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DISAPPROVAL OF OU 2 FEASIBILITY STUDY/PROPOSED PLAN REPORTS

06/27/94

USEPA DOE-FN
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COMMENTS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

H-4623

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REPLY TO THE ATTENTION OF:

JUN 27 1994

Mr. Jack R. Craig
United States Department of Energy
Feed Materials Production Center
P.O. Box 398705
Cincinnati, Ohio 45239-8705

HRE-8J

RE: Disapproval of OU 2
Feasibility Study/Proposed Plan
Reports

Dear Mr. Craig:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the United States Department of Energy's (U.S. DOE) Operable Unit (OU) 2 Feasibility Study (FS)/Proposed Plan (PP) Reports. After preliminary review, it became evident that significant revisions to the documents were necessary. U.S. EPA sent draft comments to U.S. DOE and held a conference call on June 7, 1994, and a meeting on June 13, 1994, to discuss the necessary revisions.

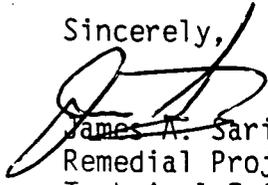
The FS/PP reports are confusing and have significant deficiencies that must be addressed. The FS report addresses each subunit separately, but not until the PP report is a comprehensive remedy for OU 2 discussed. The FS report must be revised to more clearly analyze and screen alternatives to address the entire OU not just specific subunits. The existing FS report makes it difficult to compare and analyze various subunit alternatives and determine the adequacy of the remedy described in the PP. Therefore, revision of the document may result in a change in the PP remedy.

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Therefore, U.S. EPA hereby disapproves the FS/PP reports pending incorporation of the attached comments. U.S. EPA has attached the previously submitted draft comments in final form along with additional comments. U.S. DOE must incorporate the attached comments into the FS/PP reports and submit revised documents within thirty (30) days receipt of this letter.

Please contact me at (312) 886-0992 if you have any questions.

Sincerely,



James A. Saric
Remedial Project Manager
Technical Enforcement Section #1
RCRA Enforcement Branch

Enclosures

cc: Tom Schneider, OEPA-SWDO
Pat Whitfield, U.S. DOE-HDQ
Don Ofte, FERMCO
Jim Thiesing, FERMCO
Paul Clay, FERMCO

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Option 1

Approach - In Section 4, screening of subunit alternatives currently developed could be presented and several alternatives for each subunit could be eliminated, as appropriate. Then, before the detailed analysis, remaining subunit alternatives could be combined into OU2 alternatives. This would require major revisions of Sections 4, 5, and 6 of the FS report and corresponding revision of the PP. However, this approach would reduce FS report length and repetition.

Impact on Evaluation of Alternatives - Based on the information presented in the FS report, the alternative screening in Section 4 would likely result in elimination of off-site disposal, vitrification of wastes, and treatment of the flyash or lime sludge. The remaining subunit alternatives would then be combined for the detailed analysis, resulting in a list of OU2 alternatives similar to the following:

- No action
- On-site disposal for all subunits
- On-site disposal for all subunits with treatment (stabilization or soil washing) of Inactive Flyash Pile and South Field wastes
- Containment and consolidation for all subunits
- Containment and consolidation for the Solid Waste Landfill and Lime Sludge Ponds and on-site disposal of Inactive Flyash Pile, South Field, and Active Flyash Pile wastes

Option 2

Approach - The 29 subunit alternatives could be combined into OU2 alternatives in Section 4 without screening of the subunit alternatives but taking into account practical OU2 management issues. The detailed analysis and comparative analysis would then be conducted on the OU2 alternatives. Section 4 would need to be revised by the addition of a new subsection that combines subunit alternatives into OU2 alternatives and provides detailed explanations of why the particular combinations are the most practical. Sections 5 and 6 of the FS report would require major revisions, as would the PP. However, this approach would reduce FS report length and repetition.

Impact on Evaluation of Alternatives - Based on practical OU2 management considerations but ignoring any evaluation currently presented in Section 5, the new subsection in Section 4 would combine the 29 subunit alternatives into a list of OU2 alternatives for detailed analysis. The list of alternatives for detailed analysis would likely be similar to the following:

- No action
- Off-site disposal for all subunits
- On-site disposal for all subunits
- On-site disposal for all subunits with selective vitrification
- On-site disposal for all subunits with selective stabilization
- On-site disposal for all subunits with selective soil washing
- On-site disposal for all subunits with flyash stabilization
- Consolidation and containment for all subunits
- Consolidation and containment for the Solid Waste Landfill and Lime Sludge Ponds and on-site disposal for the Inactive Flyash Pile, South Field, and Active Flyash Pile

Option 3

Approach - Section 5 could present an alternative screening step eliminating several alternatives for each of the subunits. The most viable subunit alternatives could then be combined into OU2 alternatives for comparative analysis in Section 6. This option would require the least amount of document revision. However, new subsections would need to be added to Section 5 to provide the rationale for eliminating subunit alternatives and to develop OU2 alternatives, and Section 6 and the PP would need major revisions. Although this option would not necessarily reduce FS report length or repetition, much of the repetition in Section 5 could be avoided by cross-referencing.

