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MEMORANDUM REGARDING FLORIDA DEPARTMENT OF ENVIRONMENTAL  
PROTECTION and UNIVERSITY OF FLORIDA COMMENTS ON REMEDIAL  
INVESTIGATION REPORT FOR POTENTIAL SOURCE CONTAMINATION 38 (PSC 38) MAY  
2014 TORPEDO REWORK FACILITY NAS JACKSONVILLE FL  
8/6/2014  
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION



**FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION**  
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RICK SCOTT  
GOVERNOR

CARLOS LOPEZ-CANTERA  
LT. GOVERNOR

HERSCHEL T. VINYARD JR.  
SECRETARY

**MEMORANDUM**

**TO:** Jennifer Conklin, Environmental Manager  
DoD and Brownfields Partnerships Section, WCP

**THROUGH:** Brian Dougherty, Administrator  
Office of District and Business Support, DWM

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\_\_\_\_\_  
B/D 8/7/2014

**FROM:** Ligia Mora-Applegate  
Office of District and Business Support, DWM

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Signed by: MoraApplegate, L. 8/7/2014

**SUBJECT:** Remedial Investigation Report PSC 38 Torpedo Rework Facility  
NAS Jacksonville, Duval County, Florida  
Dated May, 2014  
DOD\_7\_973

**DATE:** August 6, 2014

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At your request, the University of Florida (UF) and I have reviewed the Remedial Investigation Report PSC 38 Torpedo Rework Facility, NAS Jacksonville, Duval County, Florida. The report was prepared by TetraTech and is dated May 2014.

This version of the report is a definite improvement over a previous report reviewed in September 2013. Additional assessment was conducted and it is mostly satisfactory except for the sampling interval of PCBs which was not done in accordance with 62-780 F.A.C. We agree with the conclusion that there is contamination in soil and groundwater and this contamination must be addressed to deal with human health risks. Since the Site is not a viable habitat, a decision was made not to perform an ecological risk assessment. We agree with that decision, but there are however some technical issues that still need to be addressed in order for us to recommend approval of the draft remedial investigation and risk assessment, they are:

The sampling interval depth for PCBs and pesticides is not in accordance with Chapter 62-780 F.A.C.

The 95% UCL calculations to derive exposure point concentrations need to be performed with data from the same interval, this was not always the case.

Background concentrations in groundwater seem too high for Aluminum, Iron and most definitely Lead. Some chemicals were excluded as Chemicals of Concern based on background values. These background values were not approved by us.

All carcinogenic PAHs need to be converted to benzo(a)pyrene equivalents and use the total B(a)P TEQ to determine if indeed there are no exceedances of PAHs.

Table 7-6 does not list the 62-777 F.A.C., Cleanup Target Levels correctly.

Barium and Vanadium acute toxicity-based derived SCTL are applicable in scenarios where children may be exposed (i.e., park, schools and residences).

When there are primary and secondary standards for some GCTLs they are listed in 62-777 F.A.C. and as such should be reflected in Table 7-6 which lists risk-based derived values for these COCs as GCTLs and does not list the primary and secondary standards which are different.

The FDEP acceptable Relative Bioavailability Factor (RBA) for arsenic is 0.33.

Inconsistencies on whether or not delineation is complete should be addressed (see pages 5-13, 8-1 and page 8-3 which contain conflicting statements).

I recommend that Chromium be speciated, if it is not Chromium VI it could be dropped as a Chemical of Concern.

The University of Florida's detailed comments are attached. I concur with them.

If you have any questions, please contact me at 5-8992.

