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RESPONSES TO USEPA AND OHIO EPA COMMENTS ON THE DRAFT RECORD OF DECISION FOR INTERIM REMEDIAL ACTION FOR OPERABLE UNIT 3

05/26/94

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RESPONSE

ENCLOSURE 1

RESPONSE TO EPA COMMENTS

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RESPONSE TO EPA COMMENTS

1.0 INTRODUCTION

This package has been prepared in response to U.S. Environmental Protection Agency (USEPA) and Ohio EPA (OEPA) comments provided on May 12, 1994 for the Proposed Draft Operable Unit 3 Record of Decision for Interim Remedial Action (IROD). This submittal includes a reiteration of each comment with the corresponding response and summary of the modification in the IROD, as necessary.

Since the draft submittal of the IROD on April 11, 1994, Section 10, Statutory Determinations, has been modified to clarify the discussion pertaining to compliance with ARARs. In addition to the modification resulting from Comment #9 by USEPA and after further review of the ARARs, the requirement description for three ARARs has been modified. These changes do not alter the intent of the ARARs, but rather clarify the requirements. These modifications are summarized as follows:

- All ARARs and Other Requirements have been numbered;
- ARAR 5, Ohio Water Quality Standards, has been modified to include Ohio Administrative Codes (OAC) 3745-1-04 and 3745-1-21;
- ARAR 10, National Primary Drinking Water Standards, has been modified to include the most current version of the National Primary Drinking Water Standards; and
- ARAR 24, Radiation Protection of the Public and the Environment, has been modified to specify the appropriate Chapter.

USEPA comments and DOE responses to comments are included in Section 2.0 of this attachment. OEPA comments and DOE responses to comments are included as Section 3.0.

2.0 USEPA COMMENTS

Within the USEPA transmittal letter, two additional comments were submitted on the IROD. These comments are detailed below as comments A and B. The other comments are designated as 1 through 9.

Comment #A

Section 8.1, Page 29, Line 1-3: Regarding threshold criteria, the IROD discusses protection of human health and the environment in terms of degrees of protectiveness. This should be corrected to state whether a remedy is either protective or not protective.

Response #A

Agreed. The statement as made in lines 1 through 3 does not apply to this criterion since each alternative either meets or does not meet the threshold criterion of overall protection of human health and the environment. This sentence has been deleted from Section 8.1.

Comment #B

Section 8.2, Page 29, Line 17-23: The discussion of compliance with applicable or relevant and appropriate requirements (ARARs) should be revised to reflect that, consistent with the National Oil and Hazardous Substances Pollution Contingency Plan 300.430 (f)(ii)(C)(1), an alternative that does not meet an ARAR can be selected if the alternative is an interim measure that will become part of a total remedial action that will attain the ARAR.

Response #B

Agreed. The following statement will be added to the end of this paragraph: "However, in accordance with the NCP 300.430 (f)(ii)(C)(1), an alternative that does not meet an ARAR can be selected if the alternative is an interim measure that will become part of a total remedial action that will attain the ARAR."

Comment #1

Section 7.3, Page 20, Line 27: It should be stated that all activities will be performed in compliance with the ARARs, rather than just health and safety regulations.

Response #1

Agreed. The sentence will be modified to read: "All activities performed will be in compliance with ARARs and health and safety regulations...."

Comment #2

Section 7.3, Page 22, Lines 25 & 26: In general, it is not clear to the reader what materials are to remain on site for interim storage, what materials are to be shipped off-site to NTS, and exactly what this "10%" maximum waste volume limit applies to. For clarity, it would seem appropriate to have a table that illustrates the waste steams and where they would be managed or disposed of. Specifically on this line, clarify whether these "materials segregated for disposition off-site" are subject to the 10% maximum cap on the amount of wastes shipped off-site prior to the final remedial action ROD for OU3.

Response #2

The 10% constraint on quantities of materials to be shipped off-site applies to the total volume of material/debris generated during remediation of OU3 (approximately 425,100 cubic yards as detailed in Table 5-1). Based upon this limitation, approximately 42,500 cubic yards of materials could be dispositioned off-site before the final remedial action ROD is issued. During the interval period, it is anticipated that approximately 34,800 cubic yards of remediation waste will be generated (see Table 7-2). These values represent waste quantity volume estimates with bulking factors applied. The potential for compaction of these materials has not been factored into these volume estimates. Information included in this section is based on information developed in Appendix G of the Proposed Plan.

The text has been modified to clarify that the 10% limitation applies to the total bulk volume of OU3 materials during the interval period and to include the definition of "interval period." Modifications have been made to Table 7-2 to present the anticipated volumes of remediation waste generated during the interval period and potential disposition options for each media. The modifications to this table are detailed below.

Table 7-2 Interval Period Bulk Volume[1] Estimates

Media	Stored Volume[2] (cubic yards)	Shipped Volume (cubic yards)	Potential Disposition[3]
Concrete/Cement Block	1,600	0	N/A
Structural Steel	0	600	Recycling
Miscellaneous Metal	800	2,000	Recycling
Equipment	12,600	8,500	Off-Site Disposal
Transite	0	400	Off-Site Disposal
Other	0	5,700	Off-Site Disposal
Decontamination Residues	1,300	1,300	Off-Site Disposal
Total	16,300	18,500	

[1] Volume is based on total bulk volume estimates without applying containerization or compaction factors.
[2] Stored volume indicates materials held in interim storage for potential treatment under the final remedial action ROD.
[3] The anticipated disposition for each media may change due to re-evaluation of potential treatment/decontamination options.

In addition to the changes as detailed in Table 7-2, lines 25 and 26 have been modified to read, "Materials segregated for disposition off-site would either be recyclable/reusable materials or non-recyclable/non-recoverable materials and would be subject to the 10% limitation on the quantity of materials to be dispositioned off-site.

Comment #3

Section 7.3, Page 24, Line 12: It is stated that a maximum of 10 percent of all remediation wastes, by volume, generated by implementing Alternative 3 would potentially be shipped off-site. Is this "volume" the same as the "total bulked volume" indicated in Table 7-2, or some other volume such as one based on compacted/containerized volumes of material? Indicate whether the use of compaction and containerization will modify the actual volume of wastes shipped off-site under this "10%" maximum cap. Clarify when the exact volume based on 10% will be determined; if the "10%" is to be based on total volume, why not just state that a maximum amount of 3,480 cubic yards of remediation wastes will be shipped off-site prior to the final ROD.

Response #3

This limitation is based on total bulk volumes rather than compacted or containerized volumes of materials. See the response and revision based upon Comment #2. This line has been modified to read, "A maximum of 10 percent of all remediation wastes generated by

implementing Alternative 3 (42,500 cubic yards as calculated from Table 5-1) would potentially be shipped off-site for disposition and recycling prior to the final disposition decision being determined by the final remedial action ROD for the majority of wastes in OU3."

Comment #4

Section 7.3, Page 24, Line 12: Pleases clarify in text what "remediation wastes" are, and state whether site-decontaminated materials that can be recycled/reused as-is are going to be considered waste.

Response #4

The term "remediation waste" is intended to represent all materials generated as a result of the interim remedial action. As defined in the Corrective Action Management Units and Temporary Units; Corrective Action Provisions; Final Rule, Federal Register, Volume 58, No. 29, Tuesday, February 16, 1993 [58 FR 8658], "*Remediation waste* means ...all solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris ... that are managed for the purpose of implementing corrective action requirements". Although contained in RCRA regulations, this regulatory definition of remediation waste is also pertinent to removal or remedial actions conducted under CERCLA as an Applicable or Relevant and Appropriate Requirement (ARAR), as is discussed in the preamble to that Final Rule [V. Relationship to Other Programs, A. CERCLA, as found at 58 FR 8679]. At the location where "remediation waste" is first used, the definition of "remediation waste" has been added, reading, "For this document, 'remediation waste' is defined as any material generated as a result of the CERCLA interim remedial action and is not meant to necessarily indicate the applicability of the regulatory definition to the material.

