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U S NAVY RESPONSE TO U S EPA REGION III COMMENTS TO DRAFT SITE INSPECTION REPORT AREAS OF CONCERN 1, 2, 6, 7 AND 8 NWS FISC WILLIAMSBURG VA
10/4/2011
U S NAVY

Response To Comments

Draft Site Inspection Report
Areas of Concern 1, 2, 6, 7, and 8

Naval Weapons Station Yorktown Cheatham Annex
Williamsburg, VA

October 4, 2011

Comments received by email on August 15, 2011 from John Burchette, U. S. Environmental Protection Agency (USEPA) Region 3.

Comment provided via email: *I have a number of issues with this. Although the general HH Risk screening process provided in appendix A is generally an acceptable and common approach, the document doesn't necessarily follow the process. Many of the chemicals are screened out based on inappropriate screening techniques (inconsistent with EPA Guidance) or judgment calls and not based on scientific evidence. While judgement call may be an acceptable way of proceeding as a site progresses through the CERCLA process, the high level of uncertainty (limited sample coverage) associated with a PA/SI makes these decisions premature.*

Response: The human health and ecological risk screenings conducted were carried out under the current USEPA and/or Navy ERA guidance. Based on a review of the available SI analytical data, the proposed paths forward for the various AOCs followed a logical scientific decision analysis and were not based on opinion. While there will always be a certain amount of uncertainty associated with any PA/SI, the Navy believes that the proposed recommendations were made based on sound scientific evidence; for those AOCs where uncertainty exists, further investigation has been proposed.

EPA RPM General Comment 1: *There are a multiple instances in this document that are inconsistent with EPA Guidance and some revisions will need to be made or an explanation should be provided as to why they would be appropriate. Examples would be: averaging groundwater samples, applying dilution attenuation factors directly to groundwater samples (typically DAFs are used for and applied to soil migration to groundwater), screening risks from individual chemical against the 5x10-5 cancer and 0.5 HQ screening level (should be cumulative risk for the site not on a per chemical basis), and taking the mean HQ of soil samples and screening them out.*

Further, much of the above is not consistent with the Human Health Screening Methodology (A.2) in Appendix A of this document.

Response: The ecological risk screening methodology was outlined in Appendix B, Section B.2, on which there were no comments. Three of the four examples provided in the comment appear to apply to the ecological screenings. The rationale for using mean groundwater concentrations

and dilution factors (not DAFs) in the refined step of the ecological groundwater screenings, and mean soil concentrations in the refined step of the ecological soil screenings, are provided in Appendix B, Section B.2. None of the methods used are known to be precluded in EPA or Navy ERA guidance.

In terms of the HHRA, the only time the average groundwater (or soil) concentration is used is when considering lead. This is because the method used to evaluate lead (the IEUBK model) uses the average concentration of lead as the input value for the model. The identification of the potential for carcinogenic risk or hazard is based on the cumulative risk and cumulative hazard (per target organ). However, to understand which constituents contribute the most to these cumulative risks or hazards, we do point out if individual constituents exceed these levels or not, but it is not used to identify if the site may pose an unacceptable risk or hazard or not. These discussions are presented to supply further information about the site and potential contamination detected at the site.

EPA RPM General Comment 2: *A number of chemicals which did not have screening values were screened out by being compared to screening values of other similar explosives. Please provide the actual compound they were compared to, the actual screening value used, and how that number was developed. Please revise each instance of this in the document for transparency purposes (note that not all instances of this are noted in the comments).*

Response: For the ecological screenings, there were five instances (all in soil) where this occurred. In these cases, the soil concentrations for the explosives without a screening value were compared with the range of screening values for all other explosives with such values. These values, which are provided in Table B-1, ranged from 1,000 to 80,000 µg/kg. This explanation will be added to the bullets for the five relevant occurrences.

EPA RPM General Comment 3: *Please include risk screening tables similar to the Example Risk Screening tables (attached) at the end of each Section for transparency purposes. These tables should include all COPCs that passed through the screening process.*

Response: Summary tables listing the COPCs that passed through the screening process at each AOC are included as the final table in each AOC section of the report. Specifically, these COPCs are included in the Decision Summary tables, which include Tables 3-7, 4-4, 5-12, 6-4, and 7-4.

