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October 8, 1999

US Environmental Protection Agency
Region II Headquarters
Chief, RCRA Caribbean Section
290 Broadway – 22nd Floor
New York, NY 10007-1866

Attn: Ms. Nicoletta DiForte

Re: Contract N62470-95-D-6007
Navy CLEAN, District III
Contract Task Order (CTO) 0033
RCRA/HSWA Permit No. PR2170027203
U.S. Naval Station Roosevelt Roads
Response to Comments Received in EPA Letter Dated
July 27, 1999 Regarding the CMS Final Report for
SWMU 13 and SWMU 46/AOC C

Dear Ms. DiForte:

Baker Environmental, Inc. is pleased to provide you, on behalf of the Navy, responses to the comments contained in your July 27, 1999 letter. The Navy has reviewed the comment letter pertaining to the CMS Final Report for SWMU 13 and SWMU 46/AOC C. This letter and accompanying attachments provides the Navy's' response to the comments. Please note the EPA comments are included in italics before each response for ease of review.

Comment

1. *Although the CMS outlines the exposure scenarios evaluated, it does not provide the specific exposure parameter values utilized in the exposure evaluations. Without that information it is not possible to evaluate the acceptability of the clean-up levels proposed in the CMS.*

Response

Agreed. Additional information concerning the derivation of cleanup levels including exposure parameters will be included in Section 3.0 of the CMS. In addition, an appendix containing all cleanup level calculations will be added to the report.

Comment

2. *Although the clean-up levels proposed in the CMS are indicated to be protective of construction workers (with limited duration exposure), they may not be protective of more permanent on-site workers, who could have a longer duration exposure. Indicative of this is the CMS recommended soil clean-up goal of 1.1 mg/kg for benzo(a)pyrene, based on a construction worker's exposure via accidental soil ingestion and dermal contact. Yet, the Region III Risk Based Concentration (RBC) for industrial exposure, based solely on a soil ingestion pathway (ignoring the dermal contact risk), is*

0.78 mg/kg. This difference in acceptable concentration levels appears to result from the more limited duration of the construction worker exposure. The CMS must be revised to also evaluate exposures for longer [than construction worker] duration permanent on-site workers, or document that such exposures are not realistic for these sites.

Response

RBCs are not to be construed as site-specific cleanup levels. They are presented in Section 3.0 for referential purposes only. However, a more conservative commercial/utility worker scenario will be added to Section 3.0 to evaluate longer-term worker scenarios at each SWMU and AOC.

Comment

3. *Also, except for the pesticide dieldrin and possibly other constituents listed in Table 3-1 for SWMU #13, the clean-up levels proposed in the CMS are not protective under possible residential land usage conditions. Moreover, the CMS gives conflicting information with regard to clean-up levels at SWMU #13. For instance, Section 3.4.3 of the CMS states that "Residual levels of dieldrin would produce a residual risk in excess of 1.0×1.0^{4} if future residential property use occurs" and then goes on to state that because of that [dieldrin] risk, "sediments will be removed to residential cleanup levels". Yet Table 3-3, titled "Proposed Sediment Remediation Levels SWMU 13", has a footnote indicating that those levels are "Based on the Construction Worker Scenario". The CMS must be revised to:*

   a) *clearly specify the clean-up levels for SWMU #13 for all constituents of concern, and the exposure scenarios they are based on, and*

   b) *specify the institutional (i.e., land usage) and/or physical (e.g., fence) restrictions to be part of any final remedy where clean-up levels are based on a non-residential usage scenario.*

Response

Text will be clarified in Section 3.0 to indicate that sediment clean up levels were selected to be consistent with other likely property uses and potential exposure scenarios (i.e., to protect construction workers). In order to do so however, sediments will be removed from the concrete lined drainage ditch and disposed of accordingly. As a result, residual sediments and associated contaminants will not be left in place such that the remediation of ditch sediments will be protective of future residents.

adequate

Institutional control language is currently provided for SWMU 46/AOC C in both sections 4.0 and 5.0. No institutional controls are required for SWMU 13 because all sediment will be removed from the drainage swale.

Comment

4. *Section 5.0 of the CMS should be revised to include:*

   a) *a program to evaluate all excavated soils and sediments at both SWMU #13 and SWMU 46/AOC C for toxicity characteristics pursuant to 40 CFR § 261.24, and*

b) *a statement that all remediation wastes generated at SWMU 46/AOC C shall be managed pursuant to the PCB requirements of 40 CFR § 761.60, as warranted.*

Response

adequate

These statements have been incorporated into Section 5.0 as requested.

