



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Section: 12.01
Site 20903-5640 (White Oak)
Doc. #: 0012

00382

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NSWC WHITE OAK
5090.3a

February 28, 2000

Mr. Walter Legg
Engineering Field Activity Chesapeake
Washington Navy Yard, Building 212
1314 Harwood Street, S.E.
Washington, DC 20374-5018

Re: Review of Draft Review of Draft RCRA Facility Investigation for Sites 2, 3, 4, 7, 8, 9,
and Paint Branch for the Former Naval Surface Warfare Center

Dear Mr. Legg:

I am forwarding Linda Watson's, EPA Toxicologist, comments as a follow-up from my letter dated, February 16, 2000 on the EPA's comments on the Draft RFI Report for Sites 2, 3, 4, 7, 8, 9 and Paint Branch.

GENERAL COMMENTS

1. Tables 2.8-2 through 2.8-27 should be provided for each site. It is really not necessary to provide these tables for the cumulation of all sites.
2. Does Figure 2-2 apply to all the sites (e.g., Sites 2, 3, 4, 7, 8, 9 and Paint Branch)? Site conceptual models should be provided for each site unless the sites are impacting one another.
3. As stated during the December 1, 1999 meeting at EPA, the RAGS D formatting tables should follow the exact same formatting order as presented in RAGS D. Presently, some of the tables are located in the Appendix while others are in the text. All RAGS D tables should be presented in the same document.
4. Throughout the report benzo(a)pyrene is identified as a BAP Equivalent. Please explain what this means and why benzo(a)pyrene is being identified as an equivalent when the analytical data specifically provides results for benzo(a)pyrene? Why were the analytical results for benzo(a)pyrene not used to determine risk? How was the EPC calculated for benzo(a)pyrene? Further, how was a toxicity value selected for BAP Equivalent?
5. Data Evaluation, Identification of PCOCs in Surface/Subsurface Soil. Throughout the report it states that PCOCs were compared to USEPA's SSLs for inhalation (transfer from soil to air). The report should include a table, in an Appendix, that compares the soil

results to USEPA's SSLs for transfer from soil to air (inhalation) and transfer from soil to groundwater, where applicable.

6. Tables 4.4 throughout the report, Values Used For Daily Intake Calculations. Please provide the rationale for selecting an FI of .5 for the Day Care Child? EPA RAGS A states, "FI is the term used to account for the fraction of soil or dust contacted that is presumed to be contaminated." How can one estimate that the Day Care Child will only come into contact with 50% of contaminated soil? EPA recommends using a value of 1 as the RME FI for the Day Care Child and .5 for CTE.
7. Tables 5.1 and 6.1 throughout the report. The footnote for the Oral to Dermal Adjustment Factor states "USEPA Region IV guidance." Region III does not follow guidance instructed by other Regions unless Headquarters specifically enforces a specific guidance. Therefore, the Oral to Dermal Adjustment Factors should be obtained from EPA's RAGS Appendix A, April 8, 1999, NCEA or ATSDR Toxicological Profiles. Please make the appropriate adjustments.
8. Throughout the report, the dermal risk for Arochlor 1254 were calculated based on an absorption factor of 14%. Although this offers a higher degree of conservatism, EPA recommends using an absorption factor of 6% for PCBs.
9. Values Used For Daily Intake Calculations. Throughout the report, an exposure frequency of 16 days/year for the adult recreational user appears low. Please provide the rationale for the selection of this value?
10. The report should provide the default input parameters that were used to calculate the Chemical Concentration in Air (Cair for indoor and outdoor) or Route EPC value. The input parameters used to complete the Johnson and Ettinger Model must be reviewed by EPA's Air Model Specialist, Patricia Flores-Brown.
11. Throughout the report, surface/subsurface soil results were compared to USEPA's SSLs for migration from soil to groundwater. At most of the sites, there was an exceedance of the SSL for some contaminants however, these contaminants were not retained as COCs because they were not present in groundwater. Thus the assumption was made that migration did not occur. Although this assumption may be applicable it is also possible that the contaminate is migrating and has yet to become present in the groundwater. Therefore, the SSL not only serves to determine the contaminate that may be currently present in groundwater but also the contaminate that has the potential to become present in groundwater. In order to determine if the SSL model is similar to the comparative site, EPA highly recommends consulting with the assigned EPA Hydrogeologist.