The determination of a material being considered a "waste" will occur at the time of generation of the material and will be done in accordance with site operating procedures and the Remedial Design/Remedial Action Work Plan to meet the requirements of the applicable ARARs.

Comment #5

Section 7.3, Page 24, Line 30: With "650 truck shipments" being mentioned, please indicate whether the rail lines on the FEMP will be utilized for shipping OU3 materials.

Response #5

At this time, it is envisioned that truck transportation would be used for the limited quantity of materials to be transported off-site before the final remedial action ROD. However, the statement about "650 truck shipments" does not preclude the use of rail lines on the FEMP for shipment of OU3 materials resulting from the interim remedial action. The following sentence has been added to the text: "However, this does not preclude the use of rail transport if rail lines become available during the interval period."

Comment #6

Section 7.3, Page 25, Line 1: Please state the intended design life of the proposed tension support structures.

Response #6

The design life of the tension support structures is approximately 25 years, with 10 years reported as the useful life expectancy for the replaceable fabric cover. The sentence has been modified to read: "The proposed tension support structures are designed only for temporary storage with an intended design life of 25 years, and as such cannot be used for long-term storage." Appendix A (p. A-11) has been modified to reflect this change, as well.

Comment #7

Section 7.3, Page 26, Line 5: Please review and correct this sentence that discusses matters relating to a "worst-case interim storage situation."

Response #7

The word "occur" has been added to correct the sentence, which now reads, "A worst-case interim storage situation would only occur if waste generated by the interim remedial action is not dispositioned off-site and storage space is not available in existing facilities."

Comment #8

Section 7.3, Page 26, Line 22: Please clarify what is meant by the statement "to ensure that nearby members of the general public are not adversely impacted;" define adversely as it relates to this statement. Something that should be ensured is compliance with ARARs, such as 40 CFR part 61, Subpart H, for the duration of remedial activities.

Response #8

The intent of using the word "adversely" was to represent impacts to the general public that could exceed allowable exposures contained in 40 CFR part 61, Subpart H, resulting in unacceptable human health risks. The text has been modified to read: "For example, work could be stopped, exposed areas covered or otherwise controlled, and engineering measures could be increased prior to restarting work to ensure that nearby members of the general public are not exposed to unacceptable human health risks."

Comment #9

Section 10.2.1, Page 37, Line 20: The ARAR, National Emission Standards for Hazardous Air Pollutants (40 CFR 61), Subpart H. National Emission Standards of Radionuclides Other than Radon from Department of Energy Facilities, is applicable and should be listed as an applicable requirement rather than relevant and appropriate.

Response #9

The modification has been incorporated.

3.0 OHIO EPA COMMENTS

Comment #1

Section 1.0, Page 1, Line 2: The definition of "site" being used within the IROD differs from the CERCLA definition of "site." DOE should clarify the text and state that the use of the word "site" is not consistent with the CERCLA definition.

Response #1

The footnote reference for the word "site" will be modified to be consistent with the Amended Consent Agreement definition of "site." The revised footnote will read as follows:

> "As defined by the Amended Consent Agreement (ACA) (EPA 1991a) and used in this Record of Decision for Interim Remedial Action (IROD), the term "site" refers to all areas within the property boundary of the FEMP (1050 acres) and any other areas that received or potentially received released hazardous substances, pollutants, contaminants, or hazardous constituents. Off-site refers to all areas not included in this definition of 'site.'"

Comment #2

Section 5.0, Page 12, Line Table 5-1: DOE should provide a reference for the bulking factors within the table. It would seem the factors are low (e.g., concrete) and may under estimate the volume of waste.

Response #2

The bulking factors utilized as the basis for calculations in the table were initially utilized for Appendix G of the Proposed Plan/Environmental Assessment. The bulking factors were developed from a variety of sources, including a comparative evaluation performed for the project.

The bulking factors for concrete, cement block, and asphalt were based on the assumption that during the interim remedial action the top inch of these media would be removed through scabbling and the remaining materials would be removed by cutting into large blocks for bulk or containerized storage. This approach resulted in an approximate bulking factor of 1.30 (30%). In comparison, the DOE Decommissioning Handbook, DOE/EV/10128-1, dated

November, 1980, assumes a bulking factor or 1.67 (67%) based on all materials being turned into rubble.

Similarly, the project expected a 20% increase in volume for transite sheet and pieces. Although the sheets will stack very closely together when boxed, it was anticipated that there would be sides and ends inside of the containers which would not be well utilized, due to container sizes versus the transite sheet dimensions.

Miscellaneous metal packaging was identified by the DOE Decommissioning Handbook to result in a 2.00 bulking factor (100%). This value was utilized in the Proposed Plan/Environmental Assessment tables for the "Miscellaneous Metal" and "Other" categories, since these materials seemed similar in character.

Values identified for structural steel were based on an assumption that this media would attain the greatest volume increase upon packaging or storage. A bulking factor of 3.00 (200%) was assumed based on the values applicable to the "Miscellaneous Metal" and "Other" categories. This value has not been field verified, but it is expected to result in estimates which are at least indicative of what will be found in actual application.

A reference to the Proposed Plan/Environmental Assessment has been included in this section to detail the location of information pertaining to the bulking factors.

Comment #3

Section 7.3, Page 26, Line 5: The sentence beginning, "A worst-case..." appears to be missing a word. DOE should revise the text.

Response #3

The word "occur" has been added to correct the sentence, which now reads, "A worst-case interim storage situation would only occur if waste generated by the interim remedial action is not dispositioned off-site and storage space is not available in existing storage facilities."

Comment #4

Section A.5, Page A-29, 30, Line 15: Where appropriate, indicate the page number within the text on which the actual revisions and commitments to public comments have been made. This will enhance the readability of Appendix A and help the reader to understand the changes that have been made in the IROD due to public comment.

Response #4

In Section A.5, where a revision in the document is stated, the page number for the respective revision has been included.

The following information was added after the sentence on p. A-21: "See discussion in the Declaration (Description of the Selected Remedy); page 19; and page 33."

The following information was added after the sentence on p. A-21: "See discussion in the Declaration (Description of the Selected Remedy); page 19; and page 33."

Comment #5

Section A.5, Page A-30, Lines 10 and 19: Add to both of these lines "...and will be addressed in the upcoming revision of the Community Relations Plan." This commitment will reflect the intentions of DOE after the IROD has been signed.

Response #5

The suggested language has been added to p. A-21, reading: "The format of this information transfer would be developed with members of the public to comply with their request and will be addressed in the upcoming revision of the Community Relations Plan."

The suggested language has been added to p. A-22, reading: "Specific additional public involvement initiatives are also planned during the RD/RA and implementation phases of the project and will be addressed in the upcoming revision of the Community Relations Plan."

ENCLOSURE 2

REDLINE CHANGE PAGES FOR THE

RECORD OF DECISION

1.0 SITE NAME, LOCATION, AND DESCRIPTION

The Fernald Environmental Management Project (FEMP) or "the site" is located on a 1,050-acre site[1] in a rural agricultural area about 18 miles northwest of downtown Cincinnati, Ohio (Figure 1-1). The site is near the villages of Fernald, New Baltimore, New Haven, Ross, and Shandon, Ohio, located west and south of Ohio State Routes (S.R.) 128 and 126, respectively. The street address of the Fernald site is: 7400 Willey Road, Fernald, Ohio 45030.

