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LETTER AND COMMENTS FROM RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT ON DRAFT SUPPLEMENTAL SEDIMENT INVESTIGATION REPORT SITE 19 FORMER DERECKTOR SHIPYARD NS NEWPORT RI
6/11/2012
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 TDD 401-222-4462

11 June 2012

Winoma Johnson, P.E.
NAVFAC MIDLANT (Code OPTE3)
Environmental Restoration
Building Z-144, Room 109
9742 Maryland Avenue
Norfolk, VA 23511-3095

Re: Draft Supplemental Sediment Investigation Report
Site 19, Former Derecktor Shipyard, NETC

Dear Ms. Johnson,

The Office of Waste Management at the Rhode Island Department of Environmental Management has conducted a review of the *Draft Supplemental Sediment Investigation Report*, dated April 2012 for the Former Derecktor Shipyard (Site 19), Naval Station Newport, located in Newport, RI. As a result of this review, this Office has generated the attached comments on the *Draft Supplemental Sediment Investigation Report*..

If you have any questions in regards to this letter, please contact me at (401) 222-2797, extension 7020 or by e-mail at pamela.crump@dem.ri.gov.

Sincerely,

Pamela E. Crump, Sanitary Engineer
Office of Waste Management

cc: Matthew DeStefano, DEM OWM
Richard Gottlieb, DEM OWM
Gary Jablonski, DEM OWM
Darlene Ward, NSN
Kymberlee Keckler, EPA Region I
Steve Parker, Tetra Tech

30% post-consumer fiber

RIDEM Comments (6/11/12)
Supplemental Sediment Investigation Report
Site 19 – Former Derecktor Shipyard
Naval Station Newport, Rhode Island

1. **p. E-4, Section E.4, Physical Characteristics; 2nd paragraph.**

   The statement that *"Bioturbation and resuspension do not appear to be influencing sediment accumulation"* is unsupported. Please provide additional information to support this assertion.

2. **p. 1-7, Section 1.4, Development of Cleanup Goals (PRGs), 1st sentence.**

   Please replace *"benzo(a)anthracene"* with *"benzo(a)pyrene"*, which is a limiting COC.

3. **p. 2-1, Section 2.0, Study Area Field Investigations; 1st paragraph, last sentence.**

   Please delete *"Division of Site Remediation"* after RIDEM.

4. **p. 2-5, Section 2.1.3, Field Measurements and Observations – Sediments for Chemical Analysis.**

   "At a total of 18 sediment sample locations, either a sheen or a petroleum-like odor or both were observed in sediments."

   We believe it is evident that there is TPH contamination in the sediment at this site; therefore, remedial objectives should be developed for TPH.

5. **p. 3-2, Section 3.2.1, Figure 3-1, Bathymetric Survey Results (color scale).**

   Are the numerous small depressions indicated on the multibeam data presented in Figure 3-1 indicative of biological activity or are they potentially related to sudden, small-scale releases of trapped, subsurface, biogenic gas? In either case, is there the potential for resuspension of sediments during such events and would resuspended sediments be expected to travel far under current conditions? Please provide additional information in this section of the report.

6. **p. 3-4, Section 3.2.3, Radioisotope Analysis Results.**

   The statement that *"Bioturbation and resuspension do not appear to be influencing sediment accumulation"* is unsupported. Please provide additional information to support this assertion.

7. **p. 3-4, Section 3.3, Hydrographic Information.**

   Figure 2-1 depicts the locations of samples collected for sedimentation rates and for deployment of ADCP units to measure velocity, turbidity, and other parameters related to currents in Coddington Cove. The locations are positioned such that the closest location to a

pier is on the order of 100 feet away. Figures 4-1A through 4-3G indicate that much of the contamination exceeding standards is present adjacent to or beneath the piers. Given the upper limit of measured flow of approximately 28 cm/sec, what is the predicted flow increase due to current diversion around pier pilings and is it enough to scour and resuspend contaminated sediments from beneath the piers?

8. **p. 3-4, Section 3.3, Hydrographic Information.**

   All conclusions appear to be made relative to steady-state conditions. What is the potential for remobilization during extreme events such as during hurricanes, tropical storms and extreme flooding events? In addition, the affects of boat traffic should also be considered.

9. **p. 3-5, Section 3.3.1, Hydrographic Survey – URI, 1995.**

   Please note that flow data were collected when there were no significant wind events. Therefore, estimated flow velocities may not be representative of high-energy (e.g., storm) events that could affect scouring, especially in areas of relatively low deposition and a silty, fine-grained matrix. Please add a discussion to this section in regards to this, or correct the text as stated in comment 11 below discussing the wind event on September 16th.

10. **p. 3-6, Section 3.3.2, Hydrographic Investigation (ADCP) – 2011; last paragraph.**

    On page 3-6, the report states *"no significant wind events occurred during the duration of deployment"*. However, the 3rd paragraph on page 3-7 states *"the only wind event that occurred during deployment was on September 16th"*. Please revise this section for consistency.

11. **p. 3-8, Section 3.4, Sediment Stability and Cohesion, 2nd paragraph.**

    Does the flow rate estimated for the surface layer (28.7 cm/sec) reflect an average flow rate across cores? Please clarify.

