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TRANSMITTAL OF FINALIZED RESPONSES TO THE OHIO ENVIRONMENTAL PROTECTION AGENCY AND UNITED STATES ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE OPERABLE UNIT 2 DRAFT FINAL FEASIBILITY STUDY/PROPOSED PLAN

11/04/94

DOE-0153-95
DOE-FN EPAS
60
RESPONSES

Department of Energy
Fernald Environmental Management Project
P.O. Box 398705
Cincinnati, Ohio 45239-8705
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NOV 0 4 1994

DOE-0153-95

Mr. James A. Saric, Remedial Project Manager
U.S. Environmental Protection Agency
Region V - 5HRE-8J
77 West Jackson Boulevard
Chicago, IL 60604-3590

Mr. Thomas P. Schneider
Ohio Environmental Protection Agency
401 E. Fifth Street
Dayton, OH 45402-2911

Dear Mr. Saric:

TRANSMITTAL OF FINALIZED RESPONSES TO THE OHIO ENVIRONMENTAL PROTECTION AGENCY AND UNITED STATES ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE OPERABLE UNIT 2 DRAFT FINAL FEASIBILITY STUDY/PROPOSED PLAN

The Department of Energy, Fernald Area Office (DOE-FN) is pleased to submit the enclosed responses to Ohio Environmental Protection Agency (OEPA) and United States Environmental Protection Agency (USEPA) comments on the Operable Unit 2 Draft Final Feasibility Study/Proposed Plan (FS/PP).

Draft responses were placed at the Public Environmental Information Center (PEIC) on October 25, 1994. These finalized responses are based on those draft responses, as well as discussions with the OEPA and USEPA on November 1, 1994. The finalized actions and revised pages will be submitted to USEPA and OEPA by November 10, 1994.

If you have any questions, please contact Rod Warner at (513)648-3156.

Sincerely,

for Jack R. Craig
Fernald Remedial Action
Project Manager

FN:Warner

Enclosures: As Stated

Recycled and Recyclable

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Sincerely,

Johnny Reising

for Jack R. Craig
Fernald Remedial Action
Project Manager

FN:Warner

Enclosures: As Stated

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cc w/enc:

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OHIO EPA COMMENTS
DRAFT FINAL OU2 FEASIBILITY STUDY AND PROPOSED PLAN

Comment No. 1
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Figure 1-17 Page #: 1-3 Line #: Code: C
Original Comment #: 10
Comment: Figure 1-15 has not been corrected. Please include the sand and gravel layer in the legend.
Response: Agreed. The legend symbol for sand and gravel does not agree with the figure. Figure 1-15 will be corrected by showing the proper symbol in the legend.
Action:

Comment No. 2
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 3 Page #: General Comment Line #: Code: C
Original Comment #:
Comment: It would be easier to understand the information presented in Section Three if the descriptions and evaluations of the treatment alternatives were together instead of given in two separate sections. This revision would allow for an easier review of the document and keep the reader from flipping back and forth through the text.
Response: Section 3.5 was organized by general response action. A general response action is introduced, then each potentially applicable technology included in the general response action is briefly described. The evaluation of each potentially applicable technology follows immediately after the descriptions in the next subsection. This format is in general conformance with the EPA guidance document. This comment will be referred to Operable Unit 3 to be considered in the development of that FS document.
Action:

Comment No. 3
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 4.2.5.4 Page #: 4-9 Line #: 32-33 Code: C
Original Comment #:
Comment: Although DOE has chosen stabilization/solidification as the assumed technology, DOE should be aware that Ohio EPA believes that vitrification is by far the more effective treatment alternative. Ohio EPA believes that any waste requiring treatment on-site should consider vitrification as the preferred method.
Response: As noted in the comment, stabilization/solidification is the assumed technology for costing purposes. This was chosen to be representative for the reasons discussed in Section 4.2.5.4. As noted there, none of the three potential treatment technologies has been eliminated.
Action:

Comment No. 4
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Tbls.5-4,5-8,5-11 Page #: Line #: Code:C
Original Comment #: 3
Comment: These tables are not labeled as showing the maximum expected cross-media uranium concentrations.
Response: Agreed. The tables will be modified to emphasize that these tables do present the maximum expected uranium concentrations.
Action:

Comment No. 5
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Table 5-2 Page #: 5-13 Line #: Code: E
Original Comment #:
Comment: The shading on the copy reviewed was indistinguishable from the rest of the table. The table should be revised.
Response: Agreed. The shading will be darkened so that it does not fade when reproductions are made.
Action:

Comment No. 6
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5.3.1.2.2 Page #: 5-24 Line #: 8-10 Code: C
Original Comment #:
Comment: The last sentence of this paragraph should be deleted. DOE should specify within the FS/PP the disposition of wastes within OU2. On-site disposal for this material should only be considered as a contingency in the event off-site disposal is not possible. Unless DOE intends to provide a detailed evaluation of on-site disposal and treatment for mixed waste within the FS, the sentence should be deleted.
Response: Agreed. The reference to on-site disposal of mixed waste will be deleted.
Action:

Comment No. 7
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Table 5-5 Page #: 5-37 Line #: Code: C
Original Comment #:

Comment: The PRLs provided in this table differ significantly from those provided in Table 5-3. The presentation of these two sets of PRLs is confusing and not clarified by the text. DOE should provide additional discussion within the text explaining the differences in these tables.

Response: The two tables present PRLs for areas under the cap (Table 5-5) and areas not under the cap (Table 5-3). Materials directly over the Great Miami Aquifer or which will not be covered by a cap, yet have contaminant levels greater than the PRLs in Table 5-3, will be consolidated to the area that will be covered by the cap.

Table 5-5 is provided to show that all material in the Operable Unit 2 subunits are able to meet the PRLs, if capped, and lateral migration is prevented in the South Field and Inactive Flyash Pile. The text will be expanded to explain the use of these two tables.

Action:

Comment No. 8
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Table 5-7 Page #: 5-53 Line #: Code: C
Original Comment #:

Comment: a) The table should be footnoted to define those ARARs driving the concentrations presented in the ARAR column.
b) The table should designate which of the presented concentrations (ILCR, HI, or ARAR) is the PRL for each contaminant. Presumably the lowest concentration is the PRL, but this is unclear.
c) It is unclear where footnote "b" is employed within the table. This footnote is only applicable for radionuclides.
d) DOE should review the table for accuracy. It does not seem appropriate for higher PRLs to exist for waste over the GMA (see IAFP and SF) than for waste over the till.

Response:
a) Agreed. The requested footnote will be added.
b) Agreed. The driving PRLs will be shaded in the table to make them clearer.
c) Footnote b should be applied to the first appearance of the abbreviation ILCR. The footnote should be modified to indicate that the addition of background only applies to radionuclides.
d) While it seems inappropriate for the material over the till to have lower PRLs than that over the Great Miami Aquifer, this result follows directly from the mechanism for contaminant transport in the South Field/Inactive Flyash Pile area. Seepage along the fill/till interface joins with water from the perched zone while moving laterally. This water, which leached contamination from material over the till, enters the Great Miami Aquifer in a narrow zone where the till thickness goes effectively to zero. This serves to concentrate the contamination from the "over the till" area and necessitate low PRLs.

Action:

Comment No. 9
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5.4.1.2.2 Page #: 5-63 Line #: 10-13 Code: C
Original Comment #:
Comment: This sentence should be deleted. It is inappropriate to consider on-property disposal for this material when the alternative being discussed proposes off-site disposal of all other waste.
Response: Agreed. The reference to on-site disposal will be deleted.
Action:

Comment No. 10
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5.4.2.5.1 Page #: 5-78 Line #: 1-3 Code: C
Original Comment #:
Comment: There appears to be an editorial problem with one of these sentences. The risks differ but the text doesn't for each sentence.
Response: Agreed, the second sentence has a typographical error in it. The word "federal" should read "private". The second sentence will be modified to indicate private ownership rather than federal ownership.
Action:

Comment No. 11
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Table 5-10 Page #: 5-85 Line #: Code: C
Original Comment #:
Comment: a) The table should be footnoted to define those ARARs driving the concentrations presented in the ARAR column.
b) The table should designate which of the presented concentrations (ILCR, HI, or ARAR) is the PRL for each contaminant. Presumably the lowest concentration is the PRL, but this is unclear.
c) It is unclear where footnote "b" is employed within the table. This footnote is only applicable for radionuclides.
Response: a) Agreed. The requested footnote will be added.
b) Agreed. The driving PRLs will be shaded in the table to make them clearer.
c) Footnote b will be applied to the first appearance of the abbreviation ILCR. The footnote should be modified to indicate that the addition of background only applies to radionuclides.
Action:

Comment No. 12
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Figure 5-19 Page #: 5-89 Line #: Code: C
Original Comment #:
Comment: This figure is confusing. The use of "A" and "B" circles adds to the confusion. DOE should attempt to clarify the figure. A good starting point for the flow chart revision is, where does it start?
Response: Agreed. Figure 5-19 will be revised. The "A" and "B" circles will be clarified. The "A" circle is defined as off-site disposal while the "B" circle is defined as vegetative cover at restoration site. The resulting chart will indicate two parallel diagrams: one for the remedial action of the Operable Unit 2 subunits and the other for the construction of the disposal cell. The parallel diagrams will both begin with site preparation.
Action:

Comment No. 13
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5.5.1.2.2 Page #: 5-94 Line #: 31-33 Code: C
Original Comment #:
Comment: The last sentence of this paragraph should be deleted. DOE should specify within the FS/PP the disposition of wastes within OU2. On-site disposal for this material should only be considered as a contingency in the event off-site disposal is not possible. Unless DOE intends to provide a detailed evaluation of on-site disposal and treatment for mixed waste within the FS, the sentence should be deleted.
Response: Agreed. The reference to on-site disposal of mixed waste will be deleted.
Action:

Comment No. 14
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Figure 5-23 Page #: 5-99 Line #: Code: C
Original Comment #:
Comment: Ohio EPA has expressed concerns during previous meetings regarding infiltration through the side slopes where the composite cap does not extend. DOE should revise the design to extend the cap over these berms. In order to comply with Ohio EPA solid waste disposal facility design requirements the synthetic liner and cap should meet at the edges of the cell.
Response: In response to Ohio EPA concerns expressed at meetings prior to submittal of the FS, infiltration through the side slopes was calculated and found to be significantly lower than through the cap. The HELP model output shown on pages E-5-I-15 through E-5-I-20 examines the sides/slopes of the disposal facility. As noted on page E-5-I-19, the average annual percolation from the lowest model layer (Layer 8) is about 0.14 inches. However, OEPA's interpretation of the solid waste requirement necessitates revision of the design concept, and the liner and cap will be revised to satisfy the solid waste regulations. The capping system will be extended down the side slopes and tied in with the liner system. This will be reflected in text changes to Section 5, figure revisions in Section 5 and Appendix E, and cost estimate changes in Appendix F. The side slope infiltration calculation will also be revised and the text in Appendix E will be revised to indicate the results of that calculation.
Action:

Comment No. 15
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Table 5-11 Page #: 5-104 Line #: Code:C
Original Comment #:
Comment: It doesn't seem prudent for DOE to design a disposal cell that would be expected to contaminate the aquifer up to the MCL. The lack of room for error may result in DOE having to remediate the cell in the future. DOE should revise the Waste Acceptance Criteria to provide a margin of safety in meeting the MCL ARAR.
Response: Prior to development of the WAC, DOE incorporated certain assumptions to provide a margin of safety. Those assumptions included:

1) Evaluating the MCL criterion anywhere under the facility rather than at the edge of the facility where additional dilution, adsorption, and dispersion in the aquifer would have occurred.
2) Ignoring the geomembrane in the capping system and liner system.
3) Ignoring the contributions of the liner, leachate collection, and leak detection systems.
4) Ignoring adsorption and transport time through the brown till.
5) Utilizing assumptions for moisture content and infiltration that result in conservative values of contaminant travel time.