Comment

5. *In addition, Section 5.0 of the submitted document constitutes a draft corrective measures implementation (CMI) workplan. To be consistent with RCRA terminology and procedures, Section 5.0 should be revised to address comment #4 above, and re-submitted, within 45 days of your receipt of this letter, as the draft CMI workplan. Of course, the draft CMI workplan must also incorporate any revised clean-up levels, based on comments #1 through #3 above, and comments given in the enclosed Technical Review.*

In addition to the CMI workplan discussed above, please submit a revised CMS Final Report, within 45 days of your receipt of this letter, addressing the above comments and those given in the enclosed Technical Review. If you wish, the CMS Report and CMI workplan may be submitted as separate portions of a single document.

Response

adequate

Section 5.0 of the CMS was intended to serve as a draft CMI Work Plan. Section 5.0 was prepared following the previously USEPA approved "Annotated Outlines". The statements regarding the CFR have been incorporated into Section 5.0. A separate CMI work plan will be submitted upon approval of the final CMS.

Booz-Allen Hamilton Comments

GENERAL COMMENTS

Comment

1. *The Corrective Measures Study (CMS) for SWMU #13 and SWMU #46/AOC C at the Naval Station Roosevelt Roads (NSRR) fails to provide detailed information on the calculation of the proposed remediation levels. The appropriateness of the levels cannot be confirmed without this information. The exposure parameters used in the derivation of the remediation levels and the target risk must be provided to determine whether the proposed levels are adequately protective. For the purposes of this review, Booz-Allen has assumed that the exposure parameter values used in the development of the proposed remediation levels for the Tow Way Fuel Farm at NSRR are the same as those for SWMU #13 and SWMU #46/AOC C. However, if it is determined that the parameters used in the development of the remediation levels at the Tow Way Fuel Farm differ from SWMU #13 and SWMU #46/AOC C, then the evaluation of the proposed remediation levels may no longer be appropriate.*

In addition, for the purposes of this review, Booz-Allen assumed that all previous reviews (including the baseline human health risk assessment) were appropriate and resulted in defensible positions, and that this document is an extension of a defensible risk assessment. In fact, initial indications suggest that this is the case, although the general guidance upon which the clean-up levels is

predicated appears somewhat dated (e.g., use of the 1989 Exposure Factors Handbook rather than the 1997 version).

Response

Exposure parameters used in the Tow Way Fuel Farm were used in the CMS for SWMU #13 and SWMU #46/AOC C. Calculations and detailed information will however, be added to this report to support the appropriateness of the proposed clean up levels in accordance with this comment.

General guidance used in the derivation of proposed clean up levels includes information from the 1989 Exposure Factors Handbook and parameters from the more recent 1997 version. References will be added to this CMS to identify which parameters were obtained from specific guidance documents as was done for the Tow Way.

Comment

2. *While the proposed remediation levels are based on current conditions and are protective of construction workers, the levels may not be adequately protective of potential future receptors, which may include commercial workers and residential receptors. Because the chemicals of concern (COCs) were screened using both residential and industrial Region III risk-based concentrations (RBC), and the proposed levels are based solely on exposures to construction workers, those COCs which exceeded the residential RBCs are not accounted for in the proposed remediation levels. Thus, further remediation may be necessary if the land use should change. In particular, the CMS states that the PCB rule stipulates the remediation of polychlorinated biphenyls (PCBs) to a lower concentration in the event that future property use changes. If residential uses of the property occur in the future, institutional controls (i.e., fencing) or deed restrictions will be necessary to ensure protection of human health from PCBs. In addition, it will be necessary to evaluate the other COCs that exceeds the residential screening criteria to determine the appropriateness of additional remediation or institutional controls.*

Response

Proposed clean up levels were established for the current and most likely future land use scenarios. They are not protective of human health if the property is use for residential purposes. As such, institutional controls must be established to prevent the future residential use of SWMU #13 and SWMU 46/AOC C. Text will be modified throughout the document to address PCBs and all COCs concerning the protectiveness of selected corrective measures in the event of land use changes.

