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NAS CECIL FIELD, FL
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PHASE 3 SAMPLING AND ANALYSIS WORK PLAN FOR POTENTIAL SOURCE OF CONTAMINATION 21 GOLF COURSE PESTICIDE MIXING AREA NAS CECIL FIELD FL

7/9/1999

TETRA TECH NUS INC

Phase IIISampling and Analysis Work Plan
PSC 21, Golf Course Pesticide Mixing Area
Naval Air Station Cecil Field
Jacksonville, Florida

July 9, 1999

Phase III sampling and analysis of surface soils is proposed for PSC 21, Golf Course Pesticide Mixing Area, as shown in Figure A to further delineate the contamination identified during previous sampling activities. Previous sampling identified herbicides and pesticides (alpha-Chlordane, dieldrin, gamma-Chlordane, Chlordane, 4,4-DDD, 4,4-DDT, MCPA, and Toxaphene), total recoverable petroleum hydrocarbons (TRPH), arsenic, and vanadium in soil samples exceeding the Florida Department of Environmental Protection (FDEP) residential soil cleanup criteria. Phase I and Phase II sampling identified exceedances of pesticide criteria in groundwater and arsenic criteria in surface and subsurface soil.

A total of 11 soil samples will be collected during Phase III from the approximate locations identified on Figure A and described in Table 1. The soil samples to be collected and the analyses to be performed are described below.

- CEF-P21-208-01 will be collected 30 feet south of CEF-P21-SS-108, and CEF-P21-SS-209-01 will be collected 15 feet west of CEF-P21-SS-108. These samples will be collected from 0 to 1 foot bgs and analyzed for arsenic.

- CEF-P21-SS-210-01 will be collected 15 feet west of CEF-P21-SS-109, and CEF-P21-SS-211-01 will be collected 15 feet west of CEF-P21-SS-110-01. These samples will be from the 0- to 1- foot interval and analyzed for arsenic.

- Subsurface soil samples will be collected from the CEF-P21-SS-114, CEF-P21-SS-115, and CEF-P21-SS-116 locations at depths immediately above the water table and analyzed for arsenic. Sample designations are listed in Table 1, with the last two digits to be assigned in the field based on the depth to the water table (and sample collection depth) at each location.

- CEF-P21-SS-215-01 will be collected 15 feet north of CEF-P21-SS-112-01, Cef-P21-SS-216-01 will be collected 15 feet west of CEF-P21-SS-113, and CEF-P21-SS-217-01 will be collected 15 feet west of CEF-P21-SS-112. These samples will be collected from 0 to 1 foot bgs and analyzed for arsenic.

- CEF-P21-SS-218-02 will be collected from 1 to 2 feet bgs within the ditch at a location directly across from the CEF-P21-SS-020 location and analyzed for arsenic.

One groundwater monitoring well will be installed near the CEF-P21-116 locations, which had the highest at-depth concentration of arsenic. The well will be designated CEF-P21-MW-04S and will be analyzed for arsenic and pesticides.

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 proposed surface soil sample and monitoring well locations shall be located 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 between the marking the location and collecting the sample.

The groundwater monitoring well will be installed in accordance with the EISPOQAM and the Base-Wide Generic Work Plan for NAS Cecil Field., except that split-spoon samples will not be collected. The monitoring well will be screened from approximately 5 to 15 feet bgs with 10-foot long 0.010-inch slotted screen. Well construction materials will consist of certified-clean 2-inch inside diameter, flush-threaded, polyvinyl chloride (PVC) screen and riser. A registered land surveyor will survey the completed monitoring well.

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 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				
Arsenic	SW-846 6010B	8-oz. glass jar	Cool to 4°C	180 days to analysis
GROUNDWATER				
Pesticides	SW-846 8081A	1-liter glass	Cool to 4°C	14 days to extraction: 40 days to analysis
Arsenic	SW-846 6010B	1 1-liter glass or polyethylene	pH < 2 with HNO_3	180 days to analysis

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

Analytical results will be reported on a **7-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: Susan Gaudios
(407) 425-5700
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	2
Lab MS/MSD	1/20 samples/matrix	1

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.

