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U-005-456 .2

OPERABLE UNIT 3 REMEDIAL DESIGN/REMEDIAL ACTION WORK PLAN FOR INTERIM REMEDIAL ACTION AND BUILDING 4A IMPLEMENTATION PLAN COMMENT RESPONSE PACKAGE (ALSO CONTAINS CHANGE PAGES FOR RD/RA WORK PLAN VOL 2 OF 2) - (GOES WITH U-005-451.4)

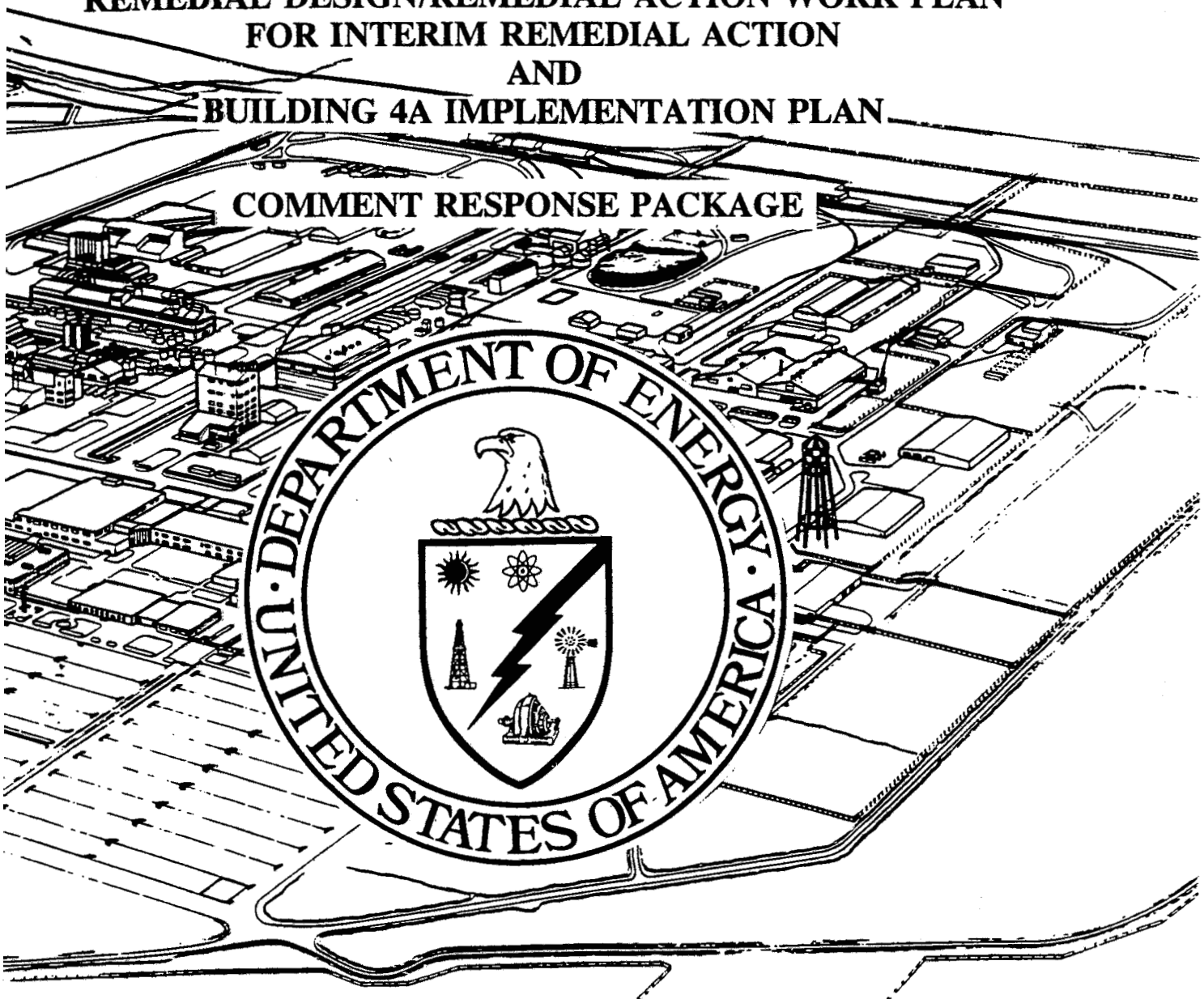
12/15/94

DOE-FN EPAS
125
RESPONSES

OPERABLE UNIT 3

REMEDIAL DESIGN/REMEDIAL ACTION WORK PLAN FOR INTERIM REMEDIAL ACTION AND BUILDING 4A IMPLEMENTATION PLAN

COMMENT RESPONSE PACKAGE



DECEMBER 1994

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

U.S. DEPARTMENT OF ENERGY
FERNALD FIELD OFFICE

OPERABLE UNIT 3

REMEDIAL DESIGN/REMEDIAL ACTION WORK PLAN FOR INTERIM REMEDIAL ACTION AND BUILDING 4A IMPLEMENTATION PLAN

COMMENT RESPONSE PACKAGE

DECEMBER 1994

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

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Introduction

This package has been prepared in response to USEPA and Ohio EPA (OEPA) comments provided for the September 19, 1994 submittal of the Draft Remedial Design/Remedial Action Work Plan and Building 4A Implementation Plan. The responses and revisions contained in this package result from the comments received from USEPA on November 10, 1994, and OEPA on November 17, 1994, and reflect discussions with both Agencies through a telephone conference on November 28, 1994 and a meeting held on December 6, 1994. Section 1 of this submittal includes the a reiteration of USEPA and OEPA comments to the OU3 RD/RA Work Plan (Volume 1) and Support Documents (Volume 2) and DOE responses. Section 2 includes Table 1 and 2 which identify affected or otherwise revised text for Volume 1 of the RD/RA Work Plan. Section 2 also includes affected redline/strikeout changed pages for Volume 2 of the RD/RA Work Plan.

Section 3 of this submittal include a reiteration of USEPA and OEPA comments to the Building 4A Implementation Plan and DOE responses. Section 4 includes Tables 3 and 4 which identify affected or otherwise revised text for the Building 4A Implementation Plan. Sections 2 and 4 of this submittal includes a discussion that highlights unilateral modifications to the September 19, 1994 Draft RD/RA Work Plan and the Building 4A Implementation Plan, respectively. Table 2 was included in Section 2 with the discussion on unilateral modifications to the RD/RA Work Plan to cross-reference their location in the revised draft RD/RA Work Plan. Table 4 was included in Section 4 with the discussion on unilateral modifications to the Building 4A Implementation Plan to cross-reference their location in the revised draft Building 4A Implementation Plan. For both of these tables, editorial changes that have only minor impacts on the content of these documents have not been noted.

Accompanying this package is the Draft Final of Volume 1 of the OU3 RD/RA Work Plan for Interim Remedial Action, and the Draft Final of the Building 4A Implementation Plan.

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Section 1

USEPA and OEPA Comments on the OU3 Remedial Design/Remedial Action Work Plan and DOE Comment Responses

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Section 1 -- USEPA and OEPA Comments and DOE Comment Responses

The following section includes a reiteration of the USEPA and OEPA comments with corresponding comment responses by DOE. If a revision was made to the RD/RA Work Plan, the comment response will refer to Section 2 of this comment response package wherein Table 1 identifies the affected pages. For Volume 1 of the RD/RA Work Plan, these affected pages are contained within the Draft Final version submitted with this package. Because of magnitude of the changes, redline/strikeout was not used for the revised Volume 1, rather an attempt was made to clarify the changes in the response and direct the reader to a specific location where the revised language can be found. The comment responses reflect the telephone conference discussion held between USEPA, OEPA, DOE, and FERMCO on November 28, 1994 and the meeting between USEPA, OEPA, DOE, and FERMCO on December 6, 1994.

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Section #: NA *Page #: NA* *Line #: NA*
Original General Comment #: 1
Comment: The materials management strategy should be clearly linked to the storage and disposition of material generated from dismantlement activities (primary materials) without including the wastes generated during the remediation activities (secondary materials). The management of primary materials should be the responsibility of the Department of Energy (DOE). The secondary materials management should be the responsibility of the remediation subcontractor because the type and amount of secondary material generated will depend on the methods of dismantlement and decontamination used by the subcontractor.

Response to General Comment #1

DOE has the overall responsibility for performance of the interim remedial action, including the management of all materials generated, both primary and secondary. Since many of the secondary waste streams will have low-level radioactive components, it is unlikely that the remediation subcontractors will have the options for disposition of these materials. It is felt, therefore, that the focus of the RD/RA Work Plan needs to continue to reflect the management of both types of materials, without current regard to whether any of these materials may eventually be handled by subcontractors. Minimization of all wastes at the FEMP will continue to be a goal of the site.

As a part of this responsibility, DOE agrees that there should be a concerted effort on controlling the types and amounts of secondary material generated, and that the subcontractor should bear a large part of the responsibility in this matter. This responsibility will be imparted upon the subcontractor through the performance specifications, which will include provisions to minimize the quantities and types of secondary wastes generated by the remediation subcontractor. These specifications will apply to all potential decontamination and dismantlement methods proposed by the remediation subcontractor. Sections 3.4.3 and 4.5.1 of the RD/RA Work Plan have been revised to more specifically reflect the FEMP's emphasis on waste minimization. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that address this comment. In addition, the performance specifications for the Building 4A project have been included as Appendix C to the RD/RA Work Plan, to provide an example of the direction given to the subcontractor.

Responses to General USEPA Comments on the OU3 Remedial Design/Remedial Action Work Plan

Section #: NA *Page #: NA* *Line #: NA*
Original General Comment #: 2
Comment: The interim remedial action (RA) is primarily related to the dismantling of structures that have been subjected to inventory removal and safe shutdown. Therefore, the sampling and analysis program should be directed toward the disposition of material instead of soil and water sampling. Selecting disposal facilities that can handle the material that will not be shipped to the Nevada Test Site and establishing waste acceptance criteria for these facilities will streamline the sampling and analysis program. This effort will reduce the time and money required for completing the interim RA, and should be completed prior to initiating the interim RA.

Response to General Comment #2

Agreed. The primary objective of the interim remedial action is the decontamination and dismantlement of the OU3 components, and the interim storage and limited disposition of materials generated during the interim action. The final Record of Decision will then provide for the final means of treatment/disposition of the OU3 decontamination and dismantlement materials. As such, the sampling and analysis efforts should be directed toward supporting decontamination, dismantlement, interim storage, and that limited disposition. This is, in fact, discussed in Sections 2 and 3 of the Sampling and Analysis Plan (SAP).

Waste acceptance criteria for those facilities available at the time of submittal of the draft RD/RA Work Plan, were addressed in the SAP. A note provided in Table 2-1 of the SAP states that as other facilities are selected for disposition, they will be added to the list of potential facilities to be considered. In these instances, the SAP would be amended to include sampling and analysis necessary to support these disposition options. Until that time, efforts will be made to keep all potential options in sight when undertaking the sampling so as to make later decision-making easier, while ensuring that time and costs are being used effectively. Since the scope of the OU3 final remedial action includes the treatment and final disposition of remedial action wastes, the forthcoming OU3 Feasibility Study Report and Proposed Plan will contain much more information in this area and will also provide a more detailed basis for material handling, segregation, and packaging with respect to final disposition options.

It should be noted that as of the publication of the September 1994 Draft RD/RA Work Plan, the only facility that had been approved for off-site disposal of contaminated wastes from the OU3 interim remedial action was the Nevada Test Site. Subsequently, a DOE-wide contract has been executed with the Envirocare of Utah, Inc. for disposal of mixed wastes at their

Clive, Utah facility. Other than local municipal sanitary landfills for free-released material, no other prospective off-site disposal facilities have been identified as of this date. In keeping with the intent of the RD/RA Work Plan and the SAP, as discussed above, Sections 2 and 3 of the SAP have been revised to incorporate discussions on the waste acceptance criteria for Envirocare. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that address this comment.

Section #: NA *Page #: NA* *Line #: NA*
Original General Comment #: 3
Comment: Coordination between operable unit (OU) 3 and OU5 should focus on the material generated during dismantlement at and below grade. Because contaminated soil and groundwater will be the focus of OU5 activities, the environmental monitoring program for OU3 should describe the monitoring of air emissions and water quality resulting from decontamination of structures and equipment.

Response to General Comment #3

Section 3.2.2 and Section 3.5.4 of the RD/RA Work Plan focus primarily on the coordination efforts that will be made to allow OU5 to access material generated (e.g., contaminated soils) during at- and below-grade dismantlement. The OU3 environmental monitoring program is detailed in the RD/RA Work Plan (Sections 3.7.1, 3.7.2, and 3.7.3) and in the SAP (Sections 3.4.1, 3.4.2, and 3.4.3) which describe to the extent possible, monitoring of air emissions and water quality resulting from decontamination and dismantlement operations, both above-grade and below-grade. Water generated during decontamination and dismantlement operations will be characterized to ensure compatibility with the AWWT facility capabilities prior to transfer. If incompatible, waste waters would be pre-treated, or otherwise disposed of. As is evident throughout the document, close coordination between OU3 and OU5 activities is envisioned throughout the RD/RA program. Further emphasis has been added to the RD/RA Work Plan and SAP on OU3/OU5 coordination efforts. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that address this comment.

VOLUME 1

Section #: 3.3.6 *Page #: 3-27* *Line #: 12 to 17*
Original Specific Comment #: 1
Comment: The use of shape charge demolition is mentioned for buildings that cannot be safely dismantled using conventional dismantling and demolition techniques. The potential for misfires and the dangers associated with the use of explosives in buildings located in close proximity to other structures should be carefully considered in selecting and using this method of demolition.

Response to Specific Comment #1

The subject reference to shaped charges was intended purely as an example of a method of dismantlement which might be employed. This comment has been acknowledged, however, and will be addressed by expressly stating that criteria such as those identified in the comment will be required for selection of any method of dynamic dismantlement. In fact, the dismantlement of Plant 7 (Removal No. 19) included the use of shaped charges only after careful evaluation of potential impacts on adjacent structures and infrastructure. Interestingly, that dismantlement effort was successfully performed within 25 feet of other structures. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that addresses this comment.

Section #: 3.4.1.4 *Page #: 3-37* *Line #: 15 to 20*
Original Specific Comment #: 2
Comment: The text states that material segregation categories are based on the ultimate disposition of the debris or waste materials. The waste acceptance criteria for nonhazardous waste and hazardous waste landfills, and criteria for recycling, reuse, or free-release should be established and form the basis for material segregation.

Response to Specific Comment #2

As explained in the response to General Comment #2, only NTS, Envirocare of Utah, and municipal landfills are available off-site disposal facilities for the interim remedial action. This may change, however, as was the situation for Envirocare, with the RD/RA Work Plan and supporting plans to be changed accordingly. The RD/RA Work Plan does address recycling and reuse, although waste acceptance criteria are not specifically identified since these are generally developed on a project-by-project basis. Text has been added to Section 3.4.1.4 of the RD/RA Work Plan to recognize the general criteria that have been developed for recycling, reuse, and free-release of materials. Also, this information has been more clearly

stated in Section 3.2.3 of the SAP along with the statement that when additional disposal facilities are identified, additional waste acceptance criteria will be defined.

It should be noted that the guidance contained in Appendix A of the RD/RA Work Plan was developed to facilitate segregation of material for these disposition options and any disposal option that may be identified at a future date during the interval period. Text has been added to the introductory discussion on material management (Section 3.4.1) that clearly states that the material management program for the OU3 interim remedial action is primarily structured to facilitate disposal of specific materials at NTS, Envirocare of Utah, and municipal landfills, treatment of materials for release or recycling, and the segregation and interim storage of all remaining material for future disposition. Furthermore, the disposition options described in Appendix A have been revised to include the identity of the off-site disposal facilities that have been identified as of this date. It should also be noted that the ongoing OU3 Feasibility Study (FS Report due to USEPA on September 11, 1995) is currently working towards identifying waste acceptance criteria for all OU3 material disposal options and that decontamination and dismantlement projects which follow issuance of the OU3 final Record of Decision will require characterization of material to determine compliance with applicable waste acceptance criteria. DOE believes that the data/information collection approach detailed in Section 3.4.1 of the RD/RA Work Plan and Section 2 of the SAP, and the material segregation strategy outlined in Appendix A will facilitate the disposition of materials during both the interval period and after issuance of the OU3 final remedial action ROD. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that address this comment.

Section #: 3.5.2 *Page #: 3-44* *Line #: 14 to 16*
Original Specific Comment #: 3
Comment: The text states that the OU3 final RA will address the treatment and disposition of materials and may therefore, impact the performance of decontamination and dismantlement activities. The work plan should clearly identify the schedule and scope of the OU3 final RA, and how it relates to OU5 activities and the OU3 interim RA. Impacts of the OU3 final RA on the performance of decontamination and dismantlement activities should be detailed.

Response to Specific Comment #3

It seems that the statement, "...performance of decontamination and dismantlement activities...", was interpreted to mean that the *physical activities* themselves may be impacted

by the OU3 final remedial action. The statement was intended to relate that the scheduling of components for remediation *may* be impacted *if* the requirements for material disposition under the OU3 final ROD cause a delay in the rate at which materials could be generated. Under this unlikely scenario, action would have to be taken to provide for additional interim storage capacity before further remediation could occur. The work would, however, be expected to be impacted positively as well, due to the establishment of final disposition decisions and the resulting segregation, handling, and packaging requirement which become part of the decontamination and dismantlement activities. Section 3.5.2 has been revised to clarify this potential impact. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that addresses this comment.

Although the identification of a schedule and detailed scope of the OU3 final RA (beyond the general description of treatment and disposal) and the relation of those activities to OU5 activities is not yet available, it is safe to state, for all necessary coordination issues, that the OU3 final RA activities will follow the remediation schedule which will be established in the OU3 RD Prioritization and Sequencing Report (due to USEPA on March 17, 1995). In that respect, there would be no expected difference relative to the relationship between the OU3 final RA schedule and the OU5 activities, than that relationship posed in Section 3.5.4 between the OU3 interim RA and OU5 activities.

Section #: 3.7.1.2 *Page #: 3-61* *Line#: 12 to 14*
Original Specific Comment #: 4
Comment: The text states that if a contaminant release or activity occurs, then OU5 personnel and other appropriate divisions will be alerted immediately. The sampling and analysis to be conducted by OU5 personnel and its relation to the OU3 sampling and analysis program should be described or referenced.

Response to Specific Comment #4

It is agreed that Section 3.7.1 should reference the OU5 groundwater monitoring program. Since the OU5 groundwater monitoring program is detailed and further referenced in Section 3.4.2 of the SAP, a statement has been added to Section 3.7.1.2 to identify that this information is presented in the SAP. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that addresses this comment.

Section #: 4.5 *Page #: 4-5* *Line #: 9 to 15*
Original Specific Comment #: 5
Comment: The remedial design tasks involve a low degree of uncertainty because inventory removal and safe shutdown activities will have been completed. Therefore, the intermediate design task may not be necessary for many buildings or structures. The preliminary design should be submitted to the regulatory agencies for review, and based on the review comments, a pre-final design can be prepared. The pre-final design should contain the implementation plan.

Response to Specific Comment #5

As agreed in the December 6, 1994 meeting between USEPA, OEPA, and DOE, the development and submittal of an implementation plan is acceptable in lieu of preliminary, intermediate, and pre-final design submittals. The basis for preparing and submitting implementation plans in lieu of remedial design documents is due to the similar nature of the action for each complex, the use of performance specifications that will be common from project to project, and the lack of specificity for components addressed by a design specification package. By utilization of an implementation plan, the key elements of design are incorporated in textual form into a description of the overall remediation approach for a project. Specific enhancements have been made to the implementation plan, as noted in responses to specific comments in Section 3 of this document, as agreed in the December 6, 1994 meeting.

VOLUME 2

Sampling and Analysis Plan

Section #: 2.2.1 *Page #: 2-10* *Line #: 1 to 5*
Original Specific comment #: 6
Comment: The text states that the proposed sampling program outlined in this document along with process knowledge and other available information is believed to be sufficient to ensure effective segregation of materials. The goal of the OU3 interim RA should be to maximize recycling, reuse, or free-release of recoverable materials. Hence, waste acceptance criteria for off-site disposal and criteria for recycling, reuse or free-release should be the basis of the sampling program.

Response to Specific Comment #6

The goal of the OU3 interim remedial action is to safely decontaminate and dismantle all OU3 components in a timely, efficient, and cost-effective manner which assures compliance with all ARARs and which will be consistent with the alternatives being considered for the OU3

final remedial action. Although maximizing recycling, reuse, and free-release of recoverable materials and minimizing the interim storage of non-recoverable materials are also goals, the detailed evaluation of these alternatives is currently underway as part of the OU3 final remedial action feasibility study. As such, the current sampling program could be extended as a result of decision-making in the final ROD. The current sampling program is designed to provide data to support material management (characterization, handling, packaging, tracking, storage, segregation, interim storage, and disposition), environmental and occupational monitoring, and to the extent possible at this time, potential treatment/disposition under the OU3 final remedial action. A modified sampling approach will likely result from the completion of the OU3 FS when all potential treatment/disposition alternatives are known. The responses to General Comment #2 and Specific Comment #2 previously state that currently known waste acceptance criteria form part of the basis of the sampling program and how the RD/RA Work Plan and SAP have been revised to emphasize this direction.

Section #: 3.4 *Page #: 3-17* *Line #: 17 and 18*
Original Specific Comment #: 7
Comment: The text states that the discussion focuses on the ability to use existing environmental monitoring programs to support sampling needs. The data for safe shutdown activities is not discussed. This data could be valuable in planning the air monitoring program, and building or structure-specific health and safety plans. the background soils, surface water, and groundwater data from other OU activities will be valuable in planning site-specific environmental monitoring programs to handle accidental releases during decontamination and dismantlement activities. Therefore, the manner in which the data from existing environmental monitoring programs will be used to support the OU3 interim RA sampling needs should be discussed.

Response to Specific Comment #7

Agreed. Section 3.4 of the SAP has been revised to reflect that *all existing data*, including data resulting from the performance of safe shutdown, will be evaluated to determine the project-specific environmental sampling needs. Quantitative and qualitative analyses will be performed following safe shutdown on a structure and documented in a report prior to initiation of remediation. The utilization of this data has been reflected in the revision to Section 3.5.3.2 (Coordination with Removal No. 12 - Safe Shutdown) of the RD/RA Work Plan and Section 3.4 (Environmental Sampling) of the SAP. The discussion in Section 3.1 of the SAP has also been expanded to reflect how data from existing environmental monitoring programs will be used to support interim remedial action sampling needs. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific

revisions in the Work Plan and Changed Pages in the SAP that address this comment.

Construction Quality Assurance Plan

Section #: 2.1 *Page #: 2* *Line #: 7 to 9*
Original Specific Comment #: 8
Comment: The description of the organizational structure and functional responsibilities would be significantly clarified by an organization chart. The chart should show the interaction with the regulatory agencies, and the interface between engineering, construction, quality assurance, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and resource conservation and Recovery Act (RCRA) units (CRU). Responsibility for actions required to correct deficiencies observed during inspections should also be clarified.

