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DATA SUMMARY LETTER REPORT FOR SOIL AND GROUNDWATER SAMPLING AT
ANIMAL AND PLANT HEALTH INSPECTION SERVICE FACILITY NCBC GULFPORT MS
11/27/2006
TETRA TECH NUS

TtNUS/TAL-06-082/0293-5.0

November 27, 2006

Commander, Southeast
Naval Facilities Engineering Command, Southeast
Attn: Mr. Harold McGill
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: Clean Contract No. N62467-04-D-0055
A/E Contract No. N62467-01-D-0396
Contract Task Order No. 0012

Subject: Data Summary Letter Report
United States Department of Agriculture
Animal and Plant Health Inspection Service Facility
Gulfport, Mississippi

Dear Mr. Harold McGill:

Tetra Tech NUS, Inc. (TtNUS), under contract to the United States Department of the Navy, Naval Facilities Command Southeast (NAVFAC SE), has prepared this Data Summary Letter Report for the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) in Gulfport, Mississippi. This report was prepared under the Comprehensive Long-term Environmental Action Navy (CLEAN) IV, Contract No. N62467-04-D-0055.

INTRODUCTION

This report presents and summarizes the analysis of soil and groundwater samples collected from the USDA APHIS Facility in Gulfport, Mississippi. The goal of the Expanded Site Investigation and this subsequent report is to fill data gaps identified from previous investigations which in turn allows for a more thorough evaluation of the source(s) of contamination and the potential transportation and migration pathway mechanisms. The groundwater data discussed below further characterize the contaminants of concern identified in the Site Investigation Report (TtNUS, 2005).

FIELD ACTIVITIES

Field activities were conducted in accordance with the Final Expanded Site Investigation (ESI) Work Plan Addendum Letter (TtNUS, 2006) and the Site Specific Health and Safety Plan (TtNUS, 2006). Detailed descriptions of field procedures are located in the SI Work Plan (TtNUS, 2004).

Soil Characterization

Six direct push technology (DPT) borings (Figure 1) were advanced on June 27-28, 2006 and one soil sample was collected from each boring based on head space analysis. Selection of DPT boring locations was based on the results of previous delineation and characterization activities. Three of the soil borings (ESI-03, ESI-04, and ESI-06) were placed on the upgradient (western) side of the facility to determine if contaminants were encroaching from an offsite source. ESI-02 was placed on the northeast corner of the facility to fill in a potential data-gap. ESI-05 was placed

near the greenhouse; its location was based on historical practices at the facility that included the long-term storage of pesticide treated plant matter (root-balls). ESI-01 was placed in the south side of the facility in the area of historical dieldrin detections in MW-03. Table 1 shows the depth at which each soil boring was collected.

TABLE 1
SOIL BORING SAMPLE DEPTHS

SAMPLE ID	SAMPLE DEPTH (in feet)
ESI-01	5-10
ESI-02	4-8
ESI-03	4-8
ESI-04	32-36
ESI-05	0-4
ESI-06	4-8

Samples were analyzed for volatile organic compounds (VOCs), herbicides, and pesticides. The results of the soil characterization are discussed below. Figure 2 shows the exceedances (if any) at each of the six soil boring locations.

Monitoring Well Installation

Three monitoring wells (MW-04, MW-05, and MW-06) were installed on June 27-28, 2006 (Figure 1) to provide additional monitoring locations for the evaluation of groundwater contaminants and potentiometric surface flow. The three new monitoring were installed on the western (upgradient) side of the facility. 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.

Figure 3 shows the potentiometric surface flow at the USDA Facility. Groundwater flow direction was determined using elevation data from all six monitoring wells and appears to be moving in a southeasterly direction.

Groundwater Sampling

The first round of groundwater sampling was conducted on July 17-18, 2006. The analyses from monitoring wells MW-01, MW-02, and MW-03 include VOCs and pesticides. Monitoring wells MW-04, MW-05, and MW-06 were analyzed for a full suite of analyses; VOCs, semivolatile organic compounds (SVOCs), pesticides, herbicides, and metals. The results of the groundwater investigation are discussed below. Figure 2 shows exceedances (if any) at each of the six monitoring wells sampled on July 17-18, 2006.