The Decision Summary tables were prepared to consolidate the results of the human health and ecological risk screenings steps. Detailed tables listing the risk screening calculations are included in Appendices A and B.

Since all of the COPCs that passed through the screening process are included in the general Decision Summary tables, as well as in detail within Appendices A and B, the Navy believes that no revision of the risk screening tables is necessary.

Section 2
EPA RPM Comment 1: *Page 2-1. Although the investigation methodology etc… from the previous investigation are not included in the report, I assuming all sample data are. Correct?*

Response: The available historical sample data from previous investigations at AOC 1, AOC 2, AOC 6, and AOC 8 are included in Appendix G, Historical Analytical Data. For clarification, the text on page 3-3 will be revised to state:

"With the exception of arsenic (7.4 mg/kg) in sediment, only low, estimated levels of phthalates, ethylbenzene and xylenes near reporting limits were detected in historical surface water and sediment samples (**Tables G-3 and G-4, Appendix G**)."

Section 3
EPA RPM Comment 2: *Page 3-13. This is an incorrect application of dilution attenuation factors. DAF are utilized the project what we may see in groundwater from a soil sample value. Applying a DAF directly to a groundwater sample makes no sense and is not consistent with EPA guidance. Please revise.*

Response: These are dilution factors, <u>not</u> DAFs, as described in Appendix B, Section B.2. Please see the response to General Comment 1.

EPA RPM Comment 3: *Page 3-15. Groundwater. It is unclear as to why we would average groundwater samples. Wells should be evaluated on a per well basis.*

Response: The rationale is provided in Appendix B, Section B.2. Please see the response to General Comment 1.

EPA RPM Comment 4: *Page 3-17. Eco Risk Evaluation. Eco Risks should be calculated for these sites. Although the size of the sites may be small, they are essentially all habitat (forested cover etc… not a parking lot).*

Response: Potential ecological risks were evaluated for these sites, as provided in Section 3.2.4 and Appendix B. The page referenced in the comment provides a summary of the results. The small size of the sites was included as a factor explaining why the risks are likely to be low (i.e., they would be limited, spatially). Consideration of such factors is consistent with the ecological risk screening methodology provided in Appendix B, Section B.2.

EPA RPM Comment 5: *Page 3-17. It is highly unlikely that an Arsenic hit of nearly 50ppm at CAA01-SO04 from Table 3-1 is attributed to background. This is almost an order of magnitude above our background number. Please carry Arsenic through as a COPC.*

Response: While the maximum arsenic concentration of 47.5 L mg/kg in surface soil at CAA01-SO04 exceeded the respective base background UTL for arsenic (6.36 mg/kg) by almost an order of magnitude, the maximum arsenic concentration in this sample did not exceed the maximum base background for arsenic (63.9 mg/kg). As such, the maximum concentration detected in surface soil is likely attributable to natural background conditions, as documented in

the first bullet on page 3-5. Based on this information, arsenic was not carried through as a COPC during the risk screening process.

(NOTE: Comment 6 was not provided by the USEPA. Comments proceeded from Comment 5 to Comment 7)

Section 4
EPA RPM Comment 7: *AOC 2 should be considered a solid waste landfill which would be subject to Virginia State regulations.*

Response: AOC 2 is excluded from regulation under 9 VAC 20-81 by 9 VAC 20-81-35(E) and 9 VAC 20-81 45(B)(2)(f) since it is being remediated under CERCLA and ceased disposal operations prior to regulation.

EPA RPM Comment 8: *Page 4-3. A number of drums were found in the area of AOC2TT05-AOC2TT10, AOC2TT13 and AOC2TT14, yet no samples were collected in this area according to Figures 4-4, 4-5, and 4-6. Please collect samples from this area.*

Response: As documented in Attachment B of the *Final Trenching Letter Report, Site 1, Site 4, and AOC 2* Baker, 2002), empty 55-gallon drums were observed only in test trenches AOC2TT13 and AOC2TT14; no drums were observed in test trenches AOC2TT05 through AOC2TT10. No samples were collected during the most recent AOC 2 field investigation in 2001.

