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NAS CECIL FIELD, FL
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PHASE 2 SAMPLING AND ANALYSIS WORK PLAN FOR POTENTIAL SOURCE OF
CONTAMINATION 45 FACILITY 11 NAS CECIL FIELD FL
6/24/1999
TETRA TECH NUS INC

**Phase II Sampling and Analysis Work Plan
PSC 45, Facility 11
Naval Air Station Cecil Field
Jacksonville, Florida**

June 24, 1999

Phase II sampling and analysis is proposed for PSC 45, Facility 11 as identified in Figure A. Sampling and analysis will be conducted to further delineate previously identified contamination that included polycyclic aromatic hydrocarbons (PAHs), total recoverable petroleum hydrocarbons (TRPH), arsenic, mercury, and/or vanadium in surface soil samples above the Florida Department of Environmental Protection (FDEP) residential soil screening and NAS Cecil Field Inorganic Background Data Set criteria.

The objective of this sampling event is to collect surface soil samples to further determine the extent of contamination in the following areas:

- North of Facility 11, surrounding the area of stressed vegetation and including the area between Facility 11 and Facility 7
- East of the aboveground storage tank areas (surrounding CEF-P45-SS-016)
- South of the aboveground storage tank areas (surrounding CEF-P45-SS-023), along 2nd Street
- Along 2nd Street, south of Facility 11
- In a drainage swale approximately 340 feet east of CEF-P45-SS-023 (surrounding CEF-P45-SS-024).

A total of 29 soil samples will be collected during Phase II from the approximate locations identified on Figure A and summarized in Table 1. Samples are proposed in the five separate areas of excavation being delineated, as described above. The soil samples to be collected and analysis to be performed are described below.

- In the area north of Facility 11 and between Facilities 11 and 7, the following 14 samples will be collected:
 - CEF-P45-SS-101-01, CEF-P45-SS-102-01, and CEF-P45-SS-103-01 will be collected from 0 to 1 foot below ground surface (bgs) and analyzed for arsenic to delineate the northern limit of excavation. CEF-P45-SS-101 will be located 15 feet north of CEF-P45-SS-001; CEF-P45-SS-102-01 will be collected east of the CEF-P45-SS-101 location at the southwest corner of Facility 2; and CEF-P45-SS-103-01 will be collected due east of CEF-P45-SS-002-01, parallel to the eastern edge of Facility 2. CEF-P45-SS-122-02 will be collected from 1 to 2 feet bgs at the CEF-P45-SS-001 location and analyzed for arsenic to determine the depth of excavation. CEF-P45-SS-001 had the highest detected concentration of arsenic in previous sampling.
 - The eastern boundary of excavation will be along the paved area to the east of Facility 7. CEF-P45-SS-104-01 will be collected at 0 to 1 foot bgs 15 feet due north of CEF-P45-SS-008 and CEF-P45-SS-105-01 will be collected at 0 to 1 foot bgs along the paved area, due east of CEF-P45-SS-008. CEF-P45-SS-123-02 will be collected from 1 to 2 feet bgs at the CEF-P45-SS-008 location, which had the highest concentration of PAHs in previous sampling. These samples will be analyzed for PAHs, arsenic, and vanadium.