Impact on Evaluation of Alternatives - The new subsections in Section 5 would eliminate many of the 29 subunit alternatives, resulting in a drastically reduced list from which OU2 alternatives would be assembled. The list of OU2 alternatives for comparative analysis would likely be similar to the following:

- No action
- On-site disposal for all subunits

Commenting Organization: U.S. EPA
Section #: Appendix C Page #: NA
Original General Comment #: 13

Commentor: Saric
Line #: NA

Comment: For each of the subunits, Appendix C summarizes the short- and long-term risks associated with each of the alternatives. However, the summaries contain little in the way of comparison between alternatives. Because the ability of an alternative to reduce short- and long-term risks constitutes two of the criteria used to select remedial alternatives, the discussion of each subunit needs to be revised to clearly identify which alternatives are associated with the lowest short- and long-term risks.

Also, the appendix should be revised to include an in-text summary table that presents the range of short- and long-term risks associated with the alternatives for each subunit. This table should specifically identify the short- and long-term risks associated with the alternative or alternatives that present the lowest short- and long-term risks for each subunit.

Commenting Organization: U.S. EPA
Section #: Appendix C Page #: NA
Original General Comment #: 14

Commentor: Saric
Line #: NA

Comment: As discussed in Section C.2.1.3.1 and presented in the tables of Attachment I, the number of trucks needed to transport contaminated material was calculated by dividing the volume (adjusted for expansion) of the contaminated material by the capacity of an average truck (assumed to be 20 cubic yards [yd^3]). This approach is acceptable for some of the alternative-specific calculations. However, for some of the calculations, the assumption that an average truck will transport 20 yd^3 means that this truck would transport more than its maximum load in terms of weight.

For example, for South Field Alternative 3 (Table C.4-3) an average truck is assumed to transport 20 yd^3 or 540 cubic feet (ft^3) of a material with an assumed density of 100 pounds per ft^3 . This means that the average truck is assumed to transport 540 $\text{ft}^3 \times 100 \text{ pounds}/\text{ft}^3$ or 54,000 pounds. However, Table C.4-3 indicates that the maximum truck capacity is assumed to be 50,000 pounds. If the maximum truck capacity is correct, then the average truck can transport only 18.5 yd^3 of contaminated material. This difference is significant because, assuming an 18.5- yd^3 capacity, the number of trucks necessary to transport the contaminated material increases from 13,421 to 14,500. The increased number of trucks impacts the characterization of transportation risks and the costs of the affected alternatives. Attachment I should be closely reviewed and alternative-specific worksheets should be revised to ensure that trucks are not assumed to carry more than their maximum

be presented with only one significant figure (for example, 2E-05). Appendix C should be revised to present carcinogenic risks with only one significant figure.

APPENDIX D

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Appendix D Page #: NA Line #: NA
Original General Comment #: 18

Comment: Appendix D discusses COCs, development of PRGs for COCs in soils and waste, and fate and transport modeling of the COCs. It appears that the text does not discuss all the COCs for the various subunits identified in the OU2 remedial investigation (RI) but instead focuses on uranium isotopes and technetium-99. The text should be revised to state why not all COCs identified in the RI are included in the development of PRGs and in the fate and transport modeling.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Appendix D Page #: NA Line #: NA
Original General Comment #: 19

Comment: The text should be revised to state the predicted combined groundwater contaminant concentrations (present and future) for all the subunits in OU2 with regard to the remediation method that is considered to be the most likely alternative.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Appendix D Page #: D-1-16 Line #: 21, 22, and 23
Original General Comment #: 20

Comment: The text states that PRGs for the Solid Waste Landfill that are protective of perched groundwater were developed because perched groundwater is the closest exposure point for this subunit. In subsequent sections of the text, perched groundwater is identified beneath the Inactive Flyash Pile, South Field, and Active Flyash Pile; however, PRGs that are protective of perched groundwater were not developed for these subunits. Instead, PRGs that are protective of the Great Miami Aquifer were developed even though perched groundwater would be a closer exposure point in each case. The text should be revised to state why PRGs that are protective of perched groundwater were not developed for these subunits.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Appendix D Page #: D-3-5 Line #: 2 to 6
Original General Comment #: 21