Appendix D.1-IV offers an alternative evaluation which utilized the clay liner and used less conservative assumptions for moisture content and infiltration. As noted in the results of that evaluation on page D-1-IV-3, "The simulated maximum uranium concentration in the Great Miami Aquifer in 1,000 years was about 1.4 μg/L, well below the target MCL value of 20 μg/L."

Action:

Comment No. 16
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5.5.2.2.2 Page #: 5-105 Line #: 9-10 Code: C
Original Comment #:
Comment: The contaminants left in place would still be considered a waste and will require long-term monitoring. The long-term monitoring will ensure land-use is still being controlled and that contaminants have not migrated into the groundwater or surface water.
Response: The statement on Page 5-105 is believed to be correct for PRLs based on the private ownership scenario (e.g., unrestricted use of land and groundwater). For alternatives with more restrictive use scenarios (e.g., federal ownership), the materials below PRLs associated with the federal ownership scenario would be left in place, however, long-term monitoring of the materials impact on surface water and groundwater would be required. The text will be modified to discuss the long-term monitoring.

Action:

Comment No. 17
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5.6 Page #: 5-121 Line #: 12-15 Code: C
Original Comment #:
Comment: This section is unacceptable. The way the text is written, by concurring with the OU2 FS/PP the State of Ohio would essentially be waiving any NRD claims against the DOE. Please remove this section in its entirety.
Response: It is DOE's position that the inclusion of this section is necessary and appropriate as it summarizes information presented in the Operable Unit 2 FS/PP-EA and is required to be analyzed as a potential impact under the NEPA statute. It is DOE's understanding that Ohio EPA's concern lies in the text of the first paragraph of this section where it is stated that: "...has been included to secure the exclusion discussed in CERCLA Section 107(f)(1)."

It is DOE's position that the State of Ohio would not be waiving natural resource damage claims it may have against DOE. DOE is committed to proactively soliciting input from all appropriate stakeholders (e.g., Natural Resource Trustees) to ensure that actions at the FEMP will be conducted in a manner protective of human health and the environment; and that will avoid or mitigate natural resource impacts to the extent practicable.

Section 5.7 will remain as part of the Operable Unit 2 Feasibility Study, although the reference the State of Ohio has objected to regarding securing the CERCLA Section 107(f)(1) extension has been deleted.
Action:

Comment No. 18
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Appendix B Page #: Line #: Code: C
Original Comment #:
Comment: An additional action specific ARAR should be 40 CFR 60.670 Subpart 000. This ARAR addresses standards for the use of a crusher.
Response: Agreed. This ARAR will be added to Appendix B.
Action:

Comment No. 19
Commenting Organization: OEPA Commentor: GeoTrans
Section #: D.I.6 Page #: D-1-82 Line #: 11-22 Code:C
Original Comment #:
Comment: Considering that simulated uranium concentrations in the unsaturated GMA exceed 50 μg/L given leachate uranium concentrations of 175-375 μg/L based on the analysis presented in D-1-III, what factors (e.g., simulated flow rate and mixing zone thickness) are responsible for the dilution of a leachate uranium concentration of 71.38 mg/L down to 20 μg/L in the saturated GMA in the analysis described on page D-1-82?
Response: Attachment D.1-III discusses lysimeter data, and the infiltration rate applicable to the lysimeter data is approximately 9 inches/year. In contrast, the infiltration rate used for the WAC development for the engineered disposal cell was 1.2 in/yr. The concentration of 50 μg/L was measured in the top 3 feet of the unsaturated GMA beneath 10 feet of gray till. When infiltration is 9 in/yr, typical dilution in the saturated GMA is about two orders of magnitude. Dilution under the disposal cell is greater due to the reduced infiltration rate. Other factors responsible for the comparatively greater reduction in concentration are

1) Greater thickness of gray till
2) Loss of uranium from the dissolved phase to the adsorbed phase in the glacial overburden and unsaturated GMA
3) Retardation which does not allow peak concentrations to reach the saturated GMA in 1000 years
4) Dispersion in the GMA, and
5) Adsorption in the GMA.

Action:

Comment No. 20
Commenting Organization: OEPA Commentor: GeoTrans
Section #: D.1.7 Page #: D-1-84 Line #: Code: C
Original Comment #:
Comment: Do the results provided in Table D.1-26 assume that $K_L = K_d$? Please clarify in the paragraph on page D-1-84.
Response: The K_L is applicable for the leaching of uranium from the waste while K_d is applicable for fate and transport of uranium in the soils underlying the waste. For the sensitivity analysis, K_L was held constant and only K_d was varied.

For the Table D.1-26, K_L was not assumed to be equal to the K_d. This table shows the effect of Glacial Till K_d on the GMA concentration, while keeping all other parameters constant, including K_L. Text on page D-1-84 will be revised to clarify the relationship between K_L and K_d.

Action:

Comment No. 21
Commenting Organization: OEPA Commentor: GeoTrans
Section #: D.1-III Page #: D-1-III-1 Line #: 20 Code: E
Original Comment #:
Comment: Suggest changing "Under similar conditions to what has occurred at the lysimeters" to "to match uranium concentrations detected in lysimeter samples."
Response: Agreed. "Under similar conditions to what has occurred at the lysimeters" will be replaced by "to match uranium concentrations detected in lysimeter samples."
Action:

Comment No. 22
Commenting Organization: OEPA Commentor: GeoTrans
Section #: D.1-III Page #: D-1-III-1 Line #: 28 Code: E
Original Comment #:
Comment: Change "I" to "The model".
Response: Agreed. "I" will be changed to "The model." Also, a new paragraph will start at line 26 on page D-1-III-1.
Action:

Comment No. 23
Commenting Organization: OEPA Commentor: GeoTrans
Section #: D.1-III Page #: D-1-III-4 Line #: Code: M
Original Comment #:
Comment: Based on the ODAST runs, what uranium concentrations are simulated in the unsaturated GMA after 45 years due to the assumed 5-year loadings? Please provide results to describe the simulated movement of the concentration slug through the top of the GMA. If the model is correct, we should see significantly increasing uranium concentrations in the unsaturated GMA and decreasing uranium concentrations in the lower till with time. Although there are many potentially confounding factors, the 9 months of available do not reflect these simulated trends. Will the lysimeters continue to be sampled at some less frequent interval (e.g., quarterly)? What does this new analysis suggest about future uranium concentrations in the saturated GMA?
Response: Tables D.1.III-2 and D.1.III-3 show the predicted uranium concentration in the unsaturated GMA and gray till up to 45 years due to assumed 5-year loadings. For this simulation, ODAST was run to predict concentrations only up to the unsaturated GMA lysimeter. ODAST model was not setup to predict concentrations at the top of the saturated GMA.

These modeling results indicate that uranium concentrations in the saturated GMA at many locations will increase in the future. The model shows that concentrations in the top 3 feet of unsaturated GMA increase by a factor of 2 to 3 between the years 40 and 45. Lysimeter data were collected once in September 1993 and periodically during March to June 1994. The scatter in the lysimeter data does not indicate any trends. For modeling purposes, it was assumed that uranium loading was at a constant rate for 5 years and no more uranium loading after first 5 years. However, the exact nature of uranium loss and loading to the glacial overburden is unknown.

Operable Unit 5 has accounted for the implications of the lysimeter data during the establishment of clean-up levels that recognize cross-media impacts. Operable Unit 5 has continued to sample the lysimeters and will be responsible for any long term plans to continue collecting that data.

Action:

Comment No. 24
Commenting Organization: OEPA Commentor: GeoTrans
Section #: D.1-III Page #: D-1-III-4 Line #: Code: E
Original Comment #:
Comment: Change "ration" to "ratio" in each table.
Response: Agreed. "Ration" will be changed to "ratio".
Action:

Comment No. 25
Commenting Organization: OEPA Commentor: GeoTrans
Section #: D.1-IV Page #: D-1-IV-3 Line #: 1 Code: C
Original Comment #:
Comment: Text is missing between page D-1-IV-1 and this page.
Response: Agreed. The sentence that currently reads "The 19 percent" was intended to read "The retardation factor in the gray clay layer was also recalculated using the HELP model simulated moisture content of 19 percent."
Action:

Comment No. 26
Commenting Organization: OEPA Commentor: GeoTrans
Section #: D.1-IV Page #: D-1-IV-3 Line #: 2 Code: C
Original Comment #:
Comment: The change in retardation factor is attributable to the different value of K_d used.
Response: The confusion is due to the missing text identified in the previous OEPA Comment. The text addressed by this comment refers to the retardation factor for glacial till. While both use 3.1 mL/g as the distribution coefficient for the glacial till, the two scenarios use different values of moisture content, which resulted in different values of retardation factor. While Attachment D.1-IV uses 19 percent moisture content, original WAC development used 41 percent as moisture content for the glacial till. In order to clarify this, the missing text will be added and enhanced as noted in the previous OEPA comment. Also, the missing text will start a new paragraph.
Action:

Comment No. 27
Commenting Organization: OEPA Commentor: GeoTrans
Section #: E.2.2 Page #: E-2-2-1 Line #: 8 Code: M
Original Comment #:
Comment: The WAC for on-site disposal are identified as preliminary. What analyses/investigations are envisioned to be made during design of the disposal facility to derive final WAC?
Response: The waste acceptance criteria presented in the FS are proposed as feasible based on a number of conceptual factors (disposal facility location, disposal facility cap design, disposal facility liner design, and facility contents). The criteria could be modified due to changes in any of those factors. The most likely studies to affect these factors are
(1) the pre-design investigation that DOE has initiated in the area where the facility could potentially be located,
(2) infiltration studies as part of the final cap design,
(3) the remaining RI/FS reports from other Operable Units (since these will identify additional COCs).
Action:

Comment No. 28
Commenting Organization: OEPA Commentor: GeoTrans
Section #: E.2.2 Page #: E-2-2-1 Line #: 20 Code: E
Original Comment #:
Comment: The distribution coefficient units need to be corrected. Change "mL" to "mL/g".
Response: Agreed. The units for distribution coefficient will be corrected by changing "mL" to "mL/g."
Action:

Comment No. 29
Commenting Organization: OEPA Commentor: GeoTrans
Section #: E.2.2 Page #: E-2-2-1 Line #: 22 Code: C
Original Comment #:
Comment: Change "and results in a lower associated uranium concentration" to "and results in a higher associated dissolved uranium concentration" or to "and results in a lower WAC for uranium concentration in soil."
Response: Agreed. The wording "and results in a lower associated uranium concentration" will be changed to "and results in a lower WAC for uranium concentration in soil."
Action:

Comment No. 30
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: App.E.2.2 Page #: E-2-2-2 Line #: Code: C
Original Comment #:
Comment: Several exponential notation errors in Table E.2.2-1 should be corrected (e.g., change "E+0.3" to "E+03"). Please review the preliminary waste acceptance criteria for total uranium listed within this table. The value of 1.1E+0.3 seem uncharacteristically low. Please verify and modify accordingly.
Response: Table E.2.2-1 has been reviewed and the following errors were found:

- "E+0.3" should be "E+03"
- "E+3" should be "E+03"
- The third column heading, "Preliminary Waste Acceptance Criteria for On-Site Disposal (pCi/g)," should simply be "Preliminary Waste Acceptance Criteria for On-Site Disposal" since the units are specified in the second column].