Test trenches AOC2TT13 and AOC2TT14 are located within Area 2 (Figures 4-4 and 4-5). Prior to finalization of the Final SI Work Plan, during a phone conversation with CH2M HILL, the Navy RPM, and USEPA on September 12, 2008, the USEPA agreed that no additional sampling at AOC 2 was required during the SI as long as the respirator cartridges were removed. The Navy agreed, and as documented in the Response to Comments on the Draft Final Work Plan submitted to the WPNSTA Yorktown/CAX Partnering Team, "…the Navy plans on conducting a removal action to address the existing respirator cartridges, …".

Test trenches AOC2TT13 and AOC2TT14 are located within Area 2 that contains the respirator cartridges (Figures 4-4 and 4-5) that will be removed during an EE/CA that will be performed at AOC 2. Since confirmation sampling is planned as part of the EE/CA, the Navy believes sampling of the area where the drums were observed is not necessary.

EPA RPM Comment 9: *Page 4-5. "Not considered a CERCLA Source". This is still improper disposal which would be subject to Virginia State regulations.*

Response: The debris in Area 1b and Area 3 consists of dextrose bottles, deer carcasses, and military clothes and are not CERCLA-related wastes. Under 9VAC20-81-45(B)(2)(f), the open dump criteria does not apply to sites that are undergoing remediation per the requirements of CERCLA or the RCRA Corrective Action Program and are doing so with the department's and/or the Environmental Protection Agency's oversight. At this time, the Navy believes that the

CERCLA action being taken at AOC 2 constitutes sufficient remedial action for the non-CERCLA wastes that were disposed of at the site.

EPA RPM Comment 10: *Page 4-6. The PCB discussion states that PCBs were detected above residential screening at the duplicate of A2-TP01, but then goes on to say that Aroclor 1260 was not detected in the soil at A2-TP01. Presumably the original A2-TP01 and its' duplicate were taken from the same location and not separate samples correct? I do realize it is possible for an original sample and a dup. to have different detections, but the paragraph implies one sample was within the waste and one was from the native soil below the waste. Also, it appears an interim removal action will be prepared to remove the waste from Area 2. This should be used as the rationale as to why the Aroclor 1260 detection is not of concern. Confirmation samples following the removal should include PCB analysis due to a high degree of uncertainty associated with the contaminants distribution.*

Response: The report text will be revised to clarify the PCB detection as follows:

"One PCB (Aroclor-1260) was detected in only one subsurface soil sample (310 µg/kg in the duplicate A2-TP01**F at Test Pit TP01**), slightly above the residential RSL (220 µg/kg) (Figure 4-7). However, the primary sample from this location was below screening criteria. **Both of** these subsurface soil samples**, A2-TP01F and its duplicate,** were collected within the debris zone at approximately 3.5 feet bgs. **However,** Aroclor-1260 was not detected in the native soil sample (A2-TP01**N**) collected from the bottom of Test Pit TP01 at 5 feet bgs. Therefore, Aroclor-1260 is likely a localized occurrence and not migrating from the debris material. PCBs tend to bind to soil and are not readily mobile."

While the interim removal action at AOC 2 precludes the Aroclor 1260 detection from being a concern, the interim removal action for AOC 2 is not introduced in the report until p. 4-12. Since mention of this removal action on p. 4-6 would disrupt the logical progression of information being presented in Section 4, this rationale has not been included on p. 4-6.

(NOTE: Comment 11 was not provided by the USEPA. Comments proceeded from Comment 10 to Comment 12)

EPA RPM Comment 12: *According to Figure 4-3 there is a "Significant Geophysical Anomaly" in the North West corner of the site that was not investigated.*

Response: Noted. During the 1998 geophysical investigation, a significant metallic response was identified in the EM-61 data in the northwest corner of the AOC 2 geophysical investigation area, as shown in Figure 4-3 of the SI report. However, as documented in Appendix A of the Final Field Investigation Report, Site 1 and AOC 2 (Baker, 1999), this anomaly was not identified as an anomaly that could not be explained by a surface object. Furthermore, the EM-31 quadrature data for AOC 2, also collected during the 1998 geophysical investigation, complemented most of the EM-61 and in-phase responses, but with less resolution. Based on review of the EM-31 data, "increases in terrain conductivity can be seen along the entire western edge of the grid. Although there are no metallic anomalies corresponding to this feature it was suggested by Baker personnel on site that this is the possible location of an abandoned railroad.