Comment: The text in Appendix D and in following sections discusses exclusion of sand and gravel lenses in the till and weathered till from the vadose zone modeling. The greater permeability of the sand and gravel lenses and the weathered till would seem to increase the amounts and

exposure to COCs that leach from soil and migrate to surface water or groundwater is not discussed. The text should be revised to discuss these additional potential pathways for exposure.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.1.6 Page #: I-1-20 Line #: NA
Original General Comment #: 26

Comment: The text lists the features and contaminant sources present following site-wide remediation. Of all on-site media, only surface soil is presented as a potential source of residual contamination. This infers that groundwater, surface water, and sediment either are fully remediated or do not require remediation. If this is the case, it should be clearly stated in the text, or these media should be added as potential sources of residual contamination.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.2.0 Page #: I-2-1 Line #: NA
Original General Comment #: 27

Comment: The text discusses sources of data for the FS report and states that data from non-RI/FS activities were considered "secondary" and were used in the report only when RI/FS data were not available. However, the report does not state the procedures followed when (1) RI/FS data and "secondary" data were in conflict and (2) RI/FS data were available but were invalidated, inadequate, or suspect. The text should be revised to address this issue.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.4.2 Page #: NA Line #: NA
Original General Comment #: 28

Comment: Appendix I presents a series of three screening processes conducted to select COCs that will potentially still be of concern following the 70-year remediation project. The second and third processes are essentially modeling exercises that may or may not predict how COCs will behave in the environment. Although such processes may be necessary and proper, they should be presented in the context of their inherent uncertainty, and provisions should be made to attempt to validate the models. For example, representative COCs proposed for elimination based on this modeling should be analyzed for at intervals over the 70-year remediation period to determine whether the models are reliably predicting actual events.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.4.4 Page #: I-4-8 Line #: NA
Original General Comment #: 29

Comment: The text states that COCs with a vapor pressure greater than 10 millimeters (mm) of mercury (Hg) at 20 °C will be eliminated because they are expected to volatilize over the

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: Appendix I Page #: NA Line #: NA
 Original General Comment #: 36

Comment: Several sections of Appendix I appear to be duplicated exactly from Appendix D.5. It would be more efficient to summarize Section D.5 in Appendix I and then refer the reader to Appendix D for more information. Sometimes the duplication is not quite exact, and the small differences infer completely different meanings. For example, the first paragraph in Section I.6.2 essentially duplicates the first paragraph in Section D.5.1 except that Section I.6.2 refers to "contaminants released to the atmosphere from the remediated FEMP," whereas Section D.5.1 refers instead to "deposition rates from the remediated Operable Unit 2 subunits." The text should clearly state whether emissions from all of FEMP or only from the OU2 subunits are described in this Comprehensive Response Action Risk Evaluation (CRARE). Moreover, all text and appendixes should be checked for consistency.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: I.6 Page #: NA Line #: NA
 Original General Comment #: 37

Comment: No uncertainty discussion is presented in the text for this air emissions fate and transport analysis. Given the number of assumptions that must be made, at least a qualitative evaluation of the uncertainty associated with each assumed input parameter should be presented.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: I.6.0 Page #: I-6-2 Line #: NA
 Original General Comment #: 38

Comment: The text states that all FEMP CRAREs will use the same input and default values. It is likely that some values should be OU-specific, such as the areal extent of the site, contaminant concentrations, the type of soil present, the presence or absence of a cap, and so on. The statement in the text should be corrected to allow for OU-specific values.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: I.6.2.1 Page #: I-6-63 Line #: NA
 Original General Comment #: 39

Comment: ~~The first paragraph states that future land use scenarios do not include continued maintenance of on-property disposal or capped areas. The second paragraph states that no significant air emissions are expected to occur from such areas and states specific areas where no air emission source terms are anticipated. The problem with assuming that no air emissions will occur because of capping is that if no maintenance occurs, eventually the cap will wear away because of erosion. Once the cap is gone, air~~

Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.11.0 Page #: I-11-1 Line #: 26
Original General Comment #: 46

Comment: The text states that organic COCs were eliminated from consideration after evaluation of their organic decay rates in water and soil. However, Section I.4.5 discusses elimination of COCs in soil based on decay and in groundwater based on removal via pump and treat methods. The text should be revised to clarify the different methods used to eliminate organic COCs in soil and groundwater from consideration.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.11.3 Page #: NA Line #: NA
Original General Comment #: 47

Comment: In general, the presentation of uncertainties in this section is skewed toward uncertainties potentially resulting in overestimation of risk. Although it is acknowledged that general risk assessment procedures and standard default assumptions are highly conservative, several sources of uncertainty can lead to overestimation of risk. The discussion of uncertainties should be revised to present more information on uncertainties potentially resulting in underestimation of risk. For example, chemicals not included in the quantitative risk assessment as a consequence of missing information on health effects or lack of quantitation in the chemical analysis, may provide a significant source of uncertainty which may underestimate final risk estimates (EPA 1989).

Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.11.3 Page #: I-11-12 Line #: NA
Original General Comment #: 48

Comment: The text states that some model results tend to misrepresent exposure scenarios. However, the report does not propose use of alternative models or methods for adjusting model results to accurately represent exposure scenarios. The report should propose methods for addressing this uncertainty and should attempt to describe whether the uncertainty may result in overestimation or underestimation of risk.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.11.3 Page #: I-11-12 Line #: 27
Original General Comment #: 49

Comment: The text states that assumptions concerning meat, milk, fruit, and vegetable consumption at and near the facility are conservative and unlikely. However, the report does not explain (1) how the assumptions can be judged to be conservative and unlikely if no data from the facility or similar communities are available or (2) why, if such data is available, they were not used in the place of

conservative and unlikely assumptions. The text should be revised to address these issues.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.12 Page #: NA Line #: NA
Original General Comment #: 50

Comment: CRARE conclusions are not consistent with risks presented in the text. The conclusions are based on each OU's percent contribution to the site's total residual risk. However, risk calculations are based on a single receptor point and are not presented separately by OU in the text. Therefore, the conclusions should include (1) additional conclusions summarizing significant risks presented in the text and (2) the methodology for the calculation of each OU's percent contribution.

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REFERENCES

- Hazardous Substances Database (HSDB). 1994. On-Line Database.
- U.S. EPA. 1986. "Superfund Public Health Evaluation Manual."
EPA 540/1-86-060. October
- U.S. EPA. 1989. "Risk Assessment Guidance for Superfund, Human
Health Evaluation Manual, Part A." U.S. EPA/540/1-89/002.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.2.1.3.2 Page #: C.2-8 Line #: 13
Original Specific Comment #: 5
Comment: This line states that additional information is provided in Section 5.2.3. However, the subject document does not contain such a section. The line should be revised to clarify in which document Section 5.2.3 is presented.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.2.1.3.2 Page #: C.2-8 Line #: 15
Original Specific Comment #: 6
Comment: This line discusses "this alternative." The line should be revised to clarify which what alternative is being referred to here.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.2.1.3.2 Page #: C.2-9 Line #: 4
Original Specific Comment #: 7
Comment: This line states that "the ability of the alternatives to meet specified preliminary remediation goals (PRG) was assumed." The meaning of this statement is not altogether clear. The line should be revised to clarify how the statement relates to exposure point concentrations used in the exposure calculations.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.2.2.1.2 Page #: C.2-11 Line #: 13
Original Specific Comment #: 8
Comment: This line refers to the baseline risk assessment in the remedial investigation (RI) report for detailed discussions of the intake equations used to calculate exposures. This section should be revised to present section numbers in the baseline risk assessment where intake equations for each of the routes of exposure are presented. For example, Tables C.2-2(a) and C.2-2(b) could easily be revised to include references to the appropriate sections.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.2.2.1.2 Page #: C.2-11 Line #: 16 and 17
Original Specific Comment #: 9
Comment: These lines state that parameter values for evaluating short- and long-term risks are presented in Tables C.2-2(a) and C.2-2(b), respectively. However, these tables do not include parameters to evaluate intakes of contaminants present in groundwater, meat, and vegetables. These lines should be revised to state where these parameters are presented.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: C.2.2.1.2 Page #: NA Line #: NA
 Original Specific Comment #: 10

Comment: In Table C.2-2(a) under the section titled "Dermal Contact with Soil/Sediment," the conversion factor (CF) parameter is defined in units of milligrams per kilogram (mg/kg). The units should be revised to be presented in kg/mg. This same revision should be made to Table C.2-2(b).

