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LETTER REPORT FOR SITE CHARACTERIZATION WORK PLAN AT UNDERGROUND
STORAGE TANK SITE 18 NAS PENSACOLA FL
7/18/2003
TETRA TECH



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TtNUS/TAL-03-058/0844-6.4

July 18, 2003

Project Number N0844

Commander, Southern Division
Naval Facilities Engineering Command
ATTN: Mr. Byas Glover (Code ES24)
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: CLEAN Contract Number N62467-94-D-0888
Contract Task Order (CTO) Number 0313

Subject: Site Characterization Work Plan Letter
Underground Storage Tank (UST) 18
Naval Air Station Pensacola (NAS), Pensacola, Florida

Dear Mr. Glover:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit this letter addressing the characterization of site conditions at UST 18 on NAS Pensacola in Pensacola, Florida. This site characterization scope of work was prepared for the United States Navy (Navy) Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) under CTO 0313 for the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888. The objective of this work will be to complete an additional limited assessment of subsurface conditions and contamination present at UST Site 18.

Site Description

UST 18 is located on NAS Pensacola in Escambia County, Florida and occupies approximately 900 feet (ft) by 2,300 ft of open land along the southwestern border of Forrest Sherman Field. The site is bordered on the east by aircraft Runway 19, to the north by a paved taxiway, to the west by scattered brush and woods, and to the south by an open field. A general site vicinity map is included as Figure 1 in Attachment A.

Background Information

Between 1955 and 1997, the UST 18 area was used to train fire fighters for aircraft crash responses, using available fuel as a combustion source. Historically, during training exercises, approximately 30 to 50 gallons of fuel were poured into unlined pits or onto various pieces of equipment and then ignited to simulate aircraft crashes. The northernmost pit, which was lined and filled with water, contained a mock aircraft cockpit. Several other burn pits contained miscellaneous pieces of equipment, including a fuel trailer, various airplane parts, and metal and non-metallic debris of unknown, but presumably of aircraft origin. However, the district fire chief reported that up to 700 gallons of fuel may have been used per event. Most recently, only the northernmost pit was used for fire training. Fire training ceased at UST Site 18 in May 1997 [CH2M HILL Constructors, Inc. (CH2M HILL), 2003].

A remedial action for soil was performed at UST Site 18 and consisted of in-situ landfarming of petroleum contaminated soil in the four former fire training burn pits. Landfarming activities were conducted between September 2000 and September 2001 and consisted of biweekly soil tilling and the collection and analysis of monthly soil samples and groundwater samples from specific groundwater monitoring wells. The tilling was accomplished using a farm tractor and disk harrow, which turned and aerated the soil to a depth of 6 inches below land surface (bls). Landfarming operations ceased in September 2001 when soil analytical results indicated that soil cleanup goals had been achieved.

Quarterly groundwater monitoring was performed to evaluate whether the groundwater concentrations were decreasing since the removal of the source of contamination, and to ensure that the point-of-compliance (POC) wells were not affected. CH2M HILL performed groundwater monitoring monthly from December 2000 through August 2001 and quarterly sampling until December 2002. Concentrations of benzene, toluene, ethylbenzene, and xylene (BTEX); polynuclear aromatic hydrocarbons (PAHs); total recoverable petroleum hydrocarbons (TRPH); and lead have consistently been reported to exceed FDEP GCTLs during quarterly sampling. Historical Figure 2-3 by CH2MHILL, Attachment A, presents the December 2002 groundwater contamination results for the quarterly sampling event.

The December 2002 sampling event was the last completed by CH2M HILL. After that, SOUTHNAVFACENCOM requested that TtNUS perform a full-scale treatability study to evaluate oxygen releasing compound (ORC[®]) for remediation of petroleum hydrocarbons. During the planning of the treatability study, TtNUS proposed performing an additional groundwater investigation to better define the groundwater contamination and reduce the size of the treatment area. This scope of work is intended to accomplish that.

Proposed Site Activities

To better characterize the vertical and horizontal extent of contamination and to better define and limit the proposed treatability study area, TtNUS will complete a direct push technology (DPT) groundwater sampling investigation at the site. In conjunction with the DPT groundwater sample collection, an on-site mobile laboratory will be used to provide expedited analysis of the groundwater samples. The mobile laboratory data will be used to guide the groundwater sampling to more effectively define the groundwater contamination. In addition, groundwater samples from the on-site monitoring wells (see Figure 2-3 in Attachment A) will be analyzed by the mobile laboratory. The baseline sampling event for the treatability study will also be performed during this site characterization. Groundwater samples will be collected and analyzed by both the on-site mobile laboratory (constituents of concern) and a fixed-base laboratory (natural attenuation parameters and TRPH).