The FEMP is a government-owned, contractor-operated federal facility that produced high-purity uranium metal products for the U.S. Department of Energy (DOE) and its predecessor agencies during the period 1952-1989. Thorium also was processed, but on a smaller scale, and still is stored on the site. Production activities were stopped in 1989, and the production mission of the facility was formally ended in 1991.

Approximately 200 buildings and structures are located at the site and are all included in the scope of Operable Unit 3 (OU3). Most of these structures are located within the former Production Area, which occupies about 136 acres near the center of the FEMP site (see Figure 1-2). Most buildings on-site are generally steel frame structures with transite siding, concrete block structures, or pre-engineered facilities with metal siding and roofing. The tallest building on-site is approximately 100 feet high and the tallest structure, the Elevated Water Storage Tank, is about 265 feet high.

Most facilities and structures rest on a relatively flat plain about 580 feet above mean sea level. The elevation slopes slightly toward Paddys Run, a small intermittent stream on the west side of the site. Natural drainage at the FEMP generally flows from east to west, with the exception of the extreme northeast corner, which drains east toward the Great Miami River.

A portion of the FEMP property along the north-south corridor of Paddys Run at the site lies within the 100- and 500-year floodplain. On-site surface waters are confined to Paddys Run and its unnamed tributaries and total approximately 8.9 acres. Results from a site-wide wetlands delineation indicate a total of 35.9 acres of freshwater wetlands on the site. The Great Miami Aquifer is the principal aquifer within the FEMP study area and has been designated a sole-source aquifer under the provisions of the Safe Drinking Water Act.

The land adjacent to the FEMP is primarily devoted to open land use such as agriculture and recreation. There is some commercial activity adjacent to the site such as a panel truss company and several nursery suppliers. However, the majority of commercial activity is generally restricted to the village of Ross, approximately 2 miles northeast of the facility, and along S.R. 128 just south of Ross. Industrial usage is concentrated in the areas south of the FEMP, along Paddys Run Road, in Fernald, and in a small industrial park on S.R. 128 between Willey Road and New Haven Road. Open acreage on the FEMP is currently being leased to local dairies for livestock grazing, but there are no areas within the FEMP boundaries

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[1] As defined by the Amended Consent Agreement (EPA 1991a) and used in this Record of Decision for Interim Remedial Action, the term "site" refers to all areas within the property boundary of the FEMP (1050 acres) and any other areas that received or potentially received hazardous substances, pollutants, contaminants, or hazardous constituents. "Off-site" refers to all areas not included in this definition of "site."

17), and Asbestos Abatement (Removal No. 26). These removal actions are programmatic in nature and represent actions being applied to the site as a whole. Each of these removal actions is connected to the interim remedial action and requires coordination of activities to ensure effective implementation.

Contaminated environmental media, including soils and groundwater in the vicinity of or underlying the OU3 facilities, are being addressed within OU5, which is examining such media on a site-wide basis. Interfaces between OU3 and OU5 will be required to ensure removal of above-, at-, and below-grade facilities in coordination with remediation of environmental media. OU3 interfaces with OUs 1, 2, and 4 are physically minimal due to boundaries established around each operable unit; however, remediation activities and waste storage facilities planning for all operable units are coordinated to maximize the use of available resources and limited space.

The effect of this selected interim remedial action will be to isolate decisions concerning decontamination and dismantlement activities from those concerning the final disposition of wastes and potentially allow decontamination and dismantlement of OU3 structures and facilities to begin four years ahead of the current Amended Consent Agreement schedule. Since the interim remedial action will remove the buildings and structures through decontamination and dismantlement, the final remedial action ROD will not evaluate these technologies or process options. The OU3 RI/FS will focus upon the evaluation of waste treatment technologies, and methods and locations for the final disposition of the OU3 remediation wastes. Through implementation of this interim remedial action and the final remedial action decision, all of OU3 will be remediated. For this document, "remediation waste" is defined as any material generated as a result of the CERCLA interim remedial action and is not meant to necessarily indicate the applicability of the regulatory definition to the material.

In parallel with the completion of the OU3 RI Report, final treatment and disposal options will be considered in the OU3 FS Report. Upon issuing the final OU3 remedial action ROD for treatment and disposition, materials generated during the interim remedial action will be controlled and managed to meet the requirements of the final remedial action ROD in order to provide a total remediation approach. Discussion of this unified remedial strategy will be provided within the RD/RA Work Plan issued subsequent to the final remedial action ROD.

To support this decision, DOE developed a Proposed Plan/Environmental Assessment which evaluated remedial alternatives and documented the preferred alternative for interim remedial action. To provide a NEPA review for the action, the Proposed Plan/Environmental Assessment was written to incorporate NEPA values at the level of an Environmental Assessment. Based on the analyses in the Proposed Plan/Environmental Assessment, DOE has determined that the selected interim remedial action is not a major Federal action significantly affecting the quality of the human environment, within the meaning of NEPA. Therefore, the preparation of an Environmental Impact Statement is not needed and DOE will issue a finding of no significant impact (FONSI).

5.0 SUMMARY OF SITE CHARACTERISTICS

The processes and operations within the former Production Area at the FEMP required the use of a variety of source feed materials and other radioactive and chemical materials for

both production and secondary operations. The production operations also generated a wide variety of waste materials containing both radiological and chemical constituents. During operations at the FEMP, material handling procedures resulted in chemical and radiological contamination within many OU3 facilities. As a result, these facilities may serve as current and future sources of environmental contamination.

Table 5-1 presents the volumes of materials estimated to be within the scope of OU3. All of the materials have been grouped into the major categories listed under media. The second column gives the estimated volumes of materials provided in the FEMP Waste Information Manual (DOE 1993a) and portrays in-place volumes as the materials exist in their current state. The third column represents estimated bulking factors from the Proposed Plan/Environmental Assessment (DOE 1993c) that would apply to in-place volumes after dismantlement actions occur. This results in a total estimated bulked volume as depicted in the fourth column. The bulking factors represent the anticipated increase to the volume of materials as a result of the dismantlement activities.

Table 5-1 Total Volume of OU3 Materials

Media	In-Place Volume (cubic yards)	Bulking Percent (%)	Total Bulked Volume (cubic yards)
Concrete	88,000	130	114,000
Cement Block	11,000	130	14,300
Steel	2,100	300	6,300
Transite	1,500	120	1,800
Other Metal	5,600	200	11,200
Soil/Rubble	36,000	100	36,000
Asphalt	16,500	130	21,500
Other	110,000	200	220,000
Total	270,700		425,100

The following subsections present an overview of contaminant pathways and exposure routes and existing information on chemical, radiological, and mixed waste contamination associated with the OU3 facilities. This summary is based upon data presented in the OU3 RI/FS Work Plan Addendum (DOE 1993d) wherein additional information is available.

5.1 Potential Contaminant Pathways and Exposure Routes

From the sources of contamination in OU3, contaminants could potentially migrate via numerous pathways to reach potential receptors. Each pathway that potentially could contribute significantly to overall risks if OU3 remediation is not undertaken is detailed below.

the final remedial action ROD. Additionally, after decontamination the structures would remain in their current state of structural deterioration with ongoing maintenance activities potentially contaminating areas previously decontaminated.

It is estimated that about 900,000 person-hours would be required to implement Alternative 2. Using an assumption for reasonable funding levels, it is estimated that decontamination activities would take about 4 years and utilize approximately 108 full-time workers. This alternative would cost an estimated $82 million (in 1994 dollars).

7.3 Alternative 3 -- Decontaminate and Dismantle

Alternative 3 primarily involves the decontamination and dismantlement of all OU3 facilities and structures and the interim storage of the resulting wastes until the final remedial action ROD. Implementing Alternative 3 would effectively separate remedial action decisions concerning the decontamination and dismantlement of OU3 structures from decisions concerning material and/or waste treatment and disposition. Generally, waste and material treatment and disposition would be addressed by the ongoing RI/FS process with a decision provided in the final remedial action ROD for OU3. All activities performed will be in compliance with ARARs and health and safety regulations and will follow the principles of ALARA (as low as reasonably achievable).