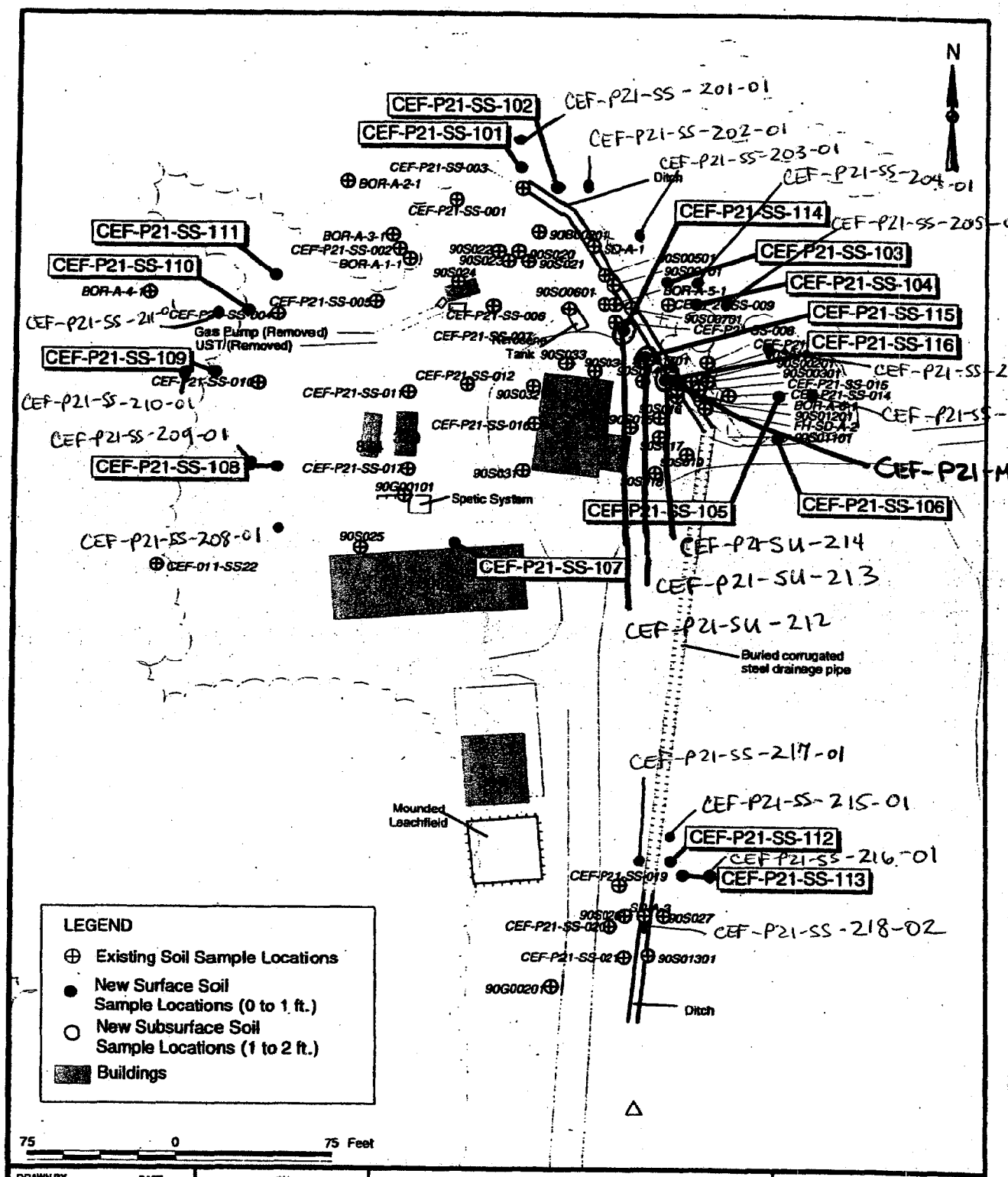
Table 1
Phase III Sampling and Analysis
PSC 21, Golf Course Pesticide Mixing Area

Sample ID	Location	Analysis	
		Pesticides	Arsenic
CEF-P21-			
SS-208-01	30 feet south of CEF-P21-SS-108 (0 to 1 feet)		X
SS-209-01	15 feet west of CEF-P21-SS-108 (0 to 1 feet)		X
SS-210-01	15 feet west of CEF-P21-SS-109 (0 to 1 feet)		X
SS-211-01	15 feet west of CEF-P21-SS-110 (0 to 1 feet)		X
SU-212-0X*	At CEF-P21-SS-114 location at depth just above water table		X
SU-213-0X*	At CEF-P21-SS-115 location at depth just above water table		X
SU-214-0X*	At CEF-P21-SS-116 location at depth just above water table		X
SS-215-01	15 feet north of CEF-P21-SS-112 (0 to 1 foot)		X
SS-216-01	15 feet east of CEF-P21-SS-113 (0 to 1 foot)		X
SS-217-01	15 feet west of CEF-P21-SS-112 (0 to 1 foot)		X
SS-218-02	In ditch across from the CEF-P21-SS-020 location (1 to 2 feet)		X
GW-04S-01	Near CEF-P21-SS-116 location		X

NOTE: Originally proposed samples CEF-P21-SS-201-01 thorough CEF-P21-SS-207-01 were not collected because they were on the east side of the fence separating PSC 21 from the Golf Course property.

* Sample depth to be determined in the field based on depth to water table at sample location.

7-9-99



DRAWN BY MJJ	DATE 04/06/99	Phase III	CONTRACT NUMBER 0039
CHECKED BY	DATE	PROPOSED SOIL SAMPLE LOCATIONS	APPROVED BY — DATE —
COST/SCHEDULE-AREA		PSC 21, GOLF COURSE PESTICIDE MIXING AREA	APPROVED BY — DATE —
SCALE AS NOTED		NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	DRAWING NO. Figure A / REV 0

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