Also, footnote "c" in this table is too vague as written. The footnote should be revised to indicate the specific source of the guidance. If this guidance was provided by an individual, the footnote should specify the name and title of the individual and the date the guidance was provided.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: C.2.2.1.2 Page #: NA Line #: NA
 Original Specific Comment #: 11

Comment: Table C.2-3 contains several equations used to calculate air concentrations of contaminants during various remedial activities. The equations and the value for one of the primary parameters, D_1 (dust loading factor), are not referenced. Table C.2-3 should be revised to include references for the equations and the D_1 parameter.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: C.2.2.1.2 Page #: NA Line #: NA
 Original Specific Comment #: 12

Comment: Table C.2-4(a) presents air concentrations and deposition rates of contaminants. Units need to be added to the column labeled "Surface Soil Concentrations." Also, the footnote to the table needs to be revised to state where the off-site receptor is assumed to be located.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: C.2.2.1.2 Page #: NA Line #: NA
 Original Specific Comment #: 13

Comment: Table C.2-5 presents groundwater modeling results. In the first column, the acronyms "AFP" and "SI/IFP" need to be defined. Also, concentration units need to be added to the column presenting on-site concentrations.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: C.2.2.1.3 Page #: NA Line #: NA
 Original Specific Comment #: 14

Comment: Table C.2-6(a) presents subchronic reference doses (RfD). However, the table does not clearly indicate why only a fraction of the potential chemicals of concern (COC) are presented. Based on a comparison with Table C.2-6(b), Table C.2-6(a) should either be revised to include values for chromium IV, polyaromatic hydrocarbons (PAH), and

polychlorinated biphenyls (PCB), or else state clearly why values for these COCs are not included.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.2.2.1.3 Page #: NA Line #: NA
Original Specific Comment #: 15

Comment: Table C.2-6(b) presents chronic RfDs. The table is incomplete and should be revised to include RfDs for beryllium (5E-03 mg/kg/day), bis(2-ethylhexyl)phthalate (2E-02 mg/kg/day), and dieldrin (5E-05 mg/kg/day), as reported in the Health Effects Summary Tables, Annual Update fiscal Year 1993. The table should also be revised to include either an RfD for uranium or else clearly state why an RfD is not included.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.2.2.1.3 Page #: C.2-14 Line #: 19
Original Specific Comment #: 16

Comment: This line states that slope factors are presented in Table C.2-5. The line should be revised to refer to Table C.2-7.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.2.2.1.3 Page #: NA Line #: NA
Original Specific Comment #: 17

Comment: Table C.2-7 presents slope factors. The table is incomplete and should be revised to include the most up-to-date information. For example, dieldrin has a slope factor of $16 \text{ (mg/kg/day)}^{-1}$ as reported in the U.S. Environmental Protection Agency (U.S. EPA) Integrated Risk Information System (IRIS) accessed in May 1994. Also, footnote "c" of this table should be revised to specify when IRIS was accessed.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.2.2.1.3 Page #: C.2-17 Line #: 14 to 27
Original Specific Comment #: 18

Comment: The last paragraph on this page, which continues onto the next page describes the default procedures to be used if gastrointestinal information is not available. Based on a review of Table C.2-9, these default procedures are never used, and the reference to it should be removed from the document.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.2.2.1.3 Page #: NA Line #: NA
Original Specific Comment #: 19

Comment: Table C.2-9 presents dermal RfDs and slope factors. The table should clearly state whether the dermal RfDs presented represent subchronic or chronic exposures. Also, the dermal RfDs and slope factors for PAHs are all labeled "ND" or not derived. This explanation is insufficient. A

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.4.1 Page #: C.4-2 Line #: 2 to 4
Original Specific Comment #: 28
Comment: The second sentence of the first incomplete paragraph states that for assessing short- and long-term risks, potential exposures to all CPCs were evaluated. On the other hand, the third sentence states that for assessing long-term risks, potential risks from identified CPCs only were evaluated. The paragraph should be revised to resolve the discrepancy between these two sentences.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.4.3.1 Page #: NA Line #: NA
Original Specific Comment #: 29
Comment: Table C.4-13(c) presents short-term risks associated with south field surface soil for the off-property farmer. However, the table presents only carcinogenic risks. The table should either be revised to also present noncarcinogenic risks or else explain why noncarcinogenic risks are not presented.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.4.4 Page #: C.4-4 Line #: 22 and 23
Original Specific Comment #: 30
Comment: These lines introduce Tables C.4-18(a) through (d) and the risks presented in these tables. Table C.4-18(b) does not appear in the text or in Attachment II. Appendix C should be revised to include Table C.4-18(b).

