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MEMORANDUM REGARDING FLORIDA DEPARTMENT OF ENVIRONMENTAL
PROTECTION COMMENTS FOR REMEDIAL INVESTIGATION REPORT FOR POTENTIAL
SOURCE CONTAMINATION 38 (PSC 38) JUNE 2013 TORPEOD REWORK FACILITY DATED
JUNE 2013 NAS JACKSONVILLE FL
9/18/2013
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

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2600 BLAIRSTONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT
GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

MEMORANDUM

TO: Jennifer Conklin, ES II
Federal Facilities Section, BWC

THROUGH: Brian Dougherty, Administrator
Office of District and Business Support
Division of Waste Management

9/18/2013
X 

BID
Signed by: Dougherty_B

FROM: Ligia Mora-Applegate, Environmental Consultant
Office of District and Business Support
Division of Waste Management

9/18/2013
X 

SUBJECT: NAS Jacksonville Site 38
Jacksonville, Duval County, Florida
Remedial Investigation Report and Risk assessments for PSC Site 38, Torpedo Rework Facility At Naval Air Station Jacksonville, dated June, 2013
Site ID#: DOD_7_973

DATE: September 18, 2013,

At your request, the University of Florida (UF) has reviewed *the Remedial Investigation Report and associated Risk Assessments for the Potential Source of Contamination Site 38, Torpedo Rework Facility, Naval Air Station Jacksonville, Jacksonville County, Florida*. The report was prepared by Tetra Tech for the Navy and is dated June 2013.

I have read the report and also read UF comments and while I agree with the overall conclusion presented in the document that the extent of contamination in groundwater has not been fully delineated at the boundary, and that the cancer risk to a hypothetical future resident from soil and groundwater exceed the target risk level acceptable to FDEP, it is also my understanding that the Site is currently being used for industrial/navy related uses and will remain as such that the surficial aquifer where contamination is found is not used for drinking water consumption and that there is a thick clay confining unit between this shallow aquifer and the potable Floridan aquifer.

The soil sampling depth intervals used in Phase I and II for pesticides and Arorclor-1260 (PCBs) do not conform to those specified in Chapter 62-780, FAC (0-0.5 ft, 0.5-2 ft, and in two-foot intervals thereafter) for metals and semivolatiles. Utilizing a larger vertical composite interval (0-2 ft) could dilute concentrations of those chemicals of concern.

The Basewide Background Study included in Appendix D, has very high concentration for groundwater (Cr, Pb, Vd, Hg etc.etc.).

The University of Florida's comments are attached. I concur with them and recommend that they be addressed.

If you have any questions, please contact me at 850 245-8992.

September 18, 2013

Ligia Mora-Applegate
Bureau of Waste Cleanup
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Review of the Remedial Investigation Report and associated risk assessments for PSC 38 at Naval Air Station Jacksonville (Duval County, DOD_7_973)

Dear Ms. Mora-Applegate:

At your request, we have reviewed the *Draft Remedial Investigation Report for Potential Source of Contamination 38, Torpedo Rework Facility, Naval Air Station Jacksonville, Jacksonville, Florida*. This document was prepared by Tetra Tech and is dated June 2013. The report concludes total cancer risk from soil exceeds the FDEP target risk of 1E-06 for the future residential and construction worker exposure scenarios. Arsenic, lead, manganese, 1,4-dioxane, trichloroethene, and vinyl chloride are present in groundwater above their FDEP groundwater cleanup target levels (GCTLs) (or site-specific background) and are designated as chemicals of concern (COCs). We agree with the overall conclusion of this analysis; specifically, total risk exceeds 1E-06 in soil for residents and several GCTLs are exceeded, indicating potable use of groundwater is also of concern at the site. Total risks from direct contact with soil for the other proposed scenarios (commercial/industrial, trespasser, and maintenance) are below the FDEP target risk level. The document states that direct contact with soil for construction workers also exceeds 1E-06. However, the proposed alternative cleanup target levels (ACTLs) for construction workers appear to be miscalculated (discussed below). Based on our review, total risk for direct contact with soil does not exceed 1E-06 for construction workers. We have the following comments regarding the document.