These errors will be corrected.
Action:

Comment No. 31
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Fig. E.3-1-4 Page #: E.3-1-8 Line #: C Code:C
Original Comment #:
Comment: Please re-evaluate the design of the composite cap. As shown in this diagram the cap material pinches out into the dike material. This current design may lead to failure of the cap in this area. An alternate design should extend the cap material over the disposal cell to the existing land surface.
Response: Please refer to Comment No. 14.
Action:

Comment No. 32
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: App. E.7 Page #: E-7-1 Line #: 4 Code: C
Original Comment #:
Comment: Please include a discussion within the text as to what the on-site borrow material will be used for.
Response: Additional soil investigation will be performed to describe the lithology and geotechnical properties of the prospective borrow material and to determine the use of that material during construction of the on-site disposal facility and the restoration of the subunits.
Action:

Comment No. 33
Commenting Organization: OEPA Commentor: GeoTrans
Section #: WAC Criteria Page #: Line #: Code: M
Original Comment #:
Comment: Please provide OEPA with copies of the ODAST and SWIFT codes and data sets used to evaluate WAC.
Response: SWIFT V2.55 for UNIX, supplied by GeoTrans, was used. ODAST code was adapted from a book by Javendel, et al (1984). The SWIFT code, ODAST code, and input data sets can be provided for review. However, it is requested that the codes be used only in conjunction with a review of FEMP documents. Optionally, it is encouraged that reviewer(s) come to the Cincinnati area to examine the codes and data sets as they reside on the computer system utilized for the project and capable of handling these large data sets. In this way, modelers familiar with the codes and the data sets can facilitate review of codes and application.
Action:

PROPOSED PLAN COMMENTS

Comment No. 34
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5.1.5 Page #: 5-3 Line #: 5-8 Code: C
Original Comment #:
Comment: The contaminated soils left in place are considered a waste and will require long-term monitoring in accordance with CERCLA. Long-term monitoring will be necessary to ensure contaminants have not migrated and to ensure that the selected land use is maintained.
Response: See response to Comment No. 16.
Action:

Comment No. 35
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Tbl. 5-2 Page #: 5-6 Line #: Code: C
Original Comment #:
Comment: This table fails to include a number of the contaminants listed in Table 5-10 of the Feasibility Study. The table should be revised to agree with the FS.
Response: Instead of including the lengthy tables from the FS, the Proposed Plan presents cleanup levels for the major radionuclides in Operable Unit 2 (uranium, thorium, and radium). This point will be clarified in the text and a reference to the complete tables included.
Action:

Comment No. 36
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Tbl. 5-3 Page #: 5-7 Line #: Code: C
Original Comment #:
Comment: This table fails to include a number of the contaminants listed in Table 5-3 of the Feasibility Study. The table should be revised to agree with the FS.
Response: See response to Comment No. 35.
Action:

Comment No. 37
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 5.5.4 Page #: 5-27 Line #: 2 Code: C
Original Comment #:
Comment: The OAC citation in the paragraph is incorrect. These rules were revised effective 6/1/94. The correct citations should be OAC 3745-27-07(H)(2)(c) and (2)(d).
Response: Agreed.
On Pg. 5-27, line 5-2, the following changes will be made:
Delete reference to "OAC 3745-27-07(B)(5) and (B)(9)"
The citation will be revised to "OAC 3745-27-07(H)(2)(c) and (H)(2)(d)."
Action:

Comment No. 38
Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Appendix A Page #: A-3 Line #: Code: C
Original Comment #:
Comment: An additional action specific ARAR should be 40 CFR 60.670 Subpart 000. This ARAR addresses standards for the use of a crusher.
Response: Appendix A presents the major ARARs for Operable Unit 2. Since crusher standards are not major ARARs, no change will be made to Appendix A, but the standards will be added to Appendix B of the FS Report.
Action:

SEPTEMBER INVOICE ACCOMPLISHMENTS

ADS 46B2

- Received final DOE approval of the Operable Unit 1 Feasibility Study/Proposed Plan-Environmental Assessment. Initiated final report compilation and distribution.
- Ended the 30-day Public Comment Period on the OU1 Proposed Plan. Initiated work on developing responses to individual comments received for the Responsiveness Summary.
- Initiated field work on the Site Integrated Parking Lot and Access Road upon receipt of the conditionally approved Categorical Exclusion.
- Completed distribution of the U.S. EPA-approved Final Remedial Investigation Report.
- Completed the Cone Penetrometer Testing portion of the Dewatering Excavation Evaluation Program (DEEP).
- Continued work on preliminary engineering to focus the basis of design for remedial action.
- Initiated work on project re-configuration in accordance with anticipated FY95 funding levels.

ADS 47B2

- Submitted Change pages to EPA for the OU2 Remedial Investigation (RI) Report after incorporation of comments.
- Initiated Removal Site Evaluations (RSEs) for the Inactive Flyash Pile/South Field Seepage Control.
- Initiated Pre-Design Investigation for the Site-Wide Disposal Facility.
- Completed Repair/Maintenance to the Active Flyash Pile.
- Completed Repair of the Inactive Flyash Pile Erosion Control Berm and installed launceable stone at the toe of the berm.

U.S. EPA COMMENTS
DRAFT FINAL FEASIBILITY STUDY AND PROPOSED PLAN

Comment No. 39
Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2 Page #: NA Line #: NA Code:
Original Comment #: 1

Comment: Section 2 presents preliminary remediation goals (PRG) and preliminary remediation levels (PRL) for Operable Unit (OU) 2. Although lead is a contaminant of concern (COC) at the firing range, lead is not listed as a COC in any of the PRG or PRL tables in Section 2 (see Specific Comment 8). The soil lead cleanup level should be calculated using the U.S. Environmental Protection Agency (U.S. EPA) guidance "Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities," July 14, 1994, and these levels should be presented in Section 2.

Response: The firing range is a small, isolated area within the South Field disposal area. Based on historical use, this small area has contaminant characteristics different from the South Field area as whole. The FS report stipulates that the firing range will be remediated. Therefore, lead will be added to the COC list and a PRL will be added in Section 2. However, a note will be added to indicate that the PRL is applicable only to the firing range area. The PRL for soil will be based on cited reference at 400 ppm.

Action:

Comment No. 40
Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3 and App. E.2.2 Page #: NA Line #: NA Code:
Original Comment #: 2

Comment: Section 3 proposes on-site disposal of OU2 wastes that are below on-site waste acceptance criteria (WAC) and off-site disposal of OU2 wastes that are in excess of on-site WAC. Appendix E.2.2 proposes preliminary WAC. Several issues exist regarding the on-site WAC. First, to provide more certainty in remedy selection, the final on-site WAC should be established before the Record of Decision (ROD) is issued. Using preliminary on-site WAC in the ROD and waiting until the design phase to finalize the on-site WAC is ill-advised because the ROD is enforceable and should provide all performance and cleanup standards. In addition, Appendix E.2.2 presents on-site WAC for uranium only. On-site WAC should include other COCs or the text should explain why these have been excluded. The final WAC for all COCs should be added to the feasibility study (FS).

Response: Finalization of the WAC. One of the objectives of the FS was to propose a feasible waste acceptance criteria (WAC) for OU2 materials. Finalization of the WAC for all materials that might be considered for on-site disposal would need to encompass a number of additional factors. Some of those factors include the following:

1) The design of the cap and liner systems - While feasible proposals are presented in the OU2 FS, the ultimate design will depend on further engineering evaluation and review and approval by the EPAs.
2) The proposed location - The OU2 FS presents a feasible choice. The final location and final geometry of the disposal facility will depend on the findings of a recently initiated study and coordination of actual waste volumes with other operable units.
3) Other OUs' COCs - OUs 3 and 5 will propose additional COCs for on-site disposal (Note: Uranium isotopes are the only GMA COCs for Operable Unit 2).
4) The material to be disposed - The material generated by OU3 will be construction debris. Construction debris primarily exhibits surface contamination. In contrast to the limited amounts of debris associated with OU2 and OU5 waste, the large quantity of debris expected to be generated by OU3 may require a different set of acceptance criteria.

It is proposed here that the maximum WAC for uranium content of untreated OU2 materials be finalized in the OU2 ROD and that the WAC be set at 360 pCi/g, the OU2 FS value for uranium-238, as discussed in Appendix E.2.2., is based on groundwater modeling which relies on conservative values for a number of parameters including cap permeability, liner configuration, facility location, and source uranium concentration (see response to Comment No. 15).

Other COCs. The reason that other COCs were not considered for OU2 is discussed in Appendix D.1.6. As noted there:

"If a contaminant was not a COC for subunits based on the Baseline Risk Assessment, it did not become a COC at the disposal cell because the infiltration rate is much less at the disposal cell than at the unremediated subunits. Because uranium isotopes were the only COCs at the Operable Unit 2 subunits, the only COCs for groundwater at the proposed disposal cell were uranium isotopes."

The text in Appendix E.2.2 will be revised by adding language similar to that in Appendix D.1.6 to discuss the identification of the uranium isotopes as the only COCs.

Action:

Comment No. 41
Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4 Page #: NA Line #: NA Code:
Original Comment #: 3

Comment: Section 4 presents the development and initial screening of alternatives. Alternative 7 is eliminated without sufficient justification, especially when the cost difference between it and Alternative 6 is considered. Additional justification should be provided because eliminating the alternative that treats the identified principal threat is not consistent with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (see Specific Comment 3).