Generally before implementation of the interim action within a facility, preparatory actions will have been completed. The Safe Shutdown removal action, for example, will probably have completed its assigned actions, the existing drummed wastes and inventories will have been removed previously (either dispositioned off-site or relocated to storage

TABLE 7-1 Potential Decontamination Technologies

Technology	Media	Secondary Waste Stream
Brushing, scraping, wiping	Any solid	Dry residue
Scrubbing (manual or mechanical)	Concrete, metal, plastic, transite	Residue
Scabbling	Concrete	Concrete residue
Vacuuming	Any	Collected residue
Pressurized steam	Concrete, metal	Wet residue
Strippable coating	Any surface	Coating and contaminants
Water jet (high or low pressure)	Concrete, metal, plastic, transite	Contaminated water
Shot blasting	Metals, concrete	Shot and residue
Grit blasting	Metals, concrete	Grit and residue
CO_2 pellet blasting	Concrete, metals, plastic, painted surfaces	Residue
Chemical foams, gels, pastes	Metals	Foams, gels, pastes, and removed contaminants

the removal of any air filtration apparatus and the removal of the roof, exterior walls, and internal structural members.

After above-grade decontamination and dismantlement, foundations, slabs, and pads would be decontaminated or stabilized to minimize further soil contamination. Removal of foundations, slabs, pads, and subsurface utilities (pipes, electrical lines, etc.) would be scheduled to coincide with OU5 remedial actions involving soil excavation and treatment.

Materials resulting from dismantlement of the facilities would be segregated into two groups: one would go to interim storage facilities until the final remedial action ROD for OU3; the other would be containerized and transported off-site. Materials segregated for disposition off-site would either be recyclable/reusable materials or non-recyclable/non-recoverable materials and would be subject to the 10% limitation on the quantity of materials to be dispositioned off-site.

Evaluation factors for the determination of which materials are recoverable, recyclable, or non-recoverable include, but are not limited to, the following: economic considerations, available decontamination and/or treatment technologies, volume of secondary waste generated, monitoring capabilities, applicable contamination limits, availability of uses for the materials, and the availability of disposition options. Materials transported off-site would be recycled or reused to the maximum extent practical. As stated, opportunities for employing resource recovery, recycling, and waste minimization would be factored into the planning process for each activity conducted under the interim remedial action. Materials not capable of being recycled would be dispositioned in accordance with the applicable waste acceptance criteria.

The remaining materials that can not be dispositioned off-site would be placed in interim storage until the final remedial action ROD for OU3 is issued. Depending on the material type, some sorting and packaging might be required for transportation of the materials to interim storage. For example, asbestos insulation from ducting would be wrapped or boxed and structural steel would probably be transported in covered dumpsters by truck. Materials that cannot be recycled or reused and that have no potential treatment would be packaged for final disposition at NTS before being placed in interim storage.

Table 7-2 details the estimated volume of materials from Appendix G of the Proposed Plan/ Environmental Assessment (DOE 1993d) to be addressed by this alternative in the interval period before the final remedial action ROD for OU3. These volumes represent the estimated quantity of material to be managed through interim storage or off-site disposition.

Dust resuspension occurring from material and waste movements on site would be minimized by use of the existing paved roadways and the use of dust control measures, as necessary. Loose materials would be packaged and loads would be covered during transport, as necessary, to reduce the potential for contaminant release and migration. Concrete blocks, structural steel, or other materials which do not have high levels of remaining removable contamination would likely be stored without additional packaging. Specific storage requirements for the various types of wastes and materials that would be generated by Alternative 3 are outlined in the Removal Action No. 17 Work Plan, Improved Storage of Soil and Debris (DOE 1993b).

Table 7-2 Interval Period Bulk Volume[1] Estimates

Media	Stored Volume[2] (cubic yards)	Shipped Volume (cubic yards)	Potential Disposition[3]
Concrete/Cement Block	1,600	0	N/A
Structural Steel	0	600	Recycling
Miscellaneous Metal	800	2,000	Recycling
Equipment	12,600	8,500	Off-Site Disposal
Transite	0	400	Off-Site Disposal
Other	0	5,700	Off-Site Disposal
Decontamination Residues	1,300	1,300	Off-Site Disposal
Total	16,300	18,500	

[1] Volume is based on total bulk volume estimates without applying containerization or compaction factors.
[2] Stored volume indicates materials held in interim storage for potential treatment under the final remedial action ROD.
[3] The anticipated disposition for each media may change due to re-evaluation of potential treatment/decontamination options.

To prevent constraints on the decontamination and dismantlement action due to storage space limitations for the resulting construction debris, a limited quantity of wastes would be shipped off-site for disposition. A maximum of 10 percent of all remediation wastes ~~(see Table 5-1)~~ generated by implementing Alternative 3 (42,500 cubic yards as calculated from Table 5-1) would potentially be shipped off-site for disposition and recycling prior to the final disposition decision being determined by the final remedial action ROD for the majority of wastes in OU3. The 10 percent limitation on waste volumes allowed to be dispositioned off-site refers to 10 percent of the total OU3 volume of remediation wastes generated; this was chosen as a limit which would assure that a final disposition decision would not be biased by this action.

Small quantities of non-recoverable and non-recyclable materials destined for off-site dispositioning would be containerized, using strong-tight containers such as B-25 metal boxes (burial volume of 4 cubic yards) and/or SeaLand containers (burial volume of 50 cubic yards), and shipped off-site by truck for disposition at the NTS. The identification of the NTS in this document does not preclude the use of other licensed disposal facilities once NEPA requirements for these facilities are met. Following NEPA review, these facilities would be considered as options for receipt of interim remedial action wastes.

The shipment of wastes would be to the extent practical to facilitate the progress of the interim remedial action by ensuring the availability of adequate on-site storage. The quantity of non-recoverable/non-recyclable materials estimated to be transported off-site before the final remedial action ROD is approximately 18,500 cubic yards and represents approximately 650 truck shipments over a 3,300-kilometer trip to the NTS. However, this does not preclude the use of rail transport if rail lines become available during the interval period.

The proposed tension support structures are designed only for temporary storage with an intended design life of 25 years, and as such cannot be used for long-term storage. The intent of building these facilities is twofold: for use as an interim or temporary storage area for wastes generated from the action if existing storage space is not available and for use as a staging area to support segregation, packaging, and transportation of materials for disposition. To minimize constructing additional interim storage facilities, available storage space within buildings or on the Plant 1 Pad would be utilized for interim storage or staging to the maximum extent practicable. If storage and staging space is obtained within existing facilities, it would not be necessary to construct all of the planned interim storage structures.

The final decision for material disposal, whether on-site or off-site, to be decided as part of the OU3 final remedial action ROD in 1997, will determine the location for disposition of OU3 remediation wastes including materials in interim storage and the storage structures. A decision for on-site disposition of remediation wastes would preclude the use of the interim storage structures for permanent storage and would require construction of structure(s) specifically to meet the stringent requirements of permanent disposal. Whether the decision is for on-site or off-site disposal, the interim storage structures would be used only long enough to support staging operations for remediation wastes resulting from dismantlement activities. Therefore, the timeframe for use of the structures is dependent upon the final decision for disposition of the OU3 remediation wastes, which is expected to be made in 1997. Once staging is no longer necessary to support remediation waste dispositioning, the structures would be removed as part of the OU3 interim remedial action and the resulting wastes would be dispositioned as part of the OU3 final remedial action.

