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COMMUNITY SAMPLING WORKPLAN NCBC GULFPORT MS

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TETRA TECH

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COMMUNITY SAMPLING WORKPLAN

at the

NAVAL CONSTRUCTION BATTALION CENTER

Gulfport, Mississippi

Presented on Behalf of:

SOUTHERN DIVISION

NAVAL FACILITIES ENGINEERING COMMAND

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INTRODUCTION

This Work Plan Addendum outlines the requirements and describes the procedures for collecting samples in the community near the Naval Construction Battalion Center (NCBC) Gulfport in Gulfport, Mississippi. Samples are to be collected and analyzed to support a remedial action related to the past storage of herbicide orange at Site 8 at the NCBC. This Work Plan Addendum has been prepared by Tetra Tech Nus, Inc. (TtNUS) for the Southern Division (SOUTHDIV) Naval Facilities Engineering Command (NAVFAC) under the Navy Comprehensive Long-Term Environmental Action Navy (CLEAN) Program, Contract Number N62467-94-D-0888, Contract Task Order (CTO) 0143. This document appends the field sampling plan contained within the Pilot-Scale Soil/Sediment Treatability Study Work Plan for Site 8 – Herbicide Orange Study Area at the NCBC, Gulfport, Mississippi (TtNUS, 2001).

PROJECT BACKGROUND

Site 8 occupies approximately 30 acres in the north central section of NCBC Gulfport. From 1968 to 1977, the site was used by the U.S. Air Force for the storage of approximately 850,000 gallons of Herbicide Orange (HO) in 55-gallon drums. It was originally believed that only 12 acres of the site, designated as Site 8A, had been used for HO storage, but two additional storage areas were later identified, including 17-acre Site 8B and 1-acre Site 8C.

The primary chemical of concern for this investigation is 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD), which is a manufacturing impurity of the HO. In this document, TCDD and the other dioxins and furans found in HO will be collectively referred to as "dioxin."

As a result of the spills and leaks that occurred during the years of HO storage, dioxin has migrated through the system of on-base ditches to the off-base swampland located across 28th Street from Outfall 3. This finding was determined through six phases of sampling events conducted by the Navy from April 1997 to February 1999 to establish the extent of on-base and off-base dioxin-contaminated sediment. On-base sampling involved the collection of sediment, surface water, groundwater, and seep samples. Off-base sampling involved sampling of five locations (Canal No. 1, Turkey Creek, Brickyard Creek, Bernard Bayou, and the Outfall 3 Swamp). During these sampling events, the Outfall 3 Swamp was the only off-base area found to have been impacted by the storage of HO at the NCBC.

In June 2002, the Navy and the Air Force presented to the public a Proposed Plan for remediating the former HO storage area. This Proposed Plan addresses the on base on off-base soils and sediments that have been impacted by HO storage. During the proposed plan's public comment period, members of the local community requested additional off-base sampling in previously uninvestigated areas. The public's primary concern was that significant storm events or changes in drainage patterns during the last

30 years may have allowed dioxins to migrate into areas not hydraulically connected to the base today. As a response to these public concerns and comments, additional off-base sampling will be conducted as outlined in this Work Plan addendum.

FIELD SAMPLING ACTIVITIES

Sediment Sampling

Sixteen sediment samples will be collected as part of this sampling effort. The ***sixteen*** samples will be collected from the five areas illustrated on Figure 1. These five general sampling areas that are prone to flooding during large storm events were identified from the examination of historical maps and aerial photographs. Although these areas are not normally hydraulically connected to Site 8, the potential for the deposition of eroded soils and sediments exist in these areas during flooding. These locations where chosen based on observations by long-term local residents and were verified by Tetra Tech NUS, Inc.

At each location, one grab sample will be collected from a depth of 0 to 12 inches below ground surface. Sediment will be collected using a stainless steel spoon, mixed in a stainless steel bowl, and transferred to sample jars for analysis. A description of the physical appearance of each sample and sampling location will be recorded on the sample log sheets. Between sampling locations, sampling equipment will be decontaminated. Equipment will first undergo an Alconox® wash and rinse, next an isopropyl alcohol rinse, and finally a de-ionized water rinse.