Response: As identified in Section 2 of the FS, the contaminated material in the Inactive Flyash pile constitutes a "principal threat" because it is located directly over the GMA. Both Alternatives 6 and 7 include the elimination of that threat by excavating the material and removing it from the vicinity of the GMA. Alternatives 6 and 7 differ only in their approach to disposal of the material which exceeds the WAC for on-site disposal. Alternative 7 proposes on-site disposal after treatment while Alternative 6 provides off-site disposal without treatment.

The text of Section 4 will be revised to discuss the practicability of treatment and on-site disposal in comparison to off-site disposal. The expanded text will focus on the following factors:

1) The amount of material being considered for treatment (that portion exceeding the on-site WAC) is only about 1% of the overall OU2 waste volume.
2) Candidate treatment technologies are under study at the FEMP, but a practical and fully proven soil treatment technology has not yet been identified.
3) For the minor amount of material under consideration, it is considered impractical to implement a treatment facility specific to Operable Unit 2. Hence, any treatment facility would be implemented by another operable unit at the site.
4) Treatment would likely cause a need for interim storage (in order to avoid jeopardizing the overall OU2 schedule for remediation) for two reasons:
   a) The time required to demonstrate that a soil treatment technology is practical.
   b) Ties to the remediation schedules of other operable units.

Based on the factors noted above, two approaches to off-site disposal and treatment can be considered. One approach is to plan for off-site shipment, but to be prepared to amend the ROD to allow treatment and on-site disposal in the event that a practical/proven treatment technology is identified and implemented at the FEMP. The other approach, the approach that was chosen in the FS based on practicability, was to simply transport the material off-site for disposal without potential delays or concerns about appropriate technology.

Action:

Comment No. 42
Commenting Organization: U.S. EPA Commentor: Saric
Section #: Appendix C Page #: NA Line #: NA Code:
Original Comment #: 4 (Original General Comment 14)

Comment: The original comment identified several errors in calculating the number of trucks required under the various alternatives. The response indicates that Appendix C (and its attachments) has been clarified to reconcile the volume and weight capacity of the trucks with the number of trucks that the alternative requires. However, the information formerly contained in "Attachment I, Relevant Information for Alternatives" is no longer presented as part of Appendix C. Therefore, it is not possible to verify if the response has been reconciled. Appendix C should be revised to provide the information or a reference to the source of the information necessary to verify that the reconciliation has been performed.

Response: In the previous FS each of the alternatives involved with off-site disposal used trucks or a combination of railcars and trucks to transport the contaminated materials. In this version of the FS, Appendix C was revised to reflect off-site transportation of contaminated materials by railcars (gondolas) to the representative off-site facility. Trucks were not used for off-site transportation. As a result of this change in off-site disposal the tables containing truck transportation data as referenced in the original comment were deleted.

Action:

Comment No. 43
Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.1.3 and D.1.6 Page #: NA Line #: NA Code:
Original Comment #: 5

Comment: Section D.1.3 states that groundwater COCs identified in the OU2 remedial investigation (RI) and modeled in the OU2 FS are uranium isotopes. According to the response to comments for Appendix A, the COCs for the various subunits in OU2 were revised and include other COCs in addition to uranium isotopes. The text should be revised to state that uranium isotopes were not the only COCs identified during the OU2 RI and should further state how these additional COCs were addressed in the groundwater fate and transport model.

Response: Appendix A presents data for all COCs in all subunits regardless of pathway, which may be the reason for confusion. COCs by pathways are identified in Section 2, Table 2-1. Uranium isotopes were the only COCs identified for the Great Miami Aquifer groundwater pathway (see Table 2-1 in Section 2 of FS). Other COCs were identified but they apply to other pathways. This appendix deals with only the fate and transport of COCs for the Great Miami Aquifer. A statement will be added at the beginning of Appendix A to clarify this issue.

Action:

Comment No. 44
Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.1.5 Page #: NA Line #: NA Code:
Original Comment #: 6

Comment: Section D.1.5 discusses maximum predicted loading concentrations, maximum on-site Great Miami Aquifer (GMA) concentrations, and maximum fenceline GMA concentrations for the various subunit remediation scenarios evaluated in determining cross-media PRGs that are protective of the GMA. The text discusses model results for the subunits but does not justify and discuss the significance of the modeling results. For example, if the results of modeling for a subunit indicate that GMA concentrations are below the 10^{-6} incremental lifetime cancer risk (ILCR), the text should explain why the concentrations are below this level, and should not just state that this is what the model indicates. This information would be helpful because the presentation of the actual modeling data is difficult to follow due to its size. The text should be revised to discuss modeling results and their significance in more detail.

Response: Text will be modified to include significance of the modeling results in Section D.1.5. Whenever model predicted concentrations are very small (i.e. below 10^{-6} ILCR) explanation will be provided. For example, for the alternative of consolidation and capping at the Solid Waste Landfill, the maximum predicted fenceline concentration was below the 10^{-6} ILCR because of low infiltration rate, low maximum uranium concentration, and the relatively large distance between the Solid Waste Landfill and the downgradient receptor at the fenceline.

Action:

Comment No. 45
Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.4.5 Page #: I-4-14 Line #: NA Code:
Original Comment #: 7 (Original General Comment 31)

Comment: In response to the original comment, text has been added to discuss the linear relationship between soil concentrations and risks. However, the added text does not adequately address the original comment. Additional documentation is required to accurately determine if all COCs that have been reduced in concentration by 99.9 percent are within the acceptable risk range.

Response: Table I.4-4 will be supplemented and clarified to provide the requested information. Table I.4-4 will include the estimated post remediation risk for each COC as defined in the FS reports for the Operable Units. The post remediation risk is the risk due to that COC before reduction. A comparison of the post remediation risk to the post reduction risk (also included in Table I.4-4) indicates that the reduced COCs are within the acceptable risk range.

Action:

Comment No. 46
Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.5.1 Page #: I-5-3 Line #: NA Code:
Original Comment #: 8 (Original General Comment 33)
Comment: In response to the original comment, additional text has been added to clarify the assumption of no significant demographic change. However, the on-site farmer receptor is the pathway that is most conservative and most protective of human health based on the assumption of no significant demographic change. This assumption should be substantiated by including the discussion about the conservative and protective on-site farmer receptor.
Response: The selection of the on-site resident farm adult and child is conservative because of their level of exposure. Text will be added to substantiate this assumption.
Action:

Comment No. 47
Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.6.2.1 Page #: I-6-63 Line #: 22 Code:
Original Comment #: 9 (Original General Comment 39)
Comment: The response to the original comment uses the assumption that wind erosion of caps and cover soils is less than 4 inches over the 1,000-year period. Also, the text states that the combined erosion rates for wind and surface water runoff would not cause the contaminated layers in these areas to be exposed. This assumption appears to be too low if no cap or cover soil maintenance occurs over the 1,000-year period. A reference or justification should be provided for this assumption.
Response: The requested clarification will be provided. Emission rate data and calculations are described in Section I.6.2.4, from which the maximum emission rate was calculated to be 1.2×10^{-6} g/s/m^2. This value was then converted to the wind erosion rate, using an average soil density of 1.8 g/cm^3. Surface water erosion rates are calculated in Appendix D.1 (Table D.1-1), and range from 3.34 to 9.10 in./1,000 years for slopes ranging up to 22%. In contrast, the Operable Unit 2 disposal cell, as described in Section I.2.4.3, will have 27" of soil over 36" of cobbles. The top slope will be at 3-5% and the side slope at 20% (1 vertical: 5 horizontal). Other soil cover designs are expected to include similar soil thicknesses. Therefore, contaminated layers would not be exposed in a 1,000 year period. Similar calculations will be provided for wind erosion in order to calculate the combined erosion rate. Text will be modified to explain the assumptions for combined erosion of caps and cover soils over the 1000 year period and will reference the specific section in the FS which justifies this calculation.
Action:

Comment No. 48
Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.11.3 Page #: NA Line #: NA Code:
Original Comment #: 10 (Original General Comment 49)
Comment: The response to the original comment states that missing health effects information or a lack of quantitation in chemical analysis may provide a significant source of uncertainty and may thereby underestimate risk. Although these sources of uncertainty were added to the text, whether the uncertainty was overestimated or underestimated was not included in the text. Also, the response stated that additional information regarding uncertainties in underestimating risk would be added to Table I.11-6. However, this information does not appear to be added to Table I.11-6. A more detailed discussion of uncertainty should be provided.
Response: The requested text in the table will be revised and clarification provided to state that the uncertainty inherent from missing health effects information or a lack of quantitation in chemical analysis would underestimate risk. This information will also be added under the COC category as item No. 3 in Table I.11-6.
Action:

Comment No. 49
Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.12.2 Page #: NA Line #: NA Code:
Original Comment #: 11 (Original General Comment 50)
Comment: The response to the original comment states that all receptors for all land use scenarios are "above" the ILCR of 10^{-6}. This statement is unclear. "Above" should be changed to "greater than" or "less than," as appropriate. Also, if "above" is replaced with "greater than," it would be more appropriate to discuss receptors with an ILCR of greater than 10^{-4} because this the greatest ILCR within the acceptable range.
Response: "Above" will be replaced with "greater than" as requested, and the 10^{-4} upper limit will be referred to as suggested.
Action:

SPECIFIC COMMENTS

Comment No. 50
Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.3.2.1 Page #: 2-14 to 15 Line #: 28-31, 3-8 Code:
Original Comment #: 1
Comment: Section 2.3.2.1 discusses the regulatory definition of wastes. Page 2-14 states that although the bullets are not considered waste, they will be assumed to be mixed waste (hazardous and radioactive) when they are actively managed. Page 2-15 contradicts this statement by stating that the firing range material will be screened during the remedial action and may be handled in a variety of ways depending on whether contaminant levels are above or below PRLs. This inconsistency should be corrected and the text revised appropriately.

Response: The active portion of the firing range (with bullets) will be treated as a mixed waste. Soils adjacent to this area, will be analyzed and be classified according to the following:

Mixed waste: If analysis shows the TCLP lead concentration to exceed 5 mg/l and contain a detectable amount of radionuclides.

Low level waste: If the analysis shows the TCLP lead concentration to be less than 5 mg/l and greater than any PRL for the South Field (a lead PRL will be added per Comment No. 39).

Mixed wastes would be sent to an approved off-site disposal facility. Low level wastes would be sent to the on-site disposal facility. The text will be revised to clarify the proposed remedial actions.

Action:

Comment No. 51
Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.3 Page #: 4-10 to 4-29 Line #: NA Code:
Original Comment #: 2

Comment: Section 4.3 presents the initial screening of alternatives. The effectiveness criterion evaluates the reduction in contaminant toxicity, mobility, or volume through treatment. This evaluation discusses the reduction in mobility achieved by capping or containing the waste. However, capping and containment are not considered to be methods of treatment. Therefore, reductions in contaminant mobility through capping and containment should not be discussed as part of this evaluation. Reductions in contaminant mobility associated with capping and containment instead should be included as part of the long-term effectiveness and permanence evaluation.

