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**RESPONSE TO OHIO EPA COMMENTS ON THE  
OCTOBER, 1990, OPERABLE UNIT 1 - INITIAL  
SCREENING OF ALTERNATIVES, FERNALD,  
OHIO**

**01/07/91**

**RESPONSE TO OHIO EPA COMMENTS ON THE OCTOBER, 1990  
OPERABLE UNIT 1 - INITIAL SCREENING OF ALTERNATIVES, FERNALD, OHIO**

**COMMENTS ON DOE RESPONSES TO OEPA COMMENTS ON THE JULY 1990 DRAFT  
OU-1 ISA REPORT**

**Comment:**

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.

Response: "(Revision 3)" has been deleted from that section of the text.

Action: See response.

**Comment:**

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

Response: Noted. A site-wide water treatment facility will be installed for treatment of water from Operable Unit 1.

Action: The Final ISA will include site-wide wastewater treatment facility.

**Comment:**

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

Response: Noted. It is agreed that a leachate collection system should be installed in Pit 4 during surcharging.

Action: The Final ISA will be changed to reflect the inclusion of the leachate collection system for Pit 4.

**Comment:**

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.

Response: Noted. The evaluation method has been changed to use an unfavorable to a highly favorable ranking system. Alternative 2 was rated as above average but not highly favorable since there are still short-term impacts associated with construction of a cap.

Action: The Final ISA will be changed to reflect the change in the evaluation method.

**Comment:**

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."

**Response:** The result of dynamic compaction is to free liquids which in turn may percolate into surrounding soils. The liquids will not be driven directly into the soils by the impact of the compaction. The description of dynamic compaction on Page A-5 includes the "evaluation and implementation of groundwater control measures" as a support activity associated with the soil compaction. The groundwater control measures would include dewatering prior to compaction and leachate collection during compaction. The dewatering would be accomplished by a variety of means including well points and/or interceptor trenches. In addition to the dewatering measures, it should be noted that intergranular pore pressure in the soil below the compaction zone tends to redirect free liquids to the surface or laterally to surrounding soils of the compacted material and not downward into the aquifer.

**Action:** The Final ISA will include additional discussion of the impact of dynamic compaction on the groundwater.

**Comment:**

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.

**Response:** "Cancer potency factors" has been changed to "cancer slope factors."

**Action:** See response.

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

**Comment:**

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."

**Response:** Requiring conformance to vague "criteria" or "guidance" allows for innumerable subjective interpretations of these nonbinding criteria and guidance. "Standards" adequately describes those requirements that are relevant and binding to the contamination levels in environmental media. The reference to criteria and guidance will be restricted to those included with the ARARs in Appendix B.

**Action:** Revise the bullet to include criteria or guidance in Appendix B.

**Comment:**

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 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.

**Response:** The section entitled "OTHER CONSIDERATIONS", outlines the additional preliminary considerations that have been considered in the alternative screening process. The "five primary balancing factors", as they are referred to, have been considered in the screening process only in so much as to gain a sense of direction as to the decision requirements of the detailed analysis phase. Furthermore, per the CERCLA guidance manual, the balancing factors are to be evaluated more generally in this phase, before taking a more prominent position in the detailed analysis phase. Compliance with ARARs will be evaluated in the FS as one of the threshold criteria.

**Action:** The Final ISA, will be revised in order to more prominently reflect the considerations given to the primary balancing factors and their role in the screening process.

**Comment:**

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

**Response:** Agree.

**Action:** Text has been revised.

**Comment:**

- 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?**

**Response:** This difference does not affect the volume or integrity of Waste Pit 2. Waste Pit 2 was excavated into a native clay and was then lined with a compacted native clay.

**Action:** Text has been revised.

**Comment:**

- 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.**

**Response:** Waste Pit 3 does contain 55 gallon drums.

**Action:** Section 1.2.2 has been revised to reflect this.

**Comment:**

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

**Response:** The Burn Pit was excavated into native clay but was not lined.

**Action:** None required.

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

Response: Agree. The two values should agree.

Action: Section 1.2.2 has been revised to be consistent with Section 1.2.3.

Comment:

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.

Response: Agree. While the primary contaminant of concern is uranium, other non-radiological contaminants should be discussed here.

Action: Add discussion of the non-radiological contaminants to Section 1.1.3.2.

Comment:

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 xpcCi/1:). 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.

Response: Agree. The text has been revised to state that radium was below the detection limits in all surface samples with the exception of the sample collected from locations ASIT-29, which had 6.1 pCi/L radium. Thorium was not detected in any surface water samples.

Action: Text revised.

Comment:

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.

Response: DOE is in agreement.

Action: The Final ISA will include a minimum/maximum radium and thorium concentration for sediments.

Comment:

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

**Response:** Section 1.0 is only a summary of the document and as such, it is not necessary to include a map of such detail. This information is contained in Section 2 of the Remedial Investigation Report for Operable Unit 1.

**Action:** A map showing the location of the groundwater monitoring wells is attached.

**Comment:**

- 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:.

