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OHIO EPA COMMENTS REVISED INITIAL SCREENING OF ALTERNATIVES REPORT FOR OU1 (OCTOBER 1990)

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REVISED INITIAL SCREENING OF ALTERNATIVES
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COMMENTS ON DOE RESPONSES TO OEPA COMMENTS ON THE JULY 1990 DRAFT OU-1 ISA REPORT

1. Ohio EPA Comment #5: The phrase "(Revision 3)" was not deleted from Page 1-1 of the document contrary to DOE's statement that the reference was deleted.

2. Ohio EPA Comment #20: The comment was not fully addressed by DOE.

3. Ohio EPA Comment #21: The document has not been changed to reflect this comment (page 6-10).

4. Ohio EPA Comment #22: The DOE response does not specifically address the comment. In addition, the text, Section 7.4.1.1, page 7-7 and Table 7-1 remain unchanged.

5. Response to Ohio EPA Comment #32: Page 7-5, Section 7.3.1.1, and page 4-17, Section 4.3.2.1, 2nd bullet contradict this DOE response. These sections of the current document state that "...porewater will be squeezed out of the waste/soil matrix into the surrounding pits, soils, and ultimately into the groundwater table."

6. Ohio EPA Comment #36: DOE failed to make the revisions stated in the response to the comment. The document still references "cancer potency factors" rather than "cancer slope factors" in the Health Effects Assessments portion of Page B-6. Please make the proper correction.

COMMENTS ON THE OCTOBER 1990 REVISION OF OU-1 ISA REPORT

1. Page ES-1, third bullet: This bullet item should read as follows: "Prevent migration of contaminants to environmental media that would exceed public health or environmental standards, criteria, or guidance."

2. Page ES-2. OTHER CONSIDERATIONS: The role of the "five balancing factors" in the Task 12 screening process is not well defined in this section. This section states: "The individuals conducting the alternative screening have maintained awareness of five balancing factors...", however, only the three broad criteria were used. Section 7.1.1 indicates that preliminary consideration is given to the two threshold and five primary balancing factors. How is this preliminary consideration manifested in the screening process? Table 7-1 indicates that equal

consideration is given to criteria similar to "threshold" and "primary balancing" factors. In addition, it is not clear where compliance with ARARs is determined.

3. Page ES-6, 4th and 5th bullets: Typographical error: A space is missing between the Alternative number and description.

4. Page 1-8, Waste Pit 2: This section states that Waste Pit 2 was excavated to a depth of 17 feet into a native clay. The DOE document: Development of Alternatives (Task 12) for the Feasibility Study, Revision 1, December 1988 states that Waste Pit 2 was lined with a compacted, on-site native clay. How does this difference affect the volume and integrity of Waste Pit 2? Does this mean that Waste Pit 2 was excavated into a native clay and then lined with a compacted native clay?

5. Page 1-8, Waste Pit 3: The DOE December 1988 document referenced above indicates that Waste Pit 3 contains 55-gallon drums. This is not mentioned in this section.

6. Page 1-10, Burn Pit, 1st sentence: See comment #4.

7. Page 1-11, Waste Pit Contents: The quantity of thorium listed here differs from that of Section 1.2.2.

8. Page 1-11, Section 1.2.3, Nature and Extent of Contamination: This section of the document fails to recognize any of the numerous non-radiological contaminants in the waste pits. These non-radiological contaminants are listed in Appendix C, but should also be discussed here. They may play an important role in determining the effectiveness of certain remedial alternatives. This section also fails to discuss any non-radiological contaminants which may or may not have been sampled in the soils, surface water, sediments, etc., contained in Operable Unit 1. This section fails to provide the reader with a clear view of the "nature and extent of contamination" of substances other than radionuclides.

9. Page 1-13, Surface Water: Simply stating that "Radium and thorium concentrations were well within DOE guidelines" is insufficient. It is more appropriate to state levels over which these constituents were not detected (i.e., "No water samples contained levels of Radium 226 exceeding xxpCi/l"). This is important since levels of concern will be determined by the baseline risk assessment and not by DOE guidelines. This style of writing will allow the document to remain useful after levels of concern have been established.