Comment

3. *Because this review does not extend to the baseline risk assessment it cannot be determined whether cumulative effects are considered in determining the proposed remediation levels. Section 3.4.3, Selection of Remediation Levels, indicates that "residual levels of dieldrin would produce a residual risk in excess of 1.0E-4"...[but that] all other COCs would produce risks that fall within US EPAs target risk range of 1.0E-06 to 1.0E-04." Although EPA's National Oil and Hazardous Substances Pollution Contingency Plan (NCP) specifies an acceptable risk range of 10^{-6} to 10^{-4}, an acceptable carcinogenic risk level is usually determined by the Agency on a site-specific basis. This document does not provide extensive information regarding cumulative estimates of risk upon which remedial*

decisions may be based. However, the presented values are reflective of the preeminent risk drivers. Additional additive inputs from COCs excised from the detailed discussion are likely to be negligible (or at least unlikely to result in an order of magnitude difference). It appears that the facility is targeting a remedial strategy designed to ensure that risk estimates do not exceed the 10^{-4} threshold, assuming that this upper bound level is applicable under current and future use conditions. A broader review of information not presented within this document is necessary to determine the applicability of allowable risks in the mid or upper 10^{-3} range.

Response

adequate

Comment acknowledged. Additional information concerning the derivation of clean up levels including exposure parameters will be included in Section 3.0 of the CMS. In addition, an appendix containing all clean up level calculations will be added to the report.

Comment

4. *Inorganic analytes were not retained for further evaluation in the development of remediation levels at either SWMU 13 or SWMU #46/AOC C. Several inorganic analytes, however, showed accedences of their respective Region III RBC criteria. Specifically, arsenic at SWMU #13, and arsenic, beryllium, lead and cadmium at SWMU #46/AOC C displayed concentrations above screening levels. Because the CMS does not include a discussion of background concentrations of inorganic relative to site conditions, it is not possible to determine whether the detected concentrations are present at naturally occurring levels. Without this information, it is not possible to determine whether certain inorganic constituents should be included as COCs and targeted for remediation.*

Response

adequate

Although inorganics including arsenic, beryllium, lead and cadmium exceeded USEPA Region III RBCs and were selected as COPCs for quantitative evaluation in the base line risk assessment, these constituents did not produce unacceptable carcinogenic risks or unacceptable noncarcinogenic hazard quotients or hazard indices. As a result, they were not retained in Section 3.0 of the CMS for further quantitative evaluation.

SPECIFIC COMMENTS

Section 3.4.3 Selection of Remediation Levels, page 3-6

Comment

1. *The Region III RBCs for soil are based solely on soil ingestion and do not consider dermal contact and/or other exposure pathways (e.g., inhalation). Footnote (1) on Table 3-3, Proposed Sediment Remediation Levels, SWMU #13, indicates that the proposed sediment remediation levels consider exposure via ingestion and dermal contact. However, it is unclear exactly what if any adjustment factors were used in considering dermal contact from sediments. Since sediment is typically associated with an increased percentage of water by weight as compared with soil, and this increased water aids in the absorption of contaminants across dermal layers, an adjustment factor is typically used to calculate remediation levels for sediment. The CMS does not appear to consider this factor when determining the proposed remediation levels. The CMS should be revised to include a*

discussion of factors influencing the dermal exposure pathway for sediments. The proposed remediation levels should be revisited to ensure protection from exposures via multiple pathways.

Response

Additional information concerning the derivation of clean up levels including exposure parameters will be included in Section 3.0 of the CMS. In addition, an appendix containing all clean up level calculations will be added to the report.

For sediments, soil parameters were used to determine contaminant absorption of contaminants across dermal layers. Although the use of an adjustment factor would produce more conservative estimates of clean up levels, the nature of the ditch and sediments therein make it possible to remove all contaminated sediments regardless of the clean up level proposed. This will be explained in text in Section 3.4.3.

Comment

2. *In the first paragraph of Section 3.4.3, the text indicates that remediation levels were selected to protect construction workers because there are no current residential properties on site and remediation to residential levels would be overly conservative. However, the following paragraph of Section 3.4.3 appears contradictory. It states "Because of the residual risk associated with dieldrin, sediments will be remediated to residential clean-up levels." This statement is not consistent with the facility's initial stated goal of pursuing remediation based on exposures to current construction workers. The CMS should include a discussion clarifying why sediments will be remediated based on residential exposures.*

Response

Text will be clarified in Section 3.4.3 to indicate that sediment clean up levels were selected to be consistent with other likely property uses and potential exposure scenarios (i.e., to protect construction workers). In order to do so however, sediments will be removed from the concrete lined drainage ditch and disposed of accordingly. As a result, residual sediments and associated contaminants will not be left in place such that the remediation of ditch sediments will be protective of future residents. This will be better explained in text.