The changes in terrain conductivity may be due to a nonmetallic but relatively conductive material that was used for the railroad bed" (Baker, 1999). While the Final Field Investigation Report does not state specifically why this northwest area was not investigated, it is assumed that the northwest anomaly was likely associated with the abandoned railroad bed.

EPA RPM Comment 13: *Areas 1b and Area 3 are dumps that don't appear to have to have been sampled according to the figures. Please provide rationale in a RTC as to why this would be acceptable. Presumably the response would be the types of materials disposed would not be expected to create contamination, however, it is highly that any disposing that occurred was an orderly disposal of specific material. Environmental sampling should be conducted to ensure there was no disposal of hazardous materials.*

Response: Based on the AOC 2 test pit and test trenching logs, the debris in Area 1b and Area 3 consists of dextrose bottles, deer carcasses, and military clothes, which are not CERCLA-related wastes. No debris or waste was observed during the trenching activities to propose that hazardous materials were disposed at AOC 2. As such, the Navy does not believe that environmental sampling is necessary.

Section 5

EPA RPM Comment 14: *Page 5-4. 1918 Drum Storage Area. EPA suggests samples are collected and analyzed for VOCs, PCBs and Pesticides.*

Response: The constituents sampled for and analyzed during the CAX AOC SI, as listed in the Final SI Work Plan agreed to by the WPNSTA Yorktown/CAX Partnering Team, were based on the review of constituents detected during Weston's 1999 Site Inspection. As documented in the WPNSTA Yorktown/CAX Partnering Team Final 15 November 2007 Meeting Minutes, Rob Thomson (USEPA) requested that phthalates be added to the list of analytes to be sampled at AOC 6 during the SI. As such, SVOCs were added to the Final SI Work Plan. Based on the re-review of the 1999 and current AOC 6 SI analytical data, the Navy believes that no additional sampling and analysis for VOCs, PCBs, and Pesticides at the 1918 Drum Storage Area is necessary.

EPA RPM Comment 15: *Page 5-10. Bis(2-ethylhexyl)phthalate. If the contaminant was likely attributed lab contamination, was it detected in the blanks?*

Response: The SVOC Bis(2-ethylhexyl)phthalate was not detected in any of the blanks and was inadvertently identified as exceeding the ecological screening value in the pre-Draft report, which listed the Screening Level Concentration (SCL) screening values as the eco screening criteria for sediment. The organic chemicals in sediment were actually screened against both SCL screening values and Equilibrium Partitioning (EqP) screening values (adjusted based upon the mean site-specific total organic carbon concentration), if available, as listed in Appendix B, Table B-3. While the pre-draft tables included the SLC as the ecological screening value, the EqP was the actual screening value used for bis(2-Ethylhexyl)phthalate detected in the AOC 6 sediment samples, as listed in Table 5-11.

Specifically, as documented in Appendix B, pp. B-12 through B-13, Bis(2-ethylhexyl)phthalate exceeded the SLC screening value, but not the EqP screening value, based upon the maximum detected concentration. However, neither of these screening values was exceeded in the field duplicate of the one sample that exceeded the SLC screening value (the chemical was not detected in the field duplicate at a reporting limit less than the SLC screening value). Because the EqP screening value accounts for site-specific bioavailability and was not exceeded, this chemical was not identified as an initial COPC.

The text on p. 5-10, carried over from the pre-draft, inadvertently includes the SCL instead of the EqP. Based on this information, Bis(2-ethylhexyl)phthalate was not an initial COPC. Only one SVOC, 2,6-Dinitrotoluene, initially exceeded the ecological screening criteria. The text will be revised to state the following:

"SVOCs and Explosives

One SVOC, **2,6-Dinitrotoluene**, exceeded the **Equilibrium Partitioning (EqP) value of 187** µg/kg in one **sub**surface sediment sample (**SD02**, near the **Ammonia Settling Pits**) at a concentration of **260 µg/kg.** However**, since the mean HQ for 2,6-Dinitrotoluene was less than one, this constituent was not identified as a refined COPC during the ecological risk screening**. No other SVOCs or explosives exceeded their respective screening criterion in surface and --subsurface sediment samples."

