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LETTER REGARDING TRANSMITTAL OF SITE ASSESSMENT ADDENDUM 3 FOR UNDERGROUND STORAGE TANKS 681 AND 682 NAS PENSACOLA FL
4/23/2002
TETRA TECH

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Project Number 0231

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Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order No. 0098

Subject: Site Assessment Report Addendum No. 3, Underground Storage Tanks 681 and 682, U.S. Naval Air Station Pensacola, Pensacola, Florida
FDEP #179202973

Ms. Vaught:

Tetra Tech NUS, Inc. (TTNUS) is pleased to submit this Site Assessment Report (SAR) Addendum No.3 for Underground Storage Tanks (USTs) 681 and 682 located at Naval Air Station Pensacola (NASP), Pensacola, Florida. This SAR Addendum No. 3 has been prepared for the U.S. Navy Southern Division Naval Facilities Engineering Command under Contract Task Order 0098, for the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888.

The purpose of the investigation was to address comments from Florida Department of Environmental Protection (FDEP) dated November 9, 2001 on the SAR Addendum No.2.

PREVIOUS INVESTIGATIONS

Investigations conducted at USTs 681 and 682 included a Tank Closure Assessment (NASP Public Works, July 19, 1995), a SAR (TTNUS, January 2000), a SAR Addendum (TTNUS, January 23, 2001), a SAR Addendum No. 2 (TTNUS, October 26, 2001), and this SAR Addendum No. 3.

The initial SAR field activities were conducted during October 1999, and included Direct-Push Technology (DPT) soil sampling of subsurface soil, installation of five (5) monitoring wells using a drill rig and hollow stem auger, and groundwater sampling. The subsurface soil was analyzed for gasoline and kerosene analytical group (KAG) parameters (Table B, Chapter 62-770, Florida Administrative Code), total halides, and fractional organic carbon (FOC). Groundwater samples were analyzed for KAG parameters and natural attenuation parameters (sulfate, nitrate, and dissolved gases[methane, ethane, and ethene]). In January 2000, TTNUS submitted the SAR summarizing the findings of the investigation.

Upon review of the SAR, FDEP issued a letter (Attachment A; March 1, 2000) providing comments on the SAR and requiring the preparation of a SAR Addendum for the site. SAR Addendum activities conducted during October 2000 included DPT sampling of subsurface soil for KAG parameters. A Synthetic Precipitation Leaching Procedure (SPLP) leachate was also analyzed for the stated analyses. An additional monitoring well was installed near former temporary well TW-4. Groundwater samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), PAHs, TRPH, 1,2-dibromoethane (EDB), and total lead. In January 2001, TTNUS submitted the SAR Addendum in response to the FDEP request. The SAR Addendum addressed the FDEP comments and detailed the fieldwork conducted in October 2000. Upon review of the SAR Addendum, FDEP issued a second letter (Attachment A; April 16, 2001) providing comments on the SAR Addendum.

On August 24 and 25, 2001, TTNUS personnel conducted additional fieldwork to address the SAR Addendum comments. Two soil borings were advanced to 20 feet below land surface (bls) in the vicinity of MW-1S and MW-2S (Figure 1; Attachment B). Soil samples were collected at 5-ft. intervals for soil gas screening. The soil gas screening did not indicate elevated soil gas concentrations. Two subsurface soil samples were collected from the vadose zone, analyzed for BTEX, PAHs, TRPH, and evaluated by SPLP. None of the analytes analyzed for were detected above the instrument detection limits.

TTNUS personnel also collected and analyzed groundwater samples from three monitoring wells (MW-1S, MW-2S, and TW-4) (Figure 1; Attachment B). The groundwater samples were analyzed for Volatile Organic Compounds (VOCs), PAHs, TRPH, EDB, and total lead. 1-methylnaphthalene (47 µg/L), 2-methylnaphthalene (57 µg/L), and TRPH (10,500 µg/L) were detected above the FDEP groundwater cleanup target levels (GCTLs) in monitoring well TW-4. Although the concentrations for the two PAHs and TRPH were above the FDEP GCTLs, they were below the Natural Attenuation Default Concentrations for

a source well prescribed by Chapter 62-770, F.A.C. On October 26, 2001, TTNUS submitted the SAR Addendum No.2 in response to the FDEP request. The SAR Addendum No.2 addressed the FDEP comments and detailed the fieldwork conducted in August 2001. Upon review of the SAR Addendum No.2, FDEP issued a third letter (Attachment A; November 9, 2001) providing comments on the SAR Addendum No.2. To address these comments TTNUS completed additional fieldwork. This letter report summarizes the fieldwork and each comment in turn. Conclusions and recommendations for the site are provided in dedicated sections.

FIELD WORK METHODOLOGY AND RESULTS

Groundwater Investigation Results

On March 12, 2002, TTNUS collected groundwater samples from onsite monitoring wells MW-1S (sample NASP-681/682-MW1S) and TW-4 (sample NASP-681/682-TW-4) (Figure 1; Attachment B). In addition, quality assurance samples including, one equipment blank and one trip blank were collected. The groundwater sample from monitoring well MW-1S was analyzed for EDB (EPA 504.1), and the sample from monitoring well TW-4 was analyzed for TRPH (FDEP FL-PRO).