acceptable

Comment

3. *The PCB proposed soil remediation goal of 25 ppm is derived from the Final PCB Disposal Rule (40 CFR Parts 750 & 751) based on low occupancy. According to Section 3.4.3, a residual level of 25 ppm of PCB in soil results in a human health risk of 7.8E-05. Although this area is deemed low occupancy, the cumulative risk due to exposure with other residual contaminants may result in a risk in excess of 1.E-04. The CMS fails to include a discussion on the consideration of cumulative effects resulting from residual contamination. The CMS should be revised to address this issue.*

Response

Agreed. This issue will be revisited to determine the cumulative effects of all residual contaminant levels and a discussion will be provided in the Final CMS report.

acceptable

The following comments are based on potential data gaps associated with the review of this single document without the associated background documents (e.g., Baseline Human Health Risk Assessment).

Comment

A. *Section 3.4.3 of the CMS Report provides an incomplete basis for the review of appropriately protective health-based standards as the basis for preliminary remediation goals or clean-up levels. The CMS Report does not provide an effective discussion of the selection of COCs. Selection of COCs appears to based solely on comparison to the US EPA Region III RBCs. The CMS Report does not include a complete discussion of non-anthropogenic inorganic background levels, nor does it provide a discussion of data quality or validation. In addition, a discussion of sample quantitation limits (SQL) or treatment of elevated detection limits is not provided. Without an effective discussion of the data treatment it is not possible to determine whether COCs have been adequately and accurately identified. Without this information, it is impossible to determine whether all relevant exposure pathways (e.g., ingestion, inhalation, dermal contact) have been considered.*

Response

COCs were selected by an evaluation of the results presented in the baseline risk assessment. Chemicals responsible for unacceptable cancer risks and hazard index values exceeding 1.0 were identified at each SWMU or SWMU/AOC. Several inorganics produced HI values exceeding 1.0, but these contaminants affect different target organs and did not have individual HQ values in excess of 1.0. As a result, the inorganics were not evaluated further as COCs in the CMS. Selection of COCs is discussed in Section 3.2 of the CMS.

adequate

Because detection limits are evaluated as part of the RFI report and are included in results for the baseline risk assessment (i.e., one-half of the detection limit value is used in the determination of the concentration term for all COPCs) further evaluation of detection limits or sample quantitation limits in the CMS are not necessary. Data from the RFI do not exhibit elevated detection limits that caused a chemical to not be retained as a COPC.

Comment

B. *The CMS Report does not provide an adequate discussion of the current or future proposed land uses. Without this information and additional information regarding the surrounding land use, it is not possible to evaluate the applicability of the receptor populations, exposure routes and pathways outlined for discussion. Furthermore, it is unclear why the sole receptor population considered is a transient population - the on-site construction worker. Lastly, by not providing the exposure parameters in the CMS Report, it is not possible to evaluate the appropriateness of the proposed remediation levels.*

Response

A more detailed discussion of current and future potential land use will be added to Section 3.0 of the CMS. A commercial/utility worker receptor will be added to provide a longer duration evaluation of industrial land use. Additional information concerning the derivation of clean up levels including exposure parameters will also be included in Section 3.0 of the CMS. An appendix containing all clean up level calculations will be added to the report as well.

Comment

C. *The proffered clean-up levels are specific only to a current construction worker, not to an on-site worker who might be reflective of exposures typified by a generic commercial/industrial worker. This is illustrated by the calculated-soil remedial goal at SWMU #46/AOC C of 1.1 mg/kg for benzo(a)pyrene, as compared to the Region III industrial RBC of 0.78 mg/kg. By extension, this level is clearly not protective of generic residential exposures.*

Response

Proposed clean up levels were established for the current and most likely future land use scenarios. They are not protective of human health if the property is use for residential purposes. As such, institutional controls must be established to prevent the future residential use of SWMU 46/AOC C.

Institutional control language will also be added to the CMS because other media will not be remediated to protect future residents.

Please do not hesitate to call either myself at (412) 269-2009 or Mr. Christopher T. Penny, the Navy Technical Representative at (757) 322-4815 if you have any questions or desire further clarification of any of the points discussed in this letter or attachment.

Sincerely,

BAKER ENVIRONMENTAL, INC.

Mark E. Kimes

Mark E. Kimes, P.E.
Activity Coordinator

MEK/lp

cc: Mr. Christopher T. Penny, LANTDIV (3 copies)
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