All sediment samples will be analyzed for dioxin using United States Environmental Protection Agency (U.S. EPA) SW-846 Method 8290. Using the individual dioxin and furan isomers obtained from this analysis, toxicity equivalent (TEQ) concentrations of TCDD will be calculated in accordance with the Interim Report on Data Methods for Assessment of TCDD Risks (U.S. EPA, 1989). The resulting TEQ values will then be compared to the MDEQ Tier 1 soil/sediment target risk goal (TRG) concentration of 4.26 ng/kg for unrestricted residential use. Small amounts of dioxins are present in the environment due to combustion sources; however, the presence of 2,3,7,8-tetrachlorodibenzo-p-dioxin would indicate that impacted Site 8 soils had eroded and been deposited at a given sampling location. Consequently, additional study will be warranted if a given sampling location exceeds the 4.26 ng/kg TRG and also has a positive detection of 2,3,7,8-tetrachlorodibenzo-p-dioxin.

Sampling points will be marked using pin flags or fluorescent paint and will be referenced to existing landmarks. Following sampling, the elevation and coordinates of each sample location will be surveyed by a licensed professional surveyor. Elevations will be accurate to Class V-2 and based on the NCBC Gulfport datum. All coordinates will conform to the standards of a Class A-2 survey and relate to the Mississippi State Plane Coordinate System.

Sampling personnel will follow the procedures described in the Health and Safety Plan for Feasibility Study – Site 8 Herbicide Orange Study Area – NCBC Gulfport – Gulfport, Mississippi.

Groundwater Sampling

Three private potable water wells adjacent to Turkey Creek (immediately east of Canal Rd.) will have aqueous samples collected for a full suite of analyses (TCL VOA, SVOA, Pest/PCB, metals and Herbicides) as well as dioxin.

Two installation restoration wells at Site 7 will be resampled for dioxin only to help resolve conflicting analytical information. Wells 7-3 and 7-6 have both produced measurable levels of dioxin, including TCDD, succeeded by sampling without detectable dioxin. This sampling is being conducted to resolve this conflict.

QUALITY ASSURANCE/QUALITY CONTROL

The following quality assurance (QA)/quality control (QC) samples will be collected as part of the community sampling event.

- A field duplicate sample is one sample split into two portions at the time of sampling. Field duplication assesses the precision of the sampling and analysis program. Field duplicates will be obtained at a frequency of 10 percent of the samples per sample media and analyzed for the same parameters as the associated environmental samples. Two will be collected for the investigation.
- One equipment rinsate blank will be collected during verification sampling activities to determine whether decontamination procedures are adequate.
- Trip blanks will not be required for this investigation, since none of the samples collected will be analyzed for volatile organic compounds.

Table 1 summarizes the number and types of quality assurance/quality control samples to be collected and analyzed for this investigation.

SAMPLE HANDLING

Sample handling procedures will be followed as outlined in the field sampling plan contained within the Pilot-Scale Soil/Sediment Treatability Study Work Plan for Site 8 – Herbicide Orange Study Area at the NCBC, Gulfport, Mississippi (TtNUS, 2001).

REPORTING

All sampling results will be presented to the public during a Restoration Advisory Board meeting and forwarded to stakeholders and regulatory agencies in the form of a field report.

REFERENCES

Tetra Tech NUS, Inc., 2001. Work Plan for Pilot-Scale Soil/Sediment Treatability Study, Site 8 – Herbicide Orange Storage Area, NCBC Gulfport, Mississippi, July.

U.S. Environmental Protection Agency, 1989. Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and -dibenzofurans (CDDs and CDFs) and 1989 Update. U.S. Environmental Protection Agency, Risk Assessment Forum, Washington, DC; EPA/625/3-89/016.

TABLE 1

SUMMARY OF QUALITY ASSURANCE/QUALITY CONTROL SAMPLES AND ANALYSES
POST-EXCAVATION VERIFICATION SAMPLING
PILOT-SCALE TREATABILITY STUDY
NCBC GULFPORT, MISSISSIPPI

Analysis (Method)	Environmental Samples	Duplicates	Trip Blanks	Rinsate Blanks	Total Samples[(1)]
SEDIMENT					
Dioxin (SW-846-8290)	16	2	0	1	19
Aqueous					
TCL VOA (8260B)	3	1	1		5
TCL SVOA (8270C)	3	1	0		4
TCL Pest (8081A)	3	1	0		4
TCL PCB (8082)	3	1	0		4
TAL Metals + CN (6010)	3	1	0		4
Dioxin (8290)	5	1	0		6

1 Does not include a Matrix Spike/Matrix Spike Duplicate (MS/MSD) sample, of which one will be required.

DRAFT
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FIGURE 1

SAMPLING AREAS

Sediment Sample Locations ✡

Groundwater Sampling Locations ◎