Response to Specific Comment #8

Agreed. An organizational chart, as suggested by USEPA, would more appropriately be placed in Section 7 of the RD/RA Work Plan than in the CQAP. Conceptual organizational drawings have been prepared for remedial design and remedial action and have been inserted into Sections 7.1 and 7.2 along with clarifications of responsibilities for each functional organization at the FEMP. Actions required to correct deficiencies observed during inspections have been addressed in the CQAP (Section 9.2, page 12, lines 4 - 6 of the September 1994 Draft). Responsibility for those actions lies with the Construction function and is identified in Section 9.1 of the CQAP (page 11, lines 13 - 15 of the September 1994 Draft). In addition, however, Sections 4.6.3 and 7.2 of the RD/RA Work Plan have been enhanced relative to their discussions on oversight responsibilities. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific revisions in the Work Plan and Changed Pages in the SAP that address this comment. Since DOE and FERMCO organizations have potential to be revised from time-to-time, only a functional organization is provided. It is anticipated that functional aspects of the project will not change over the duration of the RD/RA program.

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Responses to OEPA General Comments on the OU3 Remedial Design/Remedial Action Work Plan

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1. Commenting Organization: OEPA *Commentor: Geo Trans*
Section#: *Pg.#:* *Line#:* *Code: C*
Original Comment#
Comment: *Organization of Project Responsibility:*
One of the major difficulties with the document are definitions of responsibility. A clear organization chart defining lines of responsibility among the various organizations and the design/engineering/construction teams is needed. Please define the organization's roles more explicitly.

Response to Comment #1

Two figures have been added to Section 7 of the RD/RA Work Plan that illustrate the lines of responsibility among the various functional organizations described in the text, including the DEC team. Text has been revised to improve clarity with regard to functional organizations that have primary responsibilities on any given project-specific DEC team. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that address this comment.

2. Commenting Organization: OEPA *Commentor: Geo Trans*
Section#: 3&4 *Pg.#:* *Line#:* *Code: C*
Original Comment#
Comment: *Section 3 reviews the overall strategy and discusses discrete tasks (e.g., planning and design documents), but fails to describe how these processes are accomplished and delivered. The narrative is not clear on who is performing the task functions, and the nature of the deliverable.*

Section 3 has a substantial amount of forward-reference to Section 4, which deals with the task plan description. Section 4, conversely back-references Section 3, because the Section 4 tasks are not fully described. This mutual reference could be eliminated by combining the two sections into a more coherent narrative. As written, the two sections are inconsistent and unnecessarily overlap.

Response to Comment #2

Section 3 was intended to describe the actions that will take place prior to and during the OU3 interim remedial action while Section 7 was intended to provide the responsibilities for those actions. Section 4 describes how those actions will be accomplished by task. DOE believes that the organization of the material presented in Sections 3 and 4 provide a clear flow of information so that project DEC teams can easily reference requirements for action, tasks, and responsibilities. Overlap of information is done to the extent necessary where cross-referencing is not appropriate.

3. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: General Comment Pg#: Line#: *Code: C*
Original Comment#:
Comment: *This document does not have sufficient detail needed for approval. OFFO realizes that certain specific details will change with the demolition and removal projects. This plan should include basic details on the control of air emissions and the monitoring of these emissions. A plan needs to be implemented for environmental monitoring before, during and after demolition with an emphasis on air monitor placement and analysis. This data will need to be submitted in addition to addressing the following comments.*

Response to Comment #3

The RD/RA Work Plan deliberately presents general strategies that are applicable to all decontamination and dismantlement projects, with specifics to the extent possible for such a document. As stated in Section 1.2, this RD/RA Work Plan includes this general approach but also defines the framework for developing a separate implementation plan that will provide a specific approach to each project. To aid the reader in understanding what is being required of the remediation subcontractor, the Building 4A performance specifications have been added to the RD/RA Work Plan as Appendix C. For air emissions, the RD/RA Work Plan provides the details (Section 3.7.3 of the RD/RA Work Plan, and Section 3.4.1 of the SAP) necessary for developing project-specific air emissions monitoring plans, including use and placement of air monitors. The implementation plans then provide specific information such as the numbers and locations of the monitors, and sampling durations (including pre-remedial baseline sampling). Together, the RD/RA Work Plan and implementation plans provide the level of detail necessary to gain regulatory approval. The data resulting from air monitoring will be made available to USEPA, OEPA, and stakeholders at their request on a project-specific basis.

4. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: General Comment Pg#: Line#: *Code: C*
Original comment#:
Comment: *Within the OU3 RD/RA text, several orders, documents and other publications are referenced. The FEMP needs to include this referenced data, not just include the mention of it's existence within the text.*

Response to Comment #4

All text citing reference to other documents and data has been reviewed as a result of this comment to determine whether inclusion of specific information from those documents would be more appropriate than simply referencing them. Appropriateness has been determined based on whether that information cited is necessary to better understand the associated text.

References cited in Volumes 1 and 2 of the RD/RA Work Plan identified information that is readily available and was either found to be non-essential, supporting information, or because it related to component-specific details, was judged to be more appropriately presented in the project-specific implementation plans.

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Responses to OEPA Specific Comments on the OU3 Remedial Action/Remedial Design Work Plan

5. Commenting Organization: OEPA *Commentor: Geo Trans*
Section#: 1 *Pg.#: 1-3* *Line#: 11* *Code: C*
Original Comment#
Comment: The role of the Work Plan as a framework document would be better served if a list of subsequent projects were identified here. It is not clear what is meant by "replacing multiple design and construction submittals for each decontamination and dismantlement project." This does not lend guidance on how to frame the design and construction submittals nor does this statement explain how these detailed submittals can be "replaced." Construction submittals would take place after the Implementation Plan is issued. Therefore, how could it replace them?

Response to Comment #5

It is agreed that the RD/RA Work Plan would be better served by listing subsequent projects, however, that information is currently being developed and will not be available until the submittal of the OU3 RD Prioritization and Sequencing Report to the regulatory agencies on March 17, 1995. The statement, "replacing multiple design and construction submittals..." has been clarified in the Draft Final by referring to the appropriate sections of the RD/RA Work Plan that identify those documents. Also, this statement in the RD/RA Work Plan was revised to read, "design documents". Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that address this comment.

6. Commenting Organization: OEPA *Commentor: Geo Trans*
Section#: 1 *Pg.#: 1-3* *Line#: 22,23, and 26* *Code: C*
Original Comment#
Comment: The reader should be referred to another document or appendix to identify the over 200 components referred to here. Also please define the $750 million in present worth dollars for which year. Does this cost include administration (DOE) and sunk costs as well as remediation costs? The "initial" group of projects should either be defined, or the reader referred to the appropriate section to identify them.

Response to Comment #6

Section 1.2 has been revised to include a reference to Section 2.2 of the RD/RA Work Plan for identification of OU3 components. The $750 million estimate is the current FY-95 dollar estimate for the OU3 interim remedial action that covers an estimated sixteen years. The intent of putting that estimate in this introductory section (Section 1.2) was only to impart a sense of the magnitude of the OU3 interim remedial action, not to present a definite dollar figure that is subject to scrutiny. The estimate does not include present worth analysis since,

until the determination of a likely remediation schedule, the estimate cannot be completed. It should be noted that this estimate will be revised to reflect the base schedule to be presented to the regulatory agencies in the OU3 RD Prioritization and Sequencing Report (PSR). The statement regarding an "initial group of projects" on page 1-3, line 26 of the RD/RA Work Plan was an error and has been revised to read, "the first project". The PSR will identify all projects that follow the Building 4A project. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that address this comment.

7. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: 2.0 *Pg#: 2-1* *Line#: 5* *Code: c*
Original Comment#:
Comment: Please change the reference to the 1992 annual Site Environmental Report to the 1993 Annual Site Environmental Report.

Response to Comment #7

The reference has been revised to reflect the current availability of the 1993 version of the Annual Site Environmental Report. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that address this comment.

8. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: 2.2 *Pg#: 2-5* *Line#: 26* *Code: c*
Original Comment#:
Comment: Table A.2.1 in the OU3 RI/FS WPA would be useful if inserted in this section, as it provides more descriptive information about OU3 components.

Response to Comment #8

Table A.2.1 of the OU3 RI/FS WPA (44 pages) would add greatly to the volume of Section 2.2 and, as identified, is readily available in the OU3 RI/FS WPA. Specifically, the background discussion of Section 3 of each implementation plan (see Building 4A Implementation Plan) will address the intent of this concern by providing component-specific details. More importantly, this table provides detailed component-specific information which would be more appropriate for presentation in the implementation plan.

9. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: General Comment Pg#: Line#: *Code: c*
Original Comment#:
Comment: It seems that this document has an inordinant amount of cross-referencing other sections of other documents. To make the document more user friendly, summary tables of these sections should be included within the text.

Response to Comment # 9

Please refer to the response made to Comment #4.

10. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section #: 2 Pg#: 11 Line#: 14 *Code: g*
Original Comment#:
Comment: Please provide a definitive schedule for removal of pads, ponds, basins, underground utilities, and other at-and below-grade structures or define which document will provide such a schedule.

Response to Comment #10

Since Section 2.2 is intended to reiterate what is stated in the OU3 IROD, it is not appropriate to provide such detail in this section. Section 6 addresses all scheduling issues, identifying the OU3 RD Prioritization and Sequencing Report as the document that will provide such a schedule. That document is due to the USEPA/OEPA on March 17, 1994.

11. Commenting Organization: OEPA *Commentor: Geo Trans*
Section#: 3 Pg.#: 3-2 Line#: 21 *Code: C*
Original Comment#
Comment: Planning activities are performed to address remedial design and remedial action. The first stage was performed and presented in the subject Work Plan. The second stage of the process, resulting in a sequence and schedule, will be presented in which document?

Response to Comment #11

A reference has been added to Section 3.1.2 that identifies the appropriate section in the RD/RA Work Plan where the results of the first stage of planning can be found. The reference is made to Sections 4.2 and 4.3 of the RD/RA Work Plan as section which identifies that the OU3 RD Prioritization and Sequencing Report is the document that will present the sequence and schedule, respectively, for remediation. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that addresses this comment.

12. Commenting Organization: OEPA Commentor: Geo Trans
Section#: 3 Pg.#: 3-3 Line#: 18 Code: C
Original Comment#
Comment: A well-defined scope of work is mentioned as necessary to support the firm-fixed-price construction contracts. The scope of work is not mentioned hereafter in the documents. Please provide a discussion of the scope of work. Is it to be part of the specifications?

Response to Comment #12

A discussion has been added to Section 4.6.1 of the RD/RA Work Plan which provides details relative to the SOW for the remediation subcontractor. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that addresses this comment.

13. Commenting Organization: OEPA Commentor: Geo Trans
Section#: 3 Pg.#: 3-3 & 3-4 Line#: 18-19; & 1-8 Code: C
Original Comment#
Comment: DOE mentions that design document preparations for firm-fixed-price construction contracts require realistic estimates of proposed costs. DOE proceeds to indicate performance specifications would be used when possible. How does the design subcontractor select a method for remediation based on design performance specifications that will produce a realistic cost estimate? Does the contractor assume clean-up criteria responsibility? If so, the contractor must provide a detailed remedial action work plan that demonstrates the ability to perform an acceptable cleanup.

Response to Comment #13

A particular remediation method is not proposed through the design process, unless one is more suitable based on specific requirements of a project. Instead, clean-up criteria established in the performance specifications and work requirements specified in the remediation subcontract Statement of Work allow bidders to prepare their own approach as to how they propose to meet those specifications. As discussed in Section 4.6.2, the remediation subcontractor will prepare construction work plans which will provide additional details on its proposed approach to meeting performance specifications and will be responsible for meeting those performance criteria. Those work plans will be reviewed and approved by the FEMP, once it is ascertained that the proposed activities will meet the intent of the IROD, through the framework presented in the performance specifications.

Although a particular remediation method will generally not be proposed through the design, a constructability review, which evaluates the requirements of a project along with currently

applicable and accepted industry methods, will allow for an assumed methodology to be utilized for the purpose of estimating project costs with a fair degree of certainty. This cost estimating capability will be further enhanced as the decontamination and dismantlement program progresses since experience and actual costs for similar activities will be used in the estimating process for later projects.

14. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: 3.1.3 Pg#: 3-4 Line#: *Code: c*
Original Comment#:
Comment: The Ohio EPA recommends that implementation plans be of similar detail to the D&D design package.

Response to Comment #14

It is believed that the implementation plan, with agreed upon improvements, will include sufficient information to demonstrate that the project will be performed in accordance with the OU3 IROD. Although the implementation plan does not include certain design specification information normally found in a design package, the format highlights those areas which are of key interest for regulatory review. Copies of specific drawings and photos will be provided, as agreed in the December 6, 1994 meeting, to assist the reviewer in evaluating the proposed remediation activities.

15. Commenting Organization: OEPA *Commentor: Geo Trans*
Section#: 3 Pg.#: 3-5 Line#: 18 *Code: C*
Original Comment#
Comment: The remediation subcontractor work will be supervised by DOE's environmental management contractor. This statement does not link well with Section 7.0 which discusses the various management organizations. Section 7 states that Construction is responsible for managing the implementation of the remedial action.

The distinction between department and contractor, both involved in the same operation at different levels, is not made. The document should identify the entities involved, including DOE departments and contractors, within each phase of the projects.

Response to Comment #15

A clear discussion has been included in Section 7. Also, the term, "supervised", in Section 3.1.5, was revised to read, "managed". Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that address this comment.

16. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: 3 *Pg#: 7* *Line#: 7* *Code: g*
Original Comment#:
Comment: Please list here the nine major processing facilities.

Response to Comment #16

As requested, the nine major processing facilities have been identified in the Draft Final RD/RA Work Plan. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that addresses this comment.

17. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: 3.2.3 *Pg#: 3-9* *Line#: 21* *Code: c*
Original Comment#:
Comment: The text states that a base schedule will be developed to plan interim remedial measures over the 16 year period. When will this plan be developed and submitted?

Response to Comment #17

The document, OU3 RD Prioritization and Sequencing Report, is currently being developed. As shown in Figure 6-2, that document is due to be submitted to USEPA/OEPA on March 17, 1995.

18. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: 3.2.4 *Pg#: 3-12* *Line#: 1* *Code: c*
Original Comment#:
Comment: When will the five year schedule be developed and submitted?

Response to Comment #18

See response to Comment #17. The five-year schedule will be included in the same report.

19. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: 3.2.6 *Pg#: 3-14* *Line#: 1* *Code: e*
Original Comment#:
Comment: Please change the sentence to read.... "the Ore Refinery Plant (2A) is currently planned to be used to neutralize uranyl nitrate["].

Response to Comment #19

As requested, this sentence has been revised accordingly. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that address this comment.

20. Commenting Organization: OEPA Commentor: GeoTrans
Section#: 3 Pg.#: 3-32 Line#: 11-16 Code: C
Original Comment#
Comment: Material Segregation is apparently based on what the material is or was used for, not on analytical work which determines the level of contamination. This fundamental assumption of what is contaminated and what is not should be explained more clearly.

Response to Comment #20

The discussion in Section 3.4.1 attempted to clarify how process knowledge plays an important role in material segregation, while adding that characterization may be necessary to support this activity. Assumptions made for material segregation, however, have been clarified in the revision to Section 3.4.1.1 and in Appendix A. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that address this comment.

21. Commenting Organization: OEPA Commentor: GeoTrans
Section#: 3 Pg.#: 3-45 Line#: Code: C
Original Comment#
Comment: Remedial actions identified as not part of the Interim Remedial Action are not always clear. For example asbestos removal is covered under an existing removal action (No. 26), yet asbestos removal is required within the Work Plan. Safe shutdown is described in various terms:(1) as a phase of the OU3 Interim Remedial Action (page 3-15);(2)as an action to be coordinated with the IRA(page 3-46, line 15); and(3) in the Implementation Plan for Building 4A as not within the scope of the IRA. Please resolve these inconsistencies in terminology and definition.

Response to Comment #21

Safe Shutdown and Inventory Removal are preparatory actions which are not part of the OU3 interim remedial action but are integral to the interim remedial action and need to be performed prior to the work within the scope of the interim remedial action. Clarification will be added to Section 3.5.3.2 for *Removal Actions* that will be *coordinated* with the OU3 Interim Remedial Action. In particular, the scope of asbestos removal under Removal No. 26 has been better defined, and it will be made clear that asbestos may be removed by FEMP workforces or by the remediation subcontractor. In both instances, Removal No. 26 theoretically governs this activity; however, when asbestos removal is included within the scope of the remediation subcontract, the requirements specified under Removal No. 26 are incorporated into performance specifications for that activity. Asbestos removed by FEMP workforces under a work order prior to remediation is referred to as *maintenance-related*.

Figure 3-1 on page 3-15, and associated text has been revised to reflect this coordination by changing the title to "Remedial Tasks Prior to/During Remedial Action" while emphasizing that Tasks I and II are actions to be performed prior to the remedial action. Note that the term, "phase" was revised to read, "task" throughout the RD/RA Work Plan to better reflect the activities as discrete actions without inferring that they follow a specific order during remedial action. The RD/RA Work Plan has been reviewed for inconsistencies and revised accordingly. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that address this comment.

22. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: 3 *Pg.#: 3-47* *Line#: 9 to 20* *Code: C*
Original Comment#
Comment: The distinct asbestos programs are addressed: (1) the existing Removal No. 26 action; and (2) the removal of ACM in the scope of work of the remediation contractor. Neither activity is described adequately, nor are source documents referenced to clarify the division of responsibility. Please clarify.

Please define "maintenance related asbestos abatement activity."

Response to Comment #22

Please refer to response made to Comment #21.

23. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: 3 *Pg#: 48* *Line#: 13* *Code: g*
Original Comment#:
Comment: The use of existing rail sidings or the construction of new sidings for the transportation of OU1 wastes will require coordination with OU3.

Response to Comment #23

Agreed. Issues such as these are being coordinated between OU1 and OU3. The text has been revised to reflect this issue. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that addresses this comment.

24. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: 3.5.4 *Pg#: 3-49* *Line#: 12-16* *Code: c*
Original Comment#:
Comment: It is recommended that DOE not reference proposed document submittal dates. Please delete the reference to the OU5 draft FS (June 1994), November 1994 may be substituted for that date. Also, please delete the reference to the final

OU5 FS report being submitted in November 1994.

Response to Comment #24

Revision has been made as requested. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that addresses this comment.

25. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: 3 Pg#: 49 Line#: 16 *Code: e*
Original Comment#:
Comment: This is an incomplete sentence.

Response to Comment #25

The sentence will be revised to be complete. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that addresses this comment.

26. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: 3 Pg#: 3-53 Line#: *Code: C*
Original Comment#:
Comment: Several times within this section, the FEMP refers to dose to the general public from air emissions in millirems/year. Air monitoring in the field during any activities will yield results in picocuries/cubic meter, thus requiring the sampler to convert readings in the field. The FEMP should have the dose converted to pCi/cubic meter to have an implementable performance specification in the field. By not having this performance specification, if air emissions exceed regulatory limits and activity needs to be suspended, valuable time could be lost in the time it takes to perform this conversion.

Response to Comment #26

The two measurements are not readily comparable since mrem/year is used to determine *if sampling is needed* and Pci/m^3 is the reading on an instrument in the laboratory after a seven day decay period and data generation. The main concern regarding air monitoring should be the comparison of field measurements during remediation against the baseline measurements determined through pre-remediation background monitoring. A project estimate of mrems per year (based on worse case contaminant release after safe shutdown is complete) is used to establish whether or not there is a need to continuously monitor during a project in accordance with 40 CFR 61 requirements, while Pci/m^3 represents a sample measurement that will be used for comparison against a baseline concentration determined from a

background monitoring effort eight weeks prior to remediation. As stated in Section 3.7.3, page 3-64, lines 25 - 28, of the September 1994 Draft RD/RA Work Plan, pre-project estimates will be made to determine if there is potential for releases to cause an estimated effective dose equivalent of 0.1 mrem/year. If estimated doses are expected to exceed the 0.1 mrem/year threshold, continuous project air monitoring will be performed. This effort has been added as an administrative control to assess, and thus ensure, the effectiveness of remediation methods used. It should be noted that continuous monitoring will be performed for at least the first several projects, even if estimates show that the 0.1 mrem/year threshold will not be exceeded. Text has been added to Section 3.7.3 to further discuss comparison of project field concentrations against a baseline concentration. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that helps to clarify this issue.

27. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: 4 *Pg.#: 4-2* *Line#: 22* *Code: C*
Comment: What organization will be responsible for dividing the components of OU3 into complexes, and how will it be documented? Are the proposed criteria for division of components the most effective?

Response to Comment #27

A collective group at the FEMP that reflects various responsibilities, including environmental, engineering, construction, safe shutdown, etc. with input from others, will be responsible for dividing components into complexes for remediation as well as the remainder of the prioritization and sequencing process. The results of this effort will be documented in the OU3 RD Prioritization and Sequencing Report (see Sections 4.2 and 4.3). The criteria for grouping components into complexes (discussed in Section 3.2.1) has been evaluated by DOE and all key FEMP organizations.

28. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: 4 *Pg#: 13* *Line#: 11* *Code: g*
Original Comment#:
Comment: Please state who will review the remediation subcontractor's work plan and provide a copy of this plan to OEPA.

Response to Comment #28

As described in Section 7.2.1, lines 18 - 19 of the September 1994 Draft, the FEMP construction organization will be the lead organization responsible for reviewing and approving

the remediation subcontractor's work plan. The remediation subcontractor's work plan is a collection of contract required submittals that demonstrate how performance specifications will be met. As agreed to in the December 6, 1994 meeting between USEPA, OEPA, and DOE, the subcontractor's work plan will be submitted for information purposes to the regulatory agencies upon their request and/or briefings will be provided to the regulatory agencies on the pertinent aspects of the plans.

29. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: 4 *Pg#: 4-16* *Line#: 15* *Code: C*
Original Comment#
Comment: *Implementation plans should also cover design specific information on the remedial design. The list of tasks covered under implementation plans is so general that it does not describe what and how specific design information will be presented.*

Response to Comment #29

Section 4.5.5 has been revised to include a description of design-specific information provided by the implementation plan. Please refer to Table 1 contained in Section 2 of this comment response package for the specific affected pages in the revised RD/RA Work Plan that addresses this comment.

30. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: 4 *Pg.#: 4-21* *Line#: 5-20* *Code: C*
Original Comment#
Comment: *Where are the performance standards to be verified in the execution and oversight of work. If remedial designs are based on performance standards, the verification that these standards have been met is necessary.*

Response to Comment #30

The remediation subcontractor's work plan submittals will contain documentation that demonstrates how the remediation subcontractor will perform activities that are subject to performance specifications (see Section 4.5.3 under Specifications). Verification in the field that the standards are being met is accomplished by the FEMP construction organization (see Section 4.6.3.4). Section 4.6.3, as well as Section 7.2, of the RD/RA Work Plan have been enhanced relative to the verification of remediation subcontractor activities against the performance standards. Please refer to Table 1 contained in Section 2 of this comment response package for the specific affected pages in the revised RD/RA Work Plan that addresses this comment. Section 9.2 of the Construction Quality Assurance Plan (Volume

2 of the RD/RA Work Plan) describes the inspection program established by Construction.

31. Commenting Organization: Ohio EPA Commentor: OFFO
Section#: 6.1 Pg#: 6-1 Line#: 22 Code: c
Original Comment#:
Comment: This section states that the OU3 Remedial Design [Prioritization] and Sequencing Report is discussed in further detail in section 6.4. There is no section 6.4. Please modify.

Response to Comment #31

"[s]ection 6.4" was an incorrect reference and has been revised to "section 6.3". Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that addresses this comment.

32. Commenting Organization: OEPA Commentor: GeoTrans
Section#: 6 Pg#: 6-2 Line#: 4 Code: C
Original Comment#
Comment: Implementation plans are discussed in Section 4.5.5, not 4.5.4. Please correct.