10. Page 1-13, Sediments: Stating "The radium and thorium concentrations were low in all the samples..." fails to provide sufficient information to the reader. Such statements should contain concentration limits which were found in order to qualify the statement. See Comment #9 above.

11. Page 1-14, Groundwater: DOE should include a map detailing the location of monitoring wells discussed in this section.

12. Page 1-15, 3rd paragraph: The exposure pathways listed should include inhalation of any volatile organic compounds through showering. Volatile compounds were indicated to be present in Appendix C.

13. Page 1-15, fifth bullet: Since DOE cannot assure institutional controls into the extended future, a fifth bullet should be added which includes the ingestion of soils and food raised in the soil from the waste pit area itself.

14. Page 1-15, General Comment: This document should not reference the Operable Unit 1 Baseline Risk Assessment or the OU-1 RI report since neither of these have been made available to USEPA or Ohio EPA.

15. Page 1-16, Section 1.2.5, Baseline Risk Assessment: The values of risk listed in this section must be re-evaluated based upon the procedures discussed in the October 30, 1990 meeting/conference call between DOE, OEPA, and USEPA and as outlined in both USEPA's risk assessment guidance and the Health Effects Assessment Summary Tables. While the acceptable cancer risk range specified in the NCP is 1×10^{-4} to 1×10^{-6}, the NCP also states that the 1×10^{-6} risk level shall be used as the point of departure for determining remediation goals when ARARs are not available or are not sufficiently protective. DOE does not appear to be considering 10^{-6} as the point of departure but is content to use anything that falls within the range while providing no justification for doing so. This is inappropriate and inconsistent with the NCP and therefore, unacceptable to Ohio EPA. Also as noted by Ohio EPA previously in comments on Task 12 reports for other FMPC operable units, it is inconsistent with USEPA risk assessment methodology to calculate carcinogenic risks in terms of "risks of fatal cancer." USEPA does not separate carcinogenic risks into fatal and non-fatal. DOE's presentation of carcinogenic risk in this manner is very misleading and can give the appearance that carcinogenic risks are smaller than they really are. <u>Total</u> carcinogenic risks (fatal and non-fatal) should be calculated in the risk assessment. 3

16. Table 2-1, Chemicals of Concern for Groundwater and Pit Wastes: The following constituents listed in Appendix C are not included in Tables 2-2 through 2-5: vinyl chloride, 4-chlorophenyl-phenylether, fluorine, malathion, and HSL Inorganics.

17. Table 2-1, Chemicals of Concern for Soil: Section 1.2.3 indicates that thorium and radium radioisotopes were detected in OU-1. These, however, are not included as chemicals of concern for soil in Table 2-1.

18. Page 2-1, Section 2.0, Remedial Action Objectives: This section of the report should be rewritten in accordance with the redistribution of risk among the operable units as suggested by DOE during the October 30, 1990 meeting and conference call between OEPA, USEPA, and DOE.

19. Page 2-1, Section 2.1: As previously noted by Ohio EPA in its comments on other operable units, the point of compliance should be considered to be the nearest actual or potential receptor location (under current or future use scenarios) for each exposure pathway, not just the nearest identified receptor location. This means the compliance point would be anywhere within the boundary of the waste unit for groundwater exposures. Also, Ohio EPA does not agree with DOE's definition of future land use being defined as that land use 100 years from the present. Future use is any land use that occurs in the immediate future and beyond and which under a no action scenario could expose populations to contaminants. Therefore, the assumptions made in the risk assessment relating to the 100-year future use must be changed to be consistent with a traditional future use scenario.

20. Table 2-2: The TBCs that are listed for the various Operable Unit 1 chemicals must also include MCLGs for groundwater.

21. Page 2-6, Table 2-3: As discussed at the October 30, 1990 meeting, RAOs for radionuclides must be derived in a manner consistent with USEPA's HEAST document using 10^{-6} as the point of departure for assessing acceptable risks. This requires that Table 2-3 be modified accordingly. The MCL for Radium 226 and 228 is 5 pCi/l for the combination of the two, not 5 pCi/l per isotope as suggested in footnote "b" of the table.