12. Throughout the report, indoor air/outdoor ambient air and indoor air inhalation results for the Adult and Child Resident are not included in the Summary of Receptor Risks and Hazards for COPCs tables. How will these results be included in the cumulative risk conclusions?
13. Throughout the report, all tables identified as “Summary of Receptor Risks and Hazards for PCOCs for the Future Adult Resident and the Future Child Resident,” the carcinogenic and non-carcinogenic inhalation risk results do not agree with the reported risk conclusions on Tables 7.11, 8.11, 7.12, and 8.12.
14. Throughout the report the use of the Wilcoxin Rank Sum test is stated as the chosen statistical method for comparing background to site related data. The report should provide the results of the Wilcoxin Rank Sum test along with the reported t value that was used for comparative purposes.
15. Section 2.8.2.3, Exposure Point Concentration. Throughout the report, a data set with 10 or more samples with undefined distribution (both the normal and log-normal distributions fail the normality test) the data set was assumed to be log-normally distributed. This assumption has been found to be statistically not true and will no longer be accepted as a statistical tool by the U.S. EPA. To determine the correct data distribution, the following statistical methods should be applied; Chebychev, Central Limit Theorem, Jackknife, and/or Bootstrap.
16. The EPA prefers background sample comparison to be used at the end of the risk assessment process as it offers a higher degree of conservatism and reduces the amount of statistical applications that need to be presented in the report. For all future reports involving background sample comparative analysis, the EPA suggest carrying all COCs through the risk assessment and eliminating background at the end of the risk assessment process. In addition, all background statistical applications should be presented in the report. In other words, if the Wilcoxin Rank Sum test was used for statistical comparison, the results should be included within the report. Further, unless the background data sets are extremely large (in which most cases the former is not true), EPA would like to see the results of two statistical comparative analysis. The following is a list of additional statistical comparative testing that could be used; Z or Fisher test, 95% Upper Tolerance Limit, Upper Ranks, Mann-Whitney/Gehan test, Student’s of Satterthwaite t-test (where applicable), Barlett’s test for Equal Standard Deviations. All statistical testing methods and results should be presented within the Appendix of the report.
17. Throughout the report, several listed target organs are not in agreement with IRIS. Thus, the following contains the most appropriate target organ for the listed contaminant as reported by IRIS: vanadium-NOEL, arsenic-vascular, mercury-CNS, barium-kidney,

antimony-lifespan, selenium-blood/skin/CNS, iron-liver/blood/GI tract, and thallium-liver.

Site 2 - Apple Orchard Landfill

18. Appendix I, Table I-4 provides the analytical results for three (3) filtered groundwater samples. However, according to Table 4-4 there were five (5) filtered groundwater samples collected?
19. The maximum detected concentration for aluminum is reported as 9.00E+03 mg/kg on Table 3.5 and reported as 10,100 mg/kg on Table 4-6.
20. Table 5.2, Non-Cancer Toxicity Data - Inhalation. There are several COPCs that are not included on the table which have toxicities values. These contaminants include; aluminum, barium, beryllium, cadmium, manganese, mercury.
21. Table 6.2, Cancer Toxicity Data - Inhalation. There are several COPCs that are not included on the table which have toxicities values. These contaminants include; arsenic, arochlor 1254, arochlor 1260, benzo(a)pyrene, beryllium, bis(2)ethylhexylphthalate, cadmium, dieldrin, and PCB's.
22. Table 4-12, Exposure Point Concentrations for PCOCs. The incorrect EPC was recorded for manganese. The correct EPC value should be 3.88E-01.
23. Table 4-12, Exposure Point Concentrations for PCOCs. The EPC value for nickel is listed for mercury. This appears to be an error. Please check.
24. The Kp values for arsenic, barium, and chromium used to calculate groundwater risk for the Maintenance/Utility Worker and Construction Worker are different than the Kp values used to calculate risk for the resident. Please provide the reference source for the Kp values used for the Maintenance/Utility Worker and Construction Worker. Further, as used for the Resident, EPA recommends using a Kp value of 1.0E-03 for inorganics. Kp values should be obtained from EPA's Dermal Exposure Assessment: Principles and Applications, January 1992.
25. Table 5.2, Non-Cancer Toxicity Data - Inhalation. The table list the correct RfDi for 1,2-dichloropropane as 1.14E-03. However, throughout the risk tables the RfDi is listed as 1.4E-03. Please correct the risk tables with the correct value.
26. Inhalation of Volatiles from Groundwater from Indoor Air, Adult Resident (RME). The table does not include the results for cis-1,2-dichloroethene although it is listed as a COC

and has an associated RfD. This may be an error, if not, please provide the rationale for not including the results for this contaminant?

Site 3 - Pistol Range Landfill

27. The inhalation of volatiles from groundwater while showering results for the RME Residential Child does not agree with Table 8.12. The Risk Assessment Spreadsheet has a recorded value of 5.6E-08 and Table 8.12 has a recorded value of 4.8E-08. Please check these results.