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.5.2 Page #: C.5-2 Line #: 8
Original Specific Comment #: 31
Comment: This line states that all remedial alternatives for the inactive flyash pile (IFP) include excavation of contaminated material. However, the description of remedial alternative IFP7 in Table C.5-2 does not include excavation of contaminated material. The text and Table C.5-2 should be revised to eliminate this discrepancy.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.5.3.1 Page #: NA Line #: NA
Original Specific Comment #: 32
Comment: Table C.5-11 presents the concentration of COCs in excavated material for each of the IFP alternatives. However, alternative IFP8 is not represented in this table. The table should be revised to include concentrations of COCs for alternative IFP8.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.5.3.2 Page #: C.5-4 Line #: 5 to 12
Original Specific Comment #: 33
Comment: This paragraph summarizes transportation risks associated with the IFP. The alternatives are consistently mislabeled throughout the paragraph as either "AFP" or "FP" rather than as "IFP." The paragraph should be revised to correct these errors.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.5.4 Page #: NA Line #: NA
Original Specific Comment #: 34
Comment: Table C.5-19 is intended to summarize the long-term risks and hazards associated with the IFP. However, risks and hazards associated with the on-property farmer are not included in the table but are discussed in the text and presented in Attachment II, Tables C.5-18(a) through (c). Table C.5-19 should be revised to include risks and hazards associated with the on-property farmer.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.5.4 Page #: C.5-5 Line #: 10 and 15
Original Specific Comment #: 35
Comment: Line 10 states that Tables C.5-17(a) through (c) present risks to the on-property farmer. However, these tables present risks associated with the off-property farmer. Line 15 also states that Tables C.5-18(a) through (c) present risks associated with the off-property farmer. This statement is also incorrect. These tables present risks associated with the on-property farmer. These lines should be revised to correctly indicate the risks presented in Tables C.5-17(a) through (c) and C.5-18(a) through (c).

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.6.3.1 Page #: NA Line #: NA
Original Specific Comment #: 36
Comment: Table C.6-6 presents the concentrations of COCs in excavated material associated with the solid waste landfill (SWL). Several problems exist with the concentrations presented. First, the number of significant figures varies considerably, which is unlikely. The table should be revised to consistently present the concentrations with a consistent and reasonable number of significant figures (for example, it is unlikely that chromium was measured accurately as presented (20.489 mg/kg). This comment also applies to similar tables prepared for the other subunits. Second, the concentration of benzo(a)anthracene is presented as 0. This value is not acceptable. Analytical limitations preclude the determination that a contaminant is present at a concentration of 0. The table should be revised to replace 0 with an appropriate substitute such as not detected (ND) or less than (<) some specified value.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: Attachment I Page #: NA Line #: NA
 Original Specific Comment #: 37

Comment: Minor errors are present throughout the attachment in the values presented for total crew labor hours. For example, in Table C.3-3 under the second task, the total crew labor hours is presented as 13,620. However, a value of 14,080 hours was calculated based on the product of exposure duration, total crew, and maximum anticipated exposure. The attachment should be reviewed and any errors corrected.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: Attachment III Page #: NA Line #: NA
 Original Specific Comment #: 38

Comment: The title of this attachment is "Derivation of Preliminary Remediation Goals." However, the attachment presents not only the derivation of PRGs but also numerous risk tables. The title should be revised to more accurately represent the material presented in this attachment.

APPENDIX D

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: D.1.1.2 Page #: D-1-7 Line #: NA
 Original Specific Comment #: 39

Comment: The text should provide a brief summary describing the modeling effort. The summary should incorporate all the subunits into one scenario to reflect actual, natural conditions. The summary should include information about source development, contaminant pathways and controls, and degradation of contaminants as they move towards the Great Miami Aquifer (GMA) and then towards the fenceline. This summary would be helpful because of the difficulty in providing model input and output data due to its size.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: D.1.1.2 Page #: D-1-7 Line #: NA
 Original Specific Comment #: 40