August 5, 2014

Ligia Mora-Applegate  
Office of District and Business Support  
Division of Waste Management  
Florida Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Re: Remedial Investigation Report, PSC 38 Torpedo Rework Facility, NAS Jacksonville  
(Duval County, DOD\_7\_973)

Dear Ms. Mora-Applegate:

I have reviewed at your request 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 TetraTech and is dated May 2014. I reviewed a previous draft of this report dated June 2013 and, along with Dr. Stuchal, provided comments to you in a letter dated September 18, 2013. In the interim, additional [Phase IV] sampling has been conducted. This consisted of: 1) installation of four additional temporary monitoring wells and sampling for analysis of VOCs, SVOCs, and metals; 2) collection of groundwater samples via DPT from 14 additional locations for analysis of VOCs; and 3) collection of additional soil samples from five locations for analysis of metals. These additional samples have improved characterization of contamination at the site.

I agree with the fundamental conclusion of the analysis that there is contamination in both soil and groundwater at the site that will need to be addressed based upon human health risk concerns. I also concur with the decision not to conduct an ecological risk assessment. Although I have not visited the site, aerial photographs and the site description support a conclusion that the site does not represent viable habitat. Also, TetraTech should be commended on the extent to which they have attempted to address simultaneously the differences in risk assessment approaches used by the U.S. EPA and the Florida Department of Environmental Protection (FDEP). The extra effort taken to do this should make it easier for both agencies to find the document acceptable and useful.

In comparing this draft with the previous version, I note that some of the review comments on the last draft have been addressed and others have not. Technical aspects of the report that have not been corrected detract from the report overall and, in some instances, affect the reliability of the risk estimates. Remaining issues are summarized in the comments below.

1. Soil sampling was conducted over different depth intervals for different contaminants. Metals, low level PAHs, and SVOCs evaluated at intervals of 0 – 0.5, 0.5 – 2, and 2 – 4 ft bls, while VOCs, were evaluated at depth intervals of 0.5 – 2, and 2 – 4 ft bls. PCBs and pesticides were evaluated from 0 – 2 and 2 – 4 ft bls, and PGDN concentrations were measured in the 2 – 4 ft bls interval. The conceptual site model indicates that many of the site contaminants were likely introduced to subsurface soil, e.g., from underground tanks, but there is no apparent logic to these depth intervals. Further, based upon the calculations in Appendices G (95% UCL calculations) and I (risk calculations), it appears that concentrations at the different depth intervals were combined when calculating the exposure point concentrations. Combining results from different depth intervals can effectively dilute contaminant concentrations and underestimate risk associated with exposure to the most contaminated soil horizon. Exposure point concentrations [for direct contact with soil] should be derived for each soil interval separately.
2. Several chemicals were excluded as COCs in groundwater based upon comparisons with background concentrations. The background concentrations used for comparison were originally presented in the Remedial Investigation/Feasibility Study for use at OU1 and are tabulated in Appendix D of this report. I did not review this background study, but note that some of these concentrations appear high and may not be representative of site-wide background (e.g., aluminum – 147,318 µg/L; iron – 68,292 µg/L; lead – 45.8 µg/L).
3. PAHs were screened individually against risk-based criteria. For carcinogenic PAHs, all should be converted to benzo(a)pyrene (BaP) equivalents and compared against media-specific screening criteria for BaP. This will not change the conclusion that carcinogenic PAHs are not COCs in soil. It will, however, provide a stronger technical basis for that conclusion.
4. Table 7-6 includes "re-derived" FDEP cleanup target levels (CTLs), meaning calculated for various scenarios using formulas and inputs from Chapter 62-777, F.A.C. There are several problems with numbers presented in this table:
  - a) Many of the residential and commercial/industrial soil cleanup target levels (SCTLs) in Table 7-6 are different from those presented in Chapter 62-777, F.A.C., despite supposedly using the same formulas and inputs (with the possible exception of toxicity values). For most of these, differences are probably due to rounding. Nevertheless, the FDEP SCTLs for residential and commercial/industrial scenarios should match exactly those promulgated in Chapter 62-777, F.A.C.
  - b) Barium and vanadium have acute toxicity values that are applicable under scenarios where children may be present (e.g., residential, school, park) as promulgated in Chapter 62-777, F.A.C. The residential SCTLs should be 120 mg/kg and 67 mg/kg for barium and vanadium, respectively.
  - c) The SCTLs for chromium should be 210 mg/kg and 470 mg/kg for 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 in Table 7-6 is five-times greater than the calculated commercial/industrial criterion.