22. Table 2-5: For any and all carcinogenic compounds that do not have final MCLs, 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 (carcinogens and noncarcinogens) listed in this table that have a non-zero MCLG, this MCLG must be considered as an RAO unless the value given in the table is lower than the MCLG. 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. However, the table only lists the Cancer Slope Factor or a proposed MCL. These compounds include Bis (2-ethylhexyl) phthalate, 1, 1-Dichloroethane, DDT, Methylene Chloride, and Tetrachloroethene. Other compounds, having only ingestion Reference Doses, but whose Reference Doses were not listed in Table 2-5 include: Acenapthene (RfD = 0.06 mg/kg/day); Di-n-butylphthalate (RfD = 0.1 mg/kg/day); and Di-N-Octylphthalate (RfD = 0.02 mg/kg/day). These RfDs should be used to derive non-carcinogenic groundwater RAOs for the respective compounds.

23. Page 2-10, Table 2-6: The state of Ohio has acute and chronic water quality criteria for surface water bodies which are enforceable and constitute state ARARs. These criteria must be presented in this table. This table should also provide RAOs for radionuclides for the protection of aquatic life in surface waters.

24. Page 2-15, Section 2.6.5, 1st sentence: The first sentence implies that waste pit constituents are currently not leaching, nor have they leached in the past, into the regional aquifer. This conflicts with the first and second sentences of Section 1.2.3.

25. Figure 2-1: This figure requires modification such that the RAOs given are consistent with USEPA's HEAST document as well as discussions relating to risk assessment issues from the October 30, 1990 meeting between USEPA, Ohio EPA, and DOE.

26. Page 4-8, Section 4.2.1.5: This section indicates that: "... only technologies applicable for uranium removal will be used in the initial development and screening of alternatives." Given this condition, the comparison of alternatives will be affected by not including factors associated with the treatment of the remaining inorganics and organics. For example, cost, special engineering and equipment, implementability, maintenance, etc. This will be evident in the comparison of alternatives with treatment to those without treatment.

27. Page 4-9, Section 4.2.1.7, 1st sentence: It is not clear what previous sections provided a discussion of the rationale for elimination of numerous technologies and process options for remediation of waste pit groundwater. The only explanation given is that these process options are not applicable to inorganics, as uranium removal is the primary concern. Figure 4-1, indicates the technologies and process options eliminated in the Removal/Treatment/Disposal General Response Action, but it is not clear if these apply to the waste pit contents and/or the waste pit groundwater. In addition, the General Response Action: Containment/Treatment includes the Process Option - pumping wells for the extraction of waste pit groundwater, but does not provide treatment technology process options.

28. Page 4-17, 2nd bullet: The terms: groundwater table, till groundwater table, and waste pit groundwater have been used in this section. It should be clearly stated that these refer to the perched groundwater in the till, if this is the case, and not to the Great Miami Aquifer.

29. Figure 5-1: Ohio EPA does not agree with DOE's evaluation that institutional controls such as monitoring and access control are highly effective in protection of human health and the environment or in meeting remedial action objectives. These actions, in and of themselves, do nothing to prevent the continued migration of contaminants off-site nor do they involve treatment of any kind. They really constitute a more passive type of remedial technology. Therefore, these remedial technologies should be ranked as having a low effectiveness.

30. Figure 5-1: The Process Option subsurface drains was included in Figure 4-1, but not in Figure 5-1.

31. Figure 5-1: The Process Option: pneumatic/oozer dredging was eliminated from further consideration in Figures 4-1 & 6-1, but is included in Figure 5-1.

32. Figure 6-1: The correlation of the Media and Remedial Action Objective to the remaining figure is not well defined. In addition, the relationship of Process Options to the alternatives is not clearly represented. Illustrating this information as in Table ES-1, page ES-9, in the Initial Screening of Alternatives for Operable Unit 3, Task 12 Report, September 1990 Draft may be more appropriate.

33. Page 6-6, 3rd sentence: This sentence states that "...these three factors were considered in the preliminary design of each alternative." However, there are four factors listed in the first sentence. Which three of the four factors were considered in the preliminary design of each alternative?