Comment: The text discusses modified soil PRGs that are protective of perched groundwater; however, perched groundwater PRGs are only discussed for the SWL. Perched groundwater conditions are also identified for other subunits in OU2, such as the IFP, but are not discussed even though perched groundwater is the shortest exposure route evaluated in the risk assessment. The text should be revised to provide a discussion of perched groundwater PRGs for other subunits or explain why they are not presented.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.1.1.3 Page #: D-1-15 Line #: 36 to 40
Original Specific Comment #: 41
Comment: The text discusses the calculation of soil PRGs that are protective of the GMA. The text should state if the soil PRGs that are protective of the GMA are above health-based levels for soil exposure.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.1.2.4 Page #: D-1-21 Line #: 17 to 20
Original Specific Comment #: 42
Comment: The text states that technetium-99 (Tc-99) and carbazole have not been detected in the perched groundwater beneath the site. However, Table A.2-49 in the OU2 RI report states that based on modeling results, the minimum arrival time to the GMA for Tc-99 is 10 to 20 years. The Tc-99 arrival time is therefore within the present-day time interval of 40 years, implying that Tc-99 is present in the perched groundwater. The text should resolve the discrepancy concerning the arrival of Tc-99 to perched groundwater.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.1.3.1 Page #: D-1-26 Line #: 2 to 5
Original Specific Comment #: 43
Comment: The text in this and following sections discusses vertical infiltration downgradient of waste subunits in OU2. The infiltration was incorporated into the ECTran model by increasing the effective decay rate in the downgradient area. The text should explain how the increase in the effective decay rate was calculated and what the effective decay rate is for the contaminants modeled in each subunit.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.1.3.3 Page #: D-1-31 Line #: 3 to 5
Original Specific Comment #: 44
Comment: The text states that the hydraulic gradient and flow distance along the pathline from the IFP to the fenceline were calculated using groundwater contour data from 2000-series monitoring wells for April 1988 to December 1989. Data from this time interval was collected during a drought and may not represent actual conditions. The text should be revised to use present day or most recent groundwater data for all subunits in OU2.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.2.2.3 Page #: D-2-4 Line #: NA
Original Specific Comment #: 45
Comment: The text discusses ECTran modeling results for the consolidation/containment remedial scenario. The model results for groundwater beneath the remediation site are compared to maximum contaminant levels (MCL), but the model

results at the fenceline are compared to health-based risk levels. The text should be revised to state why these results are compared to two different criteria.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: D.2.3.3 Page #: D-2-9 Line #: NA
 Original Specific Comment #: 46

Comment: The text discusses the fate and transport modeling results of the consolidation/containment remediation scenario. It is not apparent if the horizontal and vertical modeling results for this scenario were combined to present realistic conditions beneath the scenario site. The text should either be revised to present the results of the modeling in a combined scenario or else state that the horizontal and vertical modeling results were combined to reflect realistic conditions beneath the site.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: D.3.2.3 Page #: D-3-9 Line #: NA
 Original Specific Comment #: 47

Comment: The text states that the vertical hydraulic conductivity (K_v) values for the GMA were obtained by dividing the horizontal hydraulic conductivity (K_h) by 10. The text also states "vertical to horizontal hydraulic conductivity values for the GMA calculated from the South Plume pump test ranged from 0.07 to 10.7 (i.e. over a range which includes this value)." The value of 10 used to determine K_v from K_h is near the high end of the range determined from the South Plume pump test. The text should explain why the value of 10 was used to determine K_v from K_h for the GMA.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: D.3.3.3 Page #: D-3-14 and 3-15 Line #: NA
 Original Specific Comment #: 48

Comment: The text discusses the original Sandia Waste Isolation Flow and Transport (SWIFT) model and its calibration to data from 1988 through 1990. The model has been subsequently modified and recalibrated. The text should be revised to restate the time interval of data used to recalibrate the SWIFT model.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: D.3.4.1 Page #: D-3-17 Line #: 5 and 6
 Original Specific Comment #: 49

Comment: The text states that for the SWL infiltration is controlled by the remediation cap and glacial overburden properties have negligible influence on the infiltration rate. The depth to which this infiltration rate applies is unclear. The text should be revised to indicate the depth to which this infiltration rate is applied and to explain

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: I.4.3 Page #: I-4-2 Line #: 8
 Original Specific Comment #: 55

Comment: This line states that COCs will be eliminated if they are nontoxic and ubiquitous, and Table I.4-1 lists COCs eliminated for this reason. However, two of the eliminated COCs, aluminum and iron, may have provisional toxicity factors established by U.S. EPA. The report should be revised to include these COCs if such provisional toxicity factors exist. In addition, COCs should not include nontoxic or ubiquitous constituents that are not of concern at a site. The text should be revised to change "COC" to "CPC."

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: I.4.3 Page #: I-4-4 Line #: NA
 Original Specific Comment #: 56

Comment: Table I.4-2 lists the COC 1,1-dichloroethane (1,1-DCA) twice. It is not clear whether the entry for 1,1,-DCA is simply repeated or whether its repetition displaces another COC from the table. The table should be revised to eliminate the duplicate entry of 1,1-DCA.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: I.6.2.2 Page #: I-6-64 Line #: NA
 Original Specific Comment #: 57

Comment: This section states that 531 source areas are evaluated in 29 source groups. The method used to group these source areas should be given. Also, Figure I.6.22 is stated as showing these source group locations. These source groups are difficult to identify in this figure. Multiple figures may be required to adequately show these source groups.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: I.6.2.4 Page #: I-6-64 Line #: NA
 Original Specific Comment #: 58