- d) In the previous review, we were unable to reproduce most of the construction worker ASCTLs with the inputs specified in the document. These criteria have not changed in the current document.
  - e) The ASCTL for vanadium under the maintenance worker scenario appears to be high by a factor of about 4.
  - f) The table and accompanying text needs to clarify that the values presented as groundwater cleanup target levels (GCTLs) are not necessarily the FDEP GCTLs, but rather risk-based values based upon formulas and inputs specified in Chapter 62-777, F.A.C. Many GCTLs are based upon primary and secondary standards, and for some chemicals can be quite different than risk-based values corresponding a 1E-06 excess cancer risk or hazard index of 1. As a result, there are substantial differences between the values labeled as GCTLs for these chemicals in Table 7-6 and the actual GCTLs in Chapter 62-777, F.A.C. Some additional clarification on this point is needed to avoid confusion.
  - g) The derivation of a soil criterion for arsenic now uses a relative bioavailability (RBA) of 0.6 per new EPA guidance. It is unclear whether the same RBA was used for the corresponding FDEP SCTL. The FDEP has a default RBA of 0.33 for arsenic in soil.
5. The FDEP residential SCTLs for barium and vanadium are based on acute toxicity (one-time exposure) in small children. Because exposure is based upon a single soil contact event, the maximum concentration should be used as the exposure point concentration in a residential scenario rather than a 95%UCL as in the report.
  6. Per Chapter 62-780, F.A.C., if the 95%UCL is used as the exposure point concentration, no single concentration above three times the applicable CTL can remain on-site. Arsenic (maximum – 18.6 mg/kg versus residential SCTL of 2.1 mg/kg) and Aroclor (maximum – 4.19 mg/kg versus residential SCTL of 0.5 mg/kg) have concentrations that exceed this criterion. While arsenic was identified as a COC in soil, Aroclor was not. In section 6.4, the report seems to suggest that retaining Aroclor as a COC may be important (*“There is one area near the buildings where Aroclor-1260 is present at concentrations greater than the industrial SCTL. This could be an indication of a PCB containing waste source and should be investigated further.”*)
  7. The vapor intrusion screening levels (VSLs) for cis-1,2-dichloroethene appear high. In our previous review, using the U.S. EPA VISL calculator, we calculated a residential VISL of 37 µg/m<sup>3</sup> (proposed – 63 µg/m<sup>3</sup>) and a commercial industrial VISL of 150 µg/m<sup>3</sup> (proposed – 260 µg/m<sup>3</sup>).
  8. 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.”* Actually, 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., 90<sup>th</sup> percentile).
  9. The document contains conflicting statements regarding the adequacy of contamination assessment. On page 5-13, the report states, “Soil at PSC 38 has

been successfully delineated to below residential SCTLs at the end of Phase IV." On page 8-1, the report states, "The nature of the contamination was determined; however, the areal extent of contamination was not completely delineated in soil or groundwater." Then, on page 8-3, the report states, "The information presented in this RI demonstrates that the nature of the contamination is known and the extent of contamination in groundwater has been fully delineated..." For clarity, these inconsistencies should be addressed.

10. There is a typographical error in Table 7-3. The FDEP leachability criteria for chromium and cobalt are reversed.

As requested, I 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 presented in the document. No typographical, formatting, or other editorial errors were found except those noted in the comments above. Please me know if you have any questions regarding this review.

Sincerely,

A handwritten signature in black ink, appearing to read "S. Roberts", with a large, stylized flourish extending to the right.

Stephen M. Roberts, Ph.D.