Site 4 - Chemical Burial Area

28. The maximum detected values reported on Tables 6-1 and 6-5 do not agree with the maximum detected values reported on Table 3.1 for surface soils. It appears that the average concentration for the duplicate sample is being reported as the maximum detected value. Therefore, the incorrect EPC value is being used for arochlor 1260 and possibility for BAP Equivalent (unable to determine the correct EPC value for BAP Equivalent, see comment #4).
29. A dermal absorption factor (ABS) of 1% was used to calculate dermal risk from exposure to 1,1,2,2-tetrachloroethane however, EPA's Assessing Dermal Exposure from Soil, December 1995 recommends using an absorption value of 3%. Please provide the rationale for selecting an absorption value of 1%.
30. Tables 7.11 and 8.11. The groundwater inhalation risk results (HQ and CR while showering) for the adult resident do not correspond with the Risk Assessment Spreadsheets - Inhalation of Volatiles from Groundwater, located at the end of the section.
31. Tables 6-16 and 6-17, Summary of Receptor Risks and Hazards for PCOCs for the Future Adult Resident and the Future Child Resident. The carcinogenic and non-carcinogenic inhalation risk results do not agree with the reported risk conclusions on Tables 7.11, 8.11, 7.12, and 8.12.

Site 7 - Ordnance Burn Area

32. Section 7.3.3, Nature and Extent of Groundwater Contamination. There appears to be an error in the fourth paragraph. The acronym that is commonly used to identify bis(2-ethylhexyl) phthalate is DEHP, not BEHP as indicated in the report.

33. Oral to dermal extrapolation is not recommended for benzo(a)pyrene because dermal exposure to benzo(a)pyrene causes skin cancer through direct contact. Therefore, dermal risk from exposure to benzo(a)pyrene should not be calculated.
34. The inhalation risk results presented in Table 7-16 for the Future Adult Resident do not agree with the inhalation risk results in Tables 7.11 and 8.11.
35. The inhalation risk results presented in Table 7-17 for the Future Child Resident do not agree with the inhalation risk results in Tables 7.12 and 8.12.
36. The Summary of Receptor Risks and Hazards for PCOCs are not complete for the following receptors and pathways; Full Time Worker from exposure to groundwater via ambient air, Adult Resident from exposure to groundwater via indoor air and ambient air, Child Resident from exposure to groundwater via indoor air and ambient air. In other words, these pathways are not included in the Summary of Receptor Risks and Hazards for PCOCs.

Site 8 - Abandoned Chemical Disposal Pit

37. Table M-1, Summary of Analytical Results for Surface Soil. Why was a duplicate sample not collected for surface soil?

Site 9 - Industrial Wastewater Disposal Area 300

38. Section 9.1, Scope of Environmental Investigation. Between the second and third paragraphs the sentence reads "No soil samples were collected at Site 9." This sentence is not correct. Subsurface soils were collected and are included within the risk assessment. The sentence should read "No surface soil samples were collected at Site 9."
39. Section 9.5.1, Data Evaluation, Identification of PCOCs in Subsurface Soil. The last sentence in the first paragraph is contradictory to the first sentence in the second paragraph. Please correct.
40. Table 9-10, Exposure Point Concentration for PCOCs. The table list an EPC for Total PCBs however, Table 9-9 does not identify total PCBs as a COC. Please correct.
41. How was the EPC calculated for total PCB's in surface water? Were the results of all the congeners used as one data set or was the EPC calculated for each congener and then added? Further, why is total PCB listed as a COC instead of the specific congener?

42. Section 9.1, Scope of Environmental Investigation. Two piezometers samples were collected and used as part of the groundwater data. Piezometer samples should not be used for risk assessment purposes as the results can not be duplicated.
43. Please provide the rationale for choosing Hexachlorobiphenyl as a surrogate for total PCBs when selecting the Kp value to determine the dermally absorbed dose?
44. Table 9-18 and 9-19, Summary of Receptor Risks and Hazards for PCOCs. The tables include inhalation risk results that do not correspond with the inhalation risk results reported on Tables 7.3 and 7.4. In addition, the tables do not include the inhalation risk results for indoor air/ outdoor ambient air.

Paint Branch

45. See General Comments #4.

If you have any questions regarding the above comments, please call me at (215) 814-3369.

Sincerely,


Yazmine J. Yap-Deffler
Remedial Project Manager
Federal Facilities Section

cc: Jeff Thornburg, MDE
Steven Richard, GSA