Response: The FS carefully separates mobility from migration; however, migration is inappropriately discussed under "Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment" at the following locations:

Alternative 2 on page 4-14
Alternative 5 on page 4-20
Alternative 6 on page 4-22
Alternative 7 on page 4-24
Alternative 8 on page 4-25

Section 4 will be revised so that migration is only discussed under "Long-Term Protection of Human Health and the Environment." Section 5 of the FS and Table 6-1 of the Proposed Plan will be checked for similar inconsistencies.

Action:

Comment No. 52
Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.3.7.2 Page #: 4-24 to 25 Line #: 3-8, 1-5 Code:
Original Comment #: 3

Comment: Section 4.3.7.2 presents the initial screening evaluation for Alternative 7. The evaluation of contaminant reduction through treatment does not explain that the principal threat to the GMA is treated by Alternative 7; this should be added to the text. The text summarizes the evaluation by stating that Alternative 7 offers no advantage over Alternative 6 and is therefore, not retained for detailed analysis. However, the summary does not provide sufficient justification for eliminating Alternative 7. This is especially true because the threat to the GMA from contaminant migration has been identified as a principal threat and because Alternative 7 treats this principal threat. Additional justification must be added to eliminate Alternative 7 since it meets the statutory preference for treatment of principal threats, especially in light of the nearly insignificant cost increase resulting from this treatment.

Response: See the response to Comment No. 41 (USEPA General Comment #3).

Action:

Comment No. 53
Commenting Organization: U.S. EPA Commentor: Saric
Section #: 5.1.2.4 Page #: 5-7 Line #: 17 to 22 Code:
Original Comment #: 4

Comment: Section 5.1.2.4 describes the evaluation criterion of reduction of toxicity, mobility, or volume through treatment. The text states that for contaminated soils, three ex situ treatment technologies are components of several alternatives selected for detailed analysis. However, the only treatment proposed for the alternatives in the detailed analysis is stabilization of lead-contaminated soil. This discrepancy should be corrected.

Response: Two components of the waste materials within Operable Unit 2 are candidates for treatment - materials which exceed the WAC for on-site disposal and the lead-containing soils from the South Field. The estimated volumes of these components are 3100 and 300 cubic yards, respectively.

For the first of these components, it was determined in Section 4 that the most practical option is off-site disposal. Hence, the discussion in Section 5.1.2.4 was aimed at the lead-containing soil. Since the volume of that component is small in comparison to the overall quantity of material proposed to be excavated in Alternatives 3 and 6 (approximately 0.1 percent), it was not considered practical to provide detailed discussion of the types of treatments that might be appropriate for this component.

Three treatment options were determined to be potentially feasible in the screening of process options - vitrification, soil washing, and solidification/stabilization. For the small quantities of this component, it would be appropriate to purchase the treatment as a service rather than to construct and operate a treatment facility. Therefore, the treatment process chosen will depend largely on which treatment is most readily available (likely due to its presence for primary use by some other operable unit at the FEMP). To avoid tripling the number of alternatives or subalternatives in Sections 4 and 5 of the OU2 FS, the analysis of alternatives relies on a representative treatment option (solidification/stabilization), but none of the three potentially feasible alternatives is intended to be excluded from further consideration.

Action: The text will be revised to indicate that the treatment technologies apply only to lead-containing soils.

Comment No. 54
Commenting Organization: U.S. EPA Commentor: Saric
Section #: 5.2 Page #: 5-11 to 12 Line #: 15-17, 27-32 Code:
Original Comment #: 5

Comment: Section 5.2.2.1 discusses overall protectiveness of the no action alternative and states that none of the receptors (specifically, the expanded trespasser and on-property resident farmer) would be exposed to COCs with an unacceptable hazard index. However, Section 5.2.2.3.1 discusses long-term protectiveness of the no action alternative and states that the on-property resident farmer would be exposed to a noncarcinogenic hazard index of 23. This inconsistency should be corrected.

Response: Agreed, the reference to no receptors having an HI of greater than 1.0 is incorrect. The text will be changed to indicate that "the off-property child, on-property farmer (adult and child), and trespassing youth have HI levels greater than 1.0."

Action:

Comment No. 55
Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.2.1 Page #: 6-4 Line #: 3 to 10 Code:
Original Comment #: 6

Comment: Section 6.2.1 compares the overall protectiveness of the alternatives. The overall protectiveness is erroneously described in degrees, although previous text correctly identifies overall protectiveness as a threshold criterion. The text should be revised to paraphrase the following: "All the action alternatives rely on engineered containment to provide overall protectiveness. However, the alternatives differ in the stringency of the engineering controls and location of the disposal cell." Lines 3 through 10 should be replace with this text.

Response: Agreed. The description of degrees of protectiveness should be revised. The paragraph will be revised as follows: "Residual risk (see Appendix C) associated with these action alternatives is within the established acceptable target range in the National Oil and Hazardous Substance Pollution Contingency Plan (NCP). Therefore, they would be protective of human health and the environment. All of these alternatives would rely on engineered containment systems to provide this protectiveness. However, there is a difference in the design and location of these systems. Uncertainties associated with long-term protectiveness are discussed in Section 6.3.1."

Action:

Comment No. 56
Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.3.3 Page #: 6-11 Line #: 9 to 10 Code:
Original Comment #: 7

Comment: Section 6.3.3 compares the short-term effectiveness of the alternatives. The text states that Alternative 2 provides slightly better short-term effectiveness than Alternative 6 because more material is excavated under Alternative 6 and because the same amount of contaminated material is treated and transported off site for disposal. Based on the detailed analysis presented in Section 6 and because (1) Alternative 6 requires excavation of a great deal more waste than Alternative 2 does, and (2) Alternative 6 involves off-site disposal of low-level radioactive waste, Alternative 2 provides more than slightly better short-term effectiveness than Alternative 6. The text should be clarified.

Response: Agreed. The text will be revised to indicate that Alternative 2 provides better short-term effectiveness than Alternative 6 because Alternative 6 requires excavation of much more waste than Alternative 2, and also because Alternative 6 includes off-site transport and disposal of material exceeding on-site disposal facility WAC.

Action:

Comment No. 57
Commenting Organization: U.S. EPA Commentor: Saric
Section #: App. B, Table B-1 Page #: B-12 Line #: NA Code:
Original Comment #: 8

Comment: Table B-1 lists chemical-specific applicable or relevant and appropriate requirements (ARAR) and other criteria to be considered (TBC) for OU2. The table erroneously lists the Resource Conservation and Recovery Act (RCRA) toxicity characteristic leaching procedure (TCLP) level for lead as the soil lead cleanup standard. The RCRA TCLP analysis only determines whether or not the soil is considered a RCRA hazardous waste, but does not determine if it is a risk-based cleanup standard. Lead contaminated soil may not be RCRA hazardous waste, but it may still present a risk. The recently issued U.S. EPA directive, "Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities," July 14, 1994, Directive Number 9355.34-12, should be used to calculate the soil lead cleanup level for the private and federal ownership land use scenarios. These cleanup levels would be TBCs. The RCRA TCLP lead level would be an action-specific applicable requirement for determining appropriate disposal options.

Response: Agreed. The referenced Table B-1 heading should be labeled Land Disposal Restriction Level. This level was not intended to be used as a PRL. Please see response to Comment Nos. 39 and 50.

Action:

Comment No. 58
Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.2.3.3 Page #: C-2-25 Line #: NA Code:
Original Comment #: 9
Comment: Table C.2-2 presents a summary of receptors evaluated for OU2 residual risk. The table indicates that ingestion of perched water by the on-property resident farmer will not be evaluated under either federal or private ownership. However, Figures C.2-14, C.2-17, and C.2-19 all indicate that this exposure will be evaluated under private ownership. Therefore, Table C.2-2 should be revised to indicate that ingestion of perched groundwater by the on-property resident farmer will be evaluated under private ownership.
Response: The Table C.2-2 was in error and will be corrected to reflect ingestion of perched water by the on-property resident farmer under the private land use scenario, perched groundwater for this receptor was evaluated in the risk assessment.
Action:

Comment No. 59
Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.3.1.3 Page #: C-3-2 to 3 Line #: 18, 7, 18 Code:
Original Comment #: 10
Comment: Section C.3.1.3 addresses exposure to radionuclides via immersion during excavation activities. Equation C.3-2 (on Page C-3-2, Line 18) uses the term "T_1" and indicates that values for this parameter are presented in Table C.5-1. In fact, Table C.5-1 does not present values for the term "T_1." The text should be revised to define the term "T_1" and to indicate where values for this term are presented.

Section C.3.1.4 addresses exposure to radionuclides via inhalation during excavation activities. Equation C.3-5 (Page C-3-3, Line 7) uses the term "T_1" and indicates that values for this parameter are presented in Tables C.II-1 through C.II-12. In fact, Tables C.II-1 through C.II-12 do not present values for the term "T_1." The text should be revised to define the term "T_1" and to indicate where values for this term are presented. Further, Equation C.3-6 (Page C-3-3, Line 18) uses the term "T_3" and indicates that values for this parameter are presented in Tables C.II-1 through C.II-12. In fact, Tables C.II-1 through C.II-12 do not present values for the term "T_3." The text should be revised to define the term "T_3" and to indicate where values for this parameter are presented.
Response: Equations in this section will be updated to reflect the correct spreadsheets. This requires a change in the parameter designation for these equations. Parameters used in the spreadsheets contained in the Attachment are correct and consistent with RAWPA.
Action:

Comment No. 60
Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.3.3.1 Page #: C-3-10 Line #: NA Code:
Original Comment #: 11 (Original Specific Comment 2)

Comment: The original comment stated that short-term (or remedial risks) could not be verified because values for exposure duration were not provided. The response indicated that the text was revised to provide the information necessary to verify the calculations. Some of the major nonalternative- and noncontaminant-specific exposure parameters for remedial action risk are now provided in Table C.3-1. Other Alternative-specific parameters are presented in individual tables in Attachment C.II. However, some of these individual tables, such as Tables C.II-1 through C.II-12 present a single product of several parameters. Specifically, the above-referenced tables present the product of exposure time, exposure frequency, and exposure duration, rather than values for each of these parameters. Because a single product value is difficult to verify, the tables should be revised to present values for each of the individual parameters.

Response: Exposure durations for the calculations were determined using the total hours estimated for each work activity. These total hours correspond to the product of ET, ED, and EF in equation C.3-5. However, because the short term risk assessment is based on estimated work requirements and exposures, only the total duration of the remedial activity was estimated, not specific exposure times, exposure durations, and exposure frequencies.