If existing storage space is unavailable, the design, siting, procurement, construction, and operation of interim storage facilities (approximately five as presently envisioned) would be used to store the demolition debris and secondary remediation wastes generated during the decontamination and dismantlement action. The interim storage facilities as currently envisioned would each be approximately 100 feet wide and 400 feet long and provide approximately 30,000 square feet of usable floor space and approximately 300,000 cubic feet of storage space. These facilities are planned to store wastes generated from the action because the storage space necessary to support the action is not currently available. If storage space within existing buildings or on the Plant 1 Pad becomes available, it would be utilized to the maximum extent possible, as opposed to construction of these storage facilities.

Based upon estimated maximum storage capacity needs, five storage facilities, in addition to the first phase of Removal Action No. 17, the Central Storage Facility (CSF), are presently envisioned. A worst-case interim storage situation would only occur if waste generated by the interim remedial action ~~was~~ is not dispositioned off-site and ~~no~~ storage space ~~was~~ is not available in existing facilities. This would result in the construction of five interim storage facilities. However, it is anticipated that storage space would be available in existing facilities and that a portion of material can be dispositioned off-site resulting in no new additional storage facility needs.

To address the public's concern regarding a potential increase in airborne radionuclide concentrations above natural background levels, stringent engineering controls would be applied to ensure the safety of workers and the general public. Complementing engineering controls used to minimize releases, the extensive air monitoring program at the FEMP would continue to monitor air at both the site perimeter and at nearby locations for the duration of

cleanup activities. Mobile air samplers would be used in work areas to ensure that airborne activity is maintained at low levels as a supplement to the existing air monitoring program. If airborne concentrations are detected above background levels at nearby receptor locations, contingency measures would be implemented to reduce contaminant emissions. For example, work could be stopped, exposed areas covered or otherwise controlled, and engineering measures could be increased prior to restarting work to ensure that nearby members of the general public are not exposed to unacceptable human health risks ~~adversely impacted~~.

Environmental monitoring and ongoing maintenance would be conducted during all decontamination and dismantling activities and during the interim storage period associated with the CSF. Administrative and engineering controls would be utilized throughout implementation of the interim remedial action to control airborne emissions, minimize releases, and maintain a safe work environment.

Using an assumption for reasonable funding levels, preliminary estimates have indicated that the decontamination and dismantlement action would take approximately 16 years to complete and utilize approximately 160 full-time workers to perform the decontamination and dismantlement action and other miscellaneous activities along with approximately 16 workers supporting the interim storage efforts. It is estimated that about 6 million person-hours would be required to implement Alternative 3, not including efforts related to ongoing site operations and maintenance. The cost of this alternative, in 1994 dollars, is estimated at $1,076 million, and includes the decontamination and dismantlement of the OU3 buildings and structures, interim storage of debris, containers, transportation, and disposition of a limited quantity of material and remediation waste at the NTS. This cost does not include the care-taker maintenance costs associated with maintaining the structures each year.

8.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

In this section, Alternatives 1, 2, and 3 are compared to allow selection of a preferred alternative. This comparative evaluation is performed based on the NCP's nine evaluation criteria. These nine criteria fall within three categories: threshold, balancing, and modifying. The threshold criteria are overall protection of human health and the environment and compliance with ARARs. Unless a specific ARAR is waived, each alternative must meet the threshold criteria in order to be eligible for selection. The five primary balancing criteria are long-term effectiveness and permanence; short-term effectiveness; reduction of toxicity, mobility, or volume through treatment; implementability; and cost. State and community acceptance are modifying criteria that shall be considered in remedy selection. These criteria are listed and briefly defined below:

- *Overall protection of human health and the environment* addresses how the alternative, as a whole, achieves and maintains protection of human health and the environment.
- *Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)* addresses how the alternative complies with ARARs and other information from advisories, criteria, and guidance that the lead and support agencies have agreed is "to be considered".
- *Long-term effectiveness* evaluates the long-term effectiveness of alternatives in maintaining protection of human health and the environment after response objectives have been met.

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- *Short-term effectiveness* examines the effectiveness of alternatives in protecting human health and the environment during the construction and implementation of a remedy until response objectives have been met.
- *Reduction of toxicity, mobility, or volume through treatment* evaluates the anticipated performance of the specific treatment technologies an alternative may employ.
- *Implementability* addresses the technical and administrative feasibility of alternatives and the availability of required goods and services.
- *Cost* evaluates the capital and operation and maintenance costs of each alternative.
- *State acceptance* reflects the state's apparent preferences among or concerns about the alternatives.
- *Community acceptance* reflects the community's apparent preferences among or concerns about the alternatives.

OU3 structures have generally exceeded their design life and no use has been identified for them other than support for remedial activities at the site. In time, the structures will pose a safety hazard. Therefore, DOE proposes eventual decontamination and dismantlement of the facilities independent of the interim remedial action implemented. As a consequence, the comparison of Alternatives 1, 2, and 3 presented here assumes eventual decontamination and dismantlement of OU3 facilities. This assumes that if Alternative 3 is not implemented, then decontamination and dismantlement will occur under the final remedial action. The comparative evaluation of the alternatives for interim remedial action is summarized in Sections 8.1 through 8.9.

8.1 Overall Protection of Human Health and the Environment

Without eventual remediation, protection of human health and the environment could not be ensured for the extended future because, over time, contaminants could migrate via groundwater and be released via air to off-site receptors, resulting in possible impacts. Therefore, through either the interim or final remedial action for OU3, each alternative would eventually involve decontamination and dismantlement of OU3 facilities, but at differing time periods. Because remediation of the facilities would ultimately occur, each alternative would be protective of human health and the environment after remediation has begun. ~~Alternative 3 provides a more comprehensive decontamination scheme than the other alternatives evaluated, resulting in the greatest degree of overall protection of human health and the environment.~~

8.2 Compliance with Applicable or Relevant and Appropriate Requirements

The NCP (40 CFR 300.400) identifies two categories of requirements which must be identified by the lead and support agencies for a remedial action, ARARs and TBC criteria. Applicable requirements are those which upon an objective determination specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Relevant and Appropriate requirements are those which, while not applicable to a specific release, may still address problems or situations sufficiently similar to the circumstances of the release or remedial action contemplated and be well-suited to the site.

In addition to ARARs, the lead and support agencies may, as appropriate, identify other advisories, criteria, or guidance to be considered for a particular release. The TBC category consists of advisories, criteria, or guidance that were developed by EPA, other federal agencies, or states that may be useful in developing CERCLA remedies.

Assuming that facilities are eventually decontaminated and dismantled, each alternative would comply with the ARARs identified in Section 10.2 during the decontamination and dismantlement activities. However, during the period before the final remedial action ROD, Alternatives 1 and 2 would allow the buildings to continue to age, weather, and deteriorate, resulting in the potential for public exposure to airborne contaminants and contaminant releases to air, surface water, and groundwater. Therefore, Alternatives 1 and 2 may not adequately comply with ARARs before the final remedial action ROD. However, in accordance with the NCP 300.430 (f)(ii)(C)(1), an alternative that does not meet an ARAR can be selected if the alternative is an interim measure that will become part of a total remedial action that will attain the ARAR.

8.3 Long-Term Effectiveness and Permanence

This criterion addresses the results of a remedial action in terms of the risk remaining at a site after response objectives have been met. For an interim remedial action, no actions are intended to achieve final remediation. For this reason, long-term effectiveness is not meaningful in the context of an interim remedial action. The evaluation of alternatives with respect to this criterion will be performed in the OU3 FS to be completed in support of the final remedial action ROD.