RESULTS

Soil Characterization

Table 2 shows the results of the 6 soil samples collected on June 27-28, 2006. Table 3 shows the summary statistics (mean, range, frequency of detection, etc.)

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- Dichloro-diphenyl-trichloroethane (DDT) was detected in four of the six samples. One sample, ESI-04 (8.4 mg/kg), exceeded the Mississippi Department of Environmental Quality (MDEQ) Tier 1 Unrestricted Target Remedial Goal (TRG) of 1.88 milligram per kilogram (mg/kg). The TRG table is provided in the appendix.
- Dieldrin was detected in five of the six samples. One sample, ESI-04 (.068 mg/kg), exceeded the MDEQ Tier 1 unrestricted TRG of .0399 mg/kg.

Groundwater Sampling

Table 4 shows the results of the 6 groundwater samples collected from MW-1 through MW-6 on July 17-18, 2006. Table 5 shows the summary statistics (mean, range, frequency of detection, etc.) of the 6 groundwater samples collected.

- Dieldrin was detected in one of the six wells. The sample drawn from MW-3 [0.94 micrograms per liter (ug/l)] exceeded the MDEQ Tier 1 TRG of .00419 ug/l. *Note- A groundwater sample drawn from this well on February 19, 2004 exhibited a Dieldrin exceedance of 0.95 ug/l.
- Chloroform was detected in one of the six wells. The sample drawn from MW-3 (0.26 ug/l) exceeded the MDEQ Tier 1 TRG of .155 ug/l. *Note- A groundwater sample drawn from this well on February 19, 2004 exhibited a Delta-BHC exceedance of 0.89 ug/L.
- Delta-BHC was detected in one of the six wells. The sample drawn from MW-3 (0.065 ug/l) exceeded the MDEQ Tier 1 TRG of .0372 ug/l. *Note- A groundwater sample drawn from this well on February 19, 2004 had a Delta-BHC exceedance of .055 ug/l.
- Beta-BHC was detected in one of the six wells. The sample drawn from MW-3 (0.13 ug/l) exceeded the MDEQ Tier 1 TRG of .0372 ug/l.
- Iron was detected in all three new wells. The sample drawn from MW-4 (26,900 ug/l) exceeded the MDEQ Tier 1 TRG of 11,000 ug/l.
- Manganese was detected in all three new wells. The sample drawn from MW-4 (1060 ug/l) exceeded the MDEQ Tier 1 TRG of 730 ug/l.

CONCLUSIONS

The results of the soil investigation indicate that the pesticides DDT and dieldrin, (which rapidly breaks down from Aldrin), are present above MDEQ screening levels. At these levels, MDEQ would be interested in a delineation of the extent of contamination but would not likely require remedial activities. DDT and dieldrin are stable compounds that do not readily migrate in the environment without the presence of a strong solvent. The Agency for Toxic Substances and Disease Registry (ATSDR) fact sheets for these compounds are provided in the appendix.

The additional soil sampling should include vertical profiling at ESI-04 to determine the total depth of the pesticide contamination at that location. Additional horizontal profiling should be completed to ensure that the extent of the contamination is fully understood.

The results of the groundwater sampling confirm the absence of any large-scale VOC plume associated with the USDA APHIS facility. The dieldrin exceedance in MW-3 is consistent with

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previous investigations. This consistent dieldrin exceedance in groundwater at MW-3 is likely the result of the collection of fine organic particles (which the dieldrin is bound) at that location. The reported dieldrin at the soil sample at ESI-04 is upgradient of MW-3 and should be investigated further to determine if there is a relationship between the two detections.

In summary the observed exceedances from this investigation are most likely the results of a local use and/or isolated spills into the environment. The physical properties of the compounds exceeding MDEQ standards (DDT and Dieldrin) are such that they both bind tightly to soil; both mobility and solubility rates are very low. Which means these compounds tend to remain close to the location of the release. Since there is no documented use of DDT and Aldrin (source of the dieldrin) at APHIS, the additional investigative activities discussed above may provide an indication of the source for these contaminants.

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 fisher@ttnus.com

Sincerely,

A handwritten signature in black ink, consisting of a large, stylized loop followed by a long horizontal stroke extending to the right.

Robert Fisher, P.G.
Task Order Manager

Enclosures

c: Debbie Humbert (Cover Letter Only)
Mark Perry/File (Unbound)