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EXPANDED SITE INVESTIGATION WORK PLAN ADDENDUM NCBC GULFPORT MS
5/31/2006
TETRA TECH NUS

Comprehensive Long-term Environmental Action Navy

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Final Work Plan Addendum Letter
USDA APHIS Expanded Site Investigation

United States Department of Agriculture
Gulfport, Mississippi

Contract Task Order 0012
May 2006

Naval Facilities Engineering Command
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406

TETRA TECH NUS, Inc.

TtNUS/TAL-06-033/0293-4.1

May 31, 2006

Project Number 0293

Commander, Southern Division
Naval Facilities Engineering Command
Attn: Harold McGill (Code ES32)
Remedial Project Manager
2155 Eagle Drive
North Charleston, South Carolina 29419-9010

Reference: CLEAN Contract No. N62467-04-D-0055
Contract Task Order No. 0012

Subject: Final Work Plan Addendum Letter
United States Department of Agriculture
Animal and Plant Health Inspection Service
Expanded Site Investigation
Gulfport, Mississippi

Dear Mr. McGill:

Introduction

Tetra Tech NUS (TtNUS), under contract to the U. S. Department of the Navy, Southern Division, Naval Facilities Engineering Command (NAVFAC EFD SOUTH), has prepared this Expanded Site Investigation (ESI) Work Plan Addendum for the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) in Gulfport, Mississippi. This work plan was prepared under the comprehensive Long-term Environmental Action Navy (CLEAN) IV, Contract No. N62467-04-D-0055. This workplan is an update to the USDA APHIS Preliminary Assessment/Site Inspection (PA/SI) Work Plan (TtNUS, February 2004).

The primary objective of this ESI is to complete the characterization of the pesticides reported in the Final Preliminary Assessment and Site Investigation (PA/SI) Report (TtNUS, February 2005). Further, sample data and groundwater hydrology will be evaluated to determine the impact (if any) of offsite contamination. In order to achieve these objectives, samples from soil and groundwater will be collected and analyzed to fill data gaps from previous investigations and to

evaluate the extent of contamination previously identified at the site. This document describes the field activities, laboratory analyses, and data management that will be performed to complete the study.

Site Background and History

The USDA APHIS facility, located in Gulfport, Mississippi is a 4.6 acre facility dedicated to protecting animal and plant resources from exotic, invasive pests and diseases, and monitoring and managing agricultural pests and diseases already existing in the United States. In this capacity, the facility maintains a full service on-site analytical laboratory. A detailed description of the site background is included in the PA/SI Report (TtNUS, 2005). A brief summary of this report is provided below.

Operations at the facility include analytical chemistry, organic synthesis research for control of fire ants and other soil-inhabiting insects, and trace residue analysis. A wide variety of pesticides, solvents, and other chemicals have been used and stored at the facility since it began operation. While the current practice of storing chemicals is primarily done in clean and well-organized buildings, waste handling operations prior to 1980 are unknown or not well documented. Available information about past material handling and waste disposal practices indicated the possibility of underground waste disposal and surface disposal of chemicals.

Evaluation of data collected during the SI revealed:

- The geophysical anomaly at the northeast corner was caused by the grounding loop of the lightning protection system for Building 10 and was not due to an underground storage tank (UST). Soil sample analytical results were compared to Mississippi Tier 1 target remediation goals (TRGs). Analyte concentrations reported for the soil samples collected at that building were less than the Tier 1 unrestricted TRGs.
- Arsenic was detected at low levels in site soil samples at concentrations exceeding both the unrestricted and restricted Mississippi Department of Environmental Quality (MDEQ) Tier I TRGs. The arsenic concentrations at the site are consistent with levels reported as naturally occurring within coastal plain soils (Pettry and Switzer, 2001).
- The initial soil sample collected following the removal of the hydraulic lift at Building 7 indicated that operation of the hydraulic system may have released petroleum products into site soil at concentrations greater than the diesel range organics (DRO) soil TRG.

- Additional soil sampling has indicated that the horizontal and vertical extent of the DRO contamination was limited to the one sample location. Soil from the excavation was disposed of off site and replaced with clean fill.
- Dichlorodiphenyltrichloroethane (DDT) was detected at a concentration greater than the unrestricted TRG at a depth of 10 feet in a soil sample from Building 7. Additional soil sampling has indicated that the horizontal and vertical extent of the DDT contamination is limited to the one sample location. DDT was detected at concentrations less than the unrestricted TRG in many of the other soil and sediment samples, which may indicate past application of this pesticide at the facility.
- Facility-wide groundwater sampling detected the presence of pesticides in groundwater on site, including Dieldrin at levels above the TRG benchmark concentration. Dieldrin is easily bound to carbon in soil which could limit offsite migration. Chloroform was detected in one groundwater sample at a concentration greater than the TRG. Chloroform is a common laboratory contaminant and may not be from a release at the site. Iron was detected in one groundwater sample at a concentration greater than the TRG. Iron is a naturally occurring element frequently detected in groundwater and variations in iron concentrations in groundwater may be linked to variations in iron concentrations in soil. The average iron concentration in soil samples collected from the vicinity of the monitoring well where the iron concentration exceeded the TRG was approximately 50 % higher than the average iron concentration in soil samples collected from other parts of the site.

Work Plan Rationale

This document is an Addendum to the USDA APHIS Preliminary Assessment/Site Inspection (PA/SI) Work Plan (TtNUS, February 2004). The goal of the ESI fieldwork is to fill data gaps identified from the previous investigation. Additional soil and groundwater sampling will be conducted to further characterize the contaminants of concern identified in the PA/SI Report (TtNUS, 2005). The additional monitoring wells will provide an improved potentiometric surface map, which in conjunction with the additional laboratory data will allow a thorough evaluation of the source(s) of contamination and the potential transportation and migration pathway mechanisms.