EPA RPM Comment 16: *Page 5-12 Ammonia Settling Pits. Check with Rob to make sure the correct chemicals were analyzed for.*

Response: No response necessary. As instructed by the USEPA via email on August 23, 2011, this comment was a note by the USEPA reviewer and should be disregarded.

EPA RPM Comment 17: *Page 5-13. Ammonia Settling Pit. Groundwater Discussion. Averaging groundwater samples is not acceptable. See RPM General Comment.*

Response: The methodology used to screen and evaluate lead in the HHRS was described in Appendix A, page A-3, as follows "Lead is not evaluated in the same manner as the other COPCs, but is regulated by USEPA based on blood-lead uptake using a physiologically based pharmacokinetic model called the Integrated Exposure Uptake Biokinetic (IEUBK) Model. As a screening tool, lead is screened at 400 mg/kg in soil based on residential exposure. The model uses the average lead concentration, not the maximum detected lead concentration. If the average lead concentration is greater than 400 mg/kg, it is retained as a COPC for the AOC. For groundwater, the maximum detected concentration of lead is screened at 15 µg/L in groundwater based on the federal action level (USEPA, 2009a). If the lead concentrations are greater than the action level, it is retained as a COPC for the AOC." The use of the average lead concentration is consistent with EPA guidance, as the average concentration is the concentration that is used when lead is evaluated using the IEUBK model.

EPA RPM Comment 18: *Page 5-17. Mean HQ for Aluminum and Lead. See RPM General Comment.*

Response: Please see the response to General Comment 1.

EPA RPM Comment 19: *Page 5-17. DAF applied directly to groundwater sample. See EPA RPM General Comment.*

Response: Please see the response to General Comment 1.

EPA RPM Comment 20: *Page 5-18. Mean HQ for HMX and Mercury. See EPA RPM General Comment.*

Response: Please see the response to General Comment 1.

EPA RPM Comment 21: *Page 5-18. Groundwater discussion. Please see EPA RPM General Comment 1.*

Response: Please see the response to General Comment 1.

EPA RPM Comment 22: *Page 5-19. Surface Soil. Bullets 1,2, and 3. See EPA RPM General Comments.*

Response: Please see the response to General Comment 1.

EPA RPM Comment 23: *Penniman Lake Surface Water Discussion. The argument that the screening level of 4ppb for barium is conservative should be overcome by the fact that we exceeded it by nearly 5x as well as it being detected at multiple locations. Please refine Barium as a COPC in surface water.*

Response: The surface water screening value for barium (4 µg/L) is conservative because it is based upon a form of barium (barium ion) that is relatively uncommon in natural water bodies but very toxic, while the surface water sample was measured for total barium. For comparison, the USEPA Region 5 freshwater screening value for total barium is 200 µ/L, which is much higher than the concentrations found in the lake (which ranged from about 15 to 20 µ/L). This explanation will be added to the text of the SI and barium will not be identified as a COPC.

Section 6
EPA RPM Comment 24: *Page 6-5. Lead 984ppm. See EPA RPM General Comments.*

Response: Please see the response to Comment 17.

EPA RPM Comment 25: *Page 6-6. Groundwater. Lead. See RPM General Comments.*

Response: Please see the response to Comment 17.

EPA RPM Comment 26: *Page 6-7. Subsurface Soil. See RPM General Comments.*

Response: Please see the response to General Comment 2.

EPA RPM Comment 27: *Page 6-8. Groundwater. See EPA RPM General Comment.*

Response: Please see the response to General Comment 1.

EPA RPM Comment 28*: Page 6-8. Second to last word. Typo.*

Response: Corrected. The second to last word in the final sentence on p. 6-8, "work", has been revised to "word".

EPA RPM Comment 29: *Former Drum Pile. Was GPR preformed on this AOC (I may have missed it)?*

Response: No, GPR has not been conducted in the vicinity of the Former Drum Pile.

EPA RPM Comment 30: *Figure 6-4. From Figure 6-4 it does not appear that the actual nature of the pit has been characterized (although extent appears to have been defined). Since the path forward for the Site is a removal action, the only comment would be to analyze for a full suite of analytes during confirmation samples.*

Response: An expanded SI is recommended for AOC 7 (Drum Disposal and Can Pit Area) in order to verify the groundwater flow directions and to verify and characterize the extent of inorganic contamination. As indicated by the current SI analytical data, no VOCs, SVOCs, pesticides, PCBs, or explosives were detected above screening criteria in soil, and no SVOCs, pesticides, PCBs, or explosives were detected above screening criteria in groundwater. Only one VOC exceeded screening criteria in groundwater.