Response to Comment #32

Section 4.5.4 has been corrected to Section 4.5.5. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that addresses this comment.

33. Commenting Organization: OEPA Commentor: GeoTrans
Section#: 6 Pg.#: 6-2 Line#: Figure 6-1 Code: E
Original Comment#
Comment: The generic schedule, Figure 6-1, should also show the Remedial Action Report(s), which relate to the Implementation Plan submittals and note that a given implementation plan may include several RA reports.

Response to Comment #33

Figure 6-1 shows a generic schedule for submittal of implementation plans. Submittal of remedial action reports are dependent on the remediation schedule of each project, although, as the text in Section 6.1 indicates, they will be submitted within sixty days from DOE approval of final inspection of the Certification of Construction Completion. Actual times for the submittal of each remedial action report cannot be determined until the remediation schedule is determined. The schedule for submittal of each remedial action report will be identified in the OU3 RD Prioritization and Sequencing Report.

34. Commenting Organization: OEPA *Commentor: GeoTrans.*
Section#: 7 *Pg.#: 7-1* *Line#:20* *Code: C*
Original Comment#
Comment: The responsibilities of the DEC team are not defined adequately. The role of the team is not incorporated into the sections on Engineering and Construction. The Preliminary Design is apparently the responsibility of the DEC team (see page 4-6, figure 4-1), but this responsibility is not explicitly discussed anywhere in Section 7.

Response to Comment #34

The organization, role, and responsibilities of the DEC team for remedial design and remedial action have been further defined on pages 7-1/7-2 (for remedial design) and pages 7-7 through 7-9 (for remedial action) of the December 1994 Draft Final. Emphasis was also added to the text describing the responsibilities for each organization involved in the DEC team that are also involved in support of remedial design and remedial action. The Preliminary design effort is the responsibility of the DEC team, but with Engineering as the lead. This fact has been made clear in the revision to Section 7.1.1. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that addresses this comment.

35. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: 7 *Pg.#: 7-2* *Line#: 18* *Code: C*
Original Comment#
Comment: Please explain how the engineering organization fits into the overall management structure. Does each DEC team have its own engineering organization? It is not clear why engineering does not have further responsibility for production of the Implementation Plans, which is assigned to Environmental.

Response to Comment #35

Please see responses to General Comment #1 and Specific Comment #34. A DEC team will be formed for each project. Engineering will assign one or more representatives to lead the remedial design for that project. Other organizations will be represented on each DEC team as discussed in Section 7.1.3. Although implementation plans primarily summarize the design, they also cover various other aspects of the project that are not included as part of the engineering design (e.g., air monitoring, sequencing/scheduling, etc.). The Environmental organization functions as the primary interface for compiling project plans that address disciplines/subjects other that engineering.

36. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: 7 Pg.#: 7-3 Line#: 5 *Code: C*
Original Comment#
Comment: Are the five-year schedules provided by the individual engineering organizations for each DEC team as implied? Clarification is needed to distinguish between planning and engineering on a project level, versus an overall program level.

Response to Comment #36

The wording of text on page 7-3, lines 5 - 6 of the September 1994 Draft has been revised to clarify that the engineering organization will provide support to the annual preparation of five-year implementation schedules. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that addresses this comment. As noted in the response to Comment # 27, several organizations are involved in the scheduling effort, with the environmental organization as the lead.

37. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: 7 Pg.#: 7-4 Line#: 11,12 *Code: C*
Original Comment#
Comment: Another example of the lack of clarity regarding project organization is the inclusion of Construction and other groups responsible for environmental project planning within "Environmental." Further along in the narrative, Construction and Environmental are discussed as separate organizations. Confusion would be minimized if the responsibilities of the functional organizations, subcontractors, departments, etc., are defined rather than inferred. Please clarify.

Response to Comment #37

Text has been added to Section 7.1.3 to provide clarity. Also, conceptual organization drawings have been added to Sections 7.1 and 7.2 to illustrate the relationship between the various organizations that are involved the remedial design and remedial action, respectively. Revisions have also been made to better describe functional organizations and subcontractors. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that address this comment.

Health and Safety Plan

38. Commenting Organization: Ohio EPA *Commentor: OFFO*
Section#: 8.1 Pg#: 15 H&S Plan Line#: 5 *Code: C*
Original Comment#:

Comment: *The text states that "due to current technology limitations, 'real time' monitoring for airborne uranium and thorium will not be performed anytime in the near future at the FEMP." Consistent with OEPA's concurrence letter on the OU3 IROD, OEPA believes DOE must pursue real time monitoring for remediation activities. DOE should discuss current technology available through DOE OTD. DOE must be willing to investigate new developments in real time monitoring.*

Response to Comment #38

The referenced statement was not intended to imply that DOE will not pursue real time monitoring (not to be confused with continuous sampling or continuous monitoring). In fact, DOE continues to pursue technology that will enable real-time monitoring. Unfortunately, at this time, a reliable real-time monitoring technology does not exist for the type of background conditions that exist at the FEMP. However, a statement has been added to Section 8.1 of the HASP which commits DOE to pursuing more reliable real time air monitoring methods. Please refer to Section 2 of this comment response package to locate the redline/strikeout changed page in the HASP that provides this statement. Available technologies through DOE OTD were evaluated for this action. It is not believed that a discussion in the RD/RA Work Plan of those technologies, beyond the one chosen and described is necessary.

Operations and Maintenance Plan

39. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: O&M Plan Pg.#: 3 Line#: 24-25 *Code: C*
Original Comment#

Comment: *DOE states FEMP personnel may have to perform secondary size reduction. It would probably be more effective to perform size reduction once. Material size requirements should be part of the performance specifications and closely monitored by oversight personnel.*

Response to Comment #39

It is agreed that it is more cost effective to perform size reduction once and at the jobsite. This statement was added to the O&M Plan as a contingency in case there is such a need. Section 3.4.1.2 of the RD/RA Work Plan (Size Reduction) has been revised to clarify this strategy. Material size reduction criteria will be stated in the performance specifications and closely monitored by FEMP Waste Management personnel. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the RD/RA Work Plan that addresses this comment.

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Section 2

OU3 Remedial Design/Remedial Action Work Plan

Affected Pages Cross-Reference Tables

and

Volume 2 - Changed Pages

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Section 2 -- Remedial Design/Remedial Action Work Plan Affected Pages Cross-Reference Tables and Changed Pages

This section includes Table 1, which lists the pages of Volumes 1 and 2 of the RD/RA Work Plan that were affected by revisions as a result of USEPA and OEPA comments and Table 2, which lists the pages of Volume 1 of the RD/RA Work Plan that contain substantive revisions based on other revisions that were deemed necessary by DOE. This section also contains all changed pages for revisions made to Volume 2 as a result of USEPA and OEPA comments. The basis for inclusion of the a complete revision to Volume 1 and changed pages to Volume 2 is the anticipation of USEPA conditional approval of the document. Conditional approval would be in effect until USEPA approval of the OU3 RD Prioritization and Sequencing Report.

Changed pages included in this section for Volume 2 of the RD/RA Work Plan have ~~strikeout~~ graphics for deleted text and redline graphics for inserted text.

TABLE 1 USEPA/OEPA Comment Responses and RD/RA Work Plan Affected Pages

USEPA Comment Response	Affected Section/Table	Affected Page(s)
USEPA General Comment #1	WP Sects. 3.4.3, 4.5.1; Appendix C (new)	WP pp. 3-45/46, 4-10; Appendix C
USEPA General Comment #2	WP Sects. 3.4.1, 3.4.1.1; SAP Sects. 1.1, 2.1, 3.2.3; SAP Tables 2-1, 2-3; SAP Fig. 3-2	WP pp. 3-32 through 3-36; SAP Changed Pages 1-1, 2-1, 2-7, 2-17, 3-6 through 3-13
USEPA General Comment #3	WP Sects. 3.2.2, 3.7.1, 3.7.2; SAP Sects. 3.4.2, 3.4.3	WP pp. 3-8/3-9, 3-64/3-65, 3-66, SAP Changed Pages 3-20, 3-28
USEPA Specific Comment #1	WP Sect. 3.3.6	WP p. 3-24
USEPA Specific Comment #2	WP Sects. 3.4.1, 3.4.1.1, 3.4.1.4; Appx. A (Text, Table A-1); SAP Sect. 3.2.3	WP pp. 3-33 through 3-37, 3-40 through 3-42; Appx. A pp. A-1 through A-6, Table A-1
USEPA Specific Comment #3	WP Sect. 3.5.2	WP p. 3-48
USEPA Specific Comment #4	WP Sect. 3.7.1	WP pp. 3-64/3-65
USEPA Specific Comment #5	No revision	N/A
USEPA Specific Comment #6	(Same as USEPA GC#2, SC#2)	(Same as USEPA GC#2, SC#2)
USEPA Specific Comment #7	WP Sect. 3.5.3.2; SAP Sects. 3.1, 3.4.1	WP p. 3-51; SAP Changed Pages 3-1, 3-20
USEPA Specific Comment #8	WP Sect. 7 (Figs. 7-1/7-2); Sects. 7.1, 7.2	WP pp. 7-1 through 7-12, Figures 7-1 and 7-2

OEPA Comment Response	Affected Section/Table	Affected Page(s)
OEPA Comment #1	WP Sect. 7 (Figs. 7-1/7-2); Sects. 7.1, 7.2	WP pp. 7-1 through 7-12, Figures 7-1 and 7-2
OEPA Comment #2	No revisions	N/A
OEPA Comment #3	WP Appendix C (new)	WP Appendix C (new)
OEPA Comment #4	No revisions	N/A
OEPA Comment #5	WP Sect. 1.2	WP p. 1-3
OEPA Comment #6	WP Sect. 1.2	WP p. 1-3
OEPA Comment #7	WP Sect. 2.0; References Section	WP p. 2-1; References pp. Ref-1/Ref-2
OEPA Comment #8	No revisions	N/A
OEPA Comment #9	No revisions	N/A
OEPA Comment #10	No revisions	N/A
OEPA Comment #11	WP Sect. 3.1.2	WP p. 3-2
OEPA Comment #12	WP Sect. 4.6.1	WP pp. 4-17/4-18
OEPA Comment #13	No revisions	N/A
OEPA Comment #14	IP Appendices D and E (new)	IP Appendices D and E (new)
OEPA Comment #15	WP Sects. 3.1.5, 7.1, 7.2	WP pp. 3-5, 7-1/7-2, 7-7 through 7-9
OEPA Comment #16	WP Sect. 3.2.1	WP p.3-7
OEPA Comment #17	No revisions	N/A
OEPA Comment #18	No revisions	N/A
OEPA Comment #19	WP Sect. 3.2.6	WP p. 3-14
OEPA Comment #20	WP Sect. 3.4.1.1, Appx. A	WP p. 3-37; Appx. A pp. A-1 through A-4

TABLE 1 USEPA/OEPA Comment Responses and RD/RA Work Plan Affected Pages (Cont'd)

OEPA Comment Response	Affected Section/Table	Affected Page(s)
OEPA Comment #21	WP Sects. 3.3 (Fig. 3-1), 3.3.4, 3.5.3.2	WP pp. 3-16, 3-21/3-22, 3-51
OEPA Comment #22	WP Sect. 3.5.3.2	WP pp. 3-51
OEPA Comment #23	WP Sect. 3.5.4	WP p. 3-52
OEPA Comment #24	WP Sect. 3.5.4	WP p. 3-53
OEPA Comment #25	WP Sect. 3.5.4	WP p. 3-53
OEPA Comment #26	WP Sect. 3.7.3	WP p. 3-69
OEPA Comment #27	No revision	N/A
OEPA Comment #28	No revision	N/A
OEPA Comment #29	WP Sect. 4.5.5	WP pp. 4-16/4-17
OEPA Comment #30	WP Sects. 4.6.3, 7.2, Figure 7-2	WP pp. 4-22/4-23, 7-7 through 7-9
OEPA Comment #31	WP Sect. 6.1	WP p. 6-1
OEPA Comment #32	WP Sect. 6.1	WP p. 6-2
OEPA Comment #33	No revision	N/A
OEPA Comment #34	WP Sect. 7 (Figs. 7-1/7-2), 7.1, 7.2	WP pp. 7-1 through 7-4, 7-7/7-10, Figures 7-1 and 7-2
OEPA Comment #35	WP Sect. 7 (Figs. 7-1/7-2), 7.1, 7.2	WP pp. 7-1 through 7-4, Figure 7-1
OEPA Comment #36	WP Sect. 7.1.1	WP p. 7-4/7-5
OEPA Comment #37	WP Sect. 7.1.3	WP pp. 7-5/7-6
OEPA Comment #38	HASP Sect. 8.1	HASP Changed Page 15
OEPA Comment #39	WP Sect. 3.4.1.2	WP p. 3-38

Notation
WP = RD/RA Work Plan
SAP = RD/RA Sampling and Analysis Plan
HASP = Health and Safety Plan
IP = Building 4A Implementation Plan

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TABLE 2 (Introduction)

The revisions identified in Table 2 reflect changes made to the OU3 RD/RA Work Plan and SAP as a result of the need to update various aspects of the strategies and other information since the submittal of the first draft to the regulatory agencies in September 1994. Although some revisions were made to improve clarity and grammatical correctness, this table does not identify those revisions unless they imparted any new or revised information. The most significant of these unilateral revisions are briefly discussed below.

- Section 1.1 identified that the OU3 RI/FS Report and Proposed Plan would be submitted to the regulatory agencies as a combined document. This statement was in error and was corrected to reflect these documents being submitted as concurrent submittals.

- In numerous locations throughout the RD/RA Work Plan, there was a reference to a *sixteen-year* base schedule. Although the OU3 PP/EA for the OU3 interim remedial action estimated sixteen years to complete the interim remedial action, any reference to what the base schedule (due to regulatory agencies in March 1994 as part of the OU3 RD Prioritization and Sequencing Report) may state is premature. As a result, the term, *sixteen-year* was revised to either *long-term* or just, *base schedule*.

- In several locations in Section 3.3 and 4.6, references were made to a "remediation subcontractor work plan". This term is not accurate and was revised to correctly reflect that there are several work plans that are required of the remediation subcontractor to specify proposed methods/procedures to perform various activities that must meet performance specifications.

- A reference to "Central Storage Facility" in Section 3.4.1.3 was outdated information at the time of submittal of the September 1994 draft but was erroneously left in that version. In its place, discussion was added to refer to use of existing facilities for interim storage of material.

- As discussed and mutually agreed upon during the conference call between U.S. EPA, Ohio EPA, DOE, and FERMCO held on November 28, 1994, the title, "Material Disposition Plan" has been revised to, "Material Balance Model" but will still be submitted to the regulatory agencies along with the OU3 RD Prioritization and Sequencing Report (PSR) by March 17, 1994. Instead of being a separate submittal, however, the Material Balance Model will be incorporated into the PSR as Appendix A. As stated in the conference call, as the process of developing the base schedule proceeded, it was realized that the Material Balance Model is a tool for the development of a base schedule, and not a distinct plan. Due to its integral relationship with the PSR, its inclusion as an appendix was justified. Along with the title and role of that document, the scope of the Material Balance Model now focuses on the volumes of materials generated site-wide, capacity of off-site

shipping schedules, capacity of OU3 interim storage facilities, and the results of assessing all of these factors together on the utilization of OU3 facilities for interim storage and the potential need for additional facilities.

- The term, "Material Segregation and Packaging Criteria" (used in Section 3.4 and Appendix A) was revised to, "Material Segregation and Containerization Criteria [or Guidance]". The revision to the title is due to current FEMP labor negotiations which limits the remediation subcontractor to loading containers rather than packaging containers for off-site shipment. This change in scope for the remediation subcontractor will not require any additional handling of materials. The use of the term, "queuing area" in the revised RD/RA Work Plan was a direct result of this labor arrangement since it will be the remediation subcontractor who fills a container at the jobsite, delivers it to the queuing area, whereupon the container is removed by FEMP labor for certification and packaging.

TABLE 2 Other DOE Revisions and RD/RA Work Plan Affected Pages

Other DOE Revision	Affected Section/Table	Affected Page(s)
Definitions: "Queuing area" (new); "Staging area" (revised).	WP Glossary	WP p. xiv, xv
RI/FS Report and PP "concurrent" submittal revised from "combined document".	WP Sect. 1.1	WP pp. 1-1/1-2
"sixteen-year" to "long-term" and/or "base schedule".	WP Sects. 1.2, 3.0, 3.2.3, 3.2.4, 4.3, 6.3	WP pp. 1-3, 3-1, 3-9, 3-12, 4-3, 6-6
WP Table 2-1: added intro. & footnotes to reflect current status; Component # P-06 included.	WP Sect. 2.2, Table 2-1	WP pp. 2-4 through 2-7
Remediation subcontractor "work plan" to "work plans".	WP Sects. 3.1.3, 4.6.2	WP pp. 3-4, 4-20
Reference to "Central Storage Facility" deleted.	WP Sect. 3.4.1.3, Table 3-3	WP pp. 3-39, Table 3-3
WP Table 3-4: "Component Location" revised to "Component Number"; HWMU No. 35 corrected to be Component # 81.	WP Table 3-4	WP Table 3-4
WP Table 3-5: references to Implementation Plan sections revised.	WP Table 3-5	WP Table 3-5
WP Sect. 3.7.3: further clarification to project-specific air monitoring.	WP Sect. 3.7.3	WP p. 3-69
"Material Disposition Plan" to "Material Balance Model (title, scope, and submittal arrangement).	WP Sects. 1.3, 4.4, 6.1, 6.2, Fig. 6-2	WP pp. 1-5, 4-3, 6-1, 6-5
Figure 4-1 added "Prepare Performance Specifications".	WP Figure 4-1	WP Figure 4-1
Deleted reference to Section 6.0	WP Sect. 4.6.2	WP p. 4-21
Schedule for Building 4A Implementation Plan Submittal updated to reflect current status.	WP Sect. 6.2	WP p. 6-4
Waste Management added to remedial action functional organizations.	WP Sect. 7.2.3	WP p. 7-11
"Material Segregation and *Containerization* Criteria"	WP Sects. 3.4.1, 3.4.1.1, 3.4.1.2, 3.4.1.4; Appendix A	WP pp. 3-34 through 3-40, A-1 through A-17
SAP: Added "potential" to "on-property disposal cell".	SAP Table 2-1	SAP Changed Page 2-8
SAP: SW-846 referenced specifically.	SAP Sect. 2.3.1, Table 2-5	SAP pp. 2-23, 2-28
SAP: revised "design package" to "project".	SAP Sect. 3.0	SAP p. 3-1

Notation

WP = RD/RA Work Plan
SAP = RD/RA Sampling and Analysis Plan

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1.0 INTRODUCTION

This Sampling and Analysis Plan (SAP) was prepared to support the activities described within the *Operable Unit*[1] 3 (OU3) Remedial Design/Remedial Action (RD/RA) Work Plan for Interim Remedial Action. This section provides an introduction to the OU3 sampling program for the *interim remedial action*. After a brief discussion of the purpose and scope of the SAP, a brief description of the site background is provided. This section also discusses the planned approach of developing SAP addenda to identify sampling requirements for each of the decontamination and dismantlement projects.

1.1 Purpose and Scope

This SAP contains the guidance and requirements necessary to support the data collection needed for the OU3 interim remedial action. ~~characterization of the facilities and components within OU3 of the Fernald Environmental Management Project (FEMP).~~ The data collection strategy presented in this SAP ~~also contains information which~~ is intended to aid in various aspects of the decontamination and dismantlement process, ~~as well as~~ including the storage and disposition of *material* ~~and debris for eventual~~during the *interval period* pursuant to all known material acceptance criteria and for potential treatment and/or disposition under the OU3 final remedial action. The purpose of this document is to define the strategies for the acquisition of data to support material management activities (material handling, off-site disposition, and interim storage), closure of hazardous waste management units, and environmental monitoring during the interval period. The primary data needs stated in this SAP reflect the data required to perform those activities. The secondary data needs also incorporate other potential decisions to be made regarding final disposition determinations to be considered for the OU3 final *remedial action*. It should be noted that the OU3 interim remedial action and final remedial action are both long-term actions that overlap for the majority of their duration, and that after the issuance of the OU3 final remedial action Record of Decision (ROD), both actions will be complimentary of each other.

[1] *Words that have been italicized are defined in the glossary.*

In addition, the SAP will provide supplemental information on the field sampling program that is necessary to support the interim remedial action. Specific protocols are established in the SAP to implement field activities, including performing instrument measurements and collecting samples for lab analysis as well as specific procedures to perform these duties accurately and efficiently. The means for implementing quality assurance measures are discussed and sample disposition requirements are provided.

Section 1.0 provides an overall introduction into the OU3 interim remedial action sampling program and includes discussions about the purpose and scope of this document. Section 2.0 is a general discussion about data needs and data quality objectives, SAP Addenda which will identify sampling needs to support the implementation of the individual *projects*, and data management. Section 3.0 includes a discussion about the specific sampling and analytical approach as well as the necessity to evaluate process knowledge, existing Material Evaluation Forms (MEFs), and existing analytical data to determine data gaps. Section 3.0 also discusses planned environmental sampling, Hazardous Waste Management Unit (HWMU) sampling, and sampling of decontamination wastes. Section 4.0 identifies sampling techniques and instrumentation. Section 5.0 identifies sampling and analytical procedures that will be used to support the OU3 interim remedial action. Section 6.0 provides a discussion on quality control and quality assurance. Section 7.0 covers sample disposition and shipping. Section 8.0 provides a discussion on the implementation strategy including the sample scheduling approach, laboratory contracting, personnel resources, program management, and a proposed sampling summary.

This SAP does not include a distinct Quality Assurance Project Plan (QAPjP) as a self contained element. At the FEMP, all quality assurance related elements have been compiled in a single document, the Sitewide Comprehensive Environmental Response Compensation Liability Act (CERCLA) QAPjP known as the SCQ. The SCQ addresses all sampling activities at the FEMP, including OU3 sampling activities. All required sampling and analysis procedures are incorporated and approved through this document. The relevant sections of the SCQ are included in the SAP by reference to fulfill the requirements of a QAPjP.

1.2 Site Background Description

OU3, as defined in the Amended Consent Agreement (ACA), consists of the former production area and all production-associated facilities and equipment (including all above- and below-grade improvements) not specifically included in any other operable unit. *Components* within OU3 include all structures, equipment, utilities, drums, tanks, solid waste, waste product, thorium, effluent lines, K-65 transfer line, wastewater treatment facilities, fire training facilities, feedstocks, and coal piles. The former production area covers approximately 136 acres and operated essentially as a uranium refinery and foundry with an extensive array of support and related facilities. The soil and water under OU3 are a part of Operable Unit 5 (OU5), which governs environmental media. Under the terms of the ACA, soil and debris waste piles around the site that resulted from previous waste management practices are also included in OU3. However, any soils beneath these waste piles are considered within OU5.

1.3 Use of Design Package SAP Addenda

This SAP contains a broad range of sampling activities to meet the spectrum of potential data needs which might be encountered during the interim remedial action. Before the characterization activities are started for a specific design package, a SAP Addenda will be prepared based on the particular characteristics of the individual components (i.e., expected media, expected contaminants, depth of contamination, etc.) and the relevant information needs identified in the SAP. The addenda will reference the protocols and procedures specified in the SAP. Development of the SAP and the SAP addenda, and all activities conducted resulting from these documents, will be in accordance with the SCQ. Development of the project-specific SAP addenda is further discussed in Section 2.5.

