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U S NAVY RESPONSE TO REGULATOR SUPPLEMENTAL COMMENTS TO DRAFT TECHNICAL MEMORANDUM POST MILCON ACTION EVALUATION SWMU 7B SMALL BOATS SANDBLAST YARD (DESERT COVE) NAB LITTLE CREEK VA

2/10/2012

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February 10, 2012

Virginia Department of Environmental Quality
Attn: Mr. Paul Herman, P.E.
629 Main Street, 4th Floor
Richmond, VA 23219

Subject: Response to VDEQ Supplemental Comments on Draft Technical Memorandum, Post-MILCON Action Evaluation, SWMU 7b – Small Boats Sandblast Yard (Desert Cove)
Joint Expeditionary Base (JEB) Little Creek, Virginia Beach, Virginia
Navy CLEAN 1000, Contract N62470-08-D-1000, Task Order WE32

Dear Mr. Herman:

On behalf of the Navy, CH2M HILL is pleased to submit the following response to the supplemental comments received November 30, 2011, from VDEQ. The supplemental comments identify outstanding concerns with the responses (distributed November 21, 2011) to the October 5, 2011, comments on the *Draft Technical Memorandum, Post-MILCON Action Evaluation, SWMU 7b – Small Boats Sandblast Yard (Desert Cove), Joint Expeditionary Base (JEB) Little Creek, Virginia Beach, Virginia* (CH2M HILL, May 2011):

Comment 1: Page 3, Environmental History: In the 1st bullet, please consider the following revision, "PAHs are not likely attributable to *the CERCLA activities (sandblasting) at* SWMU 7." In the 2nd bullet, please include the mean, maximum and background concentrations to show the similarities.

Response 1: The text in the 1st bullet has been revised as indicated in the comment. The mean and maximum concentrations have been added to the text of the 2nd bullet; there are no background concentrations for arsenic. However, the similarity in the mean and maximum concentrations indicates that there is relatively little variability in concentrations, suggesting that this chemical is at background levels.

VDEQ Response: Regarding the 2nd portion of the response concerning the absence of background concentrations for arsenic, was this because background samples were not analyzed for arsenic or because the background levels were non-detect? Regarding the similarity between the mean and maximum concentrations found in SWMU 7b sediment this could be attributed to the uniform aerial distribution of arsenic across the site as dust from the sandblasting operations settled on Desert Cove and the adjacent land.

Response: The background samples, collected initially for the SWMU 3 evaluation, were not analyzed for arsenic as arsenic was not a SWMU 3 COC. The Tier 1 partnering team

initially discussed collecting additional background samples (at the Little Creek Cove reference area) for SWMU 7b to address the additional secondary COCs not common to the two sites (arsenic, selenium, and silver). Following the Team's November 2008 decision that risks associated with PAHs and the secondary COCs did not require further evaluation, the background set from SWMU 3 was used since it now included all of the SWMU 7b COCs.

It is unlikely the uniform arsenic concentrations are due to aerial distribution of ABM residues as arsenic is not typically associated with sandblasting residues and the primary metal COCs do not show similar uniform distributions.

The second bullet has been updated to read: "Arsenic was identified as a secondary COC in the Cove Area and Pier Area during the 2004 RI, where only the discrete RI sediment samples were used to derive the list of COCs. When considering both the discrete and composite RI samples, the site-wide maximum hazard quotient (HQ) for arsenic in surface sediment is low (1.54) and the site-wide mean HQ is less than 1. Arsenic is not typically associated with sandblasting residues. Although arsenic was not measured as part of the background sediment investigation, the similarity of the mean (8.1 mg/kg) and maximum (12.6 mg/kg) concentrations suggests that this chemical is present at background levels. Additionally, the primary metal COCs, which are typically associated with sandblasting residues, do not show similar uniform distributions."

Comment 7: Page 12, Correlation between Benthic Metrics and Physical/Chemical Parameters: Please list/identify the 23 possible correlations discussed in the 1st full paragraph. Also, please apply a grading scale to rate correlation significance, i.e., for very poor correlations, $R_2 < x$; for poor correlations, $x < R_2 < y$; for fair correlations, $y < R_2 < z$; and so on for good and very good correlations and where an excellent correlation is $R_2 = 1$. Then, use the appropriate grade in place of "highly correlated" and "significantly correlated" or fit those terms into a grading scheme styled in the matter discussed in this comment.

Response 7: The 23 possibilities are listed in Attachment D, Table D-23, a reference to which was added to the text. The following categories were added and used in the report to describe the strength of the correlations: (1) weak: < 0.50; (2) moderate: 0.50 to 0.80; and (3) strong: >0.80. However, since the term "significantly correlated" describes the statistical significance of the test, it was retained in addition to the terms that describe the relative strength of the correlations.

VDEQ Response: Regarding the use of the term "significantly correlated", please explain what, specifically, is significant about the correlation. For example, if total density was weakly correlated with percent ABM is that weak correlation statistically significant because it shows the total density metric is unaffected by the percent ABM present. What characteristics are present in a "highly correlated" data set that are not present in a "significantly correlated" data set; what sets the two apart or are "highly" and "significantly" synonymous terms that are used interchangeably when used with the term "correlated"?

Response: The term "significantly correlated" refers to the statistical significance of the correlation, that is, the correlation is statistically significant at the level of significance

specified for the statistical test (0.05, equating to a 5 percent probability that the correlation is due to chance alone). However, due to factors such as the distribution of the data and sample size, statistically significant correlations do not necessarily explain a "high" proportion of the variability in the data (which is measured by the R^2 value, a measure of the strength of the relationship with a value of 1 representing a perfect correlation). Thus, correlations that have high R^2 values (as defined in the original response) will almost always be statistically significant but the converse is not always true. In this context, "highly" and "significantly" are not synonymous. In the document, the term "statistically" has been inserted when discussing the statistical significance of a correlation.

Comment 11: Table 4: In the Connector Channel there were no tin detections in 2009 yet a mean value is provided. Why?

Response 11: When calculating the mean, one-half of the sample detection limit was used for samples where the analyte was not detected. For the 2009 Connector Channel data, the mean value for tin is thus the average of one-half of the detection limits for the 5 samples.

VDEQ Response: Please add a footnote to the table explaining the calculation.

Response: A footnote has been added as requested to Table 4 and Table D-17.

The above responses (and other Team comments/responses) will be incorporated into the draft final version of the technical memorandum.

Please do not hesitate to contact me at 757-671-6266 if you have any questions concerning these responses.

Sincerely,

Cecilia Landin
Activity Manager

cc: Mr. Bryan Peed/NAVFAC Mid-Atlantic
Mr. Jeffrey Boylan/USEPA
Administrative Record File