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U S EPA REGION III COMMENTS ON THE PHASE III REMEDIAL INVESTIGATION REPORT MEDIA OTHER THAN GROUNDWATER NAWC WARMINSTER PA
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

DATE: April 17, 1997
SUBJECT: Naval Air Warfare Center, Warminster
Phase III Remedial Investigation Report
(Media Other than Groundwater)
FROM: Nancy Rios Jafolla, Toxicologist
Technical Support Section (3HW41)
TO: Darius Ostrauskas, RPM
Federal Facilities Branch (3HW50)

I have reviewed the subject document for toxicological accuracy and completeness. It was found to contain numerous errors and to be incomplete. I have the following specific comments to offer for further consideration:

Background Samples:

Page 2-15 and Page 2-29: Surface and subsurface soil samples were combined. It would have made more sense not to combine these samples for ease of comparison with on-site surface and subsurface contaminant levels.

Page 2-29: Surface water background: The text is not clear in regards to explaining why background surface water samples from Area C are being used at Area A. Please explain!

Note that throughout the document statements are made (see page 5-98, 2nd paragraph) about certain organic and pesticide contaminants being associated with urban environmental conditions near the site. While this may be true, the urban background levels of these organics need to be well characterized.

Page 5-102. Beryllium in subsurface soil at Site 5 and surface soil at Site 8 was attributed to background levels and eliminated as a COC. Please see comments below under the "Screening for COCs" section regarding eliminating COCs based on background.

Representative Concentrations:

Page 2-26, If the data are not determined to be lognormally distributed or normally distributed, one of the following may be performed:

a. Examine the data distribution, if the distribution appears to be lognormally distributed and there are minimal non-detects in the data set, assume it is lognormal. If the distribution appears to be normally distributed, assume normality.

b. Use the higher of the two estimates for normal or lognormal distribution (or the maximum concentration if applicable).

c. Compare the p values for the two W-test statistics and choose the distribution with the highest p value.

d. Perform a nonparametric test such as the Z-test if the data sets are large.

Page 2-28–29, Text at the bottom of this page has been repeated. Please delete the repeated text. Note that a sample calculation of the representative concentration is not provided in Appendix H. Please also provide a sample calculation of the W-test and all nonparametric tests used to determine the data distribution type.

Page 2-26. For duplicates, when one result was positive and the other was not detected but the sample quantitation limit (SQL) was reportedly higher than the positive result, the positive result was used for the non-detected sample. This is inappropriate because SQLs are sample-specific and take into account matrix effects for individual samples. Therefore, the use of the positive result may biased (e.g., low or high) the average estimated concentration for that sample and it fails to take into consideration sample variability.

Screening for COCs:

Page 2-34. The Regional Screening Guidance on Selection of COCs was not used. This Guidance needs to be used in the revised risk assessment in order to accurately determine the COCs at the site. This involves comparison of the maximum site concentration (not the representative concentration) with the appropriate RBCs at a cancer risk of 1E-06 and a hazard index of 0.1. Background screening should be done statistically (i.e., differences of sample means test should be performed) and the contaminants are driven through the risk assessment and characterized as background. Elimination of COCs based on background is a risk management decision; therefore, site-specific COCs that exceed their respective RBCs and are present at or below background levels should be fully characterized in the risk assessment. Note that the use of the soil screening guidance requires that the site be scoped and that samples be taken in accordance with the guidance prior to using the SSLs to eliminate COCs. Also, COCs that are present at a site above the RBCs but detected infrequently and believed to be site-related should be carried through the risk assessment.

Please note that the maps and tables need to reflect the proper screening of COCs.

Page 2-57. The default absorption factors noted in the Regional Dermal Guidance are not GI absorption factors. Interim default factors for GI absorption can be as follow: VOCs 80%; Semivolatiles 50%; and, Inorganics 20%.

Exposure Assessment Risk Algorithms:

Page 2-73. Please use the particulate emission factor of 1.32 E+09 m3/kg calculated in the SSL guidance as a default value. This value represents a conservative estimate (90th percentile value) for PM10.

Page 4-138. The discussion in the second paragraph regarding current and future receptors is not clear. Please rephrase and redefine current and future usage of the site.

Uncertainty Analysis:

Page 2-81. The uncertainty analysis should include an estimate of the central tendency, especially for risk levels which just slightly exceed the promulgated acceptable cancer risk range of 1E-04 and 1E-06 and a hazard index of 1.

Page 2-82. Please delete the discussion on groundwater. This discussion is not relevant to this Phase III RI.

Tables in the Risk Assessment:

- Non-cancer Risk Tables: Please total the risk and indicate the target organs (with relevant references) on the table.
- Page 5-52. Footnote in tables 5-9, 5-10 and 5-11 (and others throughout the document) refers to table X-X. Please define X-X.
- Note on all risk tables that the carcinogenic lifetime risks are for combined child/adult resident.
- Potential noncancer effects for the resident via ingestion, inhalation and the dermal routes, are shown only for the child residential receptor on the tables.

IEUBK Lead Model:

Page 4-111. The model should be use to calculate blood lead levels for lead in soils at Sites 1 and 2 and all other sites where lead has been selected as a COC in subsurface soil. The assumption should be that future subsurface soil could become surface soil under a residential scenario. In fact, this scenario is applicable for other COCs in the risk

assessment.