The field activities will be conducted in two phases. The first phase will include the soil sampling, installation of monitoring wells, and the collection of groundwater samples. The second phase

will be conducted six months after the first and only include groundwater sampling and groundwater level monitoring.

Data Quality

The Data Quality Objectives (DQOs) for an ESI are project specific and are based on the intended use of the data in the decision process. DQO selection is the main factor in identifying:

- The types of samples to be collected
- The sample collection locations
- The types of equipment to be used
- The analytical requirements

The DQOs and analytical detection limits for the USDA APHIS facility are presented in the Quality Assurance Project Plan (QAPP) which is located in Appendix B of the PA/SI Work Plan (TtNUS, 2004).

Field Activities

Field activities conducted for the ESI will include:

- Direct-Push Technology (DPT)
- Soil and groundwater sampling
- Monitoring well installation
- Groundwater level measurement
- Sample management
- Investigation-Derived Waste (IDW) management

Field activities will be conducted in accordance with the site specific Health and Safety Plan (HASP) and the PA/SI Work Plan (TtNUS, 2004). Detailed descriptions of field procedures are located in the PA/SI Work Plan (TtNUS, 2004).

Soil Characterization

Six DPT borings will be advanced to characterize the Constituents of Concern (COC's) in the soil. One soil sample from each boring will be sent to an offsite laboratory for analysis. Figure 1

shows the proposed locations of the soil samples. The analyses are shown in Table 1. The locations of these samples were selected to define upgradient conditions – based on the data from the PA/SI Report (TtNUS, 2005). Three of the DPT boring locations will be converted into a permanent monitoring well, as discussed in the next section.

Well Installation/Groundwater Sampling

Three additional monitoring wells will be installed to provide monitoring locations to evaluate groundwater contaminants. Locations for the new monitoring wells are based on the results of previous delineation and characterization activities as well as the locations of potential off site contamination. Locations for the new wells are shown on Figure 1. Two of the monitoring wells will be installed in shallow [approximately 20 feet below land surface (bls)] and one will be installed at a depth of approximately 40 feet bls to monitor conditions in the area near the anticipated clay unit.

All wells will be developed and sampled in accordance with the original work plan. The analyses from the three existing wells will only include volatile organic compounds (VOCs) and pesticides during both phases. The new monitoring wells will have a full suite of analyses (as shown on Table 1) during both phases.

Data Management

The Data Management Plan (DMP) is included in Appendix A of the PA/SI Work Plan (TtNUS, 2004) and outlines the project-specific procedures that will be used to manage the environmental information. The methods to be used to manage the data generated during the field investigation include the tracking of data in the field and subsequent data validation.

Onsite data management involves the day-to-day recording of sampling and field activities in the field. The project database will be initiated in the field to promote the proper collection and storage of field data and documentation of field activities. Onsite data management requirements are presented in Appendix C of the QAPP, located in Appendix B of the PA/SI Work Plan (TtNUS, 2004). The field operations leader (FOL) and/or sample coordinator will be responsible for entering the data into the database in the field. The following data will be entered into the project database:

- Sample information (i.e. identification, matrix, sample depth, collection time, analyses)
- Location information
- Chain of custody information
- Shipping data
- Field descriptions
- Photographic logs

The laboratory, field and natural attenuation data will be subjected to full validation. The data will be assessed using precision, accuracy, representativeness, completeness and comparability (PARCC) parameters using the National Validation Functional Guidelines for Organic Data Review (June 1991), the Laboratory Data Validation Functional Guidelines for Evaluation of Inorganic Analysis (June 1988), and the TtNUS Standard Operating Procedures (SOPs) in Appendix C of the QAPP (TtNUS, 2004).

Investigation Derived Waste Management

For this field investigation, IDW management will include drum labeling, record keeping, and staging of materials. IDW generated during this investigation will include soil cuttings, development and purge water, and decontamination waste (water, solvents, and soap). The IDW drums will be labeled with the following information:

- Source of material (i.e. boring/well identification (ID), decon pad, etc.)
- Matrix (i.e. soil, groundwater, decon water, etc.)
- Date generated (mmddyy)
- Contact name and contact phone number

The drums will remain on site until the results of the characterization are completed. A facility representative will sign waste manifests and bills of lading associated with the transport and off-site disposal of IDW.

If you have any questions regarding the information presented in this document, please contact me by phone at (850) 385-9899 or via e-mail at fisherr@ttnus.com

Sincerely,

Robert Fisher, P.G.
Task Order Manager
Date: May 31, 2006

Enclosures

c: USDA (2 copies)
Phillip Weathersby
Debbie Humbert (1 copy)
Mark Perry (1 copy)

TABLES

FIGURES

TABLE 1

Analytical Parameters

Event 1			
Parameter	**Method**	**Soil Samples**	**Aqueous Samples**
VOC's	8260	6	6[1]
SVOC's	8270		3[2]
Pesticides	8081	6	6[1]
Herbicides	8151	6	3[2]
Metals	6010		3[2]
Event 2			
VOC's	8260	N/A	6[1]
SVOC's	8270	N/A	3[2]
Pesticides	8081	N/A	6[1]
Herbicides	8151	N/A	3[2]
Metals	6010	N/A	3[2]

NOTES:

VOCs = volatile organic compounds
SVOCs = semivolatile organic compounds
N/A = Not Applicable
[1] = includes the 3 existing monitoring wells
[2] = new monitoring wells only