Action:

Comment No. 61
Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.4.2 Page #: C-4-8 Line #: NA Code:
Original Comment #: 12 (Original Specific Comment 19)

Comment: The original comment requested that the text be revised to explain and justify the dermal reference dose for polychlorinated biphenyls. The response indicated that the issue of the dermal reference dose for polychlorinated biphenyls had been addressed in Section C.4.2, specifically in Table C.4.2. Table C.4.2 presents carcinogenic slope factors that do not address the dermal reference dose for polychlorinated biphenyls. Rather, Table C.4.4 presents dermal reference doses; however, this table (and associated text) does not explain or justify the value of 5.30 E-05 milligram per kilogram per day presented as the dermal reference dose for polychlorinated biphenyls. Section C.4.2 should be revised to clearly explain and justify the use of a dermal reference dose for polychlorinated biphenyls when no oral reference dose for polychlorinated biphenyls is available.

Response: The earlier comment response referenced the wrong table number. The table that addresses the comment is Table C.4.4. Table C.4.4 is in error when referencing a dermal reference dose for polychlorinated biphenyls. The dermal reference dose value for PCBs presented in the table will be replaced with NA (not appropriate).

Action:

Comment No. 62
Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.5.1.1 Page #: C-5-8 to 9 Line #: NA Code:
Original Comment #: 13

Comment: Tables C.5-4 and C.5-5 present subsurface soil concentrations and air concentrations for COCs, respectively. The COCs presented in the tables are identical with the exception of the polyaromatic hydrocarbons. Table C.5-4 presents subsurface soil concentrations for pyrene (apparently the concentrations presented represent a sum of the concentrations for all polyaromatic hydrocarbon COCs) while Table C.5-5 presents air concentrations only for benzo(a)pyrene. Several problems exist for these two tables. First, it is not clear why pyrene is used to represent polyaromatic hydrocarbon COCs when pyrene has not been identified as a COC for any subunit. Second, it is not clear why Table C.5-4 does not present concentrations for each of the polyaromatic hydrocarbon COCs. Table C.5-4 should be revised to present subunit-specific concentrations for each of the polyaromatic hydrocarbon COCs.

It is also not clear why Table C.5-5 presents air concentrations only for benzo(a)pyrene among the polyaromatic hydrocarbons. Table C.5-5 should be revised to present air concentrations for all of the polyaromatic hydrocarbon COCs or should include a footnote to clarify why values for only benzo(a)pyrene are presented.

Response: The use of pyrene in Table C.5-4 is an error. The sum of the concentrations for all PAHs should be expressed as benzo(a)pyrene. This table will be revised to reflect this correction. Table C.5-4 presents the sum of PAH concentrations as benzo(a)pyrene as per the TEF approach (Clement International, 1990) as suggested by USEPA Region V original specific comment #153 on the Operable Unit 1 FS Risk Assessment (June, 1994). The text will be revised to indicate that the benzo(a)pyrene assessed in this risk assessment is actually a total PAH assessment using the TEF approach. The table will be revised to correct pyrene to benzo(a) pyrene.

Action:

Comment No. 63
Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.6.2.1 Page #: C-6-7 Line #: 2 to 4 Code:
Original Comment #: 14

Comment: These lines state that direct radiation risks to the public were calculated by "apportioning the risk at 1 m [meter] (for example, the remediation worker) to that at 305 m...." This statement seems to contradict the discussion pertaining to inhalation risks from excavation activities (page C-6-4) in which the distance to the remediation worker is described as 300 meters and the distance to the public (see Table C.6-1A) from each subunit ranges from 335 meters to 701 meters. Section C.6.2.1 should be revised to clarify the calculation of direct radiation risks to the general public; specifically, the distances used for the public should be consistent throughout Appendix C.

Response: When the calculation of direct radiation exposure was made, the remedial worker was considered to be one meter away from the source, the non-remediation worker was considered to be 300 meters away from the source, and the off-site public was not calculated because the direct radiation risk at 300 m was already well below levels of concern. As a result of not calculating radiation risk for the off-site public, the exposure level for this receptor was set equal to that of the non-remedial worker at 300 meters. This is conservative for the public since the public is located between 335 and 1000 m depending on the subunit. The calculation of inhalation risks were performed; the off-site levels of exposure were high enough to warrant an independent calculation for the off-site public receptor. Thus for inhalation risks the off-site public has risks calculated at distances between 335 and 1000 meters. The following will be included in Direct Radiation discussion for each alternative:

Risks to the public from direct radiation were estimated using the same calculation as for the non-remediation worker, that is by apportioning the risk at 1 m (i.e., the remediation worker) to that at 300 m (1000 ft) using the inverse square law applicable to direct penetrating radiation. Since the risks calculated were at this distance were less than 10^{-8}, this is a reasonable approach. The actual distance of exposure for the general public are distances to the fenceline (i.e., 335 to 701 m).

Action:

Comment No. 64
Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.7.2 Page #: C-7-4 Line #: 17 Code:
Original Comment #: 15

Comment: The discussion of residual risks uses the phrase "...better than the incremental lifetime cancer risk (ILCR) target risk range of 10^{-4} to 10^{-6}." The meaning of this phrase is not clear; apparently what is meant is that the risks are "less than" the target risk range. Section C.7.2 should be revised to eliminate any use of the phrase "better than the ILCR target risk range" and to replace it as appropriate with the phrase "less than the ILCR target risk range."

Response: The comment will be addressed by stating that residual risks are less than the target risk range. The phrase "better than the ILCR target risk range" will be replaced with "less than the target risk range."

Action:

Comment No. 65
Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.1.6 Page #: D-1-82 Line #: 13 TO 17 Code:
Original Comment #: 16

Comment: The text states that in the disposal cell, a leachate concentration of 71.38 milligrams per liter (23,980 picocuries per liter) will produce a fenceline GMA concentration of 0.23 picocuries per liter. The text in this section apparently uses a GMA concentration of 0.23 picocuries per liter to be protective of the GMA; however, in previous sections of the text (for example Section D.1.5.3.2, Page D-1-47), a value of 0.72 picocuries per liter was used as a fenceline GMA concentration that is protective of the aquifer. The value of 0.72 picocuries per liter is the 10^{-6} ILCR value. The text should be revised to state why a value of 0.23 picocuries per liter was used as a concentration that is protective of the GMA at the fenceline.

Response: Text will be added to clarify that 0.23 pCi/L is below the 10^{-6} ILCR value of 0.72 pCi/L. However, the ARAR MCL limits maximum total uranium concentration at the boundary of the Disposal Cell to 20 ug/L. Due to hydrogeology of the site, maximum concentration occurs in the west parts of the disposal cell, on the upgradient side. To be conservative, maximum on-site total uranium concentration was limited to 20 ug/L instead of maximum concentration at the boundary of the Disposal Cell.

Action:

Comment No. 66
Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.1.6 Page #: D-1-82 Line #: 17 to 22 Code:
Original Comment #: 17

Comment: The text states that waste concentrations in the disposal cell are a function of waste leachability, which can be quantified with the use of the distribution coefficient for leaching (K_L). The text then references Appendix D.3 for K_L values. Appendix D.3 provides uranium partition coefficient values (K_d). The text should be revised to discuss how K_L values are determined from K_d values.

Response: Appendix D.3 provides uranium partition coefficients for waste material determined from the desorption (leaching) tests. These partition coefficients for waste/source material are the distribution coefficients for leaching (K_L). The text in D.1 will be revised to clarify this.

Action:

Comment No. 67
Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA Code:
Original Comment #: 18 (Original Specific Comment 39)

Comment: The response to the original comment states that the ECTran model was used as a screening tool for PRGs and that final PRGs were developed using a more complex model. Therefore, Appendix D-1, which contained the ECTran model discussion, will be eliminated from the final FS. Because Appendix D-1 will be omitted, the text should be revised to contain a brief discussion of the ECTran modeling that was used to screen out contaminants that did not reach the final PRG development.

Response: ECTran model was not used to eliminate COCs from the PRG development. Instead, in the trial and error process of determining PRGs, ECTran was used to provide a first estimate for the PRG development. Although ECTran model was not necessary for PRG development and does not affect the final PRG values, it's use reduced the modeling effort significantly. Since final results are not dependent on the ECTran results, ECTran modeling description was eliminated in the final FS report.

Action:

Comment No. 68
Commenting Organization: U.S. EPA Commentor: Saric
Section #: F.3 & F.7 Page #: F-3-1,F-7-22 Line #: NACode:
Original Comment #: 19
Comment: Appendix F.3, Table F-3-1 on page F-3-1 presents comparative estimated costs for Alternatives 2 through 8. Appendix F-7 presents Alternative 6 cost estimate details. The base estimate presented in the cost table on page F-7-22 does not correspond with the base estimate for Alternative 6 in Table F.3-1. This discrepancy should be resolved and corrected.
Response: Agreed. Table F.3-1 is being revised.
Action:

Comment No. 69
Commenting Organization: U.S. EPA Commentor: Saric
Section #: F.3 Page #: F-3-1 Line #: NA Code:
Original Comment #: 20
Comment: Appendix F.3, Table F-3-1 on page F-3-1 presents comparative estimated costs for Alternatives 2 through 8. Subsequent appendixes present detailed cost estimates for each alternative. However, detailed cost estimates for Alternatives 7 and 8 are not presented in the appendixes. The reason for this omission should be stated or the detailed estimates for Alternatives 7 and 8 should be added.

Response: For screening purposes, costs for Alternatives 6, 7, and 8 were calculated as variations on the costs for Alternative 5. Those alternatives utilized the base costs associated with Alternative 5, and then the pertinent treatment or disposal cost was added or subtracted to estimate the costs presented on page F-3-1 and Section 4. Because Alternative 6 was carried to Section 5, a detailed cost estimate was done for that Alternative. However, since Alternatives 7 and 8 were screened out, no detailed costs were prepared specifically for those alternatives. For clarity, detailed estimates for Alternatives 7 and 8 will be added to Appendix F.
Action:

Comment No. 70
Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.6.2.2 Page #: I-6-64 Line #: NA Code:
Original Comment #: 21 (Original Specific Comment 57)
Comment: The response to the original comment states that text will be added to further justify and clarify the grouped sources for air modeling. However, the sources have been regrouped and the method used to group these sources is not provided. The method used to group the sources should be provided.
Response: The method used to group the sources for air modeling was changed to make it consistent with the method used to group the sources for surface water modeling. Sources for surface water modeling were based on basin drainage patterns. The same statistical analysis for the grouping of the surface water sources was used for the air modeling. The methodology used to group sources for surface water modeling is presented in Appendix F of the OU5 RI report. The text will be clarified to explain that source groups were originally developed for surface water modeling, and it was appropriate for this site and for consistency to use the same source groups for air modeling.
Action:

Comment No. 71
Commenting Organization: U.S. EPA Commentor: Saric
Section #: I.7.5.3 Page #: I-7-16 Line #: 14 Code:
Original Comment #: 22 (Original Specific Comment 62)
Comment: The indicated action in response to the original comment has not been included in the revised report. The text should be revised to include the following sentence:

"Np-237 has a half-life of 2.14 x 10^6 years and is primarily produced in nuclear reactors."

