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LETTER AND U S NAVY RESPONSE TO U S EPA REGION III COMMENTS REGARDING DRAFT SITE INSPECTION SAMPLING AND ANALYSIS PLAN FOR PENNIMAN LAKE CHEATHAM ANNEX FISC WILLIAMSBURG VA
02/24/2011
CH2M HILL

CH2M HILL
5700 Cleveland Street, Suite 101
Virginia Beach, VA 23462
Tel 757.518.9666

February 24, 2011

Ms. Susanne Haug
Remedial Project Manager
NPL/BRAC Federal Facilities Branch
United States Environmental Protection Agency, Region 3
1650 Arch Street (3HS11)
Philadelphia, PA 19103-2029

Subject: Responses to Comments on the *Draft Site Inspection Sampling and Analysis Plan, Penniman Lake, Naval Weapons Station Yorktown Cheatham Annex, Williamsburg, Virginia*, November 2010

Dear Ms. Haug:

On behalf of the U.S. Department of the Navy's Naval Facilities Engineering Command (NAVFAC MIDLANT), CH2M HILL has prepared this letter in response to your letter dated January 5, 2011 that provided comments for the subject document. Comments received are shown in *italics*, followed by the Navy's response in blue.

❖ *Comment #1 – The Executive Summary should clearly indicate if PCBs were the only contaminants detected in Penniman Lake during the previous sampling event.*

It is noted that the purpose of this Site Inspection is to determine the source of PCBs in Penniman Lake. Evaluation of other chemicals will be considered, as warranted, during the Remedial Investigation.

The Executive Summary has been revised to include other contaminants that exceeded screening criteria. The underlined text in the following paragraph has been added to the second paragraph of the Executive Summary:

> In 2000, surface water and sediment sampling was conducted within four man-made surface water bodies located within CAX, including Penniman Lake (Baker, 2001). The following were detected in sediment of Penniman Lake at concentrations that exceeded ecological and/or human health risk screening values:
>
> - polychlorinated biphenyls (PCBs): Aroclor-1260
> - metals: aluminum, arsenic, beryllium, cadmium, chromium, iron, manganese, mercury, vanadium
> - semivolatile organic compounds (SVOCs): benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, indeno(1,2,3-cd)pyrene
> - pesticides: dieldrin, 4,4'-DDT, endosulfan sulfate, endrin ketone
>
> As a result of the PCB detections, a catch-and-release fishing restriction was implemented for the lake, and further investigations were recommended into the

potential source of PCBs and to evaluate potential risks to human health and the environment.

- *Comment #2* – *Worksheet #10 on page 37 includes the statement that "Sample locations were selected to provide sufficient spatial coverage across the lake and at potential discharge areas to the lake." Given the unknown uses of this lake and the variability of contaminants within the sediment, it is not certain that there is sufficient spatial coverage, particularly considering that most of the lake sediment sample locations are about 150 to 450 feet apart.*

  As stated in Worksheet #17, "Sediment sample locations were selected to provide sufficient spatial coverage across the lake and at potential discharge areas to the lake as a means of determining the current concentrations and general extent of PCBs in the Penniman Lake sediment." The purpose of this Site Inspection is to determine the source of PCBs in Penniman Lake. Results will be evaluated to determine whether further delineation efforts are warranted in the remaining steps of the SI or in a Remedial Investigation.

- *Comment #3 - On Worksheet #10 on page 37 the fourth environmental question is "If releases to sediment of Penniman Lake are confirmed, what is the appropriate next step?" Previous sampling showed total PCB concentrations ranging from 4,000 to15,000 µg/kg. Considering the isolated nature of this lake, it is unclear what other sources of PCBs, or other contaminants, there would be other than those attributable to the Navy.*

  The purpose of this Site Inspection is to determine the source of PCBs in Penniman Lake.