**Response:** The description of the first exposure pathway states, in part, "...ingestion of groundwater containing radionuclides and nonradioactive chemicals..." This description does not cover volatile organic compounds (nonradioactive chemicals) and inhalation through showering. The text does not require revision. The baseline assessment addresses numerous pathways. Only those pathways that actually contribute significantly to risk are summarized in the Initial Screening of Alternatives report.

**Action:** None required.

**Comment:**

- 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.

**Response:** The section on contaminant fate and transport is not the place to describe human exposures. The section has been rewritten to describe environmental transport mechanisms. However, the comment does not effect the baseline risk assessment. After meetings with the Ohio EPA and the USEPA, DOE agreed to evaluate direct exposures to pit wastes. These risks are currently being quantified for the baseline but calculations are not ready for inclusion into the Operable Unit 1 ISA report.

**Action:** Include a summary of this pathway in the FS report.

**Comment:**

- 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.

**Response:** Both the Operable Unit 1 Remedial Investigation Report and the Operable Unit 1 Baseline Risk Assessment are part of the RI/FS program and the Record of Decision and, therefore, should be referenced as sources of additional information to the reader.

**Action:** None required.

**Comment:**

- 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 of Tables. While the acceptable cancer risk range specified

in the NCP is  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ , the NCP also states that the  $1 \times 10^{-6}$  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. Total carcinogenic risks (fatal and non-fatal) should be calculated in the risk assessment.

Response: This entire section will be revised based on the listed concerns. Remedial action objectives are discussed in Section 2.0.

Action: See response.

Comment:

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.

Response: These chemicals were not considered chemicals of concern in the RI/RA for Operable Unit 1 because they were detected in isolated samples with a frequency of detection less than five percent of the total 38 samples of pit waste.

Action: No action necessary.

Comment:

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.

Response: Agreed.

Action: Thorium and radium will be included in Table 2-1.

Comment:

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.

Response: Final distribution of residual risk among operable units at the FMPC is dependent upon completion of a site-wide risk assessment. Redistribution will occur based on knowledge of the occurrence of individual chemical in each operable unit as it becomes available.

Action: Section 2.0 will be revised to delete reference to the 25 percent distribution.

## Comment:

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.

Response: EPA played an integral role in developing 10CFR61, which includes verbage pertaining to control of a low level waste site for a 100-year period. DOE will provide more information on the 100-year period of institutional controls in the baseline risk assessment. Both 10CFR and DOE orders (e.g. 5820.2A) appear to supply quite definite verbage to assume that DOE will be responsible for the land for a 100-year period. Most RI/FS sites must make much less supportable assumptions about "traditional" future land-use than these. In addition, land-use in the "immediate future" (undefined by CERCLA guidance) would be extremely limited by the liability associated with the FMPC property.

Action: Issue will be clarified in the baseline risk assessment.

## Comment:

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

Response: Agree.

Action: Non-zero MCLGs will be included in table as TBCs.

## Comment:

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.

Response: To quote the preamble to the NCP, preliminary remediation goals should initially be "based on readily available environmental or health-based ARARs...and other criteria, advisories or guidance." This is what the DOE has done. Additional evaluation of these goals will occur in the FS and the proposed plan. The refinement may or may not force  $10^{-6}$  risk-based values for radionuclides for which ARARs have been developed since ARARs are as much a part of the CERCLA process as theoretically-based risk values.

Action: A footnote will be added to Table 2-3 explaining the calculated action levels do not account for the sum of the two isotopes.

Comment:

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: Acenaphthene (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 noncarcinogenic groundwater RAOs for the respective compounds.**

Response: Again, preliminary remediation goals may be based on "criteria, advisories or guidance" and thus are not limited to final MCLs. Because determining preliminary remediation goals "is not intended to be a lengthy undertaking" (55FR8713) they should be based on "readily available" information. MCLGs are TBCs and are superseded by promulgated MCLs for developing RAOs.

Action: No action in Task 12. Further refinement of preliminary RAOs in Task 15 and the proposed plan. RfDs for compounds mentioned in the comment have been included in Table 2.5.

Comment:

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.**

Response: DOE disagrees. Federal standards are more restrictive than Ohio standards and are not listed in Table 2-6. A reference to Ohio's Surface Water Quality Standards (OAC3745-1-01(c)) will be added to Table 2-2.

Action: Revise Table 2-2.

Comment:

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.**

**Response:** The waste pits in Operable Unit 1 are contributing to the contamination levels in the perched groundwater and the Great Miami Aquifer below Operable Unit 1.

**Action:** The first sentence of Section 2.6.5 has been deleted.

**Comment:**

**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.

**Response:** Note that preliminary remediation goals for radionuclides are based on ARARs, "other criteria, advisories, or guidance" as suggested in the preamble of the NCP. 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.

**Action:** Figure 2-1 has received some modification to reflect the use of ARARs and TBCs, where available, and the  $10^{-4}$  to  $10^{-6}$  risk range where ARARs and TBCs are not available.