- The highest concentration of vanadium during previous sampling and the highest concentration of TRPH in the northern area of excavation were detected at CEF-P45-SS-013. CEF-P45-SS-124-02 will be collected from 1 to 2 feet bgs from this location and analyzed for PAHs, vanadium, and TRPH to determine the depth of excavation.
 - To the east, the southern limit of excavation will be the northern and western edges of Facility 7. Three additional 0- to 1-foot samples are required to define the southern limit between Facilities 7 and 11. CEF-P45-SS-106-01 and CEF-P45-SS-107-01 will be collected 15 feet south and west of CEF-P45-SS-015, respectively. CEF-P45-SS-108 will be collected northeast of the CEF-P45-SS-107 location at the corner of Facility 11. These samples will be analyzed for PAHs, TRPH, and vanadium.
 - From the CEF-P45-SS-107 location, the southern limit of excavation will follow the edge of Facility 11 and extend to the edge of Facility 12 to the west. CEF-P45-SS-109-01 will be collected along the northern edge of Facility 11, due south of CEF-P45-SS-010, and analyzed for PAHs, arsenic, and vanadium. CEF-P45-SS-110-01 will be collected 15 feet south of CEF-P45-SS-009 and analyzed for arsenic. The eastern excavation limit will be formed by the edge of Facility 12.
 - CEF-P45-SS-129-02 will be collected from 1 to 2 feet bgs at the 45S00201 location (where mercury was detected above screening criteria). This sample will be analyzed for mercury and the results used to define the vertical extent of contamination at the mercury hit.
- To the east of the aboveground storage tanks, four samples from 0 to 1 foot bgs will be collected surrounding CEF-P45-SS-016, and one sample from 1 to 2 feet bgs will be collected at the SS-016 location to delineate contamination in this area.
- CEF-P45-SS-111-01, CEF-P45-SS-112-01, CEF-P45-SS-113-01, and CEF-P45-SS-114-01 will be collected 15 feet north, east, south, and west of CEF-P45-SS-016, respectively. CEF-P45-SS-125-02 will be collected from 1 to 2 feet at the previous CEF-P45-SS-016 location. These samples will be analyzed for PAHs.
- To the south of the above ground storage tanks, in the drainage swale around CEF-P45-SS-023, the southern excavation limit will be along 2nd Street. Two 0- to 1-foot samples and one 1-to 2-foot samples will be collected in the swale to delineate the horizontal and vertical extent of contamination in this area.
- CEF-P45-SS-115-01 and CEF-P45-SS-116-01 will be collected at locations 15 feet east and west (upstream and downstream) of CEF-P45-SS-023, respectively, and analyzed for TRPH. CEF-P45-SS-126-02 will be collected from 1 to 2 feet bgs at the CEF-P45-SS-023 location to delineate the depth of excavation. This sample also will be analyzed for TRPH.
- Along 2nd Street, the southern limit of excavation will be the edge of the pavement along the street, and the western limit will be formed by the edge of the parking lot. Three samples from 0 to 1 foot bgs will be collected to define horizontal excavation limits, and one sample from 1 to 2 feet bgs will be collected to define vertical excavation limits.
- CEF-P45-SS-117-01 will be collected at 0 to 1 foot bgs 15 feet due north of CEF-P45-SS-018; CEF-P45-SS-118-01 will be collected at 0 to 1 foot bgs midway between CEF-P45-SS-117 and CEF-P45-SS-019; and CEF-P45-SS-119-01 will be collected at 0 to 1 foot bgs 15 feet due east of CEF-P45-SS-022. CEF-P45-SS-127-02 will be collected from a depth of 1 to 2 feet at the CEF-P45-SS-018 location, which had the highest detected concentration of PAHs in this area of the site. These three samples will be analyzed for PAHs.

- Three samples will be collected around the CEF-P45-SS-024 location to delineate contamination in this area. CEF-P45-SS-024 is located approximately 340 feet due east of CEF-P45-SS-023 in a drainage swale.
 - CEF-P45-SS-120-01 and CEF-P45-SS-121-01 will be collected from 0 to 1 foot bgs at locations 15 feet east and west of CEF-P45-SS-024, respectively. CEF-P45-SS-128-02 will be collected at a depth of 1 to 2 feet bgs from the CEF-P45-SS-024 location. These samples will be analyzed for PAHs.

The existing monitoring well, CEF-007-01Sa, will be resampled as part of Phase II activities and analyzed for vanadium, PAHs, and TRPH. In addition, three monitoring wells will be installed at locations where soil sample concentrations exceeded the groundwater leachability criteria. CEF-P45-01S will be installed near the CEF-P45-SS-008 location and analyzed for PAHs, TPH, and vanadium. CEF-P45-02S will be installed near the CEF-P45-SS-013 location and also analyzed for PAHs, TRPH, and vanadium. CEF-P45-03S will be installed near the CEF-P45-SS-010 location and analyzed for PAHs and vanadium.

The sampling activities and procedures described in this work plan will be performed in accordance with the U.S. EPA Region 4 Environmental Investigation Standard Operating Procedures and Quality Assurance Manual (EISOPQAM) and the Base-Wide Generic Work Plan for Naval Air Station (NAS) Cecil Field. Specifically, the Base-Wide Generic Work Plan includes procedures for management of investigation-derived wastes in Volume I and standard operating procedures in the Project Operations Plan in Volume II.

The surface soil samples will be collected as grab samples using plastic, disposable trowels. Because disposable trowels will be used, decontamination of sampling equipment will not be necessary. The location will be located in the field by a registered land surveyor and marked with a wooden stake or pin flag labeled with the sample identification. The sampling crew will work with the survey crew to establish the best procedures to limit the time the wooden stakes or pin flags are in the area. If the sample location requires movement based on field observations or conditions, the location where the sample was actually collected will be surveyed and reported.

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 in excess of sampling volume requirements will be placed back on the ground and the turf replaced or repaired.