Prior to preparing the expanded SI work plan, the current SI analytical data will be reviewed and a focused list of analytes will be recommended based on the recent detections.

Section 7
EPA RPM Comment 31: *Page 7-7. Mean Zinc. See RPM General Comments.*

Response: Please see the response to General Comment 1.

EPA RPM Comment 32: *Page 7-8. Groundwater. See RPM General Comments.*

Response: Please see the response to General Comment 1.

Appendix A
EPA RPM Comment 33: *Page A-5. AOC 1 South. Lead 698ppm. See EPA RPM General Comment.*

Response: Please see the response to Comment 17.

EPA RPM Comment 34: *Page A-7. Iron discussion. This doesn't make sense. Although Iron is an essential human nutrient, there is some science that went in to the development HQ and screening values developed. If a chemical is exceeding the screening values we can't say "it is likely that exposure to iron at the concentrations present on the site would not result in any adverse health effects". That is essentially questioning the science that went in to the development of the risk numbers. Please revise.*

Response: We will revise the paragraph discussing iron as follows to indicate that the maximum detected iron concentration would not result in an intake above the tolerable upper intake level (UL), the highest level of daily nutrient intake that is likely to pose no risk of adverse health effects to almost all individuals in the general population. The following text will be added to Page A-7:

"Iron, the only contributor to the potential noncarcinogenic hazard is considered an essential human nutrient, and although the concentrations indicate a potential unacceptable hazard, it is likely that exposure to iron at the concentrations present on site would not result in any adverse health effects. The potential unacceptable hazard is primarily associated with the iron concentration detected in sample B03. Ingestion of soil at the maximum detected concentration of iron [44,000 mg/kg, which would result in ingestion of 8.8 mg/day iron for an adult (44,000 mg/kg x ingestion rate of 200 mg/day x conversion factor of kg/10^6 mg]), is below the tolerable upper intake level (UL), the highest level of daily nutrient intake that is likely to pose no risk of adverse health effects to almost all individuals in the general population of 45 mg/day for adults. Ingestion of iron in soil by children would result in ingestion of 18 mg/day iron (44,000 mg/kg x ingestion rate of 400 mg/day x conversion factor of kg/10^6 mg), which is below the UL of 40 mg/day for children."

EPA RPM Comment 35: *Page A-7. Doesn't the RAGs Guidance caution against screening something out (Thallium) because it doesn't have a screening criteria? I believe it should be carried through.*

Response: Thallium was not carried through the screening tables because it was not possible to estimate any contribution to the cumulative hazard/risk associated with thallium. Between the draft and draft final document, the latest RSL update (June 2011) became available, and there are now RSLs for thallium. The thallium detections for all media for all AOCs were compared (not risk screened) to the new thallium RSLs:

- Res. Soil RSL: listed as .78 mg/kg, adjusted value .078 mg/kg
- Ind. Soil RSL: listed as 10 mg/kg, adjusted value 1 mg/kg
- GW Tapwater RSL: listed as .37 µg/L, adjusted value .037 µg/L
- SW RSL: listed as 3.7 µg/L, adjusted value 0.37 µg/L

The thallium concentrations exceeded the respective RSL for these AOCs and media and could potentially be a COPC:

AOC 2:

- Thallium in **SB** - sample CAA02-A2-TP02-N-1999 (0.84 L mg/kg)
- Total thallium in **GW** - samples CAA02-A2DPW01-1098 (1.2 L µg/L) and CAA02-A2DPW02-1098 (2 J µg/L)

AOC 6 – 1918 Drum Storage Area:

- Total thallium in **SB** - sample CAA06-SB16-1108 (0.08 J mg/kg)
- Total thallium in **GW** - samples CAA06-DW09-1108 (2.1 J UG/L), CAA06-DW10P-1108 (1.7 J µg/L), CAA06-DW11-1108 (2.2 J µg/L)
- Dissolved thallium in **GW** - sample CAA06-DW09-1108 (2 J µg/L)
-