1. The soil sampling depth intervals for pesticides and Arorclor-1260 (PCBs) utilized at this site were 0-2 ft and 2-4 ft below ground surface. Because these compounds are semi-volatile, the sampling intervals promulgated under Chapter 62-780, FAC (0-0.5 ft, 0.5-2 ft, and in two-foot intervals thereafter) are applicable.
2. Based on the calculations in Appendices G (95% UCL calculations) and I (risk calculations), it appears the depth intervals were combined when calculating the exposure point concentrations (EPCs). Combining depth intervals can dilute the concentrations associated with direct exposure (Table 7-7) and may result in an underestimation of risk. Assessing each depth interval separately results in the

addition of barium as a COC for the 0.5-2 foot depth interval and Aroclor-1260 (PCBs) as a COC for the 0-2 foot depth interval.

3. Aluminum, beryllium, iron, and vanadium were excluded as COCs in groundwater based on comparisons with background concentrations. The proposed basewide background concentrations were originally presented in the Remedial Investigation/Feasibility Study for use at OU1 (Appendix D). We did not review this document, however, these concentrations appear high and may not be representative of sitewide background (e.g., aluminum = 147,318 $\mu\text{g/L}$, iron = 68,292 $\mu\text{g/L}$, lead = 45.8 $\mu\text{g/L}$).
4. In Table 7-3, the FDEP leachability criteria for chromium and cobalt are switched. Chromium is a concern for leachability since the maximum soil concentration of 284 mg/kg exceeds the leachability criterion of 38 mg/kg.
5. Based on Figure 5-1, vertical delineation of groundwater does not appear to be complete. This is critical for the chlorinated solvent COCs (e.g., trichloroethene, vinyl chloride) because they are denser than water and tend to sink throughout the water column.
6. In Table 7-1, benzo(a)pyrene (BaP) was the only carcinogenic PAH screened against a soil criterion. As promulgated in Chapter 62-777, FAC, the total concentration of carcinogenic PAHs should be calculated using BaP toxic equivalents (TEQs). The total carcinogenic PAH concentration based on the information provided in this report is 0.06 mg/kg, which does not alter the conclusion that PAH concentrations are not of concern in soil.
7. An exposure frequency of 26 d/y was proposed for the trespasser scenario based on professional judgment. This value appears low, especially for Florida. We recommend using an exposure frequency of 52 d/y, which has been utilized by the FDEP for the trespasser scenario at other sites.
8. Table 7-6 contains "Receptor-Specific RSLs and CTLs". All were calculated by Tetra Tech. Direct exposure residential and industrial soil CTLs (SCTLs), as well as groundwater CTLs (GCTLs), are based upon default exposure assumptions, and as such, should match default SCTLs and GCTLs in Chapter 62-777, F.A.C. Alternative SCTLs are presented for a maintenance worker, a construction worker, and an adult trespasser. Comments regarding Table 7-6 are listed below.
 - a. The residential and industrial SCTLs listed in Table 7-6 should match exactly those promulgated in Chapter 62-777, FAC. Most of the values differ somewhat due to rounding and the exclusion of acute toxicity values.
 - b. Tetra Tech used a body weight of 76.1 kg to calculate GCTLs. Per Chapter 62-777, F.A.C., the body weight used to calculate GCTLs should be 70 kg.
 - c. The FDEP uses a default relative bioavailability of 0.3 for arsenic (Chapter 62-777, FAC) versus the value of 1 utilized to derive the arsenic SCTLs in this report.