- *Comment #4 – Worksheet #10 on page 37 states that "Surface soil and sediment samples will be collected during Step 2 of the SI upgradient from detected concentrations observed in sediment of the lake, pending partnering team concurrence that additional upgradient samples are warranted." It is unclear how the partnering team will decide whether upgradient samples are needed. Clarification on this issue should be provided. BTAG recommends that samples be collected upgradient of all areas where PCBs are detected in the lake.*

  As shown in the Step 1 Decision Tree (Figure 5), upgradient sample locations will be identified if PCBs are detected in sediment. The results from Step 1 of the Site Inspection will be presented to the Partnering Team; the Partnering Team will then determine whether additional samples upgradient are warranted.

- *Comment #5 – Worksheet #11 on page 39 indicates that sediment samples will be collected at a depth of 0-4 inches bgs. Given the potential length of time that contaminants have been sequestered in this lake, sediment cores need to be collected and analyzed for contaminants.*

  The primary purpose of the Site Inspection is to identify potential source areas of PCBs to the lake and their likely transport pathways. In this context, the sediment samples from the lake will primarily be used to determine how the spatial distribution of PCBs relate to these source areas/transport pathways and if/how the concentrations and/or spatial distribution of PCBs in the lake have changed from the 2000 Pond Study, which sampled sediments from 0 to 4 inches. Subsurface sediment samples from the lake will

be considered during a Remedial Investigation, if warranted, based upon the results of the SI.

- *Comment #6 - Worksheet #11 on page 39 states that PCB data will be compared to human health and ecological risk-based screening levels. The ecological risk-based screening levels listed are the surface soil and sediment BTAG screening levels. These levels address direct toxicity to invertebrates and plants. Because PCBs are known to be highly bioaccumulative and cause impacts to higher trophic level receptors, the food chain pathway also needs to be addressed.*

  The BTAG soil screening value has no toxicological basis but was included to ensure that the laboratory achieved sufficiently low reporting limits for all anticipated uses of these data. This value, and the sediment screening value, are sufficiently low such that meeting them will also be protective of upper trophic level receptors from food web exposures (based upon realistic [baseline ERA] exposure scenarios). Food web pathways will be quantitatively evaluated during a Remedial Investigation, if warranted, based upon the results of the SI.

- *Comment #7 – Worksheet #11 on page 40 states "The data will be of the quantity and quality necessary to provide technically sound and defensible assessments of possible sources of PCBs and the associated potential risks." The text needs to explain analysis for PCB Aroclors is sufficient and PCB congener data is not needed. In addition, the text needs to define the complete list of potential contaminants of concern.*

  The purpose of this SI is to determine the presence of PCBs in Penniman Lake. Sample locations with detected concentrations of PCBs will be further assessed in Steps 2-4, but congener analysis will not be conducted in these steps. Once the source is defined, congener analysis may be warranted to determine toxicity factors. Source identification is attainable with Aroclor analysis. The following statement (in underlined text) has been added to the first bullet on page 40, Worksheet #11:

  > The data will be of the quantity and quality necessary to provide technically sound and defensible assessments of possible sources of PCBs and the associated potential risks. PCB source(s) can be identified using Aroclor concentrations; as a result, congener analysis is not warranted during the SI. Sample results will be used to track PCBs upgradient toward potential source area(s).

  In addition, the chemicals of potential concern for Penniman Lake have been added to the Executive Summary.

- *Comment #8 – Worksheet #11 on page 41 there is a reference to "…Figures 5 through 8." However, these figures are not included (only Figures 1 through 4 are provided).*

  These figures were inadvertently omitted from the pdf. Figures 5-8 were later provided to USEPA for review. The approved/revised versions of Figures 5-8 will be included in the final version of this SAP.

- *Comment #9 – Worksheet #14 on page 47 and Worksheet #18 on pages 57 to 59 state that surface sediment samples will be collected from 0 to 6 inches below sediment surface. This is*

different from information provided on Worksheet #11 on page 39 and Worksheet #17 on page 55 which state that surface sediment will be collected from 0 to 4 inches below sediment surface. This issue should be clarified. BTAG recommends that surface sediment samples be collected from 0 to 4 inches below sediment surface.