8.4 Short-Term Effectiveness

Each alternative would be effective in protecting human health and the environment during remediation through the use of engineering and administrative controls, assuming that decontamination and dismantlement of OU3 facilities would eventually occur for Alternatives 1 and 2. However, a potential exists for increased risks to human health and impacts to the environment associated with the delayed remediation for Alternatives 1 and 2. Accelerating the decontamination and dismantling activities using Alternative 3 would allow remedial action objectives to be achieved sooner and would provide protection against threats earlier than Alternatives 1 or 2. It is estimated that the implementation of Alternative 3 would allow completion of remediation in the year 2012, in comparison to completion under the final

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10.1 Protection of Human Health and the Environment

The selected interim remedy will be protective of human health and the environment through removal of contaminated structures and facilities and containment of the resulting remediation waste in existing facilities or interim storage facilities until a final decision is reached in the OU3 final remedial action ROD concerning waste disposition. Removal of the structures will eliminate the potential threat of exposure to contaminants in the structures. Short-term threats associated with the selected remedy can be adequately controlled by engineering measures and access restrictions. No adverse impacts are expected from the remedy.

10.2 Compliance with ARARs

The following sections discusses ARARs and Other Requirements that the selected remedy must comply with. The category of Other Requirements represents those laws, rules, or regulations that are not environmental protection standards, but do apply to activities performed at the Fernald site.

10.2.1 Contaminant-, Location-, and Action-Specific Requirements

The selected interim remedy will comply with all ARARs directly associated with the interim remedial action and will be performed in accordance with all pertinent DOE Orders. Listed below are those specific ARARs and TBC criteria that apply to the selected interim remedial action for OU3. The ARARs are grouped according to contaminant-specific, location-specific, and action-specific requirements.

CONTAMINANT-SPECIFIC REQUIREMENTS

Applicable

(1) **Ohio Air Pollution Lead Control Regulations**, Ohio Administrative Code, 3745-71-02, Lead Emissions Limits *[Sets the ambient air quality standards for lead, to be applicable throughout the state of Ohio, at a maximum arithmetic mean of 1.5 micrograms per cubic meter during any calendar quarter.]*

(2) **Ohio Air Pollution Regulations**, Ohio Administrative Code 3745-20-02, -03, -04 and -05, Demolition and Renovation Procedures for Asbestos Emission Control *[Remove friable asbestos materials from a facility being demolished or renovated before any wrecking or dismantling that would break up materials or preclude access to the materials subsequent to removal. Wet and encase friable materials with a suitable leak-tight container.]*

(3) **National Emission Standards for Hazardous Air Pollutants** (40 CFR 61), Subpart H, National Emission Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities *[Emissions of such radionuclides to the ambient air from DOE facilities shall not exceed those amounts that would cause any member of the public in any year an effective dose equivalent to 10 mrem/yr.]*

(4) **National Emissions Standard for Hazardous Air Pollutants** (40 CFR 61, Subpart M, Sections 145, 149, 150 and 153), National Emissions Standard for Asbestos *[Standards for demolition and renovation, asbestos waste disposal.]*

(5) **Ohio Water Quality Standards**, Ohio Administrative Code (OAC) 3745-1-01, 3745-1-04, 3745-1-07, 3745-1-21; Ohio NPDES Permits, OAC 3745-33 *[Sets surface water quality standards for the state of Ohio. Discharges to surface waters must be pretreated to a level which precludes degradation below the minimum standards.]*

Relevant and Appropriate

~~**National Emission Standards for Hazardous Air Pollutants** (40 CFR 61), Subpart H, National Emission Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities *[Emissions of such radionuclides to the ambient air from DOE facilities shall not exceed those amounts that would cause any member of the public in any year an effective dose equivalent to 10 mrem/yr.]*~~

(6) **Ohio Air Pollution Control Regulations**, Ohio Administrative Code, 3745-17-08, Restriction of emission of fugitive dust *[No person shall cause or permit any fugitive dust source to be operated; or any materials to be handled, transported or stored; or a building or its appurtenances or a road to be used, constructed, altered, repaired or demolished without taking or installing reasonably available control measures to prevent fugitive dust from becoming airborne.]*

(7) **Safe Drinking Water Act** (42 USC 300G; PL 93-523), National Primary Drinking Water Regulations (40 CFR 141), Subpart B, Maximum Contaminant Levels (40 CFR 141.11 through .16); Subpart F, Maximum Contaminant Level Goals, (40 CFR 141.50 through .52); Subpart G, National Revised Primary Drinking Water Regulations (40 CFR 141.60 through .63); Ohio Drinking Water Regulations, Public Water System Primary Contaminant Control, OAC 3745-81 *[Sets maximum contaminant levels (MCLs) and non-zero maximum contaminant level goals (MCLGs) for drinking water. These requirements would apply to the interim remedial action if ground water that was used or potentially used as drinking water was impacted by the decontamination and dismantling activities.]*

To Be Considered

(8) **Toxic Substances Control Act**, as amended (15 USC 2607-2629; PL 94-469 et seq.), Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions (40 CFR 761), Subpart G, PCB Spill Cleanup Policy *[Sets cleanup standards for PCB contaminated materials.]*

(9) **Radiation Protection of the Public and the Environment** (DOE Order 5400.5, especially Chapter III) *[Sets limitations for residual concentrations of radionuclides in air in uncontrolled areas.]*

(10) **National Primary Drinking Water ~~Regulations~~Standards**, Maximum Contaminant Levels for Radium-226, Radium-228, and Gross Alpha Particle Radioactivity in Community Water Systems (40 CFR 141.15) and Ohio Drinking Water Regulations, Maximum Contaminant Levels for Radium-226, Radium-228, and Gross Alpha Particle Radioactivity in Community Water Systems (OAC 3745-81-15); National Primary Drinking Water Standards, Maximum Contaminant Levels for Beta Particulate and Photoradioactivity from Man-made Radionuclides in Community Water Systems (40 CFR 141.16) and Ohio Drinking Water Regulations, Maximum Contaminant Levels (OAC 3745-81-16)~~Radionuclides (56 CFR 33050, July 18, 1991, Proposed Rule)~~ *[Sets MCLs for radionuclides in drinking water.]*

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(11) **Federal Water Pollution Control Act**, Clean Water Act (33 USC 1251-1376), Water Quality Criteria (40 CFR 122) *[Sets limits on the concentration of contaminants in surface water for the protection of human health and aquatic life. Federal water quality criteria are nonenforceable guidelines used by states to set water quality standards for surface water. These criteria may be considered if the decontamination and dismantling activities impact surface waters.]*

LOCATION-SPECIFIC REQUIREMENTS

Applicable

(12) **Protection of Wetlands** (Executive Order 11990; 10 CFR 1022, 40 CFR Part 6) *[Federal agencies must avoid, to the extent possible, any adverse impacts associated with the destruction or loss of wetlands and the support of new construction in wetlands if a practicable alternative exists.]*

(13) **Nationwide Permit Program** (33 CFR 330) *[Nationwide permits are a type of general permit issued by the US Army Corps of Engineers, in particular, under the Clean Water Act section 404.]*

Relevant and Appropriate

None

To Be Considered

None

ACTION-SPECIFIC REQUIREMENTS

Applicable

(14) **Noise Control Act**, as Amended (42 USC 4901, et seq.); Noise Pollution and Abatement Act (40 USC 7641, et seq.) *[The public must be protected from noises that jeopardize health and welfare.]*

(15) **Solid Waste Disposal Act**, as amended (42 USC 6901, et seq.), Solid Wastes (40 CFR 262.11); Ohio Hazardous Waste Management Regulations, Ohio Administrative Code 3745-52-11 *[Wastes must be evaluated (characterized) to determine if it is a hazardous waste, either listed or characteristic.]*

