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NAS CECIL FIELD, FL  
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PHASE 10 SAMPLING AND ANALYSIS WORK PLAN REVISION 1 FOR SITE 15 BLUE 10  
ORDNANCE DISPOSAL AREA NAS CECIL FIELD FL  
6/24/2003  
TETRA TECH NUS INC

**Phase X Sampling and Analysis Work Plan Rev. 1**  
**Site 15, Blue 10 Ordnance Disposal Area**  
**Naval Air Station Cecil Field**  
**Jacksonville, Florida**

**June 24, 2003**

The objective of this sampling is to further delineate the horizontal extent of arsenic in soil, vertically delineate TRPH in soil and to install and sample six monitoring wells to characterize groundwater conditions in areas where soil contaminant concentrations exceed FDEP leachability to groundwater criteria. The proposed sampling locations are based on prior sampling events conducted by ABB and TtNUS that include over 500 samples. During this investigation, 2 soil samples will be collected from 0 to 1 foot below ground surface (bgs), 1 soil sample will be collected from 1 to 2 foot below ground surface (bgs) and seven groundwater samples will be collected from the six new monitoring wells and one existing monitoring well. Approximate locations are identified on Figure A and described in Table 1.

The well installation and sampling activities, quality assurance/quality control (QA/QC) procedures, and data validation requirements for field activities described in this work plan are in general agreement with the U.S. EPA Region IV Environmental Investigation Standard Operating Procedures (SOPs) and Quality Assurance Manual (EISOPQAM), FDEP SOPs FS3000, Remedial Investigation report for Sites 36 and 37, and current Tetra Tech NUS, Inc. (TtNUS) SOPs. Florida Administrative Code (FAC) Quality Assurance Rule (FAC 62-160) was updated in April of 2002 and incorporates new SOPs developed and adopted by the FDEP for the collection and analysis of environmental media. Accordingly, the soil and groundwater activities that will be conducted in this work plan will abide by SOPs FS3000 (for soil) and FS2200 (for groundwater), both of which reference additional applicable SOPs as necessary.

Prior to the installation of the monitoring wells, utilities must be located or cleared by TtNUS.

The monitoring wells shall be installed in the shallow groundwater zone and shall be identified as indicated on Table 1. The well screen will be 0.010-inch slot, with a screen length of ten feet from 5' to 15' bgs. The well will be constructed of certified-clean material including a 2-inch, flush-threaded PVC well screen and riser. The locations and top of casing elevations will be surveyed by a registered surveyor.

The surface soil samples (0 to 1 foot bgs and 1 to 2 foot bgs) will be collected as grab samples using plastic, disposable trowels. The proposed soil sample locations shall be surveyed by a registered land surveyor prior to sampling and marked with a wooden stake or pin flag labeled with the sample identification as listed in Table 1.

Personnel protection equipment and other waste trash (e.g. disposable trowels) will not be considered hazardous and will be disposed in a municipal landfill. Such trash will be collected in a plastic bag and disposed in a suitable trash receptacle. Removed soil from the surface soil sampling in excess of sampling volume requirements will be placed back on the ground.

Requirements for sample handling, bottleware, preservation, and holding time for the analyses proposed for this sampling event are as identified in the following table:

Analysis	Analytical Method	Bottleware	Preservation	Holding Time(1)
<b>SOIL</b>				
ARSENIC	SW-846 6010B	4 oz. glass jar	Cool to 4°C	180 days to extraction
TRPH	Florida PRO	8-oz. glass jar	Cool to 4° C	14 days to analysis
<b>GROUNDWATER</b>				
PAHs plus Carbazole	SW-846 8310	2 1-liter amber glass; Teflon-lined cap	Cool to 4° C	7 days to extraction; 40 days to analysis
Nitro Aromatics	SW-846 8330	2 1-liter amber glass; Teflon-lined cap	Cool to 4° C	7 days to extraction; 40 days to analysis
Total Lead	SW-846 6010B/7000A Series	1 1-liter glass or polyethylene; Teflon-lined lid	HNO <sub>3</sub> to pH<2, Cool to 4° C	180 days to analysis
Total Arsenic	SW-846 6010B/7000A Series	1 1-liter glass or polyethylene; Teflon-lined lid	HNO <sub>3</sub> to pH<2, Cool to 4° C	180 days to analysis

(1) Holding times are measured from the date/time of sample collection.

PAHs = Polynuclear aromatic hydrocarbons.

TRPH = Total recoverable petroleum hydrocarbons.

PRO = Petroleum Range Organic method.

**Analytical results will be reported on a 14-day turn around basis.**

The laboratory contracted to do this work is as follows:

ACCUTEST SOUTHEAST  
4405 Vineland Road, Suite C-15  
Orlando, Florida 32881  
Attention: Linda Williams  
(407) 425-6700  
Fax: (407) 425-0707

As agreed upon by the BCT, the collection of rinsate and trip blanks has been eliminated at NAS Cecil Field. In addition, field blanks will not be collected during this sampling program because there will be minimal decontamination of sampling equipment. In accordance with these changes, the following table summarizes the frequency and type of field Quality Assurance/Quality Control (QA/QC) samples to be collected for this sampling program.

Type of Samples	Frequency	Samples to be Collected
Field Duplicate	1/10 sample/matrix	1 soil / 1 groundwater
Lab MS/MSD	1/20 samples/matrix	1 soil <sup>(1)</sup> / 1 groundwater <sup>(1)</sup>

(1) MS/MSD is a laboratory QA/QC requirement, separate samples not required, only additional volume (2x).