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2.0 GENERAL SAMPLING AND DATA COLLECTION APPROACH

This section begins with a presentation of the objectives of the OU3 interim remedial action sampling program. Following this, is a discussion of the data needs identified to support the OU3 interim remedial action, including a table summarizing the identified data needs. Based on these data needs and the data quality objectives, the approach to be used to collect the data, along with the proposed Analytical Support Level (ASL), is presented. This section also discusses sample representativeness and sensitivity requirements for sample analysis. Also presented is a discussion on the numbering and tracking system to be utilized for the OU3 interim remedial action sampling program. Based on the global approach defined in the SAP, Section 2.5 describes how SAP addenda will be developed to identify sampling needs for individual *projects*. Finally, this section discusses the data management plan for the sampling data obtained during the OU3 interim remedial action.

2.1 Sampling Program Objectives

The objectives of the OU3 interim remedial action sampling program are to evaluate all existing data and to collect supplemental data, as needed, to support fundamental decision making with regard to the management and disposition of OU3 materials, closure of hazardous waste management units, and environmental monitoring during the OU3 interim remedial action.

The overall objective of any remedial action is to eliminate, reduce, or otherwise mitigate the potential for exposure to contaminants and thus minimize associated risks to public health and the environment. To meet those objectives during the OU3 interim remedial action, the general approach for sampling is as follows: ~~The general objectives of the OU3 interim remedial action SAP are as follows:~~

- characterize radiological and chemical contamination to support completion of the projects within OU3;
- further assess, if necessary, potential risks to human health and the environment that could result from exposure to contaminants;

- identify and mitigate any immediate hazards resulting from existing conditions in OU3; and
- perform additional characterization, if necessary, to fill data gaps through screening and/or sampling efforts to support the interim handling, storage, and disposition activities for OU3 media.

All remedial action activities for OU3 will be conducted in accordance with all Applicable or Relevant and Appropriate Requirements (ARARs) to the extent required by CERCLA.

2.2 Data Needs and Data Quality Objectives

This section introduces the data needs identified for the remedial activities described ~~identified~~ in the OU3 Remedial Design/Remedial Action (RD/RA) Work Plan for Interim Remedial Action, including information on the intended use of the data and the current availability of the data. The section also discusses the development of data quality objectives based on the identified needs, and the approach to be utilized to collect the data to meet the objectives for each of the specific data needs.

2.2.1 Data Needs

The data needs of the OU3 interim remedial action are divided into primary data requirements and secondary data requirements. Primary data requirements are those data needs identified throughout the OU3 RD/RA Work Plan, particularly in Section 3, as being necessary to satisfy the specific objectives of the OU3 interim remedial action activities. Specifically, fulfillment of these data needs is necessary for completion of the OU3 interim remedial action as proposed (i.e., to answer all questions relevant to completion of the OU3 interim remedial action). The two categories of primary data requirements include data specifically needed to manage materials in interim storage and qualify materials for off-site disposition ~~for various media and/or various contaminant types.~~ Another category within this group is data needed to assess the impact of releases of particulates, gases, surface water runoff, etc., into the environment as a direct result of the remedial action activities. Other categories of data needs within the primary grouping include ~~those~~data necessary to better define the~~supplement characterization of the~~ general nature of contaminant~~ions present in the OU3 media, and those~~

~~necessary to perform~~ on OU3 media and data necessary to support decontamination and dismantlement activities on media within a HWMU.

Secondary data requirements, on the other hand, include data needs not necessarily directly related to the scope of this OU3 interim remedial action. These data needs reflect data necessary to answer questions relating to the treatment/disposition of media in OU3, which is generally within the scope of the OU3 final remedial action ROD. The exception to this is recyclable metals and nonrecoverable/nonrecyclable materials, which may be disposed of under the scope of this OU3 interim remedial action. This group of data needs is presented here and factored into the sampling approach, as appropriate, since this information will likely be necessary to support eventual treatment/disposition of the material. Specifically, adding a sample, modifying a sampling technique, adding analytes, etc., as a part of the OU3 interim remedial action sampling, may make later decision-making easier and less costly (e.g., by not having to do extensive resampling of entire piles of media), without impacting the implementation of the interim remedial action sampling.

Table 2-1 presents a listing of all the specific data needs identified within each of the primary and secondary data categories. For each of those data needs, the table identifies the media which is the subject of the data need, the intended use of the data, and the general availability of the data.

Data availability is a key issue regarding establishment of a sampling program for the OU3 interim remedial action. There is a significant amount of data which has been and continues to be generated on the types and levels of contamination within OU3. The Remedial Investigation (RI) characterization includes a significant effort in identifying the nature of contamination in the major media within most of the components in OU3 (including concrete, steel, masonry, etc.), which should go a long way toward satisfying many data needs. For the major media in most of the components, samples have been taken and analyzed for the United States Environmental Protection Agency (USEPA) Target Analyte List (TAL) for inorganic compounds and a conservative list of radiological parameters. For liquids and loose media, which had previously been uncharacterized or whose characterization was incomplete with respect to the OU3 Remedial Investigation/Feasibility Study (RI/FS) analyte list, samples were taken and analyzed for the TAL list, the radiological list, and the USEPA Target

TABLE 2-1 Summary of Data Needs for the OU3 Interim Remedial Action

Data Need	Media	Data Use	Data Availability
PRIMARY DATA REQUIREMENTS			
I. INTERIM STORAGE (CONTAMINANT SEGREGATION REQUIREMENTS-BASED):			
1. Identification of Resourse Conservation and Recovery Act (RCRA) hazardous constituents and characteristics.	All Media.	Used to determine compliance with 40 Code of Federal Regulations (CFR) 261.2 and 262.11 in the interim storage and handling of RCRA contaminated media.	RI data on most major media, other existing analytical data, process knowledge, etc., should provide a significant amount of information. Screenings/sampling may be necessary to further define the extent of contamination. Sampling/screening may also be needed where the nature of contamination is unknown.
2. Identification of radiological contamination (Fixed and removable).	All Media.	Used to determine compliance with United States Department of Energy (DOE) Order 5400.5 in the interim storage and handling of radiologically contaminated media.	RI data on most major media, other existing analytical data, process knowledge, etc., should provide a significant amount of information. Screening/sampling may be necessary to further define the extent of contamination. Sampling/screening may also be needed where the nature of contamination is unknown.
3. Identification of constituents and characteristics of mixed-waste contaminated media.	All media.	Used to determine compliance with 40 CFR 262.11, 3004(J) for land disposal restriction, Atomic Energy Act (AEA) in the interim storage and handling of mixed-waste contaminated media.	RI data on most major media, other existing analytical data, process knowledge, etc., should provide a significant amount of information. Screening/sampling may be necessary to further define the extent of contamination. Sampling/screening may also be needed where the nature of contamination is unknown.
4. Identification of the presence of PCB contamination.	All Media.	Used to determine compliance with Fernald Environmental Restoration Management Corporation (FERMCO) PCB site policy in the interim storage and handling of PCB contaminated media.	RI data on most major media, other existing analytical data, process knowledge, etc., should provide a significant amount of information. Screening/sampling may be necessary to further define the extent of contamination. Sampling/screening may also be needed where the nature of contamination is unknown.

TABLE 2-1 Summary of Data Needs for OU3 Interim Remedial Action (Cont'd)

Data Need	Media	Data Use	Data Availability
5. Identification of petroleum contamination.	Soils only	Used to determine the interim storage and handling of petroleum contaminated soils.	RI data on most major media, other existing analytical data, process knowledge, etc., should provide a significant amount of information. Screening/sampling may be necessary to further define the extent of contamination. Sampling/screening may also be needed where the nature of contamination is unknown.
6. Identification of the presence of asbestos containing materials (ACM).	Regulated ACM material	Used to determine the interim storage and handling of ACM.	RI data on most major media, other existing analytical data, process knowledge, etc., should provide a significant amount of information. Screening/sampling may be necessary to further define the extent of contamination. Sampling/screening may also be needed where the nature of contamination is unknown.
7. *Secondary waste*		See Section 3.3	
II. ENVIRONMENTAL MONITORING DURING SURFACE DECONTAMINATION AND DISMANTLEMENT:			
1. Identification of airborne contaminants to estimate discharges of regulated substances from air emission sources during remediation.	Air	Used to detect on-site releases and determine off-site concentrations of and exposures to airborne contaminants attributable to remedial activities. Also used to assess compliance with the following potential ARARs and To-Be-Considered (TBC)s: Clean Air Act, as amended [42 United States Code (USC) 7401-7642]; National Primary and Secondary Ambient Air Quality Standards [40 CFR 50]; Ohio Air Pollution Control Regulations, Ohio Administative Code (OAC) 3745-17-02; National Emissions Standards for Hazardous Air Pollutants (NESHAP) compliance.	To be collected during remediation activities.

TABLE 2-1 Summary of Data Needs for OU3 Interim Remedial Action (Cont'd)

Data Need	Media	Data Use	Data Availability
2. Identification of groundwater contaminants to predict concentrations of various contaminants in groundwater as a consequence of each remedial activity.	Ground-water	Used to determine routine RCRA groundwater requirements (OU5 ground-water monitoring program). Also used to assess compliance with the following potential ARARs and TBCs: Safe Drinking Water Act [42 USC 300G; Public Law (PL) 93-523]; National Primary and Secondary Drinking Water Regulations [40 CFR 141] and [40 CFR 143]; Ohio Drinking Water Regulations; other groundwater regulations.	Data available from OU5: routine property boundary groundwater monitoring program; Removal No. 1, contaminated perched water groundwater monitoring program, which includes annual sampling events of the extraction wells for hazardous substance list (HSL) parameters.
3. Identification of decontamination water (surface water) contaminants to determine treatment requirements and for National Pollutant Discharge Elimination System (NPDES) compliance decisions.	Surface Water	Used to determine surface water requirements. Also used to assess compliance with the following potential ARARs and TBCs: Surface Water Regulations; Clean Water Act, NPDES permit [40 CFR 122], Ohio Water Quality Standards; DOE Order 5400.5	Data to be collected during remediation activities.
III. HWMU COMPONENTS:			
1. Identification of the presence of specific RCRA contaminants on media within an HWMU.	All media in/from an HWMU	Used to determine the criteria to be achieved for the HWMU to be clean, closed, and removed from regulation as an HWMU. Also used to assess compliance with the following ARARs: Closure Performance Standards in OAC 3745-66-11 or 3745-55-11 and 40 CFR 265.111 or 40 CFR 264.111 . Decontamination and clean-up requirements of OAC 3745-66-14 or OAC 3745-55-14 and 40 CFR 265.114 or 264.114 .	FEMP Administrative Record; CERCLA *removal action* final reports, RCRA Part A and Part B, specifically Part B sections D,J, and I, OAC 3745-49 through 3745-69. RCRA Operating Record; includes Task 2/3 HWMU reviews, ongoing inspections, waste disposition records; Closure Plan Information and Data (CPID) with corresponding sampling and analysis plans, remedial action work plans (RAWPs), and MEFs, and HWMU-specific sampling and analysis results. Screening reports containing data from the vicinity of a given HWMU.

TABLE 2-1 Summary of Data Needs for OU3 Interim Remedial Action (Cont'd)

Data Need	Media	Data Use	Data Availability
IV. OFF-SITE SHIPMENT/DISPOSAL:			
1. Shipment to Nevada Test Site (NTS); characterization of contaminated materials	All approved nonrecyclable/nonrecoverable waste streams.	Used to determine the regulatory status of the waste materials and to ensure compliance with NTS requirements outlined in Nevada Operation (NVO)-325 (DOE 1992). Segregation of waste streams/low level wastes.	RI data on most major media, other existing analytical data, process knowledge, etc., should provide a significant amount of information. Screening/sampling may be necessary to further define the extent of contamination. Sampling/screening may also be needed where the nature of contamination is unknown.
SECONDARY DATA REQUIREMENTS			
I. OFF-SITE SHIPMENT/DISPOSAL OPTIONS (LANDFILLS, RECYCLE/REUSE FACILITY, etc.):			
1. Landfill Options:			
1.A. Shipment to municipal solid waste landfill; characterization of material to be sent to an approved landfill.	Material that meets *free-release* criteria.	Used to determine free release criteria and compliance with landfill requirements, including 40 CFR 261.2, 262.11, 268, and DOE Order 5400.5. Allow for segregation of waste streams determined to be "clean."	RI data on most major media, other existing analytical data, process knowledge, etc., should provide a significant amount of information. Screening/sampling may be necessary to further define the extent of contamination. Sampling/screening may also be needed where the nature of contamination is unknown.
1.B. Shipment to NTS; characterization of contaminated materials	All approved waste streams.	Used to determine the regulatory status of the waste materials and to ensure compliance with NTS requirements outlined in NVO-325. Segregation of waste streams/low level wastes.	RI data on most major media, other existing analytical data, process knowledge, etc., should provide a significant amount of information. Screening/sampling may be necessary to further define the extent of contamination. Sampling/screening may also be needed where the nature of contamination is unknown.
1.C. Shipment to Envirocare of Utah; characterization of contaminated materials.	All approved mixed waste streams.	Used to determine the regulatory status of waste materials and to ensure compliance with envirocare waste acceptance criteria specified in their Material Acceptance Process Manual. Segregation of mixed waste streams.	RI data on most major media, other existing analytical data, process knowledge, etc., should provide a significant amount of information to identify mixed wastes.

TABLE 2-1 Summary of Data Needs for OU3 Interim Remedial Action (Cont'd)

Data Need	Media	Data Use	Data Availability
1.DC. Shipment to other commercial disposal facilities: Characterization of contaminated materials.• • As other facilities are selected, they will be added to the list of potential facilities to be considered. Disposal facilities are subject to DOE procurement policies and National Environmental Protection Act (NEPA) approval.	All approved waste streams.	Used to determine the regulatory status of the waste materials, including 40 CFR 268, and to ensure compliance with facilities requirements. Segregation of waste streams/all media-separate packaging.	RI data on most major media, other existing analytical data, process knowledge, etc., should provide a significant amount of information. Screening/sampling may be necessary to further define the extent of contamination. Sampling/screening may also be needed where the nature of contamination is unknown.
1.D. On-Property Disposal; Characterization of contaminated materials. Leachability characteristics.	All Media	Used to determine regulatory status of all media, including 40 CFR 261.2, 262.11, 268, and DOE 5400.5, if necessary. To determine if media meets waste acceptance criteria for the potential on-property disposal cell.	RI data on most major media, other existing analytical data, process knowledge, etc., should provide a significant amount of information. Screening/sampling may be necessary to further define the extent of contamination. Sampling/screening may also be needed where the nature of contamination is unknown.
2. Shipment to recycle/reuse facility; characterization of material to be sent to DOE approved facility; surface or bulk contamination.	Concrete, cement block, acid brick, coal, asphalt, exotic metals (Inconel & Monel) non-porous metals: mild steel, copper, aluminum, stainless steel	Used to define the segregation requirements within each media type depending on contaminants. Recycling and reuse as defined by 40 CFR 261.1, 40 CFR 192, Nuclear Regulatory Commission (NRC) Regulatory Guide 1.86 and DOE Order 5400.5 .	RI data on most major media, other existing analytical data, process knowledge, etc., should provide a significant amount of information. Screening/sampling may be necessary to further define the extent of contamination. Sampling/screening may also be needed where the nature of contamination is unknown.

TABLE 2-1 Summary of Data Needs for OU3 Interim Remedial Action (Cont'd)

Data Need	Media	Data Use	Data Availability
II. RETAIN FOR TREATMENT:			
1. Retain for treatment; characterization of potential contaminants of the material to be treated; surface or bulk contamination.	Concrete, cement block, acid brick, exotic metals, non-porous metals, glass and ceramic	Used to define the segregation requirements of each media type depending on potential treatment options and requirements, and to meet on-property waste acceptance criteria, if necessary.	RI data on most major media, other existing analytical data, process knowledge, etc., should provide a significant amount of information. Screening/sampling may be necessary to further define the extent of contamination. Sampling/screening may also be needed where the nature of contamination is unknown.

Compound List (TCL) for organics. Media were also analyzed for the TCL list of Polychlorinated Biphenyls (PCBs), when indicated to be necessary by *process knowledge* and/or screening. Depending on the data available, data needs may be: completely addressed with existing data; addressed through a minimal amount of focused screening; addressed through focused intrusive sampling; etc. On the other hand, an assessment of available data may show that no data exists to fulfill stated data needs. In all cases, however, all available data will be evaluated for each data need for each component to determine the sufficiency of available data. Specifically, results of the OU3 characterization activities conducted during the RI, as well as process knowledge and any other pertinent existing analytical data, will be evaluated to determine any data gaps which would prevent the completion of the specific design package SAP addenda. In addition, sampling for each project will be performed to meet the needs stated in Table 2-1 if existing information is insufficient to meet these needs (e.g., components where no previous data exists).

The areal extent of contamination may be determined during the design phase to delineate and mark materials as to their contaminant type and extent for segregation during staging and interim storage. This activity will be performed when existing data is insufficient to meet required data needs. A determination of aerial extent of contamination may be made during the site walk-down inspection early in the *remedial design* and would be performed at the direction of the design team. The walk-down is performed to accomplish a radiological survey and other appropriate contaminant field screening of the project site area where necessary, visually examine the project area to assess any noticeable signs of contamination, observe site

accessibility and boundaries, surrounding physical characteristics, and note any safety concerns. Also during the project walk-down, initial decisions will be made concerning parameters of concern and additional sampling and analysis requirements, if needed. The proposed sampling program outlined in this document, along with process knowledge and other available information is believed to be sufficient to ensure effective segregation. Also, because material is going to interim storage and final disposition is not known, the benefit of pre-dismantlement surveys is uncertain.

2.2.2 Data Quality Objectives

Data quality objectives (DQOs) specify the quality and quantity of data required to fulfill one or more of the purposes or uses for which the data are being collected. DQOs are developed in this document to ensure that all data collected as part of this plan are appropriate to meet OU3 decision-making needs. The level of detail and data quality needed vary depending on the intended use of the data.

All investigative activities for OU3 interim remedial action must be conducted and documented to ensure that sufficient data of known quality are collected to support sound decisions concerning the disposition of materials, and that the uncertainty concerning the decisions is maintained within specified limits. As target values for data quality, the DQO specified is not necessarily criteria for acceptance or rejection of data collected.

The SCQ presents a structured eight-step process for the development of DQOs. This structured process provides the rationale for deciding what data are necessary, what quality and type of data are required, how the data will be technically defensible, and how risk is comprehended and minimized to ensure sound decisions throughout the remediation process. The process will help to identify areas of concern, the selection of equipment, quality assurance requirements, and ASLs. DQO development will include the following steps:

- statement of the problem;
- identification of a decision that addresses the problem;
- identification of data/information that affect the decision;

- specification of the domain of the decision;
- development of a logic statement;
- establishment of constraints on uncertainty;
- optimization of design for obtaining data; and
- DQO summary.

A DQO summary form, intended to provide a quick overview of the major aspects of the data collection effort and the associated objectives, will be generated for each DQO. The summary form translates the development of DQOs into a concise field document that identifies media-specific ASLs and sampling and analysis procedures. The form summarizes the analytical and sampling requirements contained in DOE Orders, environmental regulations, the Federal Facility Compliance Act (FFCA), the Ohio Enviromental Protection Agency (OEPA) Director's Findings and Orders (DF&O) (EPA 1993b), and the ACA. A sample DQO summary form is provided in Appendix B of the SCQ.

One of five FEMP-defined ASLs will be assigned to all data to be collected, depending on the intended use of the data and the quality assurance/quality control (QA/QC) methods required to achieve the desired level of quality. The specific definitions of the five ASLs (A-E) are provided in the SCQ and are summarized in Table 2-2. FEMP ASLs A through E are defined in the SCQ and parallel the USEPA DQO Levels I through V for chemical analysis, but also include analysis of radionuclides, which comprise a large proportion of the analyses supporting the FEMP project. ASLs were designed to maintain consistency with USEPA in the definitions of DQO levels and to avoid confusion between USEPA and DOE *programs*.

Building upon the information presented in Table 2-1, and the information gained through the process discussed above, an approach to be used for the collection of data to meet the individual data needs can then be defined. Table 2-3 takes each of the previously identified data needs and data uses, and identifies the objectives of the data collection approach for fulfilling the data needs (i.e., specific analytes that need to be identified, levels of detection that are needed, etc.). Based on the identified objectives a data collection approach, with the corresponding proposed ASL, is identified in Table 2-3. This approach identifies, for example,

TABLE 2-2 Analytical Support Levels for the OU3 Interim Remedial Action RD/RA Work Plan

Support Level	Description	Typical Data Uses
A	*Qualitative Field Analysis* — This level is characterized by the use of portable instruments that can provide real-time data to assist in the optimization of sampling point locations and in providing health and safety support. Data can be generated regarding the presence or absence of contaminants (e.g., radionuclides, volatiles) at sampling locations. Analogous to EPA analytical level 1.	Site characterization, monitoring during implementation
B	*Qualitative, Semi-Quantitative, and Quantitative Analyses* — This level may include the use of more sophisticated screening techniques, such as portable analytical instruments that can be used on-site or in mobile laboratories stationed near a site (close-support laboratories). Depending upon the types of contaminants, sample matrix, and QC checks applied, qualitative and quantitative data can be obtained. Analogous to EPA analytical level 2.	Site characterization, evaluation of alternatives, engineering design, monitoring during implementation
C	*Quantitative with fully defined QA/QC* — Laboratory analyses generated with full QA/QC checks of types and frequencies specified for ASL D according to FEMP-specified analytical protocols for radiological and nonradiological parameters. The analytical methods are identical to ASL D for QA/QC sample analysis and method performance criteria. However, the data package does not typically contain raw instrument output but does include summaries of QA/QC sample results. ASL C may be used when analyses require a rigid, well-defined protocol, but where other information is available, so that a complete raw data package validation effort is not required. Laboratories are required to retain, in the project file, raw instrument data to upgrade ASL C reports to ASL D. Analogous to USEPA analytical level 3.	Risk assessment, site characterization, evaluation of alternatives, engineering design, monitoring during implementation
D	*Conformational with complete QA/QC and reporting* — Provides data generated with a full complement of QA/QC checks of specified types and frequencies according to FEMP-specified analytical protocols for radiological and nonradiological parameters. The data package includes raw instrument output for validation. These data may be used to confirm data gathered at ASLs B and C, and when full validation of raw data is required. Analogous to USEPA analytical level 4.	Risk assessment, evaluation of alternatives, engineering design
E	*Nonstandard* — Analyses by nonstandard protocols that often require method development or validation (e.g., when exacting detection limits or analysis of an unusual chemical compound are required). New methods may be developed for ASL E data to allow for parameters or matrices that cannot be analyzed by existing standard methods. Analogous to USEPA analytical level 5.	Site characterization, evaluation of alternatives, engineering design, monitoring during implementation

whether screening and/or intrusive sampling is needed, whether sampling should be judgmental or random, and the frequency of data collection, etc. It should be noted that the DQO process has not yet been finalized. All proposed ASLs in this document are based on current waste acceptance criteria and current site practices. The DQOs developed to support the SAP will be general in nature and will be applicable to sampling activities outlined by each SAP addenda. Therefore, DQOs will not need to be developed for each SAP addenda.

The overall sampling approach for each component will be dictated by the specifics of the component. In other words, the media, the types of contaminants found/expected, and the decontamination and dismantlement activities which will take place, will determine the appropriate data needs that will be required, which will then form the basis for the overall sampling approach for the remediation tasks associated with a component.

