analyze affected samples.	Analyst	MET 100.10

1 Specify the appropriate reference letter or number from the Analytical SOP References table (Worksheet No.23).

2 Name or title of responsible person may be used.

**SAP Worksheet #28 -- Laboratory QC Samples Table**

(UFP-QAPP Manual Section 3.4)

QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	Data Quality Indicator (DQI)	Measurement Performance Criteria (MPCs)
Method Blank	One per batch of 20 samples or less.	No target compounds > 1/2 the LOQ, except common lab contaminants, which must be < LOQ.	Re-prepare and reanalyze all samples with positive results. If insufficient amount of sample is available, apply B flag to all affected sample results	Analyst, Laboratory Supervisor and Data Reviewer	Bias / Contamination	Same as Method/SOP QC Acceptance Limits.
System Monitoring Compounds (SMC)/ Surrogates	4 per sample: Dibromofluoromethane 1,2-Dichloroethane-d4 Toluene-d8 4-Bromofluorobenzene	Laboratory-specific limits provided in <a href="#">Appendix D</a> .	Check for possible matrix effects. If none found, reanalyze affected sample if sufficient sample is available. Qualify data as needed.	Analyst, Laboratory Supervisor and Data Reviewer	Accuracy / Bias	Same as Method/SOP QC Acceptance Limits.
Laboratory Control Sample (LCS)	One per batch of 20 samples or less.	Laboratory-specific limits provided in <a href="#">Appendix D</a> .	Re-prepare and reanalyze all samples with positive results. If insufficient amount of sample is available, apply qualifier to all affected sample results.	Analyst, Laboratory Supervisor and Data Reviewer	Accuracy / Bias	Same as Method/SOP QC Acceptance Limits.
Internal Standards (IS)	4 per sample: Fluorobenzene Chlorobenzene-d5 1,4-Dichlorobenene-d4 Tert Butyl Alcohol-d10	Retention time +/- 30 seconds from retention time (RT) of the ICAL midpoint standard, and the Extracted Ion Current Profile (EICP) area within -50% to +100 % of ICAL midpoint standard.	Inspect instrument for malfunctions. Check for possible matrix effects. If none found, reanalyze affected sample if sufficient sample is available. Qualify data as needed.	Analyst, Laboratory Supervisor and Data Reviewer	Accuracy / Bias	Same as Method/SOP QC Acceptance Limits.

**Project-Specific SAP Field Task Modification**  
 Site Name/Project Name: OU2, Site 5  
 Site Location: NAS Cecil Field, Jacksonville, Florida

**Title: FTMR for DPT Investigation, Site 5**  
 Revision: 1  
 February 2012

Matrix	Groundwater					
Analytical Group	VOCs					
Analytical Method/ SOP Reference	SW-846 8260B Accutest MS 005.6					
QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	Data Quality Indicator (DQI)	Measurement Performance Criteria (MPCs)
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One per batch of 20 samples or less.	Laboratory specific limits provided in <a href="#">Appendix D</a> .  MS/MSD RPD should be ≤ 30%.	Check for errors in calculations and spike preparation. Check un-spiked sample results and surrogate recoveries for possible matrix effects. If no errors are found and the associated LCS in control, matrix effects are the likely cause. Qualify failing analytes as estimated.	Analyst, Laboratory Supervisor and Data Reviewer	Precision / Accuracy / Bias	Same as Method/SOP QC Acceptance Limits.

Matrix	Groundwater
Analytical Group	SVOCs
Analytical Method/ SOP Reference	SW-846 8270D Accutest MS 006.7

QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	Data Quality Indicator (DQI)	Measurement Performance Criteria (MPCs)
Method Blank	One per batch of 20 samples or less.	No target compounds > 1/2 the QL, except common lab contaminants which must be < LOQ.	Re-prepare and reanalyze all samples with positive results. If insufficient amount of sample is available, apply B flag to all affected sample results.	Analyst, Laboratory Supervisor and Data Reviewer	Bias / Contamination	Same as Method/SOP QC Acceptance Limits.
SMCs	6 per sample: Nitrobenzene-d5 2-Fluorobiphenyl p-Terphenyl Phenol-d5 2-Fluorophenol 2,4,6-Tribromophenol	Laboratory specific limits are provided in <a href="#">Appendix D</a> .	Check for possible matrix effects. If none found, reanalyze affected sample if sufficient sample is available. Qualify data as needed.	Analyst, Laboratory Supervisor and Data Reviewer	Accuracy / Bias	Same as Method/SOP QC Acceptance Limits.
LCS	One per batch of 20 samples or less.	Laboratory specific limits are provided in <a href="#">Appendix D</a> .	Re-prepare and reanalyze all samples with positive results. If insufficient amount of sample is available, apply qualifier to all affected sample results.	Analyst, Laboratory Supervisor and Data Reviewer	Accuracy / Bias	Same as Method/SOP QC Acceptance Limits.
IS	6 per sample: 1,4-Dichlorobenzene-d4 Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12 Perylene-d12	Retention time +/- 30 seconds from RT of the ICAL midpoint standard, and the EICP area within -50% to +100 % of ICAL midpoint standard.	Inspect instrument for malfunctions. Check for possible matrix effects. If none found, reanalyze affected sample if sufficient sample is available. Qualify data as needed.	Analyst, Laboratory Supervisor and Data Reviewer	Accuracy / Bias	Same as Method/SOP QC Acceptance Limits.
MS/MSD	One per sample delivery group (SDG) or every 20 samples.	Laboratory specific limits are provided in <a href="#">Appendix D</a> .  MS/MSD RPD should be ≤ 30%.	Check for errors in calculations and spike preparation. Check un-spiked sample results and surrogate recoveries for possible matrix effects. If no errors are found and the associated LCS in control, matrix effects are the likely cause. Qualify failing analytes as estimated.	Analyst, Laboratory Supervisor and Data Reviewer	Precision / Accuracy / Bias	Same as Method/SOP QC Acceptance Limits.

QC Sample	Frequency / Number	Method / SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	Data Quality Indicator (DQI)	Measurement Performance Criteria (MPC)
Method Blank	One per preparation batch of 20 or fewer samples of similar matrix.	Contaminants in the method blank must be < ½ LOQ.	Re-prepare and analyze all associated samples.	Analyst, Laboratory Supervisor and Data Reviewer	Accuracy / Bias	Same as Method/SOP QC Acceptance Limits.
LCS	One per preparation batch of 20 or fewer samples of similar matrix.	%R must be within 80-120% of the true value.	Corrective actions are: High bias, samples ND – report without qualification. Low bias – re-extract and reanalyze.	Analyst, Laboratory Supervisor and Data Reviewer	Accuracy / Bias	Same as Method/SOP QC Acceptance Limits.
MS/Laboratory Duplicate	One per preparation batch of 20 or fewer samples of similar matrix.	Recovery ± 25 % of true value if sample < 4x spike value  RPD ≤ 20 %	If both the LCS and MS/lab duplicate are unacceptable, re-prepare and analyze the associated samples and QC.	Analyst, Laboratory Supervisor and Data Reviewer	Accuracy / Bias / Precision	Same as Method/SOP QC Acceptance Limits.
ICP Serial Dilution	One per preparation batch of 20 or fewer samples of similar matrix.	If original sample result is at least 50x instrument detection limit, then serial dilution must agree within ± 10% of the original result.	Sample must be post digestion spiked at a level no less than 10x but no greater than 100x the DL concentration or flagged as interference.	Analyst, Laboratory Supervisor and Data Reviewer	Accuracy / Bias / Precision	Same as Method/SOP QC Acceptance Limits
Post-Digestion Spike	For any element that fails in the matrix spike where the native sample concentration was <4x the spike amount.	%R must be + 25% of the true value.	Narrate.	Analyst, Laboratory Supervisor, Data Validator	Accuracy/ Bias	Same as Method/SOP QC Acceptance Limits.

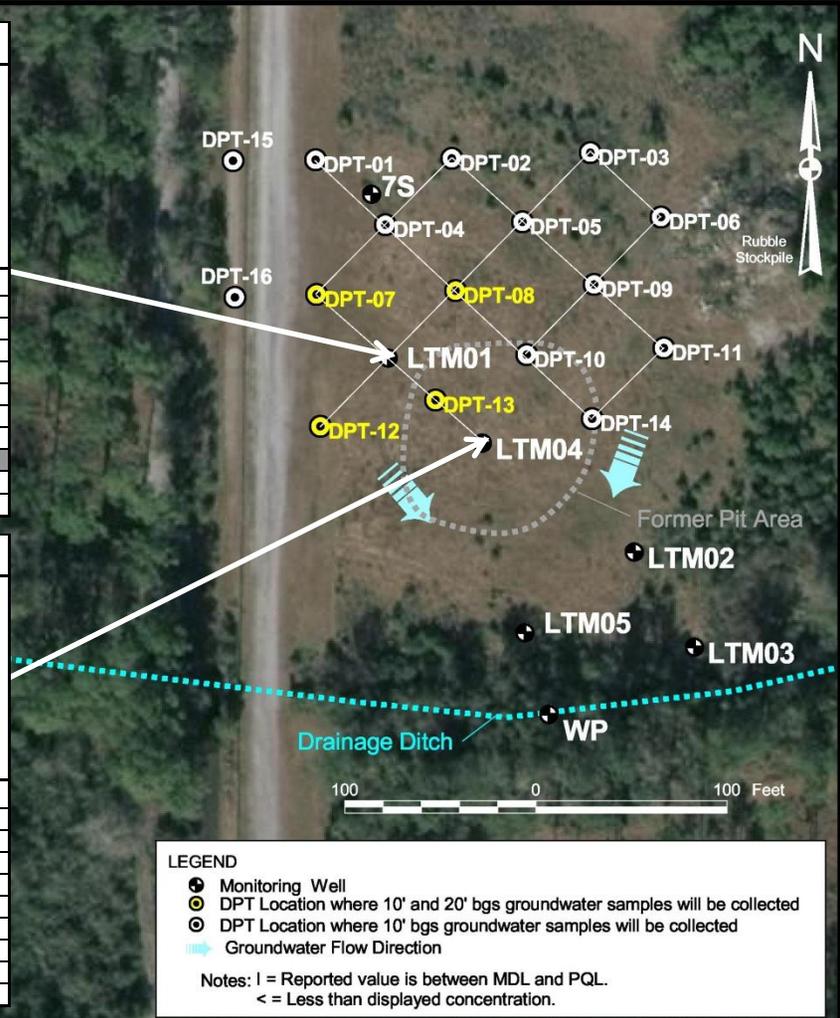
**SAP Worksheet # 30 -- Analytical Services Table**

(UFP-QAPP Manual Section 3.5.2.3)

Matrix	Analytical Group	Sample Locations/ID Number	Analytical Method	Data Package Turnaround Time	Laboratory / Organization <sup>1</sup> <small>(name and address, contact person and telephone number)</small>	Backup Laboratory / Organization <sup>1</sup> <small>(name and address, contact person and telephone number)</small>
Groundwater	VOC	See Worksheet #18	SW-846 8260B SOP MS 500.6	21 days	Ms. Jean Dent-Smith <a href="mailto:jeans@accutest.com">jeans@accutest.com</a>	NA
Groundwater	SVOC		SW-846 8270C SOP MS 006.7		Accutest SE 4405 Vineland Road Suite C-15 Orlando, FL 32811 407-425-6700 407-425-0707	
Groundwater	Metals		SW-846 6010B SOP MET 100.10			

Well ID	Sample Date	VOCs (µg/L)					SVOCs (µg/L)	
		Benzene	cis-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride	Xylenes (total)	Naphthalene	2-Methylnaphthalene
GCTL (µg/L)		1	70	3	1	20	14	28
CEF-005-LTM01	07/05/2005	0.7	10.6	10.2	<0.50	11.9	14.5	15.8
	01/05/2006	1.8	50.5	45.3	0.56	32.6	NA	NA
	07/10/2006	1.1	13.8	21.5	<1	12.1	21.4	18.8
	01/16/2007	1.7	6	23.9	<0.50	7.4	14.8	10
	07/17/2007	5	29.7	54.4	<0.50	11.9	5.7	2.7
	10/12/2008	4.6	157	2.5	0.82 I	16.8	17.1	13.5
	9/19/2009	4.6	190	9.6	1.1 I	22.2	35.2	21.7
	9/19/2010	4.7	103	5.2	<0.56	21.7	38.3	31.4
	9/12/2011	11.3	46.3	21.1	0.39 I	24.4	24.5	12.6
	11.7	47.1	21.1	0.34 I	25.5	20.5	10.6	

Well ID	Sample Date	VOCs (µg/L)					SVOCs (µg/L)	
		Benzene	cis-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride	Xylenes (total)	Naphthalene	2-Methylnaphthalene
GCTL (µg/L)		1	70	3	1	20	14	28
CEF-005-LTM04	07/05/2005	1.3	26.4	<0.50	11.2	15.5	14.1	8.5
	01/05/2006	2.1	12.3	<0.50	16.5	4.5	NA	NA
	07/11/2006	3.9	34.2	<1	5.7	27	<5.3	<5.3
	01/16/2007	2.5	18.4	<0.50	1.8	12.8	12.6	4.2
	07/17/2007	1	10.4	<0.50	2.4	1.9	5.7	4
	10/12/2008	1.3	3.9	<0.32	1.5	<1.2	4.3 I	<0.96
	9/19/2009	1.1	3.2	<0.32	2	<1.2	4.4 I	<0.96
	9/19/2010	5.8	8.5	<0.24	1.6	2.2 I	40.7	7.3
	9/12/2011	8.6	4.8	<0.26	0.43 I	6.3	102	24.4



DRAWN BY	DATE
MJJ	15Dec11
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE AS NOTED	



DPT LOCATION MAP  
 OPERABLE UNIT 2, SITE 5  
 NAVAL AIR STATION CECIL FIELD  
 JACKSONVILLE, FLORIDA

CONTRACT NUMBER 2267	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 2	REV 0