Comment: This section states that emission rates for particulate matter less than 10 micrometers in diameter (PM₁₀) were used to evaluate particulate emissions only. This method is generally acceptable to evaluate risk from respirable particles in the inhalation pathway. The text should note, possibly in an uncertainty discussion, that larger particles may also suspend. Risks from other pathways such as ingestion or dermal exposure should not use data from estimated PM₁₀-particle concentrations in air but should use total suspended particulates data instead.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: I.6.2.4.2 Page #: I-6-86 Line #: 11 through 19
 Original Specific Comment #: 59

Comment: This paragraph discusses how the use of a single dispersion emission rate for six wind speed categories used in the Industrial Source Complex Dispersion Model, Long-

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: I.7.6.1 Page #: I-7-40 Line #: NA
 Original Specific Comment #: 65

Comment: Most of the discussion presented for 4,4'-dichlorodiphenyldichloroethene (DDE) is actually specific to 4,4'-dichlorodiphenyltrichloroethane (DDT). The text should note in the introduction to this section that the two chemicals have practically equal biological effects and that 4,4'-DDT is generally used as a surrogate for its much less studied metabolite, 4,4'-DDE.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: I.7.6.16 Page #: I-7-55 Line #: 2
 Original Specific Comment #: 66

Comment: This line suddenly introduces the heterocyclic hydrocarbon dibenzofuran, which is biologically unrelated to the polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans discussed in the remainder of the section. This irrelevant sentence should be deleted or expanded in a separate section discussing dibenzofuran.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: I.7.6.15 Page #: I-7-56 Line #: NA
 Original Specific Comment #: 67

Comment: The lower half of Table I.7-5 contains numerous references to "dibenzo-para-furans." It is impossible to have such a structure as part of a five-membered furan ring. This chemical nomenclature should be corrected.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: I.8.2 Page #: I-8-1 Line #: 23 and 24
 Original Specific Comment #: 68

Comment: The values presented in these lines are in units of milligram per liter and liter per day, indicating that Equation 1 calculates the chronic daily intake (CDI) of COCs in water. No equation is presented for the estimation of CDI of COCs in soil or sediment. Equation 1 should either be modified to estimate the CDIs of COCs in water, soil, or sediment, or else a separate equation should be presented for estimating the CDI of COCs in soil or sediment. Also, all equations should be specifically labeled to refer to the parameter calculated.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: I.8.3 Page #: I-8-8 Line #: NA
 Original Specific Comment #: 69

Comment: Table I.8-2 lists soil absorption coefficients for dioxins/furans and PCBs and references their source. However, the table should note that these values are presented in the cited reference (EPA 1992) as substitute values. The value presented for dioxins/furans is actually

a value for trichlorodibenzo-p-dioxin, and the value presented for PCBs is actually a value for trichlorobenzene.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.11.1.2 Page #: I-11-2 Line #: 3 to 6
Original Specific Comment #: 70

Comment: These lines discuss COCs that are of "major" concern or are "principle" contributors to risk. However, it is not clear if these COCs include all the chemicals that contribute significant risk. The report should be revised to specify which COCs contribute significant risk.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.11.1.3 Page #: I-11-2 and I-11-3
Line #: 23 to 28 and 1 to 2
Original Specific Comment #: 71

Comment: These lines discuss risks to various receptors and state that some are "above the target range" or "above the noncarcinogenic hazard index (HI) benchmark of 1." However, the text does not specify the degree to which the risks exceed the target range or benchmark value. The text should be revised to state the actual risk estimated for each receptor exceeding the target range or benchmark value.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.11.2 Page #: I-11-9 Line #: 21
Original Specific Comment #: 72

Comment: This line mentions risk to the trespassing child under a future land use scenario. However, Table I.11-2 lists the trespassing child only under the current land use scenario. The report should be revised to eliminate this inconsistency.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.11.3 Page #: I-11-13 Line #: 1
Original Specific Comment #: 73

Comment: This line states that no major uncertainties affect the selection of COCs. This statement fails to recognize that the proposed COC screening criteria involve modeling that contains a large degree of uncertainty. The text should be revised to discuss the uncertainty involved with COC screening.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.11.3 Page #: I-11-13 Line #: 3
Original Specific Comment #: 74

Comment: This line discusses the likely overestimation of risk resulting from conservative RfDs and slope factors. However, the text does not discuss the potential underestimation of risk resulting from the failure to quantify risk from (1) COCs for which no toxicity factors are available and (2) tentatively identified compounds. The