**Comment:**

**26. Page 408, 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.

**Response:** Uranium is considered to be the primary contaminant of concern, and thus the process options will be geared towards uranium removal. Other contaminants will be treated on a pretreatment stage if necessary. The nature of the contaminants is such that the pretreatment stage would not greatly affect the cost comparisons. The uranium treatment process options would remove most contaminants along with the uranium.

**Action:** Text revised to clarify the document.

**Comment:**

**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 Options -pumping wells for the extraction of waste pit groundwater, but does not provide treatment technology process options.

**Response:** Treatment technology process options are covered in the last part of Figures 4-1 and 5-1. These process options will be combined in whatever manner necessary to treat the soils, sediments, pit wastes, and any collected liquids. A separate groundwater control technology will be added to these figures to clarify the point mentioned above. Also, it should be noted that all collected liquids will be treated in the site-wide water treatment plant.

**Action:** Figure and text revised to clarify document.

**Comment:**

**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.

**Response:** DOE agrees. Text will be modified.

**Action:** Text revised to clearly state perched groundwater.

**Comment:**

**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 action, 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.

**Response:** Institutional controls and monitoring were never intended to be remediation technologies by themselves. They are used in conjunction with other remedial actions. It should also be noted that USEPA and OEPA use these same technologies at practically every hazardous waste site and commonly determine facility compliance based on their performance. The technologies are therefore considered to be effective.

**Action:** Figure 5-1 will be revised to indicate that institutional controls will not be used by themselves.

**Comment:**

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

**Response:** DOE agrees. Figure and text will be modified to correct error.

**Action:** Figure and text revised to include subsurface drains.

**Comment:**

**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.

**Response:** DOE agrees. Figure and text will be modified to correct error.

Action: Figures and text revised to indicate screening out of pneumatic/oozer dredging.

Comment:

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.**

Response: DOE agrees. A table like the one mentioned above will be added to the document to clarify the relationship of process options to the alternatives.

Action: Figure added (similar to the above mentioned table) to the Executive Summary and Section 6.0.

Comment:

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?**

Response: DOE agrees. This was a typographical error that will be corrected.

Action: Text revised to indicate "four" instead of "three."

Comment:

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

Response: DOE agrees. Unless otherwise specified, slurry walls are assumed to be three feet thick.

Action: Text revised to include slurry wall thickness.

Comment:

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?**

Response: DOE agrees. This was a typographical error that will be corrected. Pit 4 will in fact include these items.

Action: Text revised to state "...Pits 1 through 4..." instead of "...Pits 1 through 3...."

Comment:

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.**

Response: Spatial requirements will not change because the soils will be brought directly to the pit, however, Section 6.3.2 will be amended with the bulleted item "soils for surcharging."

Action: Text revised to include soils for surcharging.

Comment:

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.

Response: The remediation time frames were based on preliminary engineering assessments. Factors such as remediation contractor scheduling, man-loading, and environmental conditions will greatly effect the time frames. The current time frame estimates are believed to be accurate approximations.

Action: None required.

Comment:

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.

Response: See response to Comment No. 37.

Action: See action to Comment No. 37.

Comment:

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.

Response: The CERCLA guidance states that the detailed analysis of alternatives will consider these factors. At this stage only general screenings are being considered.

Action: None required.

Comment:

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.

Response: The first sentence of the subsection states that "Implementability is a measure of both the technical and administrative feasibility..." The bulleted items merely indicate what factors were considered when judging the technical feasibility and when judging the administrative feasibility. Both of these categories were used to evaluate implementability.

Action: None required.

**Comment:**

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 Environmental 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.

Response: DOE agrees. The text will be revised to state these rationales.

Action: Text revised to include modified rationales

**Comment:**

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.

Response: DOE agrees. The rating for Alternative 1 under special engineering equipment will be changed from 3 to 4.

Action: Table and text revised to indicate a ranking of 4 for Alternative 1, special engineering equipment.

**Comment:**

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.

Response: DOE agrees. This was a typographical error that will be corrected.

Action: Text revised to state "31" instead of "32."

**Comment:**

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?

Response: The intent of the process is to remove suspended, not dissolved, contaminants. The text has been revised to state that clarification can be used as a pretreatment technique to remove suspended organic or inorganic contaminants.

Action: Text revised.

**Comment:**

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...."**

Response: The text has been revised.

Action: See response.

Comment:

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.**

Response: The text has been revised.

Action: See response.

Comment:

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 3745-10 covers the abandonment of test holes and wells and constitutes an action-specific state ARAR for remedial actions involving the installation of any 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.**

Response: The text has been revised to broaden the application of OAC 3745-9. OAC 3745-9 has been added to Table B-5.

Action: See response.

Comment:

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

Response: Proposed MCLs and non-zero MCLGs will be included in Appendix B.

Action: Include PMCLs on ARAR/TBC list as a TBC.

Comment:

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.**

Response: Table B-1 should state that organics and inorganics are applicable to OAC 3745-81. A citation for radiation protection standards should be provided.

Action: The description for OAC 3745-81 and the citation for radiation protection standards have been added to Table B-1.

**Comment:**

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.**

Response: Agree.

Action: Table B-1 has been revised to include OAC 3745-9-10.