(16) **Solid Waste Disposal Act**, as amended (42 USC 6901, et seq.), Solid Wastes (40 CFR 264), Subpart B, General Facility Standards (Ohio Hazardous Waste Management Regulations, Ohio Administrative Code (OAC) 3745-54-10 through -18); Subpart C, Preparedness and Prevention (OAC 3745-54-30 through -37); Subpart D, Contingency Plan and Emergency Procedures (OAC 3745-54-50 through -56); Subpart E, Manifest System, Record keeping and Reporting (OAC 3745-54-70 through -77) *[Establishes general requirements for storage and treatment facility location, design and inspection, waste compatibility determination, emergency contingency plans, preparedness plans, and worker training.]*

(17) **Solid Waste Disposal Act**, as amended (42 USC 6901, et seq.), Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities (40 CFR 264) Subpart X for miscellaneous units; Ohio Hazardous Waste Management Regulations, Ohio Administrative Code 3745-57 *[Sets environmental performance standards and post closure requirements for miscellaneous units.]*

(18) **Solid Waste Disposal Act**, as amended (42 USC 6901, et seq.); Solid Wastes (40 CFR 264), Subpart I, Use and Management of Containers (Ohio Hazardous Waste Management Regulations, Ohio Administrative Code (OAC) 3745-55-70); Subpart J, Tank Systems (OAC 3745-55-90); Subpart L, Waste Piles (OAC 3745-56-50 through 3745-56-60) *[Containers used to store hazardous waste must be closed and in good condition. Tank systems must be adequately designed and have sufficient structural strength and compatibility with the wastes to be stored or treated to ensure that it will not collapse, rupture, or fail, including secondary containment. Waste piles must be designed to prevent any migration of wastes out of the pile into adjacent subsurface soil or groundwater or surface water at any time during its active life.]*

(19) **Solid Waste Disposal Act**, as amended (42 USC 6901, et seq.), Standards for Hazardous Waste Generators (40 CFR 262) and Standards for Hazardous Waste Transporters (40 CFR 263); Ohio Solid Waste Management Regulations, Ohio Administrative Code 3745-52 and -53, respectively *[General requirements for packaging, labelling, and marking hazardous wastes for temporary storage and transportation.]*

(20) **Solid Waste Disposal Act**, as amended (42 USC 6901, et seq.), Standards for Owners and Operators of Interim Status Hazardous Waste Treatment, Storage and Disposal Facilities (40 CFR 265), Subpart G, Closure and Post-Closure; Ohio Hazardous Waste Management Regulations, Ohio Administrative Code 3745-66 *[Sets general requirements for closure of interim status hazardous waste management units.]*

(21) **Solid Waste Disposal Act**, as amended (42 USC 6901, et seq.), Containment Buildings, (40 CFR 264), Subpart DD *[Hazardous waste and debris may be placed in units known as containment buildings for the purpose of interim storage or treatment.]*

Relevant and Appropriate

(22) **Toxic Substances Control Act**, as amended (15 USC 2607 et seq., PL 94-469 et seq.), Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions (40 CFR 761), Subpart A, General *[Inspection and testing are required for material contaminated with PCBs.]*

(23) **Solid Waste Disposal Act**, as amended (42 USC 6901, et seq.), Solid Wastes (40 CFR 264 Subpart S), Corrective Action Management Unit *[Allows remediation waste treatment, storage and disposal within a corrective action management unit which can encompass one or more units or areas where contaminants are found.]*

To Be Considered

(24) **Radiation Protection of the Public and the Environment** (DOE Order 5400.5, Chapter II, 5, incorporates by reference CERCLA Section 120 and UMTRA Title I) *[Structural debris that is released from DOE facilities for reuse without radiological restrictions shall be decontaminated to specified levels.]*

(25) **Radioactive Waste Management** (DOE Order 5820.2A, Chapter III) *[Sets external exposure limits to any member of the public, requirements for releases to the atmosphere, and an environmental monitoring program.]*

(26) **Radiation Protection of the Public and the Environment** (DOE Order 5400.5, Chapter IV, Section 6) *[Sets standards for storage facility for waste containing uranium, thorium, and their decay products.]*

(27) **Effluent Control and Monitoring** (DOE Order 6430.1A, Section 1324-7) *[Exhaust outlets that may contain fission products shall be provided with two monitoring systems.]*

(28) **Solid Waste Disposal Act**, as amended (42 USC 6901, et seq.), Solid Waste, (40 CFR 264 subpart S), Corrective Action Rule (proposed at 55 FR 30797) *[Establishes cleanup criteria for RCRA solid waste management units.]*

10.2.2 Other Requirements

In addition to ARARs, there are other requirements from Occupational Safety and Health Administration (OSHA), Department of Transportation (DOT), and DOE Orders with which this interim remedial action must comply. These other requirements include standards which the EPA has determined not to be standards for environmental protection (for example, worker protection and off-site actions) and are therefore not ARARs. EPA classifies worker protection, particularly OSHA's 29 CFR 1910.120, as a requirement rather than an ARAR because: (1) it cannot be waived; and (2) it is not an environmental standard.

This listing of 'other requirements' is not an all inclusive list of requirements. There are additional requirements which could result from off-site actions and would be required under CERCLA Section 121(d)(3). Under this requirement, the CERCLA Off-Site Rule, activities that occur off-site shall be at facilities that are in compliance with RCRA, Toxic Substances Control Act, and other environmental laws and applicable state requirements. Determinations under this rule will be made during the interim remedial action. Listed below are only those other requirements that apply to the selected interim remedial action for OU3.

Other Requirements

(1) **Radiation Protection for Occupational Workers** (DOE Order 5480.11, Chapter 9) *[This requirement establishes DOE radiation protection standards to ensure protection of the worker from ionizing radiation. The requirements set forth in this order require the establishment of an ALARA policy, radiation protection standards for internal and external exposure for occupational workers, planned special exposure, radiation protection standards for internal and external exposure to minors and students, radiation protection standards for public entering a controlled area, and various procedural requirements.]*

(2) **Radiation Protection Rules**, Ohio Administration Code; Chapter 3701-38: General Radiation Protection Standards; Rules 3701-38-13, 3701-38-15 and 3701-38-16 *[Individuals in restricted areas may not be exposed to airborne radioactive material in average concentrations in excess of those listed.]*

(3) **Occupational Safety and Health Administration Standards** (29 CFR 1910; 1910.1000), Subpart Z, Toxic and Hazardous Substances; 1910.1025, Lead; 1910.1028, Benzene; 1910.1101, Asbestos; 1910.1018, Inorganic arsenic *[Sets worker exposure limits to toxic and hazardous substances and prescribes the methods for determinations of concentrations.]*

(4) **Occupational Safety and Health Administration Standards; Occupational Health and Environmental Control** (29 CFR 1910; 1910.95), Subpart G, Occupational Noise Exposure *[Sets limits of worker exposure to noises during the performance of their duties.]*

(5) **Hazardous Material Transportation Act**, as amended (49 USC 1801-1812); Solid Wastes (40 CFR 263), Standards Applicable to Transportation of Hazardous Waste *[Adopts certain DOT standards and requires compliance with the manifest system for hazardous wastes.]*

(6) **Hazardous Materials Regulations**; Shippers -- General Requirements for Shipments and Packaging (49 CFR 173), Subpart I, Radioactive Materials *[Establishes requirements for the type and strength of various packaging used for the shipment of hazardous and radioactive materials.]*

(7) **Occupational Safety and Health Administration Standards for Hazardous Waste Operations and Emergency Response** (29 CFR 1910.120) *[Sets the training standards for workers conducting hazardous waste operations and emergency response.]*

10.3 Cost-Effectiveness

OU3 facilities and structures have generally exceeded their design life and no use has been identified for them other than support for remedial activities at the site. In time, the facilities will pose a safety hazard. Therefore, DOE will propose eventual decontamination and dismantlement of the facilities independent of the interim remedial action implemented. By implementing the selected remedy as an interim remedial action, the remediation process is accelerated by nearly four years. The selected interim remedy is cost effective because it reduces costs associated with the continued operation and maintenance of the site; it costs less overall than the other alternatives (coupled with assumed eventual decontamination and dismantlement) and it is proactive toward protection of the public through early risk reduction.