Response: The requested revision will be made.

Action:

PROPOSED PLAN SPECIFIC COMMENTS

Comment No. 72
Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4,5 Page #: 4-4 to 5, 5-6 to 5-9 Line #: NA Code:
Original Comment #: 23
Comment: Tables 4-1, 5-2, and 5-3 present cleanup levels for the private and federal ownership scenarios. The lead cleanup level should be calculated and added to both (SIC) tables.
Response: See response to Comment No. 39.
Action:

Comment No. 73
Commenting Organization: U.S. EPA Commentor: Saric
Section #: 5.4.4 Page #: 5-21 Line #: 10-12 Code:
Original Comment #: 24
Comment: Section 5.4.4 describes Alternative 6 and references preliminary on-site WAC. The text should be revised to reference the on-site final WAC.
Response: See response to Comment No. 40.
Action:

Comment No. 74
Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.2.1 Page #: 6-4 to 6-5 Line #: 28-32,1-2 Code:
Original Comment #: 25
Comment: Section 6.2.1 presents the overall protectiveness evaluation from the FS. The text compares the protectiveness of Alternatives 2, 3, and 6 in degrees. Because this criterion is a threshold criterion, the overall protectiveness of alternatives is not measured in degrees. The referenced text therefore should be deleted.
Response: Agreed. The last paragraph of Section 6.2.1 will be deleted.
Action:

Comment No. 75
Commenting Organization: U.S. EPA Commentor: Saric
Section #: PP 6.3 Page #: 6-13 Line #: NA Code:
Original Comment #: 26
Comment: Section 6.3 summarizes the comparative analysis of alternatives conducted in the FS. A paragraph should be added to the end of Section 6.3 summarizing why Alternative 6 is the preferred alternative and how Alternative 6 best meets the statutory mandates outlined on Page 6-2. This summary should discuss why Alternative 6 is considered to meet the statutory mandate for using treatment to the maximum extent practicable and how it satisfies the statutory preference for treatment as a principal element.
Response: Agreed. Text will be modified.
Action:

ADDITIONAL U.S. EPA COMMENTS

Comment No. 76
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Table 1-5 Page #: 1-86 Line #: Code:
Original Comment #:
Comment: It would appear that the "Max. Hit" value for benzo(a)anthracene should be 880 ug/kg, not 88. Please check this value.

Response: Agreed. The typographical error will be corrected, the table should read "880 ug/kg."
Action:

Comment No. 77
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Tbls. 1-6,1-7 Page #: Line #: Code:
Original Comment #:
Comment: The reported "Conc. Term" value is often less than the mean value. How was the "Conc. Term" value calculated for the tables in this section. The Conc. Term value is often close to the Min. Value, rather than a UCL or Max. Value. Please review these calculations and correct all errors.
Response: Under certain circumstances, the mean value can be greater than the concentration term. If the frequency distribution is determined to be neither normal nor lognormal, the non-parametric 95th percentile value is used as the concentration term. When this occurs, the 95th percentile value is usually the second or third highest concentration value. If the maximum concentration value is much greater than the second highest value, then the mean value can (and probably is) greater than the concentration term. For example, the two highest concentration values for thorium-230 in Table 1-6 are 720 pCi/g and 15.4 pCi/g. The 95th percentile value is 15.4, but the mean value is 22.2 because 720 is much greater than 15.4. Since the distributions are frequently found to be neither normal nor lognormal, there are a number of instances where this phenomenon occurs.

The information shown in the Section 1.0 tables has been taken from the data lists and statistical summaries presented in Appendix A. The statistical analyses in appendix A were performed in accordance with the approved statistical methods presented in Risk Assessment Workplan Addendum (DOE 1992).
Action:

Comment No. 78
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Table 1-16 Page #: Line #: Code:
Original Comment #:
Comment: The table shows a range of contaminant concentration values from sampling of perched groundwater. Were these data used in the subsequent risk evaluations? The ranges indicate an inhomogeneous aquifer. Would any receptor ever be exposed to the mean or even the 95% UCL of the mean concentration?
Response: The sample data for perched groundwater was only used to calibrate the perched groundwater modeling results. The risk assessment evaluations were performed on the maximum groundwater results considering future site conditions over a 1000-year period. The sampling data represents current sight conditions that were not evaluated in the risk assessment. The source term concentrations (i.e., contaminated waste/soil) for perched groundwater are presented in Appendix C.5.2.1.3.
Action:

Comment No. 79
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Table 1-25 Page #: Line #: Code:
Original Comment #:
Comment: Again, check the calculation of the "Conc. Term". Some "Conc. Term" values are lower than the mean values, even though the range is very large.
Response: Please refer to Comment No. 77.
Action:

Comment No. 80
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Table 1-23 Page #: 1-132 Line #: Code:
Original Comment #:
Comment: Table 1-23 and discussion of the South Field Firing Range on page 1-132 indicate high lead levels in the surface and subsurface soils. I did not see lead listed as an OU2 COC in Table 2-1 or see it evaluated in the remediation strategies or in the worker/residual risk scenarios. Did I miss something? Where is this contaminant addressed?
Response: See Comment No. 39.
Action:

Comment No. 81
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: 1.7.3.1 Page #: 1-198 Line #: 31-32 Code:
Original Comment #:
Comment: Table 1-41 summarized the risks for a number of receptors in addition to those listed here - e.g., homebuilder. The discussion needs to better coordinate with the data presented in the Table.
Response: Agreed, the text was intended to highlight a few receptors but can be expanded to cover all receptors of concern. The text will be modified to include a discussion of all receptors and their associated risk.
Action:

Comment No. 82
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: 1.7.3.4 Page #: 1-205 Line #: Code:
Original Comment #:
Comment: See above comment. Discussion does not cover data presented in Table 1-44. Tables and discussions should be better coordinated.
Response: Agreed, the text was intended to highlight a few receptors but can be expanded to cover all receptors of concern. The text will be modified to include a discussion of all receptors and their associated risk.
Action:

Comment No. 83
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: 1.7.3.5 Page #: 1-213 Line #: 8 Code:
Original Comment #:
Comment: Table 1-45 does not support an expanded trespasser risk of 1×10^{-3}. Please check this evaluation for errors.
Response: Agreed. The expanded trespasser risk will be changed to "1.0×10^{-5}."
Action:

Comment No. 84
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Page #: 1-213 Line #: 11 Code:
Original Comment #:
Comment: Table 1-45 does not support an off-property resident farmer risk in excess of 1×10^{-5}. Is this a rounding error? If so a footnote is needed in these tables. See comments for the OU1 report.
Response: The text is in error, there is no rounding error. The text will be changed to read; "1.0×10^{-6}."
Action:

Comment No. 85
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Page #: 1-123 Line #: 18 Code:
Original Comment #:
Comment: Table 1-45 does not support the RME farmer risk listed here.
Response: The text is in error. The text will be changed to read; "exceeded 5.0×10^{-5}."
Action:

Comment No. 86
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: 1.7.3.1 thru 1.7.3.6 Page #: Line #: Code:
Original Comment #:
Comment: The risk summaries in these sections discuss the non-carcinogenic risks as well as the carcinogenic risks for receptors exposed to the various OU2 locations. These data are not presented in the summary tables in these sections. The data should be included or referenced.

Response: The noncarcinogenic risk values are provided in Table 1-40.The text will be modified to include a reference to Table 1-40 for the discussion of noncarcinogenic risks.

Action:

Comment No. 87
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Page #: 2-5 Line #: 1 Code:
Original Comment #:
Comment: The footnote at the end of Table 2-1 indicates that the contaminants marked with an asterisk are specific to both the private ownership and the federal ownership scenarios. Please correct this sentence to be consistent with Table 2-1.
Response: Agreed. The text will be modified to state that the contaminants marked with an asterisk are specific to both the private and federal ownership scenarios.
Action:

Comment No. 88
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Page #: 2-11 Line #: 14 Code:
Original Comment #:
Comment: The Region 5 position is that 15 pCi/g, averaged over 15 cm layers of soil more than 15 cm below the surface is not protective of human health. Region 5 suggests a soil concentration cleanup criterion of 5 pCi/g (combined Ra-226 and Ra-228) for soil at any depth. The Region 5 guidance (soon to be USEPA guidance) should be cited here, and the variance with these guidelines explained.
Response: Reducing 15 pCi/g to 5 pCi/g does not impact OU2 remediation volume. If EPA provides the referenced guidance, we can reference the change in guidance.
Action:

Comment No. 89
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Tables 2-8,2-9,2-10 Page #: Line #: Code:
Original Comment #:
Comment: The tables are not consistently labeled in section 2.0. All tables should indicate which scenarios/receptors are being evaluated by the data presented. There are three distinct types of labeling in this section. Some continuity is needed.
Response: Agreed. The headings for Tables 2-9, 10, 18, 19, 23, 24, and 25 will be modified to list the receptors and scenarios applicable to the tables.
Action:

Comment No. 90
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Table 2-23 Page #: Line #: Code:
Original Comment #:
Comment: It is not clear which scenario(s) are represented by this data. The labeling is not consistent with Table 2-22.
Response: Agreed."RISK BASED SOIL" will be removed from the title of this table to make it consistent with Table 2-22.
Action:

Comment No. 91
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Table C.1-1 Page #: Line #: Code:
Original Comment #:
Comment: Correct wrap-error in "Risks Type" columns.
Response: Error will be corrected.
Action:

Comment No. 92
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: 2.4.1 Page #: C-2-35 Line #: Code:
Original Comment #:
Comment: It is usually appropriate to assume that all excavation workers, remediation workers, etc., will use PPE and follow OSHA guidelines for protection of such workers. I am not certain I understand why this assessment assumes that these will not be followed. If this strategy is followed, perhaps the risks should be bounded (present a range). Other evaluations presented in Appendix C are appropriate.

Response: According to OSHA guidance for hazardous waste site remediation, it is inappropriate to assume the use of PPE until it has been determined that PPE will be required in order to meet regulatory requirements. OSHA[1] has directed that engineering controls and work practices be used as the primary methods of controlling worker exposures to air contaminants[2] to the extent required, and PPE be used whenever engineering controls and work practices are not feasible or required. This level of detail is generally addressed during the remedial design phase. The selection of PPE is determined in the development of the Personal Protective Equipment program which is part of the safety and health program[3].

The RAWPA[4] indicates that:

> The degree of protection of on-property workers during remediation will be evaluated with respect to occupational limits rather than the acceptable range of lifetime health risks ... Occupational exposure standards are implemented in the site Health and Safety Program and control exposure to hazardous materials for on-property workers.