The groundwater sample analytical results are summarized in Table 1 (Attachment C), and the full data package is included in Attachment E. EDB was not detected above the instrument detection limit of 0.02 ug/L in the groundwater sample from monitoring well MW-1S. FDEP's GCTL for EDB is 0.02 ug/L (Chapter 62-777, FAC). TRPH was detected at 18,000 ug/L in the groundwater sample from monitoring well TW-4. The detected concentration of TRPH exceeded the FDEP GCTL of 5,000 ug/L, but was less than the Natural Attenuation Default Concentration for a source well prescribed in Chapter 62-770, FAC.

Two rounds of groundwater level measurements were conducted on November 27, 2001 and March 12, 2002. Each monitoring well top of casing elevation was previously surveyed by a Florida licensed professional surveyor (TTNUS, SAR,January 2000). The north rim for each top of well casing was surveyed to the nearest 0.01 foot relative to the North American Vertical Datum 1988. The water table elevation was calculated by subtracting the depth to water from the top of casing elevation. The results are included in Attachment D. Groundwater flow maps (Figures 2 and 3) are included in Attachment B.

RESPONSE TO COMMENTS

1. *The EDB detection limit (1 ug/L) for the most recent groundwater sampling/analysis event was above the previous detection of 0.54 ug/L at MW1S and well above the primary standard of 0.02 ug/L. Therefore, the monitoring wells should be resampled for EDB analysis.*

Monitoring well MW-1S was re-sampled on March 12, 2002 for EDB. The groundwater sample from monitoring well MW-1S was analyzed for EDB by Environmental Protection Agency method 504.1 resulting in an analytical detection limit of 0.02 ug/L. EDB was not detected in the groundwater sample above the instrument detection limit.

2. *The TRPH concentration of 10.5 mg/L (duplicate had 14.9 mg/L) at TW4 increased from the previous detection of 8.8 mg/L. Therefore, TW4 should be resampled for the site parameters to determine if a decreasing trend in concentrations can be established prior to determine the appropriateness of the monitoring only proposal.*

Monitoring well TW-4 was resampled on March 12, 2002 for TRPH. The groundwater sample from NASP-681/682-TW-4 was analyzed for TRPH by FDEP method FL-PRO. TRPH was detected at 18,000 ug/L. The historic concentrations are presented below.

Monitoring Well	Date	TRPH Concentration (ug/L)
TW-4	October 20, 2000	8,800
	August 25, 2001	10, 500, duplicate sample 14,400
	March 12, 2002	18,000

The detected TRPH concentrations from each sampling event (October 2000, August 2001, and March 2002) increased in comparison to the previous concentration; however, the difference in concentrations is relatively insignificant. The difference in the detected concentrations is most likely due to the limitations of the laboratory sample preparation procedure and the analytical method. This is most apparent in the analysis of the duplicate sample collected on August 25, 2001. There was an approximate 40% difference between the sample (NASP-681/682-TW-4) and the duplicate sample (NASP-681/682-DUP2).

In addition, review of the dissolved oxygen concentration reported for the two wells (Appendix C) indicates reduced dissolved oxygen concentration in source well TW-4, and higher dissolved oxygen concentration in downgradient perimeter monitoring well MW-1. This trend is generally indicative of ongoing natural attenuation processes.

3. *Two complete rounds of water level elevation surveys at least one month apart should be completed to establish site flow conditions, and to aid in determining which monitoring wells should be included in future monitoring events.*

Two complete rounds of groundwater level elevation surveys were conducted on November 27, 2001 and March 12, 2002. The results are included in Attachment D and presented graphically on Figure 2 and 3; Attachment B. Based on the results the groundwater flow is toward the southeast.

RECOMMENDATIONS

Results of the groundwater sampling performed in March 2002 indicate that natural attenuation is a viable option for the UST 681/682 Tank Site. EDB was not detected in the groundwater sample from monitoring well MW-1. TRPH was detected in the groundwater sample from monitoring well TW-4, but at concentrations below the required Natural Attenuation Default Concentrations for a source well prescribed by Chapter 62-770, F.A.C. It is expected that the site will receive a No Further Action (NFA) within five (5) years. Therefore, quarterly monitoring for natural attenuation of the previously detected PAHs, and the previously and currently detected TRPH contamination should be conducted for one year. After this one-year period, the site should be re-evaluated.

The quarterly monitoring event should include groundwater elevation measurements in all on-site monitoring wells and groundwater sampling of monitoring wells TW-4 (source well) and MW-1S and MW-2S (perimeter wells). All three monitoring wells should be sampled for the following parameters:

- BTEX by SW-846 8260B
- PAHs by SW-846 8310
- TRPH by FDEP FL-PRO

The monitoring well samples should be analyzed for the following field and natural attenuation parameters:

- turbidity
- specific Conductance
- temperature
- pH
- dissolved Oxygen
- carbon Dioxide
- oxidation-Reduction (REDOX) Potential
- sulfide
- ferrous Iron

The laboratory, field, and natural attenuation parameters will be used to determine if natural attenuation is possible, and if so, whether natural attenuation is occurring.

Additionally, the Site should be included in the Installation Restoration Program Operable Unit (OU) 2 so the migration of the chlorinated solvent plume associated with OU 2 can be evaluated and tracked.

Sincerely,

Gerald A Walker

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