Groundwater Investigation (DPT Sampling)

The DPT groundwater investigation will focus on defining the horizontal and vertical extent of groundwater contamination present at UST Site 18. Historical Figure 2-3 (Attachment A), shows the location of the four Fire Fighting Training pits, the monitoring wells that are associated with this site, and detected contaminant concentrations in groundwater samples reported for the December 2002 sampling event. The DPT groundwater investigation will focus on the four former pit locations and the area south of the pit locations between monitoring wells GS05 and GS06. The sampling locations will be field located by the Field Operations Leader and may be adjusted based on the analytical data generated in the field.

Groundwater samples collected from the DPT borings and monitoring wells GM21, GS07, GS09, GS10, GS12, GS18, GS19, and GS22 will only be submitted to the mobile laboratory for analysis. The mobile laboratory will analyze these groundwater samples for BTEX; methyl tert-butyl ether (MTBE); naphthalene; 1-methylnaphthalene; 2-methylnaphthalene; 1,2-dichloroethane and the other listed priority pollutant volatile organic halocarbons as required in Chapter 62-770, Florida Administration Code. In

addition, approximately 10 groundwater samples collected during the DPT activities will be sent to the fixed-base laboratory for TRPH analysis to better define the groundwater contamination. The groundwater sampling activities will be completed in accordance with current Florida Department of Environmental Protection (FDEP) groundwater Standard Operating Procedures (SOPs). Investigation derived waste (IDW) accumulated during monitoring well sampling, DPT sampling, and decontamination proceedings will be collected, containerized, labeled, and stored in Department of Transportation approved 55-gallon drums until appropriate disposal is completed.

The mobile laboratory is typically capable of analyzing up to 20 groundwater samples per day. Analytical results will be reviewed to determine where contamination boundaries have been defined and where additional groundwater sampling is needed. Vertical groundwater contamination profiling will be performed at the sample locations with the highest contaminant concentrations. Samples will be collected at the water table and at 10 ft intervals below the water table until the contamination ends or the confining clay layer is reached. It is expected that the confining clay layer will be between 50 and 60 ft bls. The method used for this sampling will be to push DPT rods to the maximum depth and expose the sampling screen. This interval will be sampled and the rods will then be extracted approximately 10 ft allowing the formation to collapse below the DPT rods. Once the DPT well screen has been positioned at the next interval, a peristaltic pump will be used to purge and sample the interval. This will be continued until the boring has been sampled.

One pre-cleaned equipment blank will be collected from the tubing and analyzed by the mobile laboratory during the screening activities. Field-cleaned equipment blanks will be collected daily from the DTP equipment for analysis in the mobile laboratory. The mobile laboratory also completes their quality assurance/quality control (QA/QC) as required. There will be no other QA/QC sampling performed.

Baseline Sampling Event

During the baseline event, 12 monitoring wells will be sampled and analyzed for TRPH, iron, manganese, methane, ethane, ethane, total organic carbon (TOC), alkalinity, and select anions by an undetermined fixed-base laboratory. These samples will also be analyzed by the on-site mobile laboratory for the parameters listed above. Natural attenuation parameters [hydrogen sulfide, sulfide, ferrous iron, alkalinity, dissolved oxygen, pH, conductivity, oxidation reduction potential (ORP), and temperature] will be collected in the field by TtNUS personnel. The 12 monitoring wells to be sampled as part of this treatability study are as follows: GM24, GS01, GS02, GS03, GS04, GS05, GS06, GS11, GS13, GS17, GS20, and GS21. The groundwater samples will be collected according to current FDEP groundwater SOPs. In addition, prior to groundwater sampling, depth to water measurements and total well depths will be recorded for all on-site monitoring wells.

One pre-cleaned equipment blank and one field-cleaned equipment blank will be collected during the baseline sampling event. Trip blanks will be submitted at a frequency of one per cooler containing volatile organic compound samples. No other QA/QC samples are planned.

The information obtained during this activity will be reported in the Treatability Study Work Plan for this site. The data will be used to optimize the Treatability Study.

Schedule

The field activities proposed in this report are scheduled to occur in late August or early September 2003. Analytical data will be available immediately following this site characterization for samples analyzed by the on-site mobile laboratory. The information gained from this site characterization will be reported in the Treatability Study Work Plan, which is scheduled to be issued in October 2003. The ORC[®] injection part of the Treatability Study will commence in late November 2003 following analysis of the data from this site characterization event.

Reference

CH2M Hill, 2003. "Groundwater Monitoring Report, Fourth Quarter 2002, Revision 00, UST 18, Naval Air Station Pensacola, Pensacola, Florida." Southern Division Naval Facilities Engineering Command, North Charleston, South Carolina.