2.3 Representativeness, Analytical Support Levels, and Sensitivity Requirements

This section discusses requirements for sample representativeness and the resultant sampling approach, including proposed ASLs. This section also presents sensitivity requirements for the sample analysis.

2.3.1 Representativeness and Sampling Approach

Sample types, locations, and frequencies of samples must be selected in such a manner that the information gained from the samples represents specific properties of the true underlying distribution of contaminants that are of concern for the intended uses of the data. The particular properties of the distribution that are of interest dictate the design of the sampling program. These areas of interest are outlined in Table 2-3, Primary Data Needs. The properties of contaminant distribution of interest are those necessary for determining interim remedial activities, principally the type and depth of surface contamination in large volume materials in OU3. The sampling approach for the OU3 interim remedial action field program is therefore designed to determine these properties when existing information obtained from existing MEFs in conjunction with the RI/FS activities, process knowledge, or when additional analytical data is determined to be insufficient for that purpose. This approach will in turn

TABLE 2-3 Data Collection Approach

Data Need	Media	Data Use	Data Objective	Data Collection Approach to Meet Objectives	Proposed ASL
PRIMARY DATA REQUIREMENTS					
I. INTERIM STORAGE (CONTAMINANT SEGREGATION REQUIREMENTS-BASED):					
1. Identification of RCRA hazardous constituents and characteristics.	All Media	Used to determine compliance with 40 CFR 261.2 and 262.11 in the interim storage handling of RCRA contaminated media.	Type and conservative estimate of concentration of RCRA contaminants in media Toxic Characteristics Leaching Procedure (TCLP), X-Ray Fluorescence (XRF).	Judgmental, will be based on existing information and sampling needs.	B
2. Identification of radiological contamination (fixed and removable).	All Media	Used to determine compliance with DOE Order 5400.5 in the interim storage and handling of radiologically contaminated media.	Type and conservative estimate of concentration of radiological contamination in media.	Judgmental, will be based on existing information and sampling needs.	B
3. Identification of constituents and characteristics of mixed-waste contaminated media.	All Media	Used to determine compliance with 40 CFR 262.11, 3004(J) for Land Disposal Restriction (LDR), AEA of 1954, as amended AEA in the interim storage and handling of mixed-waste contaminated media.	Type and conservative estimate of concentration of mixed waste constituents in media (TCLP and radiological screening).	Judgmental, will be based on existing information and sampling needs.	B
4. Identification of the presence of PCB contamination.	All Media	Used to determine compliance with the site PCB policy in the interim storage and handling of PCB contaminated media.	Type and conservative estimate of concentration of PCBs in media. (> 49 ppm) (PCB field test kits).	Judgmental, will be based on existing information and sampling needs.	B
5. Identification of petroleum contamination.	Soils only	Used to determine the interim storage and handling of petroleum contaminated soils.	Type and conservative estimate of concentration of petroleum based contaminants in media.	Judgmental for obvious staining. Screening and/or sampling.	B
6. Identification of the presence of and concentration of asbestos fibers.	Regulated ACM	Used to determine friable vs. non-friable and the interim storage and handling requirements of ACM.	Type and conservative estimates of concentrations of asbestos fibers in media.	Judgmental based on existing information (e.g. process knowledge etc.), for the screening/sampling approach and for dispositional requirements, whether it be per area, per box, or per piece.	FB
7. Secondary waste		See Section 3.3			

TABLE 2-3 Data Collection Approach (Cont'd)

Data Need	Media	Data Use	Data Objective	Data Collection Approach to Meet Objectives	Proposed ASL
II. ENVIRONMENTAL MONITORING DURING SURFACE DECONTAMINATION AND DISMANTLEMENT:					
1. Identification of airborne contaminants; to estimate point source discharges of regulated substances from air emission sources during remediation.	Air	Used to detect on-site releases and determine off-site concentrations of and exposures to airborne contaminants attributable to remedial activities. Also used to assess compliance with the following potential ARARs and TBCs: Clean Air Act, as amended [42 USC 7401-7642]; National Primary and Secondary Ambient Air Quality Standards [40 CFR 50]; Ohio Air Pollution Control Regulations, OAC 3745-17-02; NESHAP compliance.	Maximum concentrations of airborne contaminants at specified locations during remedial activities. Dependent upon established baseline conditions and specific design package needs.	Use of existing monitoring equipment. Air monitoring activities are discussed in Section 3.4.	B
2. Identification of groundwater contaminants; to predict concentrations of various contaminants in groundwater as a consequence of each remediation.	Groundwater	Used to determine routine RCRA groundwater requirements. Also used to assess compliance with the following potential ARARs and TBCs: Safe Drinking Water Act [42 USC 300G; PL 93-523]; National Primary and Secondary Drinking Water Regulations [40 CFR 141] and [40 CFR 143]; Ohio Drinking Water Regulations; other groundwater regulations.	Type and conservative estimate of contaminants in groundwater.	Data collection approach will be per the groundwater routine monitoring program for OU5. See Section 3.4.	B/C
3. Identification of decon water (surface water) contaminants; to determine treatment requirements and for NPDES compliance decisions.	Surface Water	Used to determine surface water requirements. Also used to assess compliance with the following potential ARARs and TBCs: Surface Water Regulations; Clean Water Act, NPDES permit [40 CFR 122], Ohio Water Quality Standards; DOE Order 5400.5.	Type and average concentrations of contaminants for surface water collection points (drains, runoff locations).	Judgmental, grab or composite. Collection approach based on routine monitoring.	B

TABLE 2-3 Data Collection Approach (Cont'd)

Data Need	Media	Data Use	Data Objective	Data Collection Approach to Meet Objectives	Proposed ASL
III. HWMU COMPONENTS:					
1. Identification of the presence of specific RCRA contaminants on media within an HWMU.	All Media	Used to determine the criteria to be achieved for the HWMU to be clean closed and removed from regulation as an HWMU. Also used to assess compliance with the following ARARs: Closure Performance Standards in OAC 3745-66-11 or 3745-55-11 and 40 CFR 265.111 or 40 CFR 264.111 Decontamination and clean-up requirements of OAC 3745-66-14 or OAC 3745-55-14 and 40 CFR 265.114 or 264.114 .	Type and representative value for each component.	Approach based on each individual units existing data and information.	A, B, or C
IV. OFF-SITE SHIPMENT/DISPOSAL:					
1. Shipment to NTS; characterization of contaminated materials.	All approved nonrecyclable /nonrecoverable waste streams.	Used to determine the regulatory status of the waste materials and to ensure compliance with NTS requirements outlined in NVO-325. Segregation of waste streams/low level wastes.	Presence/absence of certain contaminants. General levels of radiological contamination as well as other applicable NTS requirements.	Sampling/screening to determine presence below established contamination levels. Sampling requirements per NVO-325.	TBD

TABLE 2-3 Data Collection Approach (Cont'd)

Data Need	Media	Data Use	Data Objective	Data Collection Approach to Meet Objectives	Proposed ASL
SECONDARY DATA REQUIREMENTS					
I. OFF-SITE SHIPMENT/DISPOSAL OPTIONS (LANDFILLS, RECYCLE/REUSE FACILITY, etc.):					
1. Landfill Options:					
1.A. Shipment to Municipal Solid waste landfill; characterization of material to be sent to an approved landfill.	Free release material	Used to determine free release criteria and compliance with landfill requirements, including 40 CFR 261.2, 262.11, and 268. Allow for segregation of waste streams determined to be "clean."	To show absence of contamination above release levels with a very high level of certainty. Levels specified in listed ARARs and in receiving facilities waste acceptance criteria requirements.	Sampling/screening to determine presence below established contamination levels as prescribed by the regulations. Data requirements will be dependent on the receiving facilities waste acceptance criteria.	TBD
1.B. Shipment to NTS; characterization of contaminated materials.	All approved waste streams.	Used to determine the regulatory status of waste materials and to ensure compliance with NTS requirements outlined in NVO-325. Segregation of waste streams/low level wastes.	Presence/absence of certain contaminants. General levels of radiological contamination.	Sampling/screening to determine presence below established contamination levels. Sampling requirements per NVO-325.	TBD
1.C. Shipment to Envirocare of Utah; characterization of contaminated materials.	All approved mixed waste streams.	Used to determine the regulatory status of waste materials and to ensure compliance with Envirocare of Utah's waste acceptance criteria. Segregation and packaging of waste streams/all media.	Presence/absence of certain radioactive and hazardous contaminants as defined by Envirocare's Material Acceptance Process Manual.	Sampling/screening to determine presence below established contamination levels as prescribed by LDRs and other applicable regulations. Specific data requirements are stipulated in Envirocare of Utah's Material Acceptance Process Manual.	B
1.C. Shipment to other commercial disposal facilities: Characterization of contaminated materials.* * As other facilities are selected, they will be added to the list of potential facilities to be considered. Disposal facilities are subject to DOE procurement policies and NEPA approval.	All approved waste streams.	Used to determine the regulatory status of the waste materials, including 40 CFR 268, and to ensure compliance with facilities requirements. Segregation of waste streams/all media-separate packaging.	Presence/absence of certain contaminants. Criteria to be determined based on facility being considered.	Sampling/screening to determine presence below established contamination levels as prescribed by the regulations. Data requirements will be dependent on the receiving facilities waste acceptance criteria.	TBD

TABLE 2-3 Data Collection Approach (Cont'd)

Data Need	Media	Data Use	Data Objective	Data Collection Approach to Meet Objectives	Proposed ASL
1. ED. On-property disposal; what are characteristics of the contaminants.	All Media	Determine regulatory status of all media, including 40 CFR 261.2, 262.11, 268, and DOE 5400.5, if necessary.	Presence/absence of certain contaminants. General levels of radiological, TCLP contaminants, etc. Leachability characteristics.	Sampling/screening to determine presence below established contamination levels as prescribed by the regulations to determine interim storage disposition. Further sampling needs to be determined by the OU3 final action ROD.	TBD
2. Shipment to recycle/reuse facility; characterization of material to be sent to DOE approved facility; surface or bulk contamination.	Concrete, cement block, acid brick, coal, asphalt, exotic metals (Inconel and Monel) non-porous metals: mild steel, copper, aluminum, stainless steel.	Used to define the segregation requirements within each media type depending on contaminants. Recycling, reusable as defined by 40 CFR 268.45, 40 CFR 192, NRC Regulatory Guide 1.86 and DOE Order 5400.5.	Presence/absence of certain contaminants. General levels of Radiological TCLP contaminants, etc. Screening to determine presence below a certain level.	Sampling/screening to determine presence below established contamination levels as prescribed by the regulations to determine interim storage disposition. Further sampling needs to be determined by the final action ROD.	B or C
II. RETAIN FOR TREATMENT:					
1. Retain for treatment; characterization of potential contaminants of the material to be treated; surface or bulk contamination.	Concrete, cement block, acid brick, exotic metals, non-porous metals, glass and ceramic.	Used to define the segregation requirements of each media type depending on potential treatment options and requirements.	Type and conservative estimates of concentrations of potential contaminants in wastes and materials as well as the depth of contamination.	Sampling requirements will be dependent on media treatment options. To be determined during the design phase.	B or C

assist in determining handling, storage, and disposition of the material during the OU3 interim remedial action.

An approach was devised that is essentially selective, assuring that data needs are met through purposeful sampling. The devised approach is based on some important underlying assumptions regarding representativeness:

- the composition of contaminants is uniform within a given medium within a given "process area";
- in most cases the maximum surface level and/or depth of contamination in a given medium will dictate the handling, storage, and disposition options for the entire extent of the medium in a given process area; and
- the types of contaminants present place further constraints on handling, storage, and disposal options.

The fundamental organizational unit under this approach is the "process area." Process areas are defined on the basis of function. For example, a component within OU3 that houses a single operation may be broken down into several process areas, each involving a distinct set of materials and equipment. On the basis of this definition and assumption number one, a process area is an organizational unit representative of a particular type of contamination.

The quantitative aspect of representativeness is addressed in assumption number two. The extent of interest in the investigation relates to the quantity of each major material from a given process area that will fall into various waste categories. As stated in the assumption, the maximum surface level and/or depth of contamination represents the entire extent of the contaminated medium within the process area for interim storage purposes. Assumption number two also mentions handling and disposition of OU3 materials, however, further discussion is deferred to the OU3 RD/RA Work Plan. This assumption assures a conservative estimate of waste volumes, guarding against the possibility of a false negative outcome, or underestimate, which is consistent with the goals of the uncertainty constraints.

Identifying representative contaminants is challenging since potential contaminants are derived from the process materials themselves, reagents added to the process, and ancillary materials used in general OU3 interim remedial action activities. Such potential contaminant sources represent a fairly large number of both radiological and chemical contaminants as outlined in Table 2-3 Primary Data Requirements. The possibility of mixed radiological and hazardous waste is clearly present and will certainly affect handling, storage, and disposition options for affected materials. By identifying the Primary Data Requirements, this information may supplement the Secondary Data Requirements for Off-Site shipment and disposal options.

Data acquired from the sampling and analysis effort must be as complete as possible so that the information gained from this data represents specific properties of the true underlying distribution of contaminants that are of concern for the intended uses of the data. The data collection/sampling approach for the RD/RA field program is designed to determine these properties when existing information obtained from the RI activities, process knowledge, or additional analytical data is insufficient. It is not anticipated that the RD/RA field sampling program will be of a major scope due to the information that is, or will be, available. However, the possibility does exist that sampling and analysis on a large scale would be necessary for areas or components within OU3 which have no existing analytical data and where process knowledge is lacking or insufficient.

Applying the three assumptions, the following sampling approach was devised:

If existing MEFs, used in conjunction with RI/FS data, process knowledge and/or other analytical data are sufficient to meet the data needs outlined in Table 2-3, no sampling activity will be conducted. The environmental monitoring programs, however, will remain in effect during all remedial activities. As Waste Acceptance Criteria (WACs) become available for on-property and off-site disposition options, as outlined in Table 2-3, Secondary Data Requirements, it will be determined whether or not process knowledge and existing data will meet these WAC prior to initiating additional sampling and analysis efforts.

If process knowledge or previous analytical data exists but is insufficient to meet the contaminant determination needs for a particular component, then supplemental (additional) intrusive and/or non-intrusive sampling will be performed to meet the data needs as well as

determine the general extent of the contamination. Types and frequency of sampling will be outlined in the SAP addenda for a particular project.

Upon media dismantlement, further screening/sampling may be performed to support any additional interim storage and/or disposal criteria. This approach would satisfy the characterization of in situ media (as shown in Figure 2-1).

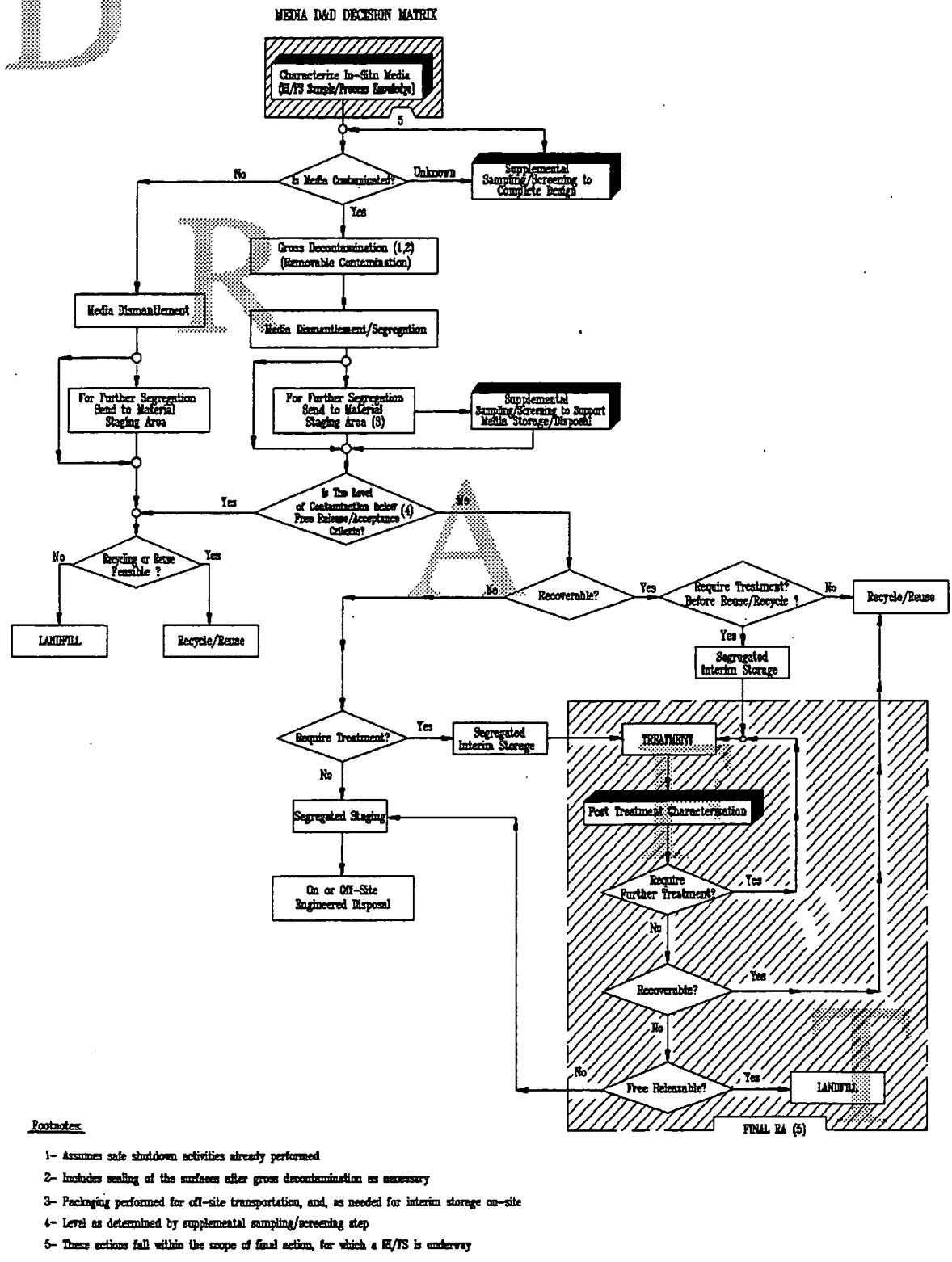
If any additional characterization of the media in question is needed, then supplemental screening/sampling will be undertaken to further complete the design. The type and frequency of sampling and the parameters to be analyzed will be determined on a case-by-case basis in this situation, depending on each individual project. The defined sampling approach will be outlined in the specific SAP addenda for this sampling event. Upon media dismantlement, further screening/sampling will be performed, if needed, to support any interim storage and/or disposal criteria that may not have been previously met. See Section 3.7 for a more detailed discussion on implementation of the sampling approach.

2.3.2 Analytical Support Levels

The ASLs provide a connection between project DQOs and appropriate analytical options for meeting them. Table 2-3 assigns the proposed ASL to each of the identified data uses for the OU3 interim remedial action. The QA/QC requirements for ASLs are provided in Volume II, Appendix A, Table 2-2 of the SCQ. Analytical methods and/or performance based criteria to be used for each ASL are also defined in Appendix G of the SCQ. Various analytical options for each ASL are, in turn, identified in Table 2-4. This table limits the selection of analytical options for each measurement type to ensure that the quality of the measurements achieved will support the intended data uses.

2.3.3 Sensitivity Requirements

Sensitivity goals for sample analysis are necessary to ensure that contaminants are detected at sufficiently low levels to be meaningful for the intended uses of the data. Sensitivity requirements are set for each type of measurement, including field and laboratory measurements. Table 2-5 presents a listing of all the major laboratory and field parameters



Footnotes:

1- Assumes safe shutdown activities already performed

2- Includes sealing of the surfaces after gross decontamination as necessary

3- Packaging performed for off-site transportation, and, as needed for interim storage on-site

4- Level as determined by supplemental sampling/screening step

5- These actions fall within the scope of final action, for which a RI/FS is underway

FIGURE 2-1 Media Decision Matrix

to be considered in the OU3 interim remedial action and gives the corresponding analytical technique, source protocol or method, method detection limits, and the basis for the selection of the method in terms of sensitivity requirements. Analytical data exceeding the sensitivity requirements will be retained and utilized as supplemental information to analytical data that meets the sensitivity requirements and/or process knowledge for the respective area.

Appendix G of the SCQ contains the methods and performance criteria for all analyses performed for the FEMP. For organic and inorganic analytes, standard methods such as USEPA's statement of work for the contract laboratory program (CLP), as well as SW-846, are listed. For radiological analyses, performance-based standards are employed. The field method procedures have been developed specifically for environmental monitoring at the FEMP and are currently in the SCQ or have been submitted for inclusion. New field method procedures may be utilized prior to inclusion into the SCQ if they are approved prior to use.

The detection limits listed for both the radiological and chemical laboratory analyses are the required detection limits in Appendix G of the SCQ. In the case of Volitile Organic Compounds (VOCs) and semivolitile organic compounds (SVOCs), the limits in the table are actually contract required ~~(reliable)~~ quantitation limits (CRQLs). Detection limits for these analytes would actually be somewhat lower.

The basis for requiring the sensitivity of the selected methods is given in the last column of Table 2-5. In the case of analysis of specific radionuclides or chemicals (listed as VOCs, SVOCs, PCBs and metals), a separate basis is provided for either solid or liquid media. For solid and liquid media, all sensitivity requirements listed are currently based on either USEPA methods (~~CLP Statement of Work (SOW)~~SW-846 methods) ~~requirement detection limits (quantitation limits)~~ or current SCQ performance specifications. Actual sensitivity requirements will be dependent on unrestricted (free) release criteria or WAC at the time of sampling.