AOC 6 TNT Areas:

- Thallium in **SS** – sample CAA06-SS03-1008 (0.18 J mg/kg)
- Thallium in **SW** - sample CAA06-SW01-1008 (1.7 J µg/L)

AOC 8:

- Thallium in **SS** - sample CAA08-SS01-1008 (0.08 J mg/kg)
- Dissolved thallium in **GW** - sample CAA08-DW04-1008 (1.9 J µg/L)

For AOC 2, thallium was not detected in the dissolved metals fraction in groundwater, thus the total results are likely attributable to suspended solids. The subsurface soil location where thallium exceeded the RSL is within the removal area that will be in the interim removal action area. Therefore, no change to the recommendations for AOC 2 is necessary.

For the AOC 6 – 1918 Drum Storage Area, since the SI recommendation was no further action, the human health risk screening for this area was re-run using the June 2011 RSLs (for all constituents, including thallium). Results of the updated risk screening continue to indicate that exposure to surface and subsurface soil within the 1918 Drum Storage Area would not result in any unacceptable risks. While exposure to groundwater could result in potential unacceptable human health risks, associated with exposure to metals, this potential risks is based on total inorganics detected in the groundwater; however, the DPT method generally results in higher total inorganic concentrations from the higher turbidity. Aluminum was the only inorganic detected in the dissolved fraction and is likely attributable to background; therefore, no unacceptable human health risk above background is expected for groundwater. The no further action recommendation is still appropriate and no change to the SI report is necessary.

For the AOC 6 – TNT Areas surface soil, an RI is the recommended path forward for the AOC; thus, thallium will be evaluated as part of the HH risk assessment. Regarding the surface water sample, the total thallium concentration exceeds the surface water screening level (adjusted tap water RSL times ten, 0.37 µg/L), but does not exceed the unadjusted screening level (tap water

RSL times ten, 3.7 µg/L). In addition, thallium was not detected in the dissolved fraction. No change to the SI report is necessary.

For AOC 8, the surface soil sample thallium concentration listed above was within the range of the residential RSL (considering significant figures). Regarding the AOC 8 groundwater, an RI is the recommended path forward; thus, thallium will be evaluated as part of the HH risk assessment and no change to the SI report is necessary.

The text in the individual AOC sections and Appendix A (the HH risk screen) will be revised, as appropriate, to reflect that there are now RSLs for thallium and the comparison to them and conclusions presented above. For the AOC 6 Drum Storage Area, the text, tables, and figures will be updated to reflect the revised HH risk screen.

EPA RPM Comment 36: *Page A-7. Aroclor-1260. Should be cumulative risk. See EPA RPM General Comments.*

Response: Agree. However, the point of this paragraph is to show that the risk is primarily associated with chromium, based on the assumption that all of the chromium is in the hexavalent form, and to identify the relative contribution from each of the carcinogenic COPCs.

EPA RPM Comment 37: *Page A-10. Ammonia Settling Pit Area. Lead. See RPM General Comments.*

Response: Please see the response to Comment 17.

EPA Tox Comment 1: *In Section 2.4 of the report, the text should confirm that surface and subsurface soil samples were collected from original soil (not fill material), where contamination, if any, would likely be found.*

Response: For clarification, the report text in Section 2.4 will be revised as follows:

"Surface soil samples were collected from **native soil** 0 to 6 inches below ground surface (bgs) and shallow subsurface samples were collected from 6 to 24 inches bgs. In addition, **non-native** deep subsurface soil samples were collected at AOCs 7 and 8 from the bottom of test pits considered to be most impacted by debris. The purpose of these additional subsurface samples was to determine the potential for vertical migration of contaminants from buried debris."

EPA Tox Comment 2: *According to Table 2-1, in terms of organics, only TCL SVOCs were considered at AOC 6. Why wasn't the full TCL suite considered? This could represent a data gap. Fortunately, most of the subareas in AOC 6 will move forward for additional investigation; however, the 1918 Drum Storage Area dropped out. Unless strong justification can be provided for this omission, consideration should be given to collecting additional samples from the 1918 Drum Storage Area to rule out the presence of VOCs, PCBs and pesticides in soil.*

Response: Please see the response to Comment 14.