Sampling handling requirements, the bottleware required, preservation, and holding time requirements for the analysis proposed for this sampling event are as identified in the following table:

Analysis	Analytical Method	Bottleware	Preservation	Holding Time ⁽¹⁾
SOIL				
PAHs	SW-846 8310	8-oz. glass jar	Cool to 4°C	14 days to extraction; 40 days to analysis
TRPH	Florida PRO	8-oz. glass jar	Cool to 4°C	14 days to analysis
Arsenic, Vanadium	SW-846 6010B	8-oz. glass jar	Cool to 4°C	180 days to analysis

Analysis	Analytical Method	Bottleware	Preservation	Holding Time ⁽¹⁾
WATER				
PAHs	SW-846 8310	1 1-liter amber glass: Teflon-lined cap	Cool to 4°C	7 days to extraction; 40 days to analysis
TRPH	Florida PRO	1 1-liter amber glass: Teflon-lined cap	Cool to 4°C	7 days to extraction; 40 days to analysis
Mercury, Vanadium	SW-846 8270C	1 liter glass or polyethylene	pH < 2 with HNO ₃	180 days to analysis except Hg which is 28 days to analysis

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

Analytical results will be provided 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
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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 no 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	3
Lab MS/MSD	1/20 samples	2

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 II Sampling and Analysis Work Plan
PSC 45, Facility 11**

Sample ID	Location	Analysis				
		PAHs	TPH	As	V	Hg
CEF-P45-SS-101-01	15 feet north of CEF-P45-SS-001 (0 to 1 ft)			X		
CEF-P45-SS-102-01	East of CEF-P45-SS-101 at the southwest corner of Facility 2 (0 to 1 ft)			X		
CEF-P45-SS-103-01	Due east of CEF-P45-SS-102 parallel to the eastern edge of Facility 2 (0 to 1 ft)			X		
CEF-P45-SS-104-01	15 feet north of CEF-P45-SS-008 (0 to 1 ft)	X		X	X	
CEF-P45-SS-105-01	Along the paved area east of CEF-P45-SS-008 (0 to 1 ft)	X		X	X	
CEF-P45-SS-106-01	15 feet south of CEF-P45-SS-015 (0 to 1 ft)	X	X		X	
CEF-P45-SS-107-01	15 feet west of CEF-P45-SS-015 (0 to 1 ft)	X	X		X	
CEF-P45-SS-108-01	Northwest of CEF-P45-SS-107 at the corner of Facility 11 (0 to 1 foot)	X	X		X	
CEF-P45-SS-109-01	South of CEF-P45-SS-010 along northern edge of Facility 11 (0 to 1 foot)	X		X	X	
CEF-P45-SS-110-01	15 feet south of CEF-P45-SS-009 (0 to 1 foot)			X		
CEF-P45-SS-111-01	15 feet north of CEF-P45-SS-016 (0 to 1 ft)	X				
CEF-P45-SS-112-01	15 feet east of CEF-P45-SS-016 (0 to 1 ft)	X				
CEF-P45-SS-113-01	15 feet south of CEF-P45-SS-016 (0 to 1 ft)	X				
CEF-P45-SS-114-01	15 feet west of CEF-P45-SS-016 (0 to 1 ft)	X				
CEF-P45-SS-115-01	15 feet east of CEF-P45-SS-023 (0 to 1 ft)		X			
CEF-P45-SS-116-01	15 feet west of CEF-P45-SS-023 (0 to 1 ft)		X			
CEF-P45-SS-117-01	15 feet north of CEF-P45-SS-018 (0 to 1 ft)	X				
CEF-P45-SS-118-01	Midway between CEF-P45-SS-117 and CEF-P45-SS-019 (0 to 1 ft)	X				
CEF-P45-SS-119-01	15 feet east of CEF-P45-SS-022 (0 to 1 ft)	X				
CEF-P45-SS-120-01	15 feet east of CEF-P45-SS-024 (0 to 1 ft)	X				
CEF-P45-SS-121-01	15 feet west of CEF-P45-SS-024 (0 to 1 ft)	X				
CEF-P45-SS-122-02	At CEF-P45-SS-001 location (1 to 2 ft)			X		
CEF-P45-SS-123-02	At CEF-P45-SS-008 location (1 to 2 ft)	X		X	X	
CEF-P45-SS-124-02	At CEF-P45-SS-013 location (1 to 2 ft)	X	X		X	
CEF-P45-SS-125-02	At CEF-P45-SS-016 location (1 to 2 ft)	X				
CEF-P45-SS-126-02	At CEF-P45-SS-023 location (1 to 2 ft)		X			
CEF-P45-SS-127-02	At CEF-P45-SS-018 location (1 to 2 ft)	X				
CEF-P45-SS-128-02	At CEF-P45-SS-024 location (1 to 2 ft)	X				
CEF-P45-SS-129-02	At 45S00201 location (1 to 2 ft)					X
CEF-P45-GW-01S-1	New well CEF-P45-01S	X	X		X	
CEF-P45-GW-02S-1	New well CEF-P45-02S	X	X		X	
CEF-P45-GW-03S-1	New well CEF-P45-03S	X			X	
CEF-007-01S-01	Existing well CEF-007-01S	X	X		X	

PAH = Polycyclic Aromatic Hydrocarbons

TPH = Total Petroleum Hydrocarbons

As = Arsenic

V = Vanadium

Hg = Mercury