Required detection limits for field radiological procedures are based on the corresponding NRC surface contamination limits for release without radiological restrictions (NRC 1974). For field screening for PCBs, the required detection limits are based on the requirements of the Toxic

TABLE 2-4 Analytical Options Under Various ASLs

ASL	Parameters	Analytical Options	Media to be Sampled
A	Alpha surface contamination screening	• Thin ZnS (Ag) scintillator • Gas flow proportional counter • Thin-face Geiger-Mueller (GM) detector	• Surface of major media • Bulk media and beach areas • Sediments, uncharacterized solids/loose media
	Beta and gamma surface contamination screening	• GM detector • Gas flow proportional counter • Beta scintillator • Plastic scintillator	• Surface of major media • Bulk media and beach areas • Sediments, uncharacterized solids/loose media
	Removable alpha surface contamination	• Low background counting (Tennelec)	• Surfaces of major media or supplemental sampling locations
	Removable beta-gamma surface contamination	• Low background counting (Tennelec)	• Surfaces of major media or supplemental sampling locations
	Total organic vapors	• PID • Flame ionization detector (FID)	• Bulk media and beach areas • Sediments, uncharacterized solids/loose media
B	Low-level gamma screening	• Field investigation for the detection of low energy radiation (FIDLER) scintillator • NaI (Tl) scintillator	• Surfaces of major media or supplemental sampling locations
	Higher-level beta and gamma screening	• Gamma-compensated GM probe • Ionization chamber	• Surfaces of major media or supplemental sampling locations

TABLE 2-4 Analytical Options Under Various ASLs (Cont'd)

ASL	Parameters	Analytical Options	Media to be Sampled
B (Cont'd)	Gamma exposure rates	• Pressurized ionization chamber • NaI (Tl) scintillator • Plastic scintillator	• At locations of elevated gamma activity where individuals may be exposed
	Metals	• Portable XRF spectrometer	• Surfaces of major media or supplemental sampling locations • Bulk media and beach areas • Sediments, uncharacterized solids/loose media, liquids
	Polychlorinated biphenyls (PCBs)	• Field test kit • Immunoassay field test kit	• Sediments, uncharacterized solids/loose media, liquids (field test kits) • Surfaces (immunoassay test kit)
	Organic vapors	• Portable Gas Chromatography (GC)	• General component air sampling
	Toxicity Characteristics Leaching Procedure (TCLP)	• SCQ protocol based on standard RCRA procedure	• Suspected hazardous waste materials not previously identified and managed at the site • Suspected mixed waste containing both radiological and chemical contaminants • Used for determining leaching potential of materials subject to weathering
B/C/D	<u>Radiological Suite</u>		
	U, Th, Pu isotopes	• Radiochemistry by SCQ performance based criteria	• Intrusive samples from major media and supplemental sampling locations
	Cs-137	(Applies to entire radiological suite)	• Bulk media and beach areas
	Ra-226		• Sediments, uncharacterized solids/loose media, liquids

TABLE 2-4 Analytical Options Under Various ASLs (Cont'd)

ASL	Parameters	Analytical Options	Media to be Sampled
B/C/D (Cont'd)	Sr-90, Tc-99, Pb-210 Po-210, Ra-228, Np-237, Pu-241, Am-241		(All apply to entire radiological suite)
	Chemical Suite		
	Volatile organic compounds (VOCs)	• Gas chromatography/mass spectrometry (GC/MS) by SCQ protocol	• Intrusive samples of sediments, uncharacterized solids/loose media, liquids
	Semivolatile organic compounds (SVOCs)	• GC/MS by SCQ protocol	• Intrusive samples of sediments, uncharacterized solids/loose media, liquids
	PCBs	• GC by SCQ protocol	• Intrusive samples from major media and supplemental sampling locations • Intrusive samples of sediments, uncharacterized solids/loose media, liquids
	Trace metals	• Furnace Atomic Absorption spectrometry (FAA), inductively coupled plasma atomic emission spectrometry (ICP) by SCQ protocol and Cold Vapor Atomic Absorption (CVAA)	• Intrusive samples from major media and supplemental sampling locations • Intrusive samples of sediments, uncharacterized solids/loose media, liquids

TABLE 2-4 Analytical Options Under Various ASLs (Cont'd)

TABLE 2-5 Analytical Sensitivity Requirements

Parameter	Technique	Protocol/Method	Method Detection Limits		Basis for Method Selection	
			Solids (pCi/g)	Liquids (pCi/L)	Solids	Liquids
Isotopic U	Radiochemistry	SCQ	0.2	0.5	WAC	
Isotopic Th	Radiochemistry	SCQ	0.2	0.5	WAC	
Isotopic Pu	Radiochemistry	SCQ	0.2	0.5	WAC	
Cs-137	Radiochemistry	SCQ	1.0	4.0	WAC	
Sr-90	Radiochemistry	SCQ	0.5	1.0	WAC	
Tc-99	Radiochemistry	SCQ	10	30	WAC	
Pb-210	Radiochemistry	SCQ	1.0	3.0	WAC	
Po-210	Radiochemistry	SCQ	0.5	1.0	WAC	
Ra-226	Radiochemistry	SCQ	0.2	1.0	WAC	
Ra-228	Radiochemistry	SCQ	0.5	3.0	WAC	
Np-237	Radiochemistry	SCQ	0.2	0.5	WAC	
Pu-241	Radiochemistry	SCQ	0.5	1.0	WAC	
Am-241	Radiochemistry	SCQ	1.0	4.0	WAC	

TABLE 2-4 Analytical Options Under Various ASLs (Cont'd)

TABLE 2-5 Analytical Sensitivity Requirements (Cont'd)

Parameter	Technique	Protocol/Method	Method Detection Limits		Basis for Method Selection	
			Solids	Liquids	Solids	Liquids
			(µg/kg)	(µg/L)		
VOCs	GC/MS	CLP/SW-846/SCQ	10	10	WAC	
SVOCs	GC/MS	CLP/SW-846/SCQ	330	10	WAC	
PCBs	GC	CLP/SW-846/SCQ	33	1	WAC	
Metals	FAA/ICP	CLP/SW-846/SCQ	(TAL contract required detection limits (CRDLs))		WAC	
TCLP	ICP and GC/MS	SW-846/SCQ	(See Note 1)		WAC	
Removable alpha	Low-background counting	SCQ	20 dpm		NRC limits	
Removable beta-gamma	Low-background counting	SCQ	1,000 dpm		NRC limits	
Organic vapors	PID or portable GC	SCQ	1 ppm		Background	
PCB screen	Field test kits Immunoassay Field Kit	SCQ	50 ppm (bulk) 10 ug/100 cm² (surface)		TSCA	
Metals screen	XRF	SCQ	100-200 ppm		Instrument performance	
			Maximum Allowable Total Surface Contamination[2]			
Total alpha	Thin Window Scintillation Probe	SCQ	300 dpm/100cm²		NRC limits	
Total beta-gamma	GM	SCQ	15,000 dpm/100 cm²		NRC limits	
Low-level gamma	NaI (Tl)	SCQ	background		Background	
Gamma exposure rate	PIC	SCQ	background +20 µR/h		DOE Order 5400.5	

Note 1: Should be equal to total analyses method detection forms (MDLs) for water matrices, unless there is matrix interference.
Note 2: MDLs do not apply to field equipment. The operational efficiency of field equipment is very instrument specific.

Signature/Authorization Block: This includes authorizations from site management to implement the proposed field activity. The preparer, the project supervisor, and the manager of the OU3 interim remedial action will authorize the document.

Section 1 - Introduction: This section provides a short description of the components, within the project. This section will also highlight any logistical issues or special requirements for field crews.

Section 2 - QA/QC Requirements: This section includes a signature block for the QA/QC lead for the project to verify that the identified plan for field QA samples in the component meet the intent and requirements of the SCQ. It also contains information pertaining to the frequency at which each field QA sample should be taken.

Section 3 - Sample Locations: This section describes the sampling locations to be determined, as well as intrusive sampling analytical data. This section also breaks down the sampling into the non-intrusive field screening and intrusive (i.e., core sampling, chips, etc.) sampling requirements for the project.

Section 4 - Sampling Activities, Sample Handling, and Procedures: This section references the procedures to be followed during OU3 sampling activities and sample handling. It also outlines which type of sample containers and lids are required during the SAP addenda sampling event.

Section 5 - Equipment Needed: A standard table is marked to correspond to the specific sampling needs of the component. Additional special requirements are also addressed.

Attachment 1 - Summary of Non-Intrusive Sampling: This table, which will be used by the sampling technicians, summarizes radiological and chemical screening, as well as air and swipe samples. It states the sample identification numbers, media type and matrix code, sample location, sample type, sampling procedures, ASL, requested analyses, chain of custody codes for analyses, weight and volumes of samples, hold times, and preservatives for all non-intrusive samples planned for that component.

Attachment 2 - Summary of Intrusive Sampling: This table, to be used by the sampling technicians, summarizes the major media and supplemental intrusive samples. It states the sample identification numbers, media type and matrix code, sample location, sample type, sampling procedures, ASL, requested analyses, chain of custody codes for analyses, weight and volumes of samples, hold times, and preservatives for all intrusive samples planned for that component including field QA samples.

Attachment 3 - Sample Containers Needed per Media Type: This is a chart that gives the total number of sample containers required for the component sampling event based upon the requested analyses, media types, and sample volumes required. It is to be used by the sample technicians as a reference to ensure they have the correct sample container types and quantities for the component sampling event.

Attachment 4 - Map(s): This is an updated map showing the exact sampling locations based upon available radiological and chemical screening data.

Attachment 5 - Equipment Requirements: This is to be used by the lead technician as a reference prior to field screening and sampling to ensure the sampling crews are adequately prepared for the daily tasks.

Attachment 6 - Health and Safety Plan Addenda/Matrix: This is an addenda to the OU3 RD/RA health and safety plan (HASP), and matrix specific to the activities to be undertaken through the SAP addenda.

2.5.2 Procedure for Preparing SAP Addenda

A SAP addenda will be prepared according to a review of the information discussed in Section 3.1. The following steps are provided as guidelines for preparing a SAP addenda:

- review the RI/FS Field Work Package for that component and associated radiological and chemical screening data as well as any analytical data generated through the RI/FS sampling effort. Upon completion of the RI report, such information will be found in Section 4.0 "Nature and Extent of Contamination";

Substances Control Act (TSCA) for bulk and surface contamination spill cleanup levels. The detection limit set for organic vapor detection by photoionization detector (PID) or portable gas chromatography is based on general background levels found in industrial buildings and is readily achieved with commercial instruments.

2.4 Sample Numbering and Tracking System

In order to facilitate sample management, sample numbers, which will be used by field crews to track samples and their data, consist only of the component alpha-numeric designation, as shown in Table A-1 of the final OU3 RI/FS Work Plan Addendum (WPA), followed by a sequential number. For example, the ninth sample taken from the Incinerator Building (39A) would have the corresponding sample number 39A-009. This unique number, along with all pertinent data and sampling information, will be entered into a project-specific database (see Section 2.6) to support tracking of the samples.

The sample numbers will be predetermined at the time of the SAP addenda development to the extent possible; however, field crews will be equipped to add to the list of samples. Additionally, the database will be preloaded with sample numbers to the extent practical to allow for automated sample label and forms preprinting.

Sample labels will include all necessary cross references to correlate them to daily field activity logs, requests for analysis forms, and chain-of-custody records described in the SCQ. Additional requirements dealing with various media and specific types of samples that may affect the information included on the sample labels are also contained in the SCQ.

Sample numbers will not be applied to field screening (i.e., radiological swipes, radiological screenings, XRF screenings, etc.). A screening tracking system currently in use for radiological screening will be employed, using area maps to number and mark the locations of sequential screening and cross-references to describe each.

2.5 Design Package SAP Addenda

This section discusses the SAP addenda which will be developed for each project utilizing the global approach described in this SAP applied against the particulars (i.e., expected media, expected contaminants, etc.) of the components which comprise the project.

2.5.1 Description

Section 3.0 is devoted to a general discussion of the design of a sampling approach for the OU3 interim remedial action. A SAP addenda will be completed for each project based upon the data needs for the components contained therein, and the application of the general sampling approach to media, contaminants, etc., relevant to each process area within the components. SAP addenda will be prepared during the pre-design or early design phase of a design package subsequent to the establishment of the initial data needs. At this time (early design), the SAP addenda may be utilized to obtain any sample data required for the completion of design. The SAP addenda will be supplemented as necessary throughout the remedial design/remedial action process, to reflect the progression of sampling throughout the entire process.

The primary function of the SAP addenda is to document sampling activity plans associated with each project (and the components therein) and to obtain site approval for the activity. The SAP addenda also reiterates component descriptions and process divisions for the benefit of field sampling personnel and further provides a systematic method of identifying procedures (see Sections 5.2 and 5.3) to be employed and equipment requirements. A schedule is also prepared to serve as a flag for logistics coordinators.

The SAP addenda specifies sample numbers to be utilized for sample locations identified in the component inspection activities per the OU3 interim remedial action sample numbering system described above. Total sample volume needs are discussed relative to laboratory requirements to perform the relevant analyses for each location and media.

The outline for the SAP addenda is as follows:

- determine data needs and/or data gaps based on screening and analytical data available and the requirements of the remedial action to be utilized for the specific matrices within the components of the project;

- evaluate component changes during the OU3 interim remedial action which may impact sampling plans;

- perform a visual inspection of the component to verify that the available information records on the component are correct;

- update records and component maps;

- develop text sections of the SAP addenda from information and requirements contained in the SAP and SCQ;

- provide initial SAP addenda draft for program internal review;

- revise SAP addenda per review comments;

- route SAP addenda for formal review/signature;

- provide finalized document for training and logistics purposes;

- perform logistics walk-down before nonintrusive screening begins;

- determine if non-intrusive screening locations and numbers are correct;

- review field screening results to determine if intrusive sampling locations and numbers are correct; and

- revise SAP addenda and/or map to reflect final intrusive sampling locations.

The SAP addenda is to be used by field personnel. Any deviations or additions to the SAP addenda will be maintained in field logs. Finalized information related to sample numbers, sample quantities, and sample locations will also be detailed in the logs to be used in the sample tracking database.

2.6 Changes to Documents

Changes to this SAP may be required during the course of project implementation as a result of new findings, variations found in the field, or unanticipated events. In an attempt to create

a flexible document, an internal procedure has been established based on procedures in the SCO to make modifications or additions to both the existing SAP and the SAP addenda while maintaining the intent of the OU3 interim remedial action. It should be noted that these procedures for making document changes apply only to this SAP and its corresponding SAP addenda.

Depending on the nature of a requested change pertaining to this SAP, either a SAP Variance Request (SVR) or a SAP Document Change Request (SDCR) would be initiated. Changes made in the field will be documented on a SAP Addenda Variance Report (SPAVR).

A variance would be an approved variation to a strategy, approach, procedure, or stated requirement that would not alter the results intended by this document. SVRs should contain alternative methods to perform the tasks described in this SAP. In this manner, SVRs should not significantly differ from the tasks described in this document. SVRs could be specific (e.g., change in field instrumentation for collection of samples) or general (e.g., an adjustment to a strategy, approach, procedure, or stated requirement in the SAP as a result of new developments). The principal rule-of-thumb is that an SVR should not require a revision to this SAP. An SVR will be approved internally and documented on an SVR form before the variance is implemented.

A SDCR will be a means of initiating a revision to the approved SAP if substantive changes need to be made regarding programmatic issues or sampling strategies documented in this SAP. Internal review and approval of the SDCR will be conducted before implementing the document change to ensure that the content of the SDCR is in accordance with the intent of the OU3 interim remedial action.

SPAVRs will be written for instances when the SAP addenda cannot be followed to collect samples in the field or to correct field paperwork (e.g., logbooks, chain of custody forms). Examples will include change in sample location due to inaccessibility of sampling point, cancellation of a scheduled sample due to insufficient media for collection, or corrections to be made to chain of custody form due to transcription error.

2.7 Data Management Plan

The overall FEMP data management plan is described in Appendix F of the SCQ. The following discussion is to summarize the data management plan with respect to important interfaces with the field sampling program. The major elements of the data management system will be discussed in this regard, along with the aspects of the system important to planning field sampling efforts and the tracking of material for disposition.

As described in Section F.1.2 of the SCQ, there are seven steps, or activities, in the life cycle of environmental data after the approval of a project-specific plan, as follows:

- collection of samples (or field measurements);
- transfer and handling of samples;
- laboratory analysis and reporting;
- data verification and validation;
- data repository;
- data analysis; and
- data archiving and storage.

There are three main system elements of the data management system developed to support these activities: Fernald Analytical Computerized Tracking System (FACTS); Environmental Resource Management and Analysis (ERMA); and the Sitewide Environmental Database (SED). The centerpiece of the system is the Oracle-based SED, which includes the site-wide environmental database and is the central repository for all FEMP environmental data. The other systems interface with the SED to support data input/output, sample tracking and scheduling, and graphical representations and mapping, among other activities.

FACTS is the main sample data entry system, as well as the main sample tracking system, and is therefore important to field sampling teams. FACTS contains a subsystem for sample tracking that issues sample identification numbers unique to each analytical sample generated. This identification number is used in all other FEMP environmental data base systems to cross

reference sample analysis results data. The SED and ERMA systems are primarily involved in data storage and access and data analysis, respectively.

3.0 SPECIFIC SAMPLING PROGRAMS

Section 3.1 discusses the need to first assess all available information (e.g., sampling data, process knowledge, etc.) to identify~~determine~~ data gaps appropriate to the components of a particular project~~design package~~. Section 3.2 discusses sampling required~~once dismantlement begins,~~ to fulfill interim storage and disposition requirements. Section 3.3 discusses secondary waste stream sampling (i.e., decontamination water and wastes). Section 3.4 discusses the approach to assessing potential environmental sampling needs for a specific~~design package~~ project. Section 3.5 discusses the evaluation of sampling associated with monitoring necessary for operation of the *interim storage facility*. Section 3.6 discusses how to address sampling specific to HWMUs. Section 3.7 discusses how the sampling approach discussed within the above sections will be implemented throughout the ~~length~~ duration of the interim action.

3.1 Available Data/RI/FS Sampling Data/Process Knowledge

One major aspect~~This facet~~ of the sampling approach for the interim remedial action is to assess whether ~~the completeness of pre-~~existing data and process knowledge are sufficient to meet data needs. ~~and to then propose sampling necessary to fill the specified data gaps.~~ Most existing data and process knowledge will be obtained from the OU3 RI/FS field sampling program, radiation surveys, and data that is generated from the completion of removal actions (Asbestos Removals, Safe Shutdown, Removal of Waste Inventories). During remedial design, data and process knowledge will be collected by the project-specific DEC team which will then be evaluated for completeness in meeting data needs. ~~Specifically, if data exists from the RI/FS sampling and/or other sampling programs on components in a proposed design package, then the data will be inspected to identify the primary contaminants and to determine if samples were taken from adequate locations. If the inspection~~ If the evaluation determines that the data is sufficient to meet data needs, then no additional sampling will be proposed. If the data is insufficient, a SAP addenda will be generated to fill data gaps.

To develop a specific sampling approach for each SAP addenda, data gaps will be determined through a review of available information on the components contained in the design package against the data needs specific to the particulars of the components involved (e.g., types of

media, types of contaminants, depth of contamination, presence of HWMUs, etc. - refer to Table 2-1). Available information takes many forms. For example, there is a significant amount of information on quantities of materials used in components in RCRA reports, spill logs, incident reports, process knowledge, materials distribution information which in itself may not fulfill data needs as identified in Table 2-1, but will provide support to other analytical results. Various information is available in the form of sampling results, including waste characterization information and sampling performed for removal actions, HWMU activities, and other such activities.

The information with the largest potential for fulfilling data needs during design is that information gathered through the OU3 RI/FS sampling program defined in the WPA. It is important to understand that the basic sampling approach used in the RI/FS sampling program involves the taking of a single sample from the location of maximum contamination level and/or depth for each major medium (concrete, masonry or steel) in each process area, plus supplemental samples of liquids and loose media. The data represents non-intrusive and intrusive sampling (chemical and radiological) of materials as described in the WPA. The data will be available from the following sources:

- The SED, which contains all radiological and chemical field survey data and all analytical data from the laboratory analyses of intrusive samples gathered for the OU3 RI/FS data needs;
- Section 4.0 of the OU3 RI report, will summarize the component-specific nature of contamination. The summaries will be compiled from the OU3 RI/FS analytical data information in the SED; and
- Hard copies of the data from component-specific radiological and chemical field screening which is available via completed field screening forms and the accompanying field logbook information compiled during the RI/FS field characterization.

The information gathered through review of all above sources will be compared against the data needs for the component(s) in the design package, data gaps will be identified, and a SAP addenda generated.

3.2 Interim Storage and Disposition Sampling

All media considered within a design package must be characterized to identify potential contaminants. By identifying these contaminants, interim remedial activities, interim storage, and disposition considerations will be taken into account. One of the decisions needed to complete a design package will be based on the character and volume of contaminated materials (e.g., concrete, steel, *transite*, etc.) in the operable unit. It is assumed and expected that all media within a process area contain the same types of contaminants, although the level of contamination will probably vary. This was the crux of the RI/FS sampling program proposed in the WPA. This section discusses the sampling approach as it will be applied to satisfying these needs for interim storage and disposition.

3.2.1 Material Evaluation Form

For the purposes of this document, the term MEF is used generically to describe the current process of assessing the hazardous and radiological nature of material/debris at the FEMP. The process of evaluating and assessing the nature of the material/debris will continue through the interim remedial action, although the actual documentation process (e.g., completing MEFs) may change as the project progresses, due to changes in procedures, potential for streamlining, etc..

Before a remedial action begins which may generate material/debris that potentially contains hazardous and/or radioactive contamination, an MEF may be generated for the material of concern. Existing MEFs will be used when possible. The FEMP is required to conduct an assessment of the contaminants that are contained within the material/debris to complete the MEF, which is used to make the determination between hazardous (RCRA) and non-hazardous (non-RCRA) as well as classifying materials for specific waste streams to ensure proper segregation. A list of existing MEFs and their corresponding waste stream classifications may be found in Attachment B of safety procedure requirement SSOP-0044. The assessment will include a review of existing analytical data and a review of historical and process operation knowledge to identify potential constituents of concern. It should be noted that pre-1989 analytical data may not include analyses of toxicity characteristic organics such as benzene (for more information see 40 CFR 261.24). If these constituents are present in the material

at concentrations that exceed regulatory levels, the materials are classified as hazardous waste and must be managed according to the RCRA hazardous waste regulations. This possibility should be noted when reviewing existing data. Sampling and analysis will be performed for potential contaminants that are identified in the assessment but are not included in an existing analytical database. A contaminant assessment will be completed and documented prior to disposition of materials into storage.

3.2.2 Sampling Determinations

The paragraphs below describe the basic analytical sampling requirements to complete the following determinations: hazardous, radiological, PCB, and asbestos.

Determination of Hazardous Waste Characteristics

To determine the extent of contamination of hazardous constituents in OU3 media, the TCLP may be performed. TCLP is designed to determine the mobility of both organic and inorganic contaminants present in liquid, solid, and multi-phasic wastes and is used to determine whether a material is hazardous waste under RCRA and whether it is subject to land disposal restrictions. The TCLP analyte list consists of 8 metals, 10 volatile organics, 13 semi-volatile organics, 7 pesticides, and 2 herbicides for a total of 40 analytes. USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition (USEPA 1987) methods are implemented for TCLP determinations (see Table 5.2 for list of specific method numbers).

Instead of the analysis of the constituent concentrations in the waste extracts (CCWE), the constituent concentration in the solid waste (CCW) may be analyzed and the results compared to 20 times the regulatory limits as specified in 40 CFR 261.24. The multiplier compensates for the dilution of the samples during the TCLP extraction procedure. If the CCW exceeds 20 times the regulatory limits, then an additional sample may be collected and analyzed for the CCWE.

Depending on the contaminants of concern in the component being sampled, the analytes being sampled may include as many as all 40 listed in the TCLP method or may be as few as a single analyte (e.g., lead or trichloroethane). The analyte list to be sampled will be

determined when all previous analytical data and process knowledge are evaluated. The sampling will be used to fill data gaps needed to complete a RCRA determination.

When intrusive data is not required by the WAC of the disposal facility, field screening using XRF, PID, FID, and/or GC may be utilized. Descriptions of these field instruments may be found in Section 4.1.

If necessary, other SW-846 methods may be used to determine the ignitability, corrosivity, and/or reactivity of OU3 media. These analyses will be added to a SAP addenda a when process knowledge indicates the necessity.

Determination of Radiological Characteristics

To determine the extent of radiological contamination in OU3 media, characterization may be completed using field screening methods or intrusive sampling and analysis. This decision will depend on the intended uses of the data.

Radiological screening measurements and instrumentation are discussed in section 4.1.1. Action levels for radiological parameters can be found in the DOE Radiological Control Manual (Table 2-2) (DOE 1992) and in DOE Order 5400.5 (DOE 1990b). Action levels are listed for removable (dpm/100 cm^2) and total, fixed and removable contamination, (dpm/100 cm^2).