Removal Action:

Page 117. Lead levels up to 80,080 ppm in surface soils at Site 2 represent an imminent and substantial threat to current receptors that frequent the site. It may be prudent to remove the lead hot spot at this site.

Page 5-98. An elevated level of PCBs (24 ppm) was reported for the sample collected west of Building 403 and beneath Skyhawk Drive. These levels are above the removal action level of 8 ppm for PCBs in residential soil.

Risk Characterization:

Page 4-117. Carcinogenic Risk at Site 2- Surface soil. Beryllium is discussed as a driver in the text but is not noted in the table. Other COCs such as arsenic and benzo(a)pyrene are not mentioned as drivers in the text yet their individual risks contribute significantly to the total risk. Note that aroclor 1248 mentioned in the text as a driver should be aroclor 1254. This appears to be a typographical error.

Page-121. Remove the extra sentence from paragraph one.

Page-121. Carcinogenic Risk at Site 2- Subsurface soil. Arsenic should also be mentioned as a risk driver in the text.

Page 4-127. Site 3, Surface soil. The inhalation carcinogenic risk for the future residential receptor is 6.7E-11, not 6.7E-10.

Page 4-132. Site 3, Subsurface soil. Noncarcinogenic risks do not appear to be elevated for industrial receptors. Please note this in the text. Iron is not indicated in the table but is discussed in the text.

Page 5-70. Noncarcinogenic Risks, Site 5. The ingestion HQ for vanadium is 1.5, not 1.4.

All risks estimates should be totaled across all exposure pathways and presented in the tables in the Report.

Data Gaps:

Page 4-135. Site 3. No surface soil samples were collected at the impoundment Area. Therefore, a risk assessment could not be performed.

Page 4-181. The soils beneath the trailers at Site 2 were not characterized because they did not appear to be within a significant portion of any EPIC feature and they cover a small area. Yet the soil gas survey near the trailers showed elevated vapor levels of PCE, TCE, and carbon tetrachloride in this area.

Page 5-97. One of the trenches, TR3, near Site 5 lies under Building 401; This portion was not investigated during the RI.

Page 5-99. The exact locations of the two disposal trenches at Site 7 and other suspected disposal locations were not identified during the RI. It is not clear that this site was characterized sufficiently. The conclusion drawn on page 5-101 ". . . no further study is recommended . . ." may be erroneous.

Page 5-101. Suspected sources of contaminants detected in surface water downstream of Area B cannot be evaluated due to the potential impact of the neighborhood just south of Area B. Note, however, that the risks calculated were not notable at this time. I agree that the Southampton Creek should be monitored for possible future contamination with PCBs from the drainage channel leading to the Creek and that the source of the PCBs should be identified.

Page 6-10. No surface soil samples were collected from the tile field due to the suspected nature of only subsurface contamination in this area. This is a significant data gap.

Sample Calculations in the Appendix:

- Please provide spreadsheets in the Appendix for all of the calculations.
- In Appendix H7, sediment dermal contact with 4,4'-DDT is calculated as a sample calculation incorrectly. The concentration term and the RfD for PCBs were used, not that for 4,4'-DDT. DEX (Absorbed Dose) should be 7.03E-09 and the RfD is 8.4E-05 (corrected for GI absorption-80%). Also, the sample calculation for ingestion of surface water is for 4,4'-DDT, not 4,4'-DDD as indicated.
- In Appendix H8, dermal contact with surface water is for 4,4'-DDT but the exposure parameters for DA (dose absorbed per event) are for 4,4'-DDD. T* is not shown. Note that the risk estimate for 4,4'-DDT is also incorrect in the tables presented in the risk assessment.

Toxicity Criteria/GI Absorption Factors:

- Page 2-52. Table 2-22. The slope factor for PCBs is 2.0 mg/kg/day-1. The RfD for aroclor 1016 is 7E-05 mg/kg/day. The GI absorption factor is 0.89 (ref. by NCEA), not 0.85.

- Page 2-52. Table 2-22. The GI absorption for 2-butanone is 0.95 (ref. by NCEA), not 1.0.

- Page 2-53. Table 2-22. The GI absorption for 4-Methylphenol is 0.65 (ref. by NCEA), not 0.60.

- Page 2-53. Table 2-22. The RfD for dibenzofuran is 4.0E-03 mg/kg/day, not 4.3E-03 mg/kg/day.
- Page 2-54. Table 2-22. The RfD for naphthalene can be used as a surrogate for phenanthrene and 2-methylnaphthalene (page 2-53).

- Page 2-54. Table 2-22. The GI absorption for barium is 1.0 (ref. by NCEA), not 0.04.

- Page 2-54. Table 2-22. The GI absorption for manganese is 0.05 for water (IRIS), not 0.03 for food.

- Page 2-54. Table 2-22. The GI absorption for mercury is 0.15 (ref. by NCEA), not 0.07.

- Page 2-54. Table 2-22. The GI absorption for nickel is .01-0.1 (ref. by NCEA), not 0.15.

Other Misc.:

Page 5-63. Section 5.7. Eliminate groundwater from the second sentence in this section. Groundwater is not being evaluated in this RI.

Page 6-1. Section 6.1.1. Please explain why Site 4 is not discussed in the Report.

I have no further comments at this time. Please let me know if you need further assistance.

cc: EJohnson (3HW41)