34. Page 6-8, Section 6.2.3: The approximate thickness of the slurry wall should be included in this section.

35. Page 6-10, 1st bullet, surcharging: Given that leachate collection trenches and sumps will not be installed in Pit 4, how will leachate be collected?

36. Page 6-11, Sections 6.3.2 and 6.3.5: These sections should include requirements for surcharging Pits 1 through 4 and the Burn Pit.

37. Page 6-12, Section 6.3.4, Remediation Time Frame: DOE needs to support its position that Alternative 2 can be accomplished in the same time frame as Alternative 1, which requires little treatment of the waste pits prior to capping. It would appear that Alternative 2 would require a longer period than Alternative 1, since Alternative 2 will involve shallow soil mixing as well as surcharging of the respective waste pits prior to capping.

38. Page 6-14, Section 6.4.4, Remediation Time Frame: Again, DOE needs to support its position that Alternative 3 can be accomplished within the same time frame as Alternative 1.

39. Page 7-3, Section 7.1.3: This section includes a discussion of the administrative feasibility evaluation of the alternatives, but this is not carried forward into the screening of the individual alternatives. Permitting and licensing approval, availability of equipment, etc. were not discussed under any of the alternatives. These points are important to consider, since they reflect the potential acceptability of alternatives to the regulatory agencies. The omission of these evaluations should be corrected.

40. Page 7-3, Section 7.1.3: How the bulleted items of feasibility are included in the criteria used in Table 7-1 is not clear.

41. Sections 7.6.1.1 and 7.6.1.2: The rationale for the Long-Term Protection of Human Health and the Long-Term Protection of the Environment both rating a 4 is flawed. These factors should score a 4 partially because the wastes are physically stabilized or vitrified and placed in an engineered disposal facility. These factors, however,

score a 4 in comparison to Alternative 5, because the treated wastes will be stored over a vulnerable aquifer near a major population center.

42. Page 7-7, Section 7.3.2.4: Ohio EPA questions DOE's basis for rating the special engineering equipment score for Alternative 1 lower than that for Alternative 2, which appears to require more equipment and engineering design. Also, the score for Alternative 1 is equal to that of Alternatives 4 and 5, both of which obviously require more special engineering equipment for the removal and treatment of wastes than Alternative 1.

43. Page 7-10, Section 7.4.4, last sentence: This section indicates that Alternative 2 receives an overall ranking of 32. Table 7-1 correctly indicates a sum of 31.

44. Appendix A, Page A-1-3, Section A.1.2: The 2nd sentence states that clarification has no effect on dissolved solids. The next paragraph states that clarification can be used to remove organic and inorganic contaminants. Are these statements conflicting (as organic and inorganic contaminants are usually in the dissolved phase) or does the second sentence refer to TDS?

45. Appendix B, Page B-5, second bullet: DOE's statement that "OEPA has been developing extensive solid and hazardous waste regulations..." should be changed to "OEPA has developed extensive...."

46. Appendix B, Page B-5, third bullet: This item should be modified to also note that OEPA has surface water quality criteria for both acute and chronic effects on aquatic organisms as part of OAC 3745-1-07 in addition to water use criteria for all major surface water bodies.

47. Appendix B, Page B-5, fifth bullet: Not all portions of OAC 3745-9 apply exclusively to new wells intended for human consumption. For example, OAC 3745-9-10 covers the abandonment of test holes and wells and constitutes an action-specific state ARAR for remedial actions involving the installation of <u>any</u> boring or wells (whether for water supply or monitoring purposes) at the FMPC. This should be noted in the text here and included in Table B-1.

48. Appendix B, Page B-6: MCLGs and proposed MCLs must be listed as federal TBC criteria and included in Table B-1.

49. Appendix B, Page B-10, Table B-1: Please explain why the description for OAC 3745-81 only mentions limits set on radiological parameters and not on other organics and inorganics that have been found in the Operable Unit 1 study area. This deficiency should be corrected. In addition, the OAC citation for Ohio's radiation protection standards was omitted from item "c". This citation should be provided.

50. Appendix B, Page B-12, Table B-1: OAC 3745-9-10 (abandonment of test holes and wells) should be included in this table as a state of Ohio action-specific ARAR.

GEM/yrc