12. **p. 4-1, Section 4.1, Data Validation and Usability Assessment.**

    Please note that the data validation report was not included in the pdf version of Appendix B-2. Please include this in the Draft Final document.

13. **p. 4-3, Section 4.2. Analytical Results; 1st paragraph after bullets, *"Spline with Barriers"*.**

    Depending on the objectives of the spatial interpolation (contouring), it may be prudent to compare the results of the spline interpolation with those of a geostatistical method (i.e., kriging) that takes into consideration the spatial correlation of the data and quantifies uncertainty in the predictions (i.e., prediction standard error). Prediction standard error estimates are very helpful in assessing areas of greatest interpolation uncertainty. In addition, in the geostatistical analyst extension to ArcGIS, kriging can be performed after detrending and/or transforming the data to produce more reliable estimates. Grid clipping can be used to account for the shoreline, or if the use of a barrier is essential to the interpolation itself,

Surfer by Golden Software supports kriging with breaklines. Cross-validation can then be used to compare the two models (spline interpolation vs. kriging).

14. p. 4-10, Section 4.2.2.8, Zinc in the 12- to 24-inch Sediment Interval.

The statement that zinc may be attributed to natural geochemistry is unsupported. Samples located in the outermost reaches of the study area demonstrate lower levels of zinc than those located nearest the piers/shoreline, where there are other co-located contaminants. This comment also applies to Section 4.2.3.8. Please add additional support or eliminate this statement from the text.

15. p. 4-11, Section 4.2.3.1, HMW PAHs in the 24- to 48-inch Sediment Interval.

The discrepancy in PAH concentrations between 1995 and 2011 could also be attributable to typical high variability in sediment composition, rather than contaminant burial. Please include this statement in this section of the report.

16. p. 5-1, Section 5.5.1, PAHs; 1st paragraph.

Do you mean to state that highest concentrations of PAHs were found at Pier 2? (see Table 4-1; sample J30 had the maximum HMW PAH concentration.) Please clarify.

17. p. 5-1, Section 5.1.2, Benzo(a)pyrene.

This section states that the levels of benzo(a)pyrene and size of affected area decrease with increasing depth. While this is generally true across the study area, this does not hold true for Pier 1 where elevated concentrations were observed at depth (at the west end). This area of elevated benzo(a)pyrene is also co-located with an area of elevated HMW PAHs. Please update this section of the report.

18. p. 5-2, Section 5.1.3, Total PCBs.

The 4th sentence states that PCB levels in the 24-48" interval are below RPRGs; is this sentence specific to Pier 2? There is an area by Pier 1 where deep samples are between 2-5 times the PRG. (This is also indicated in the last sentence of this paragraph.) Please clarify this sentence.

19. p. 5-3, Section 5.1.5, Site-Wide Distribution of Elevated COCs.

Elevated lead, copper and zinc concentrations are more widespread than organic contaminants throughout the study area. However, because there are no recent data for the areas beyond the piers and the T-Wharf, it may be prudent to further characterize extent of copper and zinc in these areas. It would also be useful in this document to show a map with historical COC concentrations, for comparative purposes. Please provide this figure in the response to comments. The figure should also depict the depth of the historical contaminant levels.

The last paragraph of this section states that vertical distribution of data indicates contaminant burial is taking place. However, the data do not support this statement. As

indicated on Table 4-1 and the relevant Section 4 figures, the overall highest COC concentrations are found in surface (0-12") sediments.

Furthermore, sediment deposition takes place at an average rate of <1 cm year (based on Pb-210 analysis), but samples for chemical analysis were collected over one-foot depth intervals, across a span of up to four feet. Based on this deposition rate, the upper foot represents approximately 30 years of sediment accumulation, versus Navy operations of approximately 50-60 years. Because surface samples represent decades of sediment accumulation, and depth profiles indicate that the highest concentrations are in the top foot of sediment, we do not feel it is appropriate to make a conclusion from these data about contaminant trends versus sediment deposition. Therefore, please remove the statements that burial of contaminants is occurring throughout the site.

20. p. 5-5, Section 5.3, Levels of Copper and Zinc in Sediment, 1st full paragraph.

The discussion of PRG/RPRG for zinc is based on the avian predator exposure pathway. While we are not providing comments on the basis of this PRG, we do recommend adding in a statement to this paragraph regarding whether risk to invertebrates and other ecological receptors was considered, because many of the observed zinc concentrations are well above published sediment benchmarks (such as the NOAA ER-L and ER-M).

21. p. 5-7, Section 5.6, Conclusions.

RIDEM has concerns with respect to the stated depositional rates and the conclusion that burial of contaminants is occurring at the site. In addition, the report did not consider the artificial effects that the berthing of the carriers (the last of which is scheduled to be removed from the site) may have on flow patterns and depositional rates at the site.

Even if the conclusions concerning the depositional rates at the site are accepted, the elevated concentrations of COCs, coupled with the generally slow rate of sediment deposition (at most, 1-2 cm/year) and potential for disturbance/resuspension as a result of storm events, suggest that natural recovery through burial may not be an adequately protective remedy. As discussed in comment 19 above, the chemical analytical results show elevated concentrations for many COCs in the most surficial layer of sediment, and currently do not support contaminant burial.