10.4 Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

Because the selected remedy is an interim remedial action rather than a final remedial action, the selected remedy does not utilize permanent solutions or consider alternative treatment technologies. The selected remedy provides the best balance of trade-offs among the alternatives with respect to the balancing criteria, given the limited scope of the action. It does not satisfy the statutory preference for remedial actions that employ treatment to reduce toxicity, mobility, or volume as a principal element of the action. However, permanent solutions will be utilized in the final remedial action and alternative treatment (or resource recovery) will be utilized to the maximum extent practicable. The final remedial action will satisfy the statutory preference for treatment as a principal element or will provide justification for not meeting the preference. During the interim remedial action, resource recovery through recycling and reuse will be utilized to the maximum extent practicable.

The selected interim remedy best meets the evaluation criteria by addressing risks to human health and the environment, accelerating the remediation process by nearly four years, and reducing overall costs associated with OU3 remediation. DOE and EPA believe the selected interim remedy will protect human health and the environment. The community supports the selection of this interim remedy.

- Conclusions drawn from evaluations or assessments provided in the Proposed Plan/Environmental Assessment,
- Safety of the work performed, or
- The enforceability of the decision reached.

At the end of each issue statement, the specific comment letter(s) or oral comment(s) in which the issue was raised is identified by an alphabetic identifier. Table A-1 provides a cross-reference of the alphabetic identifiers with the commentors. These comments are included in Appendix B and are part of the administrative record for this action. Significant comments that were not considered to be issues have been addressed in Section A.6 with summary explanations.

Issue 1

The definition of the term "interim storage" should be presented within the Record of Decision for Interim Remedial Action. (Comments H, I, J, N, and O.)

Response: For the interim remedial action, the definition of the time frame for interim storage is the period from the initiation of the interim action until the decision is reached for the final remedial action. In reality, once the final decision is reached, all materials in storage cannot immediately be removed for treatment or disposition. Some time will be required for the development of the treatment and/or disposal facilities before interim stored materials can be removed. Because the final treatment and disposal option for OU3 is not selected at this time (and will not be until the OU3 final remedial action Record of Decision [ROD], which is due in 1997), an estimate of the time frame for remediation of stored materials cannot be made until after the final remedial action decision. The time frame for removal of these materials and the dismantlement of the interim storage facility will be addressed in the Remedial Design/Remedial Action (RD/RA) Work Plan for the final remedial action.

Issue 2

The interim action should make the maximum effort to utilize existing storage facilities and areas rather than construct new storage facilities. To support this, DOE should make a commitment to manage and ship existing waste residues to obtain space for interim storage. (Comments I, K, N, and O.)

Response: It is the intent of DOE to construct interim storage structures for storage of the interim remedial action wastes only if necessary. Available storage space within the Production Area will be utilized to the maximum extent practicable. To address the concern over the construction of new storage facilities, the following statements have been added to the IROD in Section 7.3 under the description of Alternative 3 (Decontaminate and Dismantle):

> The proposed tension support structures are designed only for temporary storage with an intended design life of 25 years, and as such cannot be used for long-term storage. The intent of building these facilities is twofold: for use as an interim or temporary storage area for wastes generated from the action if existing storage space is not available and for use as a staging area to support segregation, packaging, and transportation of materials for disposition.

public's request for accelerated remediation of the site. DOE appreciates the support expressed in these letters and looks forward to continuing to work with the nearby community in an open and productive manner as the cleanup proceeds in the most effective and expeditious manner possible.

A.5 Summary of Responsiveness to Public Comments

This section represents a summary of issue responses that have resulted in either a revision to the OU3 interim remedial action ROD, or in significant additional commitments by DOE to the public during the implementation of the interim remedial action.

Revisions/Commitments

- Maximize utilization of existing structures at the site for the purposes of interim storage and staging to avoid construction of new structures solely for these purposes. Compliance with this request hinges on the ability of the site to remove in the near-term significant quantities of waste inventory currently in storage in site structures and to comply with appropriate storage requirements for the remediation wastes.

  The interim remedial action ROD provides additional commitment with respect to this issue. See discussion in the Declaration (Description of the Selected Remedy); page 19; and page 33.

- Guarantee that interim storage does not inadvertently become long-term storage. Since many of DOE's own orders and various regulations and legal agreements are in place to assure this cannot happen, it is unlikely that it could become long-term storage; however, this is a concern of the local public and is recognized as a sensitive issue which is addressed in the interim remedial action ROD.

  The interim remedial action ROD provides additional commitment and explanation with respect to this issue. See discussion in the Declaration (Description of the Selected Remedy); page 19; and page 33.

- Provide the local public with regular air monitoring information updates representing the impacts of ongoing remediation projects. The format of this information transfer would be developed with members of the public to comply with their request and will be addressed in the upcoming revision of the Community Relations Plan.

  Interim remedial action ROD language is not affected by this commitment.

- DOE concurs that continued emphasis on removal of waste from the site is important to allow the interim remedial action to proceed as planned, and is committed to expediting this process.

  Interim remedial action ROD language is not affected by this commitment.

- DOE commits to maximize the public involvement in the environmental restoration process through information in the public reading room and updates in fact sheets and monthly reports. Specific additional public involvement initiatives are also planned during the RD/RA and implementation phases of the project and will be addressed in the upcoming revision of the Community Relations Plan.

  Interim remedial action ROD language is not affected by this commitment.

- The interim remedial action ROD represents the fulfillment of the DOE commitment to expedite the remediation of the FEMP, and specifically OU3.

  Interim remedial action ROD language is not affected by this commitment.

A.6 Summary of Comments Not Resulting In Issues

During the public comment period for the proposed interim remedial action, the project received several comments which were either not directly related or relevant to the action, or were of a more minor nature. Response to these unrelated comments can be handled within the regular FEMP programs for public involvement and education. Comments discussed below were not considered to be significant comments with respect to the decision document and are addressed below.

Commentor E questioned the scope of Alternative 2. The commentor incorrectly assumes the decontamination actions under Alternative 2 and 3 differ in magnitude and scope. The commentor's proposal would generate significant volumes of waste to disposition without removing the OU3 structures. In addition, given the processing activities that occurred at this site for 37 years, it would be virtually impossible to perform a decontamination to the extent that allows an entire facility to be "free released". For this reason, this option was not examined.

Commentor G indicated that monitoring and maintenance are not mentioned within the scope of the preferred alternative. This specific information was not included in the fact sheet, but is contained in the description of the alternative within the Proposed Plan/Environmental Assessment. Additionally, Removal Action 17, upon which the design and operation of interim storage facilities will be based, requires continuous monitoring and maintenance.

Commentor H requested that accurate real-time monitoring techniques be developed. Real-time monitoring, which would provide quantitative results on a demand basis, is not currently possible when monitoring for airborne uranium and thorium. Due to current technology limitations, "real-time" monitoring for airborne uranium and thorium will probably not be available in the near future. This is due to the short-lived radon daughters that are present in the ambient air, which interfere with accurate alpha radiation detection.

Commentor L questioned the reference to the average annual dose to a U.S. individual of 300 millirem per year. The 300 millirem dose per year reference is the dose that an average person living in the United States receives each year from natural background, and is unrelated to the interim remedial action. This apparent misunderstanding will be discussed with the commentor.