Intrusive sampling will be required in instances when the WAC of a prospective disposal site will not accept field screening data. The radionuclides to be analyzed will depend on the requirements of the WAC. Examples of radionuclide determinations routinely required include: total and isotopic uranium, and total and isotopic thorium. All radioanalytical determinations shall be performed to meet the SCQ performance based specifications in Appendix G of the SCQ.

The discussion on air monitoring for radionuclides is found in Section 3.4.1.

PCB Determination

To determine the extent of PCB contamination in potentially contaminated media, field screening and/or intrusive sampling may be required. Again, this decision will depend on the intended use of this data.

Field screening test kits for soil, oil, and surfaces are currently being used at the FEMP. These kits provide qualitative and semi-quantitative data that may be best used to determine the presence or absence of PCBs. Further descriptions can be found in Section 4.1.2.2.

Intrusive sampling will be required in instances when the WAC of a prospective disposal site will not accept field screening data or the field screening kits do not offer enough sensitivity. All analytical determinations in such instances are to be performed at ASL B and are to follow the SW-846 methods and performance criteria outlined in Appendix G of the SCQ.

Asbestos Determination

Some asbestos containing material (transite, pipe insulation, etc.) may be removed from the components as part of remedial action. When required, sampling for asbestos in media will be performed following 40 CFR 763 for bulk asbestos. Asbestos greater than 1% by volume in a media will require special handling and segregation.

3.2.3 Analytical Requirements for Off-Site ~~Disposition~~Shipment Options

The utilization of o~~O~~ff-site ~~shipment~~ disposition options depends largely on the WACs of the receiving facilities ~~WAC~~. The flow charts in Figure 3-1 and Figure 3-2 illustrate the decision process ~~show examples of short pathways~~for assessing data needs and data collection requirements~~sampling and testing purposes, for the~~ to meet material disposition requirements~~shipment options to a~~ for municipal landfills, recycling facilities~~y~~, NTS, or other commercial disposal facilities~~y~~. ~~These charts outline the basic or fundamental data needs approach to determine the potential waste materials disposition.~~ Data generated through this data collection approach is not expected to provide all the pertinent data that may be required for these off-site facilities. Since each facility has its own WAC, specific materials that ~~what~~ will be accepted ~~handled will be~~are decided on a case-by-case basis. During the interval period~~OU3 interim remedial action~~, it is planned that most~~a limited amount of~~ waste material

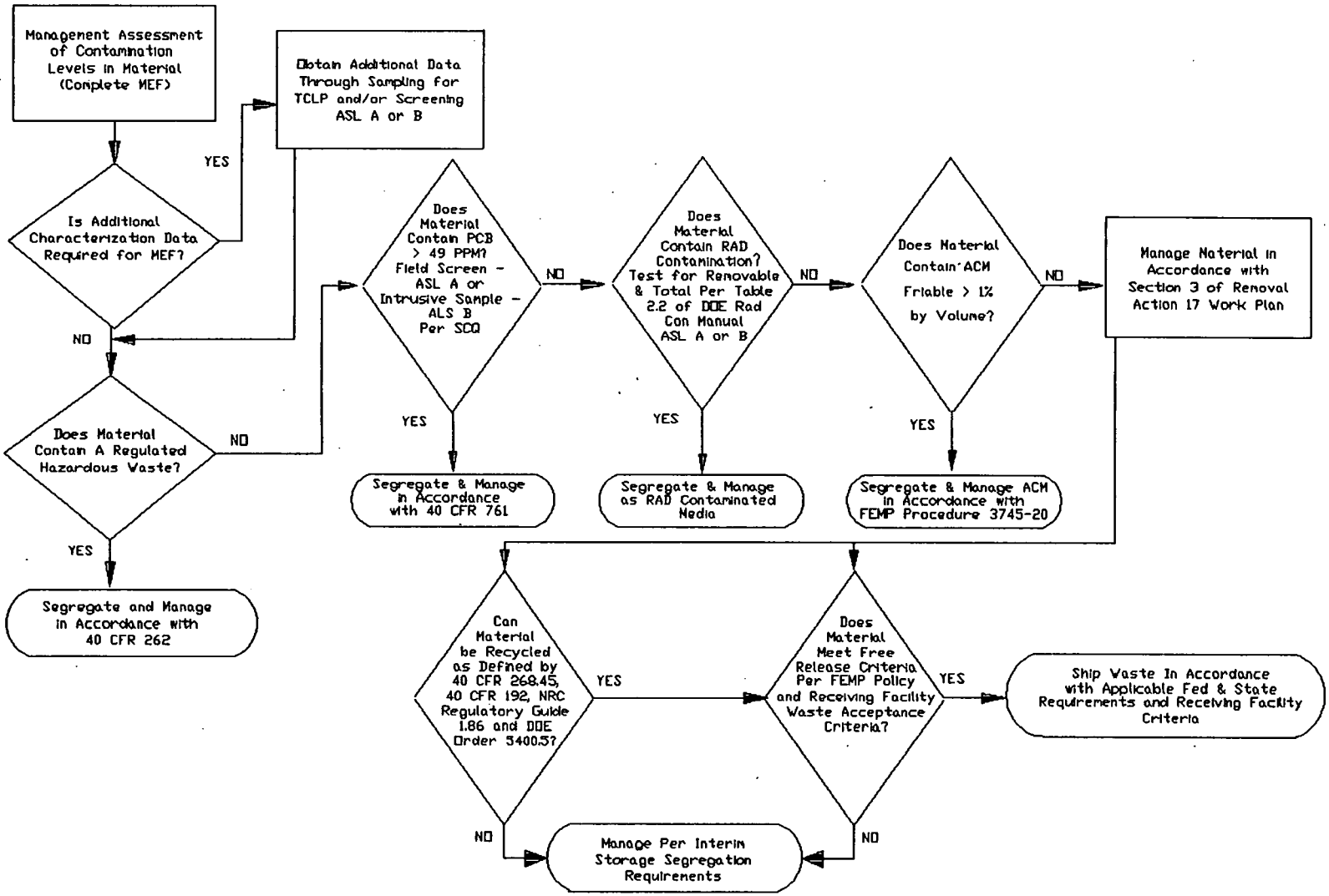


FIGURE 3-1 Criteria for Off-Site Shipment of Material to a Municipal Solid Waste Landfill or Recycle Facility

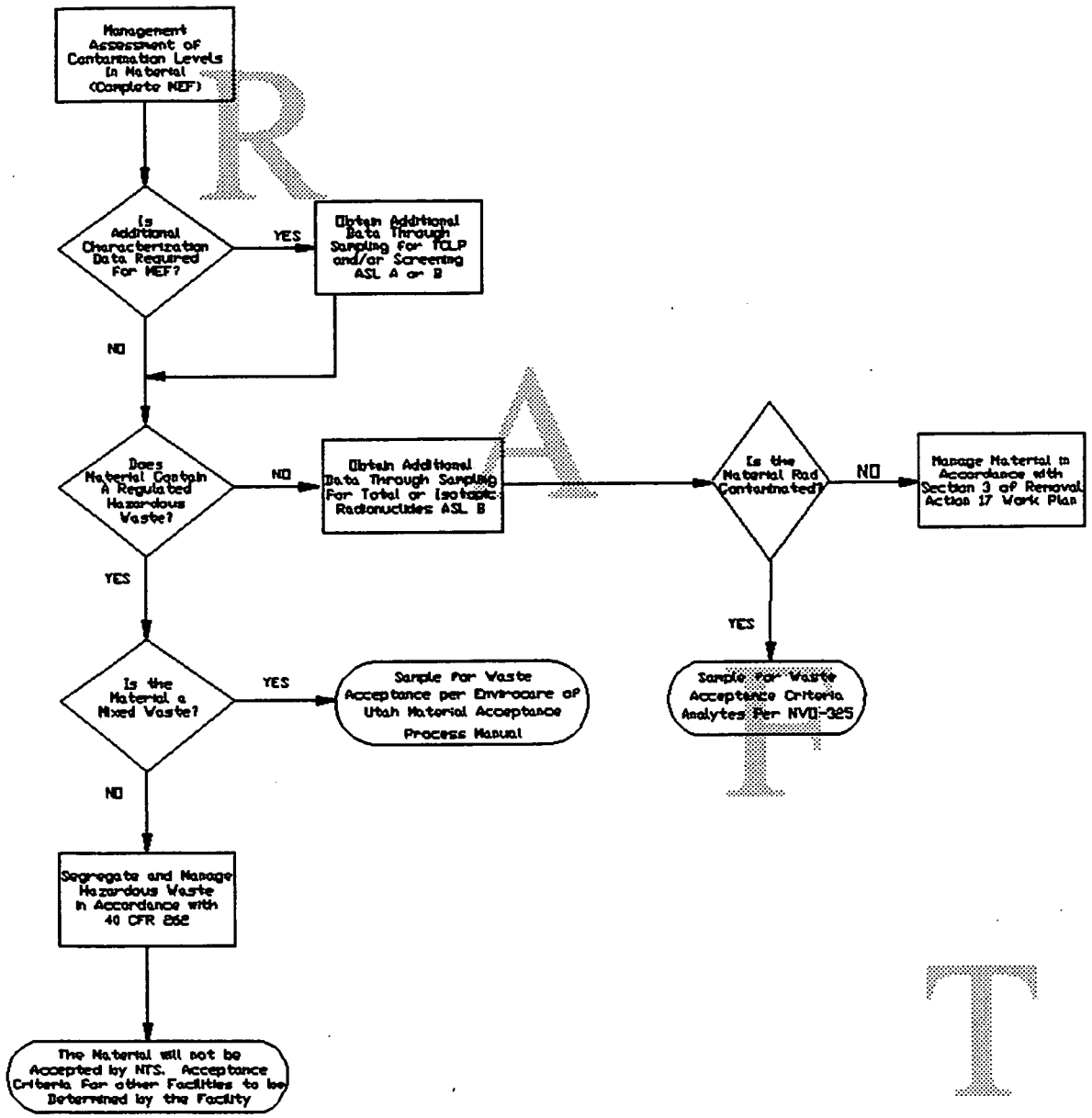


FIGURE 3-2 Criteria for Off-Site Shipment of Material to the Nevada Test Site and/or Other Commercial Facilities

will be shipped off-site to NTS~~an off-site facility directly after decontamination and dismantlement~~ immediately after generation since most OU3 material is classified as low-level radioactive waste. Small quantities of mixed waste and unrestricted waste may be generated during the interval period. Mixed waste will be disposed of at Envirocare of Utah (Envirocare), and unrestricted waste will be disposed of at local municipal landfills, both as soon as possible after generation. The remaining materials (recoverable/reuseable, material requiring treatment), h~~H~~owever, ~~the majority of the material~~ is expected to be placed in interim storage prior to determining ~~the final~~ disposition under the final remedial action ROD, unless vendor-specific WACs for receipt of recyclable/reuseable materials allow for shipment of that category of material. Proper segregation is essential to minimize the need for re-characterization during the OU3 final action.

Shipment to NTS

Currently known material acceptance criteria for waste streams expected to be generated during the interval period are stated, or referenced, in Appendix A of the OU3 RD/RA Work Plan for Interim Remedial Action. As stated in that appendix, waste acceptance criteria for NTS is stipulated by The Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements (NVO-325). NVO-325 establishes procedures, requirements, and criteria for sampling, containerization, RCRA determination, certification, and safe transfer ~~and disposal~~ of low-level and mixed waste, and storage of transuranic and transuranic mixed waste at the NTS. At this time, however, the FEMP only has acceptance approved for shipment and disposal of low-level radioactive waste (LLW) at NTS. Mixed waste, transuranic (TRU) and transuranic mixed waste is excluded. NVO-325 requirements include making radiological and RCRA determinations. For TRU waste, the NTS license application for the FEMP states that contaminated construction/removal action wastes may exhibit a TRU concentration of less than 100 nCi/g (i.e., shall not be regulated as TRU waste). Material Control and Accountability (MC&A) records at the FEMP indicate there are no materials at the FEMP with TRU concentrations above the 100 nCi/g level. All wastes are considered mixed waste until the generator can document through process knowledge or analysis that the LLW contains no hazardous waste as identified through the RCRA determination process. At this time, the FEMP is required to report the following radioactive constituents from dry solid

demolition materials from maintenance, construction, remedial and/or removal actions which generate soils, gravel, concrete, scrap wood, scrap metal, plastic, paper, glass and asphalt:

- U-238: 0.1% to 1.0% total U
- U-235: 0.2% to 1.0% on a total U basis
- U-234: 0.001% to 0.01% on a total U basis

The chemical forms of these radionuclides at the FEMP are Uranium oxides and salts (typically UO_3, U_3O_8, and UF_4).

PCBs are not allowed in the waste stream for NTS unless the concentration meets the municipal solid waste disposal levels of 50 ppm or less. All regulated (friable) asbestos waste must be segregated into a separate stream and meet all requirements on regulated asbestos (see 40 CFR 61.140 through §61.157). However, at this time, NTS is not accepting asbestos materials from the FEMP. This discussion does not provide ~~is not~~ a complete list of all waste acceptance data requirements but only highlights specific criteria from NVO-325 that are of most concern for OU3 materials. All waste streams considered for shipment to NTS must have a SAP generated for that waste stream, and it must be submitted to and approved by DOE Nevada Field Office (DOE-NV) prior to sampling the waste stream. ~~Only s~~Supporting information/data obtained during this interim remedial action will ensure that proper material~~/debris~~ segregation is performed to facilitate~~for~~ future ~~consideration of~~ dispositional ~~purposes~~ at NTS.

Per the NTS license application for the FEMP, NTS requires a one percent confirmatory sampling events for each waste stream. Waste streams are categorized in this license application along with the corresponding specific radiological and RCRA determination requirements. For example, if a design package generates a total of 475 containers, at three waste streams of 158 containers per waste stream, one percent confirmatory is two (2) sampling events per waste stream, three (3) samples per container. This would require a total of 18 samples required for NTS confirmatory. Total number of containers will be determined in the development of each design package.

Shipment to Other Commercial Disposal Facilities

For other commercial facilities, as with NTS, the data collection approach will depend on each facilities' waste acceptance criteria. Figure 3-1 illustrates the general decision process used to determine basic information needed for disposal at other commercial disposal facilities. At this time, Envirocare of Utah has been identified the only commercial disposal facility for OU3 material disposition during the interval period. As noted in the introduction to this section, Envirocare has been contracted (under a nationwide DOE contract) to receive mixed waste from DOE complexes that meet the waste acceptance criteria established under Envirocare of Utah's Material Acceptance Process Manual (Appendix A of the OU3 RD/RA Work Plan summarizes the basic waste acceptance criteria for Envirocare).

The Envirocare Material Acceptance Process Manual establishes procedures, requirements, and criteria for safe transfer and disposal of naturally occurring radioactive material/low activity radioactive waste (NORM/LARW) and mixed waste material. Envirocare's Material Acceptance Process Manual requirements set forth specific radiological and RCRA determinations. Envirocare will not accept material that is classified only as hazardous waste.

To initiate Envirocare's acceptance and shipment process, per the Material Acceptance Process Manual, the FEMP must send all results of required lab analyses for each waste stream, completed forms, and pre-shipment samples of each waste stream to Envirocare. Analytical requirements for pre-shipment samples and information required for completion of the Mixed Waste Profile Form are outlined in the afore-referenced manual.

All RCRA analysis must be performed by a Utah Certified laboratory. Pre-shipment analysis includes, but is not limited to the following parameters: full TCLP, Metals, VOCs, SVOAs, PCBs, Herbicides, and Pesticides. RCRA data obtained from the OU3 RI effort, process knowledge, etc. can only be used for the FEMP's need to characterize the material for on-site material management only. OU3 RI data and process knowledge are not applicable for waste acceptance qualification.

For radiological analyses required by the manual, FEMP analyses may be used if the FEMP on-site lab and the Utah certified lab are identical in their procedures, instrumentation, and DOE Quality Assurance Program requirements. The on-site lab must be involved in the selection

of a Utah-certified Laboratory. All waste streams require gamma spectral analysis for evaluation of all naturally occurring and all man-made radionuclides. It is not necessary to report concentration of the daughters of Th-232, Ra-226, and Ru-106. If a waste stream cannot be readily quantitated by gamma spectral analysis, for example, Sr-90 or Th-232, it must also be analyzed by radiochemical analysis for the radionuclides expected. Radiological analysis can be performed on-site at the FEMP if at least 10% of the samples are sent to a Utah-certified Laboratory for quality assurance purposes.

Pre-shipment samples to be sent to Envirocare will consist of one 50-pound (5 gallon) representative sample and five 2-pound grab samples. These preliminary samples will be analyzed at the Envirocare site, and the results of these analyses will be used to establish the range of tolerances for the future shipments of that particular waste stream to Envirocare. These tolerances are based on current LDRs per 40 CFR 268. If a shipment of the waste stream arrives and the results of the analysis for that sample is beyond the pre-shipment tolerance range (as determined by Envirocare), the shipment may be returned. Additional characterization may be required before the waste may be accepted.

After Envirocare approves shipment of material and before unloading, Envirocare will inspect the incoming shipments and take samples for "fingerprinting" and independent third party analysis. Once "fingerprint" parameters are verified, unloading takes place and material is placed in the disposal cell.

Shipment to a Municipal Landfill

The shipment of material considered for release to a municipal landfill currently depends on the Material Release Policy for the FEMP, which is based on DOE Order 5400.5, and the waste acceptance requirements of the receiving facility. Office trash shipments to the local municipal landfill (Rumpke) are currently released by radiological screening. Completion of the MEF, radiological determinations, and any other testing deemed necessary (per the facilities requirements), will be performed to identify all potential contaminants of concern. Though it is not intended to supply all essential information, the data collected through identification of contaminants by following the flow charts in Figure 3-1, and by completion of the above-outlined contaminant determinations will provide sufficient supporting information for material

segregation purposes and potentially for future disposition at municipal landfills.

Shipment to Recycle/Reuse Facility

Material considered for recycle/reuse will largely depend on the material acceptance criteria of the receiving facility. For example, the scrap metal from the first phase of Removal No. 15, was sent to an off-site recycling firm on a contract basis. All material acceptance criteria was determined prior to off-site shipment of scrap metal. Also to be taken into account when considering whether specific materials may be recycled/reused is the intended end use of the product. If a material is potentially a hazardous waste, tThe regulations concerning recycling of material need to be followed specifically according to its intended end-use to determine whether or not that material is regulated as a hazardous waste.

Since the scrap metal could contain RCRA regulated metals, a question arises as to how much information is necessary to adequately characterize the recycled scrap metal. Specifically, the question regards whether or not the TCLP extraction procedure should be performed if RCRA hazardous waste constituent concentrations in wastes exceed 20 times the Toxicity Characteristic (TC) concentrations. At present, the regulations do not require TCLP analysis to be performed. However, guidance from both USEPA and OEPA (Risk Assessment Guidance on Closures) indicate that the agencies expect TCLP analysis in some situations (e.g., soils from closure activities) where concentrations in wastes exceed the TC concentrations by a factor of 20. However, as long as the material is being recycled for reuse within the DOE complex, the concern over hazardous constituents is deferred. If, at some time, the material is no longer considered recyclable, the recycling exemption under RCRA will no longer apply to any remaining portion of the material. The remaining material will from that point on be handled in accordance with appropriate RCRA Subtitle C hazardous waste requirements.

As outlined in the regulations, specific data is required for potential recyclable material. Identification of contaminants by following the short path flow chart contained in Figure 3-2, and completion of the previously outlined contaminant determinations should provide sufficient supporting information for material segregation purposes and for future disposal considerations at a recycle/reuse facility.

3.3 Secondary Waste Stream Sampling

This section discusses the sampling needed to assess methods for handling secondary waste streams (e.g., Investigative Derived Waste (IDW)) generated during the RD/RA activities, in order to maintain compliance with regulatory requirements. The subsections which follow this Section present the approach for sampling of the following secondary waste stream materials:

- decontamination waters/solids from sampling equipment and *surface decontamination* of the components;
- contact wastes;
- excess field sample material;
- waste returned from contract laboratories; and
- miscellaneous.

3.3.1 Decontamination Water/Solids

Decontamination water/solids may be generated as a result of decontaminating sampling equipment or during the surface decontamination phase of the remedial action.

The decontamination water generated from the decontamination and dismantlement activities will be collected through the existing sump of the component, if available, or other collection means and transferred United States Department of Transportation (DOT)-approved container with the capacity for containing discharged water for at least one week. Wash waters will be filtered through 20 micron and 5 micron filters respectively prior to being transferred to these storage tanks. Since it is assumed that it will take approximately 20 days to obtain wastewater sampling results, sufficient temporary collection capacity will be needed so as to allow a full tank to be inoperable for up to 20 days while testing is being performed and not shutdown cleaning operations. This way, as one container is being sent to the contaminated side of the Plant 8 Sump or the FEMP general sump pending analytical results, another container is being moved into place. In general, such sampling will consist of a grab sample being collected from the wastewater in the holding tank and analyzed for, at a minimum: pH;

lead; copper; nickel; chromium; and total uranium all at ASL B. Additional analytical requirements may be added due to contaminants expected to be present at a particular component. Liquid waste generated during the decontamination and dismantlement process will need to comply with site wastewater treatment requirements, NPDES, Clean Water Act (CWA), and the requirements specified in the final remedial action ROD when it is implemented.

For planning purposes, it will be assumed that one (1) decontamination washwater sample will be taken per component during the decontamination washdown activities. Assuming one (1) sample per component, approximately 194 liquid decontamination water samples will be taken. However, this assumption may apply differently as each component is grouped within a design package, i.e., several components of similar characteristics may be combined as one during decontamination washdown activities therefore the number would decrease. If components were segregated based on dissimilar characteristics, the number would increase.

For those decontamination solids for which an approved MEF does not already exist or cannot be completed based on process knowledge or existing data, the solids will be containerized and placed in a centralized location for interim storage until the containers can be sampled to complete a hazardous determination (e.g., TCLP metals and/or organics) and the MEF completed. For those components where PCBs and/or asbestos are expected, the decontamination solids may be sampled for these analytes also. All sampling will be performed at ASL A (e.g., radiological screening) or ASL B (e.g., TCLP metals). For decontamination water/solids collected from an HWMU, this centralized storage location should fulfill requirements for a Satellite Accumulation Area and/or a permitted storage area under RCRA.

Final disposition of the solids and liquids will be based on the final characterization of the material and are described below:

Hazardous or Out-of-Compliance with NPDES Permit

Any liquid decontamination waste that is initially characterized to be out of compliance with current NPDES effluent limits, will be sent through the Plant 8 Sump for pre-treatment by vacuum filtration prior to being discharged to the FEMP general sump.

Any decontamination solid waste that is found to be hazardous per the MEF process, will be transferred for storage to a RCRA storage facility.

Non-hazardous or in compliance with NPDES permit

Any liquid decontamination waste that is found to meet current NPDES effluent limits, the water will be discharged to the FEMP general sump.

Any solid decontamination waste that is found to be non-hazardous (non-RCRA), the solid waste will be disposed of as low level radioactive waste.

PCBs

Any decontamination solid waste found to be contaminated with PCBs will be transferred to a pre-determined storage location, which is currently Building 81.

Asbestos Containing Material

Decontamination water/solids involving an ACM is added to the double plastic bag containing the contact waste generated from that activity. Decontamination water must be used sparingly to avoid generating a large quantity of water. The materials are combined to allow the ACM to remain damp when being handled. The ACM contact wastes are consolidated in a double plastic bag and taped closed. The bag is labeled with the date and sample location name, name and phone number of the project supervisor and marked "DANGER-ASBESTOS". The waste is maintained in a predetermined location (identified in the SAP addenda) until transfer is made.