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[1]29 CFR 1910.120(g)(1)

[2]as listed in 29 CFR 1910 subpart Z

[3]29 CFR 1910.120(g)(5)

[4]Section 10.2.3.2, p. 22

The purpose of this risk assessment is to determine potential risks. The use of PPE provides a factor of protection, not zero risk, and is selected from levels of protection designated as A, B, C, and D. As an example of the protection factors that should be used, the factors for respirators for radioactivity range from 10 to 1000 for particulate exposures using air-purifying respirators[5]. OSHA cautions that the use of PPE can result in significant health risks to workers (i.e., heat stress, diminished work capacity leading to other risks) and should be selected very carefully and not overly prescribed. The use of respirators leads to significantly reduced worker efficiency, and hours must be added to estimate work schedules to account for the use of PPE. Current practice is to increase the work hours by 25% to account for this[6]; a resultant increase in external exposure must also be taken into account.

This analysis evaluates potential worker risk in terms of occupational limits for potential exposures. No dose or risks has been shown to exceed the 10 CFR 835 dose limit of 100 mrem/yr for members of the public (assumed to include remediation workers) or any OSHA limits based on the contamination data provided. Therefore no PPE is required to meet regulatory standards for worker exposure, but may be included in the Health and Safety Program in order to meet ALARA or other requirements. That determination, however, is not part of this analysis.

Action:

Comment No. 93
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Table C.3-4 Page #: Line #: Code:
Original Comment #:
Comment: Some dermal absorption coefficients are given as decimal values and some are given in engineering notation. Be consistent.
Response: Agreed. Terminology will be made consistent by revising table to engineering notation.
Action:

Comment No. 94
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Page #: C-4-34 Line #: 28 Code:
Original Comment #:
Comment: The statement here is somewhat confusing. Region 5 suggested that a review of the IRIS database showed no evidence that the administered dose was adjusted for absorption in the calculation of the RfD and Cancer Slope Factors for beryllium and therefore, a value of 1.0 should be used in calculating the dermal toxicity values. Region 5 did not mean that the oral absorption of beryllium is 100%. Perhaps this statement should be moved to the discussion of toxicity values.

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[5]10 CFR 20, Appendix A, and ANSI Z88.2 (as directed by 29 CFR 1910.120)

[6]Kephart, Gary S., 1994. Respiratory Protection and Worker Efficiency - A Review, Radiation Protection Management, 11(4):70-74.

Response: Agreed, this statement will be moved to the discussion of toxicity values and clarified.
Action:

Comment No. 95
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Table C.6-1,C.6-2 Page #: Line #: Code:
Original Comment #:
Comment: What scenarios are covered by this data? Need some labeling.
Response: The data covers private and federal ownership scenarios. The tables will be revised and clearly labelled.
Action:

Comment No. 96
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: C.6 Page #: Line #: Code:
Original Comment #:
Comment: All tables in this section should have a footnote which explains that risk evaluations to remediation workers, truckers, etc., assumed no PPE or shielding.
Response: Footnote indicating no PPE or shielding will be added.
Action:

Comment No. 97
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: C.7 Page #: Line #: Code:
Original Comment #:
Comment: Tables should be labeled to indicate that data is evaluation of Residual Risks.
Response: Tables will be labeled to indicate the data pertains to residual risks.
Action:

Comment No. 98
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: C.9 Page #: Line #: Code:
Original Comment #:
Comment: Tables of Remedial Action Risks should contain a footnote indication that risks were based on the assumption of no PPE or shielding.

Response: Footnote will be added to indicate that risks assume no PPE or shielding.
Action:

Comment No. 99
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: Page #: I-7-56 Line #: 9-13 Code:
Original Comment #:
Comment: The 1989 Directive cited here has been replaced with the 1994 Directive issued earlier this year, which calls for further evaluation of soil which contains lead concentrations in excess of 400 ppm. Please update this section of the tox profile for Lead.
Response: This reference will be updated in the tox profile for lead.
Action:

Comment No. 100
Commenting Organization: U.S. EPA Commentor: VanLeeuwen
Section #: 1.4.2.3 Page #: 1-4-13 Line #: Code:
Original Comment #:

Comment: The elimination of organic COCs in the CRARE based on degradation has been commented on in past OU CRARE reports. FERMCO was provided with a copy of the April 11, 1994 Memorandum from ECAO and attachment: "Risk Assessment Issue Paper: Review of Degradation of PAHs in Soil", which raised serious questions about the validity of such elimination. The use of degradation half-lifes obtained under laboratory conditions to eliminate other chemicals using this process is likewise subject to the same criticism. I have previously stated that there appears to be something wrong with a methodology in which the only chemicals retained in the CRARE as COCs are those for which there is no degradation data. I also noted some concern from ECAO over whether a 100-year degradation period was reasonable for the site, and suggest that perhaps this issue needs to be revisited. Since carcinogens are considered to have no threshold, a 70 year exposure is not necessary to produce an adverse effect; a short exposure to residual levels of some site carcinogens might be all that is needed to produce the response. Noncarcinogens might also produce adverse health effects from short term exposures. Perhaps the effect of exposure to average concentrations of residual chemicals over successive future time periods would provide a better evaluation. In addition, some newer discussions on the issue of degradation of COCs has raised the question of whether modeling exercises are sufficiently accurate enough to determine that COCs in groundwater will be completely degraded before they reach the site boundary (off-site receptors). This entire topic requires further discussion, and the CRARE should not be approved until some satisfactory agreement can be reached on this issue.

Response: The CRARE is intended to calculate the risk after all remediation is complete. Based on the remediation schedule, the CRARE risk has been assessed for the period of 100 years to 1000 years from now. The organic screening in the Operable Unit 2 CRARE was not intended to remove COCs that are major contributors to risk but rather to allow better use of limited computer resources by modeling only the major COCs.

It is assumed that the remediation of the uranium contamination would remove the significant portion of the organic contamination. This has been demonstrated by the Operable Units 1, 2 and 4 FSs and the draft Operable Unit 5 FS where organic COCs posed no post remedial risk greater than 10^{-6} whereas the uranium poses one to two orders of magnitude greater risk. Degradation of the organic COCs would reduce the risk and increase the significance of radionuclides as the major COCs at the FEMP.

It is proposed that additional assessments of risks due to major organic COCs be performed in the Operable Unit 5 CRARE unless it can also be shown that the Operable Unit 5 post remediation risk due to organics is order(s) of magnitude below the radionuclide risk.

Action:

Comment No. 101
Commenting Organization: U.S. EPA Commentor: Barwick
Section #: Page #: 5-1 Line #: 11 Code:
Original Comment #:
Comment: Use of the term "mixture" suggests that all OU2 wastes are physically blended together. We know that is not correct as the only potential mixed waste identified is the lead contaminated firing range materials. Clarifying this sentence is not imperative but could avoid confusion later. I would suggest DOE replace "mixture" with "variety."
Response: Agreed. This sentence in the Proposed Plan will be clarified as suggested.
Action:

Comment No. 102
Commenting Organization: U.S. EPA Commentor: Barwick
Section #: Page #: 5-21 Line #: 11 and 12 Code:
Original Comment #:
Comment: DOE states that the final waste acceptance criteria (WAC) will be determined during the remedial design process. After our public meeting of September 13, we know the WAC is a major concern for the public. While 40 CFR § 300.435(c)(1) provides that the community relations plan (CRP) may be revised to "describe further public involvement activities during RD/RA," the opportunity to appeal RD/RA decisions is limited to circumstances where the remedy design differs significantly from the one specified in the ROD. Therefore, the public's best opportunity to affect the WAC would be at the ROD state.

DOE must specify in the ROD a WAC which contains a range of values (e.g., Uranium 300-400 ppm). This would give the citizens of Ohio, <u>and of Nevada and Utah</u>, a best and a worst case scenario. So long as the final WAC fell somewhere in this range, there would be no basis to challenge the remedy design as being inconsistent with the ROD. If the final WAC fell outside of this range, we may need to consider a ROD amendment.

Response: See Comment No. 40.
Action:

Comment No. 103
Commenting Organization: U.S. EPA Commentor: Barwick
Section #: Page #: Line #: Code:
Original Comment #:
Comment: The Proposed Plan, in conjunction with the draft August 1994 Feasibility Study Report for Operable Unit 2, contains a preliminary description of the proposed disposal unit, including elements designed to attain the same level of performance as is required by Ohio Administrative Code rules 3745-27-07(B)(5) and (B)(9). What it does not include, however, is an explanation of how these engineering controls will attain a standard of performance equivalent to that afforded by the geological features required by OEPA for an Ohio Revised Code (ORC) Section 3734.02(G) exemption to Rules 3745-27-07(B)(5) and (B)(9).

In the preamble to the National Contingency Plan (NCP), U.S. EPA explained that when considering equivalent standard of performance waivers, it would compare the ARAR to the proposed alternative by looking at the following factors:

- degree of protection;
- level of performance;
- reliability into the future; and
- time required for results.

U.S. EPA believes that the first three criteria, i.e., degree of protection, level of performance, and future reliability, should at least be equaled for an alternative to be considered equivalent. Regarding the fourth criterion, the time required to achieve results using the alternative remedy should not be significantly more than that required under the waived ARAR.

In addition, U.S. EPA explained that comparison based on risk is only permitted where the original standard is risk-based. Therefore, since the ORC § 3734.02(G) exemption criteria for OAC Rules 3745-27-07(B)(5) and (B)(9) are not risk based, the comparison should be expressed in technological terms.

In the draft OU2 ROD, DOE must do the following:

1. Set forth the ORC § 3734.02(G) exemption criteria for OAC Rules 3745-27-07(B)(5) and (B)(9);

2. Describe how the best available site geology does not meet that criteria thereby establishing that the ARAR is unattainable;

3. Describe the proposed disposal unit including the anticipated geology and engineering controls;

4. Describe, in terms of degree of protection, level of performance, future reliability, and time required to achieve results, how the proposed disposal unit will attain an equivalent standard of performance as the waived ARAR; and

5. Ensure that the comparison is expressed in appropriate terms (risk versus technological based).

Response: Agreed. Based on conversations with EPA and OEPA, the waiver language will be modified to discuss the items identified in this comment. The basis of the waiver will be ORC 3734.02(G) that allows the director of OEPA to exempt projects from the OEPA regulations based on a determination that the exemption would be unlikely to adversely affect the public health or safety or the environment.

Current OEPA policies allow an exemption to the specified siting criteria based on protection of the aquifer by the overlying hydrogeologic conditions only. DOE cannot meet all of the conditions of these policies and will, therefore, provide additional engineering controls beyond these required by the OEPA solid waste landfill regulations. The resulting combination of hydogeolgic conditions and engineering controls will provide protection of human health and the environment.

This combination meets the criteria for an EPA waiver of the identified OEPA ARARs based on an equivalent standard of performance. As directed by the NCP, DOE will provide a discussion of the following factors to support an EPA waiver:

- degree of protection (risk based)
- level of performance (technology based)
- reliability into the future

Action: