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COMMENTS
FINAL ISA OU1 RESPONSE RISK ISSUES

02/07/91

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Re: COMMENTS
FINAL ISA O.U.1 RESPONSE
RISK ISSUES

Mr. Jack Craig
U.S. DOE FMPC
P.O. Box 398705
Cincinnati, Ohio 45239

Dear Mr. Craig:

Attached are Ohio EPA's comments on the Final ISA Report for O.U.1. The majority of these comments concern risk issues, the development of preliminary remediation goals, and inconsistencies within the document.

For the risk issues it is Ohio EPA's opinion that DOE's approach is still not consistent with the NCP. However, some progress has been made since the November 30, 1990 meeting. We would like to meet again to discuss these issues. If the timing can be worked out, it may be desirable to meet soon after DOE sends the Technical Position Paper on the Risk Issues. Please contact me so that a mutually agreed to date can be selected.

If you have any other questions about the comments please contact me.

Sincerely,

Graham E. Mitchell
DOE Coordinator

GEM/acp

cc: Tom Winston, OEPA
Jack Van Kley, Ohio AG
Kathy Davidson, OEPA
Catherine McCord, U.S. EPA
Robert Owen, ODH
Lisa August, GeoTrans
Ed Schuessler, PRC

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ATTACHMENT

OHIO EPA COMMENTS ON FINAL ISA REPORT FOR OU-1

1. Page 1-12, Section 1.1.3.1: Background values are referenced throughout this section, however a table or list of these background values has not been provided. In addition, the methodology for determining background values should be included. References to detection limits have also been made, however, in these instances the detection limit values were not indicated. Where concentrations are stated to be below detection limits, the detection limit should be included for reference.

2. Page 1-16, Section 1.1.3.2: In the first paragraph, DOE states that "no background soil data were available in the CIS...report to compare with soil sample data from the waste storage pits." In lieu of this background soil data, DOE used a US Geological Survey report which lists, among other things, the range and mean concentration of metals in soils of the eastern United States. DOE used the values contained in the report as background metals values for comparison with the CIS soil data from the waste storage pits. This is inappropriate, as the information contained in the report is too general to be used with any amount of reliably as background for the FMPC. At the very least, absent site-specific data, (Were background soil samples not collected as part of the RI?) DOE should use data that has been published by Logan and Miller ("Background Levels of Heavy Metals in Ohio Farm Soils," Ohio State University Research Circular 275, 1983) as background for comparison of waste pit soil data.

   In the discussion on specific metals such as aluminum barium, calcium, iron, etc., DOE provides average background concentrations which presumably are from the USGS report. Yet, for fluoride, DOE states that "no background samples were analyzed for this parameter." This statement is confusing. Does this mean that no soil data is given in the USGS report for fluoride, or is this statement meant to suggest that some site-specific sampling was indeed conducted but fluoride was not analyzed? This needs clarification.

3. Page 1-19, Section 1.1.5, first paragraph: It is not clear how the uranium cancer risks presented in this paragraph were calculated. If the procedures specified in USEPA's Health Effects Assessment Summary Tables (HEAST) document were not followed to compute the risks stated, then they are likely to be incorrect and understate the actual risks.

4. Page 2-1, fourth paragraph: DOE's statement that "where ARARs or TBCs are not available, preliminary remediation goals will be developed based on a 1 x 10^{-6} risk level" is inconsistent with the NCP. TBCs do not determine when the 10^{-6} risk level is to be used. The NCP states: "The 10^{-6} risk level shall be used as the point of departure for determining remediation goals for alternatives when ARARs are not available or are not sufficiently protective because of the presence of multiple contaminants at a site or multiple pathways of exposure." (emphasis added) TBCs have nothing to do with determining when the use of a 10^{-6} cancer risk is appropriate. The ISA report should be corrected accordingly.

5. Page 2-3, Section 2.4: For any and all carcinogenic compounds detected in OU-1 groundwater that do not have final MCLs (i.e., only a proposed MCL exists), DOE must consider the remedial action objective (RAO) to be the 10^{-6} cancer risk level. Likewise, for non-carcinogenic compounds having only a proposed MCL, the appropriate RfD must be used to derive an ingestion RAO instead of the proposed MCL. In addition, for those compounds (both carcinogens and noncarcinogens) that have a non-zero MCLG, this MCLG must be considered as an RAO unless there exists a risk-based value that is lower than the MCLG, in which case the lower risk-based number should be considered the RAO.

6. Page 2-8, Table 2-2: The regulation that is cited at the bottom of the page is incorrect. The correct citation is OAC 3745-1-07. This error should be corrected.

7. Page 2-9, Section 2.6: Since the new RCRA regulations do not constitute ARARs, it is inappropriate to use the 10^{-4} risk level DOE claims is suggested by these proposed regulations as an acceptable level of site-wide risk. It is important to note that in its section-by-section analysis issued with the proposed RCRA Subpart S Rule, USEPA states that for carcinogens, "EPA believes that action levels corresponding to a $1x10^{-6}$ risk level...generally are appropriate." USEPA also states that "Using a value from the high end of this range [i.e., 10^{-6}] ensures that the hazardous constituents screened out...are those for which corrective measures are unlikely to be necessary" and further recognizes that "...$1x10^{-4}$ risk levels of constituents may not be protective at all sites...."

   The NCP is the controlling regulatory framework under which the RI/FS is being conducted. As previously stated, the NCP requires the use of a 10^{-6} risk level as the point of departure for determining remediation goals for alternatives when ARARs are not available or are not sufficiently protective (on a site-wide basis) because of the presence of multiple contaminants at a site or multiple pathways of exposure.

8. Page 2-10, Table 2-3: Cs-137, Ra-224, Ra-228, and Ru-106 are listed in Table 2-3, but are not included in Table 2-1 (Groundwater).

9. Page 2-11, Table 2-4: A number of constituents listed in Table 2-4 are not included in Table 2-1 (Groundwater), specifically, cadmium, chromium, cobalt, lead, mercury, thallium, selenium, silver and beryllium. Rationale for not including these inorganics should be included. Likewise, some inorganic chemicals listed in Table 2-1 (Groundwater) are not included in Table 2-4, specifically, aluminum, magnesium and molybdenum. Rationale for not including RAOs for these chemicals of potential concern (as stated in Table 2-1) should be included.

10. Page 2-11, Table 2-4, footnote "a": The document "USEPA's Health Effects Assessment Summary Tables, EPA 1990" is not listed in the references chapter of the ISA report. This oversight should be corrected.

11. Page 2-12, Table 2-5: DOE's response to Ohio EPA's original comment is unacceptable. For any and all carcinogenic compounds that do not have final MCLs (i.e., only a proposed MCL exists), DOE must consider the RAO to be the 10^{-6} cancer risk level. Likewise, for those non-carcinogenic compounds listed in the table where a proposed MCL is given, the appropriate RfD must be used to derive an ingestion RAO instead of the proposed MCL. In addition, for those compounds (both carcinogens and noncarcinogens) listed in this table that have a non-zero MCLG, this MCLG <u>must</u> be considered as an RAO unless the value given in the table is lower than the MCLG.

    Ohio EPA's original comments on this table also noted that a few compounds listed in this table have both cancer Slope Factors and Reference Doses which should be used to derive carcinogenic and non-carcinogenic groundwater RAOs. (The table only lists the Cancer Slope Factor or a proposed MCL.) DOE failed to add the RfDs for these compounds stating that "...determining remediation goals 'is not intended to be a lengthy undertaking' (55FR8713) they should be based on 'readily available' information." Contrary to DOE's statement, this information <u>is</u> readily available and can be obtained from the HEAST manual. (OEPA staff located the RfD for these compounds in only 10-15 minutes.) These compounds include Bis (2-ethylhexyl) phthalate, 1,1-Dichloroethane, DDT, Methylene Chloride, and Tetrachloroethene. The RfDs for these compounds must be included in the ISA report. Delaying their consideration until Task 15 or until the proposed plan is issued, as DOE suggests, is too late.

The RfDs for Acenapthene, Di-n-butylphthalate, and Di-n-Octylphthalate were added to Table 2-5 per Ohio EPA's request. However, these compounds are still flagged with a "b." This "b" should be deleted since footnote "b" no longer applies to these compounds.

12. Page 2-12, Table 2-5: Many of the organic constituents listed in Table 2-5, are not included as organic chemicals of concern for groundwater in Table 2-1.

13. Page 2-14, Table 2-6: This table fails to include Ohio surface water quality standards for the compounds listed in the table. Contrary to what is stated in DOE's response to Ohio EPA's original comment, those federal standards listed in Table 2-6 are not more restrictive than Ohio's standards. For example, Ohio's surface water quality standards for the following compounds are stricter than those federal standards that are listed in the table: cadmium, chromium, copper, nickel, parathion, PCBs, selenium, and zinc. These compounds, at a minimum, must be listed in Table 2-6.

14. Figure 2-1: DOE's response to Ohio EPA's original comment is unacceptable. DOE's response states that: (1) "...preliminary remediation goals for radionuclides are based on ARARs, 'other criteria, advisories, or guidance'...." and (2) "if it is determined that risk-based levels are necessary to supplement or supersede these preliminary goals, HEAST will be used to calculate the levels." To address these statements, it is necessary to point out to DOE that: (1) the HEAST document <u>is</u> guidance and, hence, falls within the meaning of DOE's first statement, and (2) Ohio EPA strongly believes that, consistent with the NCP and absent ARARs, risk-based levels must be used to calculate preliminary remediation goals. (Risk-based levels <u>do</u> constitute TBCs.) As has been pointed out by Ohio EPA previously, DOE's own guidelines give values for carcinogenic risks that are outside the 10^{-4} to 10^{-6} risk range and do not consider the 10^{-6} risk level as the point of departure for determining site-wide remediation goals where ARARs do not exist or are not sufficiently protective. Figure 2-1 fails to consider this 10^{-6} risk as the point of departure.

Preliminary remediation goals must be developed conservatively and in a manner fully consistent with the NCP. Refinement of these goals at later stages in the RI/FS process to allow for higher (or even lower) levels of risk may be necessary for various reasons (e.g., technical impracticability). However, the decision-making process <u>must</u> be clearly documented and include defensible supporting rationale in the FS. To date, DOE has failed to do this.

15. Figure 2-1, Air Media 2-2: This RAO should be 10 mrem/year does rather than "10 mrem dose."

16. Page 2-18, Section 2.6.5: The first sentence of this section has not been changed to reflect the OEPA comment #24 (November 21, 1990) as stated in the DOE response (January 18, 1991).

17. Section 4.0, General Comment: The relationship between Figure 4-1 and Section 4.2 is confusing in certain circumstances. For example, Section 4.2 divides the technology descriptions and evaluations into three sections: Perched Groundwater, Standing Water, and Excavation/Remediation Water; Soils, Sediments, and Pit Waste; and Air (Fugitive Dust), dust. However, Figure 4.1 represents the Remedial Technology Types and Process Options as they relate to the General Response Actions for the entire operable unit. This creates confusion as some process options and remedial technologies in Figure 4.1 are not described in the text. Comments 18-23 illustrate some of the problems related to this section.

18. Figure 4-1:

    * Page 4-13 indicates that soil washing is retained for further evaluation for surface soils and sediments, but it is not included in Figure 4-1.

    * Section 3.6 indicates that using activated carbon reagents to stabilize the waste and soil is a viable process option, however, this process option is not included in Figure 4-1 or discussed in Section 4.2.

    * Page 4-13, the fourth paragraph indicates that thermal treatment process options are deleted form further evaluation, however, Figure 4.1 includes drying/calcination as a process option. Drying/calcination was not discussed in Section 4.2.

    * Section 4.2.2.5 states that the chemical treatment technology in situ vitrification is stated to be potentially feasible for soils but is not included as a chemical treatment method in Figure 4.1. Gravimetric separation is also retained for further analysis but not included in Figure 4.1.