As agreed upon by the BCT, formal data validation has been eliminated from the installation restoration program at NAS Cecil Field. However, the analytical data packages generated by the analytical

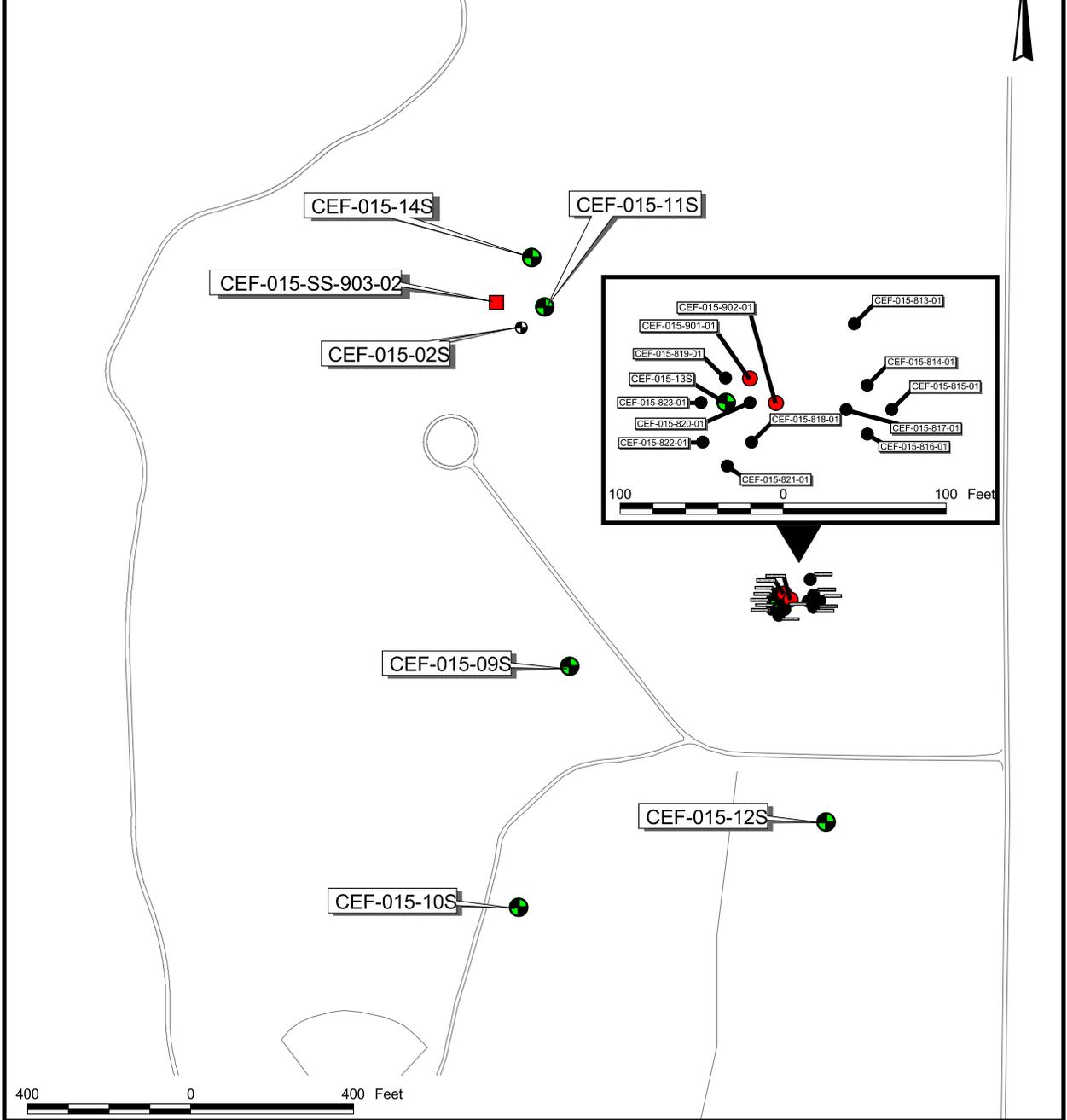
laboratory will be reviewed by Tetra Tech NUS personnel to eliminate false positives and false negative results.

**Table 1**

**Phase X Sampling and Analysis Work Plan  
Site 15, Blue 10 Ordnance Disposal Area**

Sample ID CEF-015-	Location	Sample Interval (bgs)	Analysis					
			Arsenic	PAHs	Carbazole	TRPH	Nitro Aromatics	Lead
<b>SOIL</b>								
SS-901-01	15 feet north of previous sample location CEF-015-820-01	0'-1'	●					
SS-902-01	15 feet east of previous sample location CEF-015-820-01	0'-1'	●					
SS-903-02	Previous sample location CEF-015-827-02	1'-2'	●			●		
<b>GROUNDWATER</b>								
GW-02S-02	Existing well CEF-015-02S			●				
GW-09S-02	Proposed Well CEF-015-09S			●				
GW-10S-02	Proposed Well CEF-015-10S							●
GW-11S-02	Proposed Well CEF-015-11S			●	●		●	
GW-12S-02	Proposed Well CEF-015-12S						●	
GW-13S-02	Proposed Well CEF-015-13S		●					
GW-14S-02	Proposed Well CEF-015-14S						●	

- Legend**
- Previous Soil Sample Location
  - Proposed Soil Sample Location
  - ⊕ Existing Monitoring Well Location
  - ⊕ Proposed Monitoring Well Location



DRAWN BY MJJ	DATE 20Jun03
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE AS NOTED	



PROPOSED PHASE X SAMPLE LOCATIONS  
 OU 5, SITE 15  
 NAVAL AIR STATION CECIL FIELD  
 JACKSONVILLE, FLORIDA

CONTRACT NUMBER 7653	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE A	REV 0