TtNUS appreciates the opportunity to provide you with these services. If you have any questions regarding the enclosed material, if I can be of any assistance, or if any of these proposed activities are unclear, please contact me at (850) 385-9866, extension 26.

Sincerely,



Gerald Walker
Task Order Manager

GW/cm

Attachment

pc: Mr. G. Campbell, NAS Pensacola
Ms. D. Wroblewski, TtNUS (cover letter only)
Mr. M. Perry/File, TtNUS (unbound copy)
Project File – CTO 313

ATTACHMENT A
FIGURES

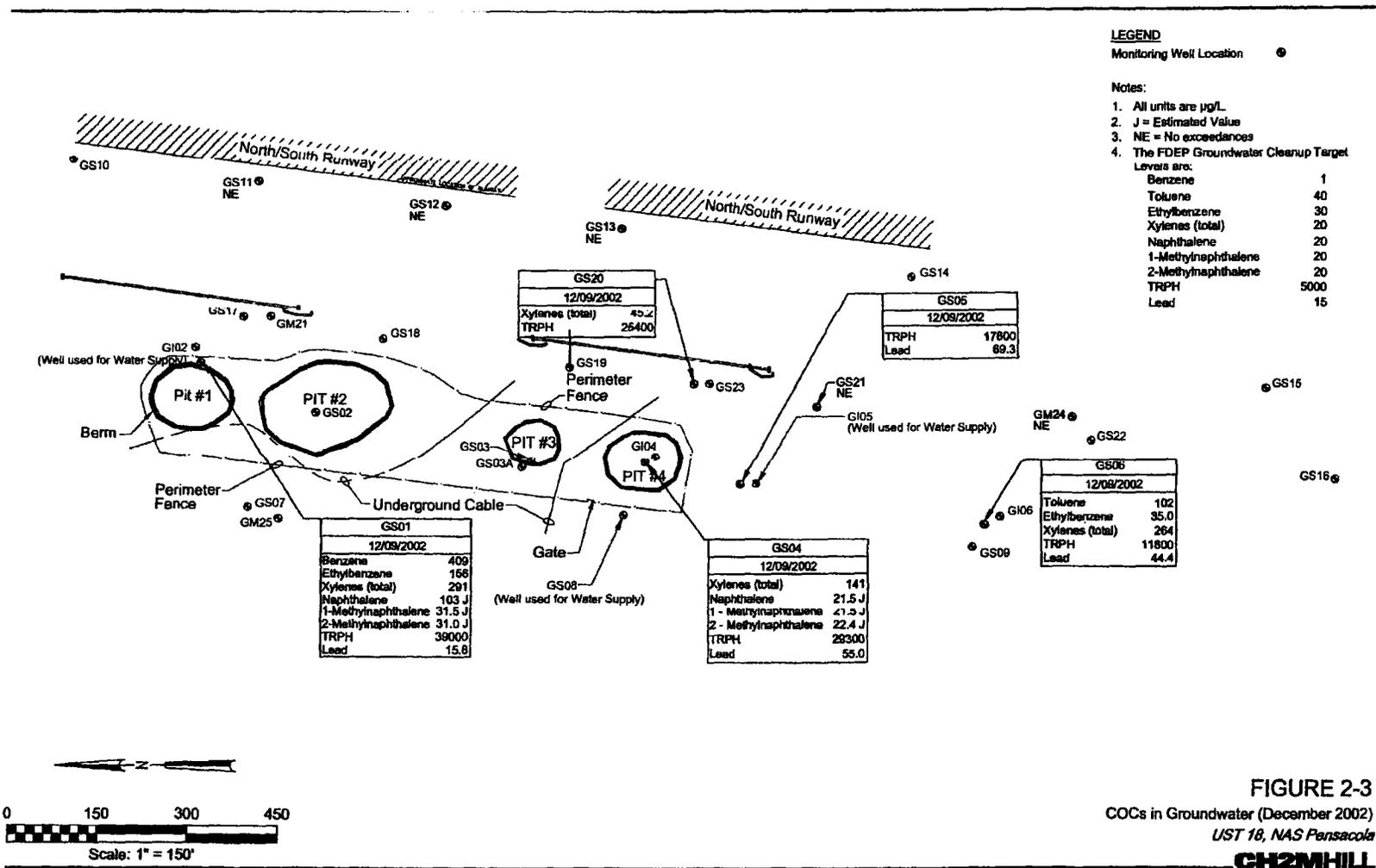
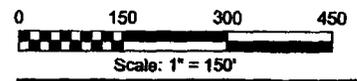


FIGURE 2-3
COCs in Groundwater (December 2002)
UST 18, NAS Pensacola
CH2MHILL



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4-Feb-2003