19. Page 4-9, First Paragraph: This paragraph indicates that the process options retained for uranium removal from groundwater include: solid/liquid separation, leaching/extraction, reverse osmosis, and ion exchange precipitation. Shouldn't this list ion exchange <u>and</u> precipitation? The Contaminant/Treatment General Response Action does not include the leaching/extraction process option for water treatment in Figure 4-1.

20. Page 4-9, Section 4.2.1.6 and 4.2.1.7: The release of treated or untreated groundwater to a surface water body and the subsurface environment via deep well injection are under consideration for groundwater discharge according to section 4.2.1.6. Section 4.2.1.7 states that the general technology discharge to surface water has been retained for the groundwater medium. Figure 4.1, however, indicates that extraction wells will be used for re-injection not discharge to surface water.

21. Page 4-9, Section 4.2.1.7: The summary of retained technologies for groundwater should include run-on/runoff control process options at stated in Section 4.2.1.3.

22. Page 4-11, Second Paragraph: This section states that diversion and collection systems, grading and site revegetation will not be retained for further evaluation, however, Figure 4.1 and Section 4.2.1.3 indicate that these process options are retained for further evaluation. The text indicates that these options are retained for perched groundwater, standing water, and excavation/remediation water, but not for soils, sediments and pit wastes. Why wouldn't these options be applicable to soils, sediments and pit wastes?

23. Page 4-15, Section 4.2.2.8: The summary of retained technologies should also include mention of: thermal and chemical treatment (as stated in Section 4.2.2.5) and Run-on/Runoff Control and Removal (as stated in Section 4.2.2.4).

24. Section 5.2.6, Fifth Bullet: The groundwater discharge subsurface flow control process option is not included in Figure 5-1.

25. Page 5-13, Section 5.2.9: Subsurface drains is included as a process option for groundwater removal but does not appear in Figure 5-1.

26. Page 5-21, Section 5.2.17: This section does not directly state which of the chemical treatment process options was determined to be representative. Figure 6-1 indicates that precipitation was chosen, while the evaluation in Section 5.2.7 indirectly indicates that leaching was selected.

27. Section 7.8.1.1 and 7.8.1.2: The rationale for Alternative 6 scoring 3 for Long-Term Human Health and Environmental Protection is stated to be because the wastes will be stored over a vulnerable aquifer near a major population area. This is also true for Alternative 4, however, it yields a rating of 4 for Long-Term Human Health and Environmental Protection.

28. Page 7-17, Section 7.8.1.3: Alternative 6 should rate equally (if not better) in comparison to Alternative 4 in the reduction of toxicity, mobility and volume. Both alternatives mitigate the waste by the same method. In addition, Alternative 6 includes capping for the adjacent soils and berms, while Alternative 4 does not.

29. Page 7-18, Section 7.8.2.3: Alternative 6 should rate equally in comparison to Alternative 4 in Maintenance. According to Section 7.6.2.3, less maintenance will be required to maintain the RAOs for an EDF (Alternatives 4 and 6) than for an in situ waste containment design (Alternative 2 score: 3).

30. Page 7-20, Section 7.9.4: The screening summary for Alternative 7 states that shallow soil mixing (SSM) technology will be used to solidify/stabilize the wastes in Pits 5 and 6 and the clearwell. However, according to Section 6.8, SSM is a technology to be used to treat soils under the pits which will be left in place. It will not be used on the wastes themselves since they are to be excavated and treated in this alternative. This should be corrected in the ISA report.

31. Page B-7, ninth bullet: DOE states that "There appears to be no precedent for using MCLGs to develop cleanup criteria for the national CERCLA program." This statement is a poor justification for not considering MCLGs, particularly non-zero MCLGs for the FMPC site. In 40 CFR 300.430 (e)(2)(B), it clearly states: "Maximum contaminant level goals (MCLGs), established under the Safe Drinking Water Act, that are set at levels above zero, shall be attained by remedial actions for ground or surface waters that are current or potential sources of drinking water, where the MCLGs are relevant and appropriate under the circumstances of the release...." (emphasis added)

32. Page B-10, Table B-1: DOE states that "...3745-01-4(D) sets criterion applicable to all waters..." This is not the case. OAC 3745-1-04 sets those criteria that are applicable to all waters. This inaccurate citation should be corrected.