- d. Barium and vanadium have promulgated acute toxicity values that are applicable under scenarios where children may be present (e.g., residential, school, park) (Chapter 62-777, FAC). Therefore, the residential SCTL is 120 mg/kg for barium and is 67 mg/kg for vanadium.
 - e. The SCTLs for chromium should be 210 mg/kg and 470 mg/kg for the residential and commercial/industrial scenarios, respectively. In addition to rounding, there may be a calculation error in the derivation of these values given that the residential criterion is five-times greater than the calculated commercial/industrial criterion.
 - f. We were unable to reproduce most of the construction worker ACTLs with the inputs specified in the document. Also, some of the proposed soil ACTLs for the construction worker appear incorrect. For example, the proposed criteria for aluminum, chromium, and manganese are lower than residential criteria. Based on our calculations, the construction worker criteria for these chemicals should be higher than the residential criteria.
 - g. Based on our calculations, the proposed ACTLs are high for vanadium under the maintenance worker scenario (calculated = 12,000 mg/kg, proposed = 50,149 mg/kg) and for chromium under the trespasser scenario (calculated = 1,900 mg/kg, proposed = 8,934 mg/kg).
 - h. The "FDEP GCTL" values listed in this table are incorrect. They were calculated exclusively based on a target risk of 1E-06 and do not include primary or secondary standards. They were also calculated using an incorrect body weight as noted above. The FDEP GCTLs in Table 7-6 should match exactly those promulgated in Chapter 62-777, FAC. Manganese (GCTL = 50 µg/L, proposed = 329 µg/L), nickel (GCTL = 100 µg/L, proposed = 140 µg/L), and trichloroethene (GCTL = 3 µg/L, proposed = 3.18 µg/L) have calculated criteria that exceed the promulgated GCTLs.
 - i. The vapor intrusion screening levels (VISLs) for cis-1,2-dichloroethene appear high. Using the US EPA VISL calculator, we calculated a residential VISL of 37 µg/m³ (proposed = 63 µg/m³) and a commercial/industrial VISL of 150 µg/m³ (proposed = 260 µg/m³).
9. The FDEP residential SCTLs for barium and vanadium are based on acute toxicity (one-time exposure). Therefore, the maximum concentration should be compared to these SCTL. For PSC 38, a 95% UCL was utilized for all COPCs. Although a 95% UCL can be used for the commercial industrial scenario, under scenarios where children are present, acute SCTLs apply and the maximum concentration should be used.
 10. It is important to note that, if a 95% UCL is utilized as the exposure point concentration (EPC), no single concentration above three times the applicable CTL may remain on-site (Chapter 62-780, FAC). Arsenic (maximum = 18.6

mg/kg, residential = 2.1 mg/kg) and Aroclor (maximum = 4.19 mg/kg, residential = 0.5 mg/kg) have concentrations that exceed this criterion.

11. The uncertainty analysis (page 7-10) states, "as a result of using the 95 percent UCL, the estimations of potential risk were most likely overstated because this is a representation of the upper limit that potential receptors would be exposed to over the entire exposure period". It is important to note that the 95% UCL is an upper confidence limit on the mean concentration and, therefore, is a conservative estimate of the average exposure. It does not represent an upper limit of exposure, which is usually defined as an upper percentile (e.g., 90th percentile).
12. It is unclear why aluminum and iron were excluded from the residential hazard index calculations (Appendix I). However, inclusion of these chemicals in the calculation does not raise the hazard index above 1.
13. Barium is retained as a COC in groundwater because it exceeds the FDEP target hazard index of 1. Barium does not exceed its GCTL of 2,000 µg/L (maximum = 620 µg/L) and can be removed as a COC in groundwater.
14. Section 5.3.1.3 states that no PAHs were detected in any of the groundwater samples taken on February 22, 2012. However, Table 5-1 reports PAH detections in well 38GW003 on that sampling date.
15. Section 5.3.2.4 did not specify which chemical exceeded its leachability SCTL of 2 µg/kg. It appears that dieldrin was omitted from this sentence.
16. Chromium in soil exceeds its target risk of 1E-06 for construction workers. This appears to be a calculation error since the residential scenario uses the same EPC, but does not exceed the target risk.
17. Text is missing between the bottom of page 7-12 and top of page 7-13.

As requested, we have reviewed the reference citations, tables, figures, Table of Contents, List of Tables, and List of Figures for accuracy. All of these elements were correctly represented in the document. No typographical, formatting, or other editorial errors were noted. Please let us know if you have any questions regarding this review.

Sincerely,



Leah D. Stuchal, Ph.D.



Stephen M. Roberts, Ph.D.