The correct depth is 0-4 inches below sediment surface. The text on Worksheets #14 and #18 has been revised accordingly.

- *Comment #10 – Figure 3 shows the proposed soil and sediment sampling locations. The figure shows all samples collected from the lake as sediment and all samples collected from upgradient creeks and ditches as soil. Clarification should be provided on how it was determined that all creek and ditch samples were best characterized as soil. This issue is important for the evaluation of ecological risk since this will determine the screening levels to which the data will be compared. Intermittent and perennial creeks and ditches may be best evaluated as sediment, however, the determination of the appropriate screening values will ultimately be determined by the receptors using the area. It is conceivable that materials from these types of environments would support terrestrial biota during some periods of the year (warranting comparison with soil values) and aquatic biota, and at potentially sensitive life stages, at other times of the year (warranting comparison with sediment values).*

  The media type at each sample location will ultimately be determined in the field based upon the degree of saturation, the properties of the substrate (e.g., color, odor), and the presence of wetland indicators. Media types were assumed for the purpose of this SAP. In instances where the classification is uncertain, the sample will be collected as sediment so that the accompanying physical parameter data (TOC and grain size) will be available, if needed. For screening purposes, the ecological screening values for soil and sediment are similar enough that the ultimate classification of the samples by media type should make little or no difference in the conclusions of the SI.

- *Comment #11 - Page 41, second bullet says that samples supporting step 1 and a portion of step 2 samples will be collected during one field mobilization event. What portion of step 2? Page 37 and the decision tree on Figures 5 and 6 imply that only the lake will be sampled in step 1 and then step 2 will be another sampling event that will take place if PCBs are found in the lake.*

  The Executive Summary explains the portion of Step 2 that will be conducted as part of this SAP; however, this is not clear in Worksheet 11, which has been revised accordingly. The portion of Step 2 to be conducted as part of this SAP, in conjunction with Step 1, is the collection of soil samples from potential upland sources along the northwest finger of the lake. Twenty-six (26) soil samples are proposed for collection. Figure 5 explains Step 1; Figure 6 explains Step 2, including the portion of Step 2 being conducted as part of this SAP. The underlined text in the paragraph below has been added to the second bullet on page 41:

  > Samples supporting Step 1 and a portion of Step 2 will be collected during one field mobilization event. This field mobilization is expected to occur in early 2011. The portion of Step 2 to be conducted is based on results of previous investigations of the northwest portion of Penniman Lake, and

includes the surface soil sampling and evaluation of potential upland PCB sources along the northwest finger of the lake.

- *Comment #12 - The figures show that if no PCBs are found in the sediments there will be no further action, however, we know they are there from the Pond Study so we still need to do something.*

  One purpose of the Site Inspection is to verify the presence of PCBs in Penniman Lake. Sample locations were also selected in areas of other detections in order to verify the previous results. The Step 1 Decision Tree (Figure 5) has been revised to show that the Partnering Team will reconvene to determine a path forward for the lake if no PCBs are detected during Step 1.

- *Comment #13 - Figure 7 – the "no" response still should lead to "Prepare Technical Memo…"*

  Figure 7 has been updated.

- *Comment #14 - Shapes on figure 5-8 seem to have been used at random. The start and end are typically ellipses, decisions are diamonds and tasks are rectangles, etc.*

  The shapes on Figures 5-8 have been revised accordingly.

If you have any questions or comments regarding the above response to comments, please feel free to contact me at 757-671-6258, or Marlene Ivester at 757-873-1442, ext. 41634.

Sincerely,

CH2M HILL

Katie Tippin
Project Manager

cc: Ms. Krista Parra /NAVFAC MIDLANT
Mr. Wade Smith/VDEQ
Ms. Marlene Ivester/CH2M HIL