3.3.2 Contact Wastes

Contact waste is defined as personal protective equipment, gloves, wipes, plastic, etc. generated during the OU3 interim remedial action, and may be potentially contaminated as a result of coming in contact with material handled during that activity. Contact waste will be collected in a plastic bag and sealed with tape. The bag will be labeled with the name and phone number of the project supervisor and the name of the person placing the bag in the centralized location. For those wastes for which an existing MEF does not apply or cannot be completed based on process knowledge or existing data, the contact waste may be

sampled to complete a hazardous determination (e.g., TCLP metals and/or organics) and the MEF completed. For those components where PCBs and/or asbestos are expected, the decontamination solids may be sampled for these analytes also. All sampling will be performed at either ASL A (e.g., radiological screening) or ASL B (e.g., TCLP metals). For decontamination water/solids collected from an HWMU, this centralized storage location should fulfill requirements for a Satellite Accumulation Area and/or a permitted storage area under RCRA.

The final disposition of the contact wastes depends on the characterization of the material and is described below:

Hazardous (RCRA)

Any contact waste that is found to be hazardous per the MEF, will be transferred for storage to a RCRA Storage Facility.

Non-hazardous (Non-RCRA)

Any contact waste that is found to be non-hazardous (non-RCRA) will be disposed of in a designated dumpster which would be sent to a trash baler, where it is compacted and boxed for subsequent shipment from the site as low level radioactive waste.

PCBs

Any contact waste found to be contaminated with PCBs will be transferred to a pre-determined storage location, which is currently Building 81.

Asbestos Containing Material

At the present time, a limited number of ACM samples are being collected for the RI/FS, and therefore limited quantities of ACM contact waste is being generated. This limited quantity of ACM contact waste will be handled in the same waste stream as ACM waste from the asbestos removal program.

3.3.3 Excess Field Sample Material

Sampling personnel are expected to obtain only the amount of sample material required to fill the sample containers. Generation of excess sample material in the field will be limited. Excess sample material will be returned to the original sample location, provided it can be contained without causing a potential environmental hazard. If the material cannot be returned to the original location, it will be containerized. The characterization of the excess material will be completed using the analytical data obtained from the sample collected at this location. No additional data should need to be collected.

Excess field sample material such as sediment from sumps, soil, liquids from ponds, etc. are examples of material which can be disposed of by returning the excess sample material to the original sample location. Excess sample material from concrete will be placed in the original sample location and covered with concrete, or an alternate suitable cover.

PCBs and Asbestos Containing Material

Excess PCB contaminated material or ACM will be containerized and an MEF will be generated. The material will then be transferred to a pre-determined storage location, currently Building 81 or the KC-2 warehouse.

Paint Chips

Excess paint chips that contain lead will be containerized in glass jars under MEF 817 and transferred to Building 80, where the paint will be consolidated in a larger container and stored. Excess paint chips that do not contain lead will be containerized under MEF 1919 and transferred to the Plant 1 Pad.

3.3.4 Waste Returned From Contract Analytical Laboratories

During laboratory analysis of FEMP samples by contract analytical laboratories, several forms of waste will be produced. The extracts, leachates, acid digests, excess sample materials and contact wastes will be returned to the FEMP, governed by the Fernald Environmental Management Project Waste Acceptance Criteria for Off-Site Generators (DOE 1994). The materials will be returned to the FEMP under Chain-of-Custody. The Chain-of-Custody form

will contain the FEMP laboratory sample number assigned by FACTS, prior to shipping the sample to the laboratory. The laboratory sample number will also be included on the sample container label which will serve as a tracking mechanism between the sample waste being returned and the previously received analytical results performed on that sample.

Prior to returning the wastes to the FEMP, the contract analytical laboratory must first sample the wastes generated, analyze the sample, and submit the results along with a packing list. Low level radioactive waste (non-RCRA) or mixed waste (containing RCRA hazardous waste properties) determinations will be made before the waste is returned. A letter will be sent to the contract analytical laboratory indicating the decision when approval is given to return the wastes to the FEMP.

Upon receipt of the waste at the FEMP, non-RCRA waste will be transferred to the Plant One Pad for storage as low level waste. RCRA waste will be sent to a designated RCRA warehouse, on-site.

The portion of the samples not used during the analysis, will be returned to the FEMP and sent to KC-2 warehouse and separated by project (component). As the buildings are being dismantled, the samples will be packed in with the waste from the corresponding project (component), in the drums/boxes designated for disposal.

3.3.5 Miscellaneous

Glass containers

All emptied glass containers (less than three percent of material remaining) are to be drummed under MEF 1284 and shipped to the Plant 1 Pad as low level waste.

Vacuum Filter Bags

Vacuum filter bags that are generated, and cannot be disposed of under an existing MEF, shall be containerized and stored until analyses can be completed and a MEF is approved. Non-hazardous vacuum filter bag containers shall be transferred to the Plant 1 Pad for storage. Hazardous vacuum filter bag containers shall be transferred to a RCRA Storage Facility.

3.4 Decontamination & Dismantlement Environmental Sampling

This section discusses the sampling approach as it applies to environmental monitoring sampling (i.e., of the air, groundwater, and surface water) during the OU3 interim remedial action. In part, the discussion focuses on the ability to utilize existing environmental monitoring programs to support the sampling needs. The approaches described below are subject to change over the course of the OU3 interim remedial action based on the development of new technologies (e.g., real-time monitoring devices), changes in FEMP policies concerning environmental monitoring, trending from data obtained from decontamination and dismantlement of early components, and new or updated EPA and/or DOE requirements.

3.4.1 Air Monitoring

The following sections discuss the basic approach to meeting environmental and occupational air monitoring needs during the OU3 interim remedial action. Environmental air monitoring will be implemented to monitor project-specific remedial activities. Occupational air monitoring addresses methods to assess personal exposure to airborne radioactivity. The basis for establishing environmental and occupational air monitoring requirements is an evaluation, performed during remedial design, of existing data and process knowledge for each component being remediated. Data/information that is used during this evaluation will come from past and ongoing radiological surveys performed during routine maintenance of components, the OU3 RI/FS sampling effort, and results from sampling that support completion of safe shutdown activities.

Environmental Air Monitoring

Environmental air monitoring during the OU3 interim remedial action will consist of air monitoring efforts from two programs: the current site-wide monitoring program, and project-specific air monitoring particular to a specific design/bid package. In conjunction with the current site-wide program, the project specific supplemental environmental air monitoring program will provide remedial action specific air monitoring support to primarily determine effectiveness of project-specific control measures. Individual project specific air monitoring plans will be developed during the remedial design and implemented to support remediation

activities associated with each design/bid package. The supplemental program will be implemented if the maximum release estimates exceed 0.1 mrem/year, if the potential exists for radiological air emissions for a given operation within a facility or to address stakeholders concerns. See Section 3.7.3 of the OU3 RD/RA work plan for determining the requirements for the project-specific air monitoring program. Air monitoring requirements for radionuclides will be determined for each well-defined activity within a design package. Each activity (e.g., surface decontamination and dismantlement of a building, etc.) will be evaluated for number and location of sampling devices using such factors as wind direction, size of components in package, etc.

The project-specific environmental air sampling for asbestos is anticipated to be based on the following information:

- For interior decontamination and dismantlement activities (within an enclosed environment), four (4) exterior perimeter monitoring stations will be placed with a sampling event of four (4) samples collected per week.

- For exterior decontamination and dismantlement activities, six (6) exterior perimeter monitoring stations will be placed with a sampling event of seven (7) samples collected per week (including one (1) background sample).

Any resulting sample indicating greater than (>) .01 fibers/cc will be sent to an off-site laboratory for analysis. The number and location of perimeter stations may be based on a per component basis or per design package, depending on building locations. The numbers stated above were modeled after the Plant 7 decontamination and dismantlement activity.

The project-specific environmental air sampling for radiological emissions is anticipated to be based on the following information:

- An average of 8 - 10 exterior perimeter stations per package, with a sampling event of 9 - 11 samples collected per week (including background). Depending on the design package, this scenario may apply on a per component basis. However, this may depend on several factors such as component groupings, size, type, and former function of the component. Components not within the main location of a specific design package may have fewer, if any stations. These

D components may rely on the FEMP site-wide monitoring program monitoring stations, depending on their locations.

The numbers stated above for number of stations and samples, were modeled after the Plant 7 decontamination and dismantlement activity.

Under the current site-wide program, the FEMP off-site ambient air quality is monitored by sixteen high-volume air samplers. Three of these samplers are located on-site, six are located along the site fenceline, and seven are located off-site in nearby schools and industries. Two of the off-site locations are 10 km or more from the site in non-prevalent wind directions; these two locations serve as background air sampling locations. The criteria for this evaluation will be to comply with DOE Order 5400.1 (DOE 1990a).

Occupational Air Monitoring

Occupational air monitoring needs will be determined for each design package. Occupational air monitoring, addressed by the *project-specific HASP* for the design package, will be performed using a combination of Personal Air Sampling, Breathing Zone, and General Area sampling methods to assess personal exposure to airborne radioactivity. Initial counts will be performed to evaluate raw count data, anomalies from historical "base-line" samples, and to ensure containment of airborne radioactivity to the immediate worker area. Seven-day decay analysis (retrospective air sampling) of the collected filters will be used for formal documentation of occupational exposures to airborne radioactivity. Project perimeter air samples may be collected on a daily basis for the purpose of ensuring proper area posting and control.

It is anticipated that thirty percent of the workforce for a specific design package will be monitored per day, at four (4) breathing zone samples collected per day. This will be based on the work zone, which may include one or more components at any given time.

In order to verify that control measures adequately minimize fugitive emissions, samplers will be installed in the vicinity of the facility being decontaminated or dismantled. Samplers will be placed on the perimeter boundary of each project area. The sample filters from these samplers will be removed and analyzed at a minimum for gross alpha and beta activity.

Due to current technology limitations, "real-time" monitoring for airborne uranium and thorium will not be performed anytime in the near future at the FEMP. This is due to naturally occurring and/or process enhanced radon and thoron (short-lived) daughters that are present in ambient air. These short-lived daughters have been found to interfere with the spectra in the specified region of interest for long-lived uranium and thorium, when utilizing state-of-the-art alpha spectroscopy Continuous Air Monitors.

For the reason noted above regarding occupational air monitoring for airborne radioactivity, all air samples collected for long-lived uranium and thorium must be "decay counted" for a period long enough to ensure that all radon and thoron daughters are no longer present on the air sample filter when the sample count analysis is performed. Counting is performed on a laboratory alpha/beta low background counter, analyzed for gross alpha and beta, corrected for background and system efficiency, and the results recorded in microcuries per cubic centimeter. Verification of radionuclide(s) present is performed by alpha or gamma spectral analysis, after the decay count is performed, but only when there is reason to believe that isotopes other than uranium mat be present. Uranium is the primary radiological airborne hazard at the FEMP.

Asbestos air monitoring will be used for work that will potentially release asbestos fibers from non-friable asbestos. A thirty-minute breathing zone air sample will be collected where the potential for releasing asbestos fibers is greatest. General area air samplers will be collected outside the asbestos work area to evaluate the effectiveness of control measures used during asbestos work activities. See Section 4.1.3 for further information on asbestos air monitoring. The proposed sampling for project-specific occupational asbestos monitoring is an average of 6 - 10 breathing zone samples collected and analyzed daily. This may be per component or per group of components, depending on the established work zone. Samples are sent to off-site labs for analysis or to the on-site lab if available.

3.4.2 Groundwater Monitoring

Groundwater sampling beyond routine monitoring is not necessary and will not be conducted under normal activities during the OU3 interim remedial action. However, if an event occurs during the OU3 interim remedial action that results in a potential release to the soil and

groundwater and could potentially affect the groundwater quality, then groundwater sampling may be necessary and ~~should~~ will be coordinated with OU5 ~~sampling~~. If a release occurs, two on-going groundwater sampling programs may provide sufficient data to determine if the release has affected the groundwater. If these programs are not sufficient, then other existing wells can be sampled instead. OU5 will be responsible for implementing additional groundwater monitoring during above-, at-, and below-grade remediation if it is determined to be necessary.

Continual groundwater sampling is conducted by OU5 under two programs: Removal No. 1; and routine monitoring at the downgradient property boundary. Additional wells that are not routinely sampled exist from various CERCLA-related studies.

Removal No. 1

The seventeen wells that comprise Removal No. 1 are located near Plants 6, 8, 9, and the Plant 2/3 complex and are installed at a depth of 10 to 20 feet within the perched groundwater zone in the till. The wells are sampled annually for HSL parameters, total uranium, and total radiological parameters. Extracted perched water batches are sampled constantly for total VOCs, total uranium, and purgeable organic halides (POX). The purpose of the sampling is to identify the effectiveness of pumping the perched zone.

Removal No. 1 is described in four plans: Plant 6 Contaminated Perched Water Modified Removal Action Work Plan (Westinghouse Materials Company of Ohio (WMCO) 1990c); Plant 2/3 Contaminated Perched Water Removal Action Work Plan (WMCO 1990b); Plant 9 Contaminated Perched Water Removal Action Work Plan (WMCO 1990d); and the Work Plan Addendum to the Perched Water Removal Actions Feed Materials Production Center (FMPC) Recovery Well Installation and System Water Sampling Support (Advanced Sciences Inc./International Technology (ASI/IT) 1991).

RCRA Routine Monitoring

The routine monitoring system consists of thirty-three monitoring wells (as shown in Figure 3-3 and identified in Table 3-1) installed within the upper, middle, and lower zones of the Great Miami Aquifer at the downgradient property boundary of the FEMP. The wells are sampled quarterly for metals, radionuclides, VOCs, and water quality parameters, which are

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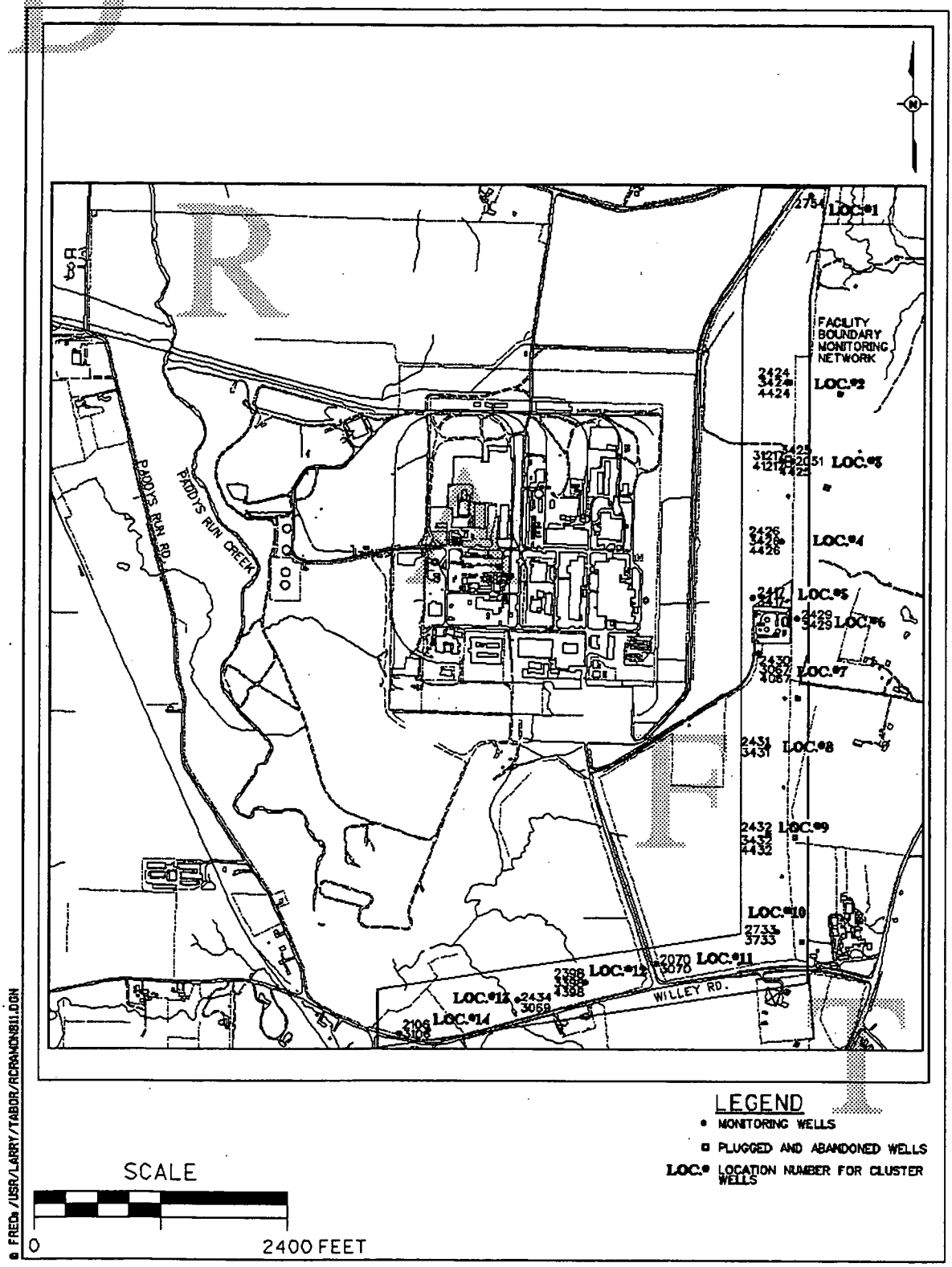

FIGURE 3-3 Routine Monitoring Program Wells

TABLE 3-1 Routine Monitoring Program Well Numbers

Location	2000 Series Wells	3000 Series Wells	4000 Series Wells
1	2754		
2	2424	3424	4424
3	2051	3425*, 31217	4425*, 41217
4	2426	3426	4426
5	2417	3417	
6	2429	3429	
7	2430	3067	4067
8	2431	3431	
9	2432	3432	4432
10	2733	3733	
11	2070	3070	
12	2398	3398	4398
13	2434	3069	
14	2106	3106	

* Plugged and abandoned

listed in Table 3-2. The purpose of sampling is to fulfill hazardous waste monitoring requirements through the CERCLA process per an agreement with OEPA in the September 10, 1993, Director's Findings and Orders.

Routine monitoring is conducted for OU5, and data from the monitoring wells are compiled in RCRA Annual Reports for Ground Water Monitoring. The routine monitoring program is described in the Project Specific Plan for the Routine Groundwater Monitoring Program Along the Downgradient Boundary of the FEMP (WBS No. 50.03.20).

3.4.3 NPDES Monitoring

An NPDES permit will remain in effect for the duration of site remediation. The permit establishes wastewater monitoring locations, required pollutant monitoring, and any necessary effluent limitations to ensure the Great Miami River water quality is maintained. The NPDES permit will be modified during the life of remediation activities to reflect the changing needs during different remedial actions. NPDES permits are issued for a maximum of five (5) years. NPDES monitoring is a routine program. This monitoring will ensure that wastewater management activities are sufficient to meet the requirements of the NPDES permits. All decontamination water or discharge waters from decontamination and dismantlement activities will be evaluated based on process knowledge for constituents of concern. As necessary, water will be sampled for compliance with the current NPDES permits prior to discharge to the general sump. Any water that does not comply with these permit levels shall be treated at the Plant 8 Sump prior to discharge to the general sump. This water will, at a minimum, be analyzed for pH, lead, copper, nickel, chromium, and total uranium. Additional analytes may be added due to contaminants expected to be present in the component(s) being decontaminated. Following initial characterization of wastewaters by OU3 for contaminants of concern, OU5 will be responsible for monitoring, treatment (if necessary), and discharge of wastewaters that are generated during above-, at-, and below-grade remediation.

3.5 Interim Storage Facility Monitoring

There is not any apparent need for additional monitoring of the environment around interim storage facilities with respect to air, groundwater, and surface water monitoring, as existing

TABLE 3-2 Routine Monitoring Program Parameter List

Inorganics:		
Aluminum	Antimony	Arsenic
Barium	Beryllium	Cadmium
Calcium	Chromium	Cobalt
Copper	Cyanide	Iron
Lead	Magnesium	Manganese
Mercury	Nickel	Potassium
Selenium	Silver	Sodium
Thallium	Vanadium	Zinc
General Chemistry:		
Alkalinity	Ammonia	Chloride
Fluoride	Nitrate	pH
Phenols	Phosphorus (total)	Specific conductance
Sulfate	Temperature	Total Organic Carbon (TOC)
Total Organic Halogens (TOX)	Total Organic Nitrogen (TON)	
Volatile Organics:		
1,1-Dichloroethane	1,1-Dichloroethene	1,1,1-Trichloroethane
1,1,2-Trichloroethane	1,1,2,2-Tetrachloroethane	1,2-Dichloroethane
1,2-Dichloroethene(Total)	1,2-Dichloropropane	2-Butanone
2-Hexanone	4-Methyl-2 Pentanone	Acetone
Benzene	Bromodichloromethane	Bromoform
Bromomethane	Carbon disulfide	Carbon tetrachloride
Chlorobenzene	Chloroethane	Chloroform
Chloromethane	cis-1,3-Dichloropropene	Dibromochloromethane
Ethylbenzene	Methylenechloride	Styrene
Tetrachloroethene	Toluene	Total xylenes
trans-1,3-Dichloropropene	Trichloroethene	Vinyl acetate
Vinyl chloride		
Radiological:		
Gross Alpha	Gross Beta	Radium 226
Radium-228	Technetium-99	Thorium-228
Thorium-230	Thorium-232	Total thorium*
Total Uranium	Uranium-234	Uranium-235/236
Uranium-238		

* Total Thorium Calculated

programs should be sufficient. Existing ambient monitoring stations will meet the necessary monitoring requirements. All groundwater monitoring programs are to be managed through existing activities for OU5. In addition, pursuant to Removal No. 17, Section 3.4, no soil monitoring should be necessary as part of any ongoing interim storage facility monitoring.

All containerized water will be handled on a case-by-case basis. Wastewater handling decisions will be made from analytical data. Data will be generated from a "contaminants of concern" list. These contaminants will be selected from a master list of pollutants including radionuclides, heavy metals, VOCs and SVOCs. The "contaminants of concern" list will be generated based on the source of wastewater and should be included in any sampling plans.

3.6 Hazardous Waste Management Units

The OU3 interim remedial action sampling approach for HWMUs would be on a case-by-case basis, and sampling details would be outlined in the SAP addenda. The sampling of these units would have to be in accordance with 40 CFR 264.111, 264.114, 265.111, 265.114 as well as OAC 3745-66-11 or 3745-55-11 and OAC 3745-66-14 or 3745-55-14. All contaminants must be identified for each HWMU, including listed and characteristic wastes. Characterizations of residues should be consistent with the Site Waste Determination Plan (DOE 1990c). Characterization of material/debris from demolition of HWMUs should be performed according to the "Material/Debris Rule" for Land Disposal Restrictions (LDR) (i.e. clean material/debris surface, physical extraction techniques, etc.). The standards are specified in the Closure Plan Review Guidance (OEPA 1993a). Specifically, HWMU sampling and analysis plans must follow LDR restrictions and waste characterization requirements.

3.6.1 Soil Sampling

All units where there is evidence of potential for leaks or spills or potential for waste constituent migration (40 CFR 261 Appendix VIII or 40 CFR 264 Appendix IX) must include sampling to determine the nature and full extent of soil contamination. Such sampling will however be identified by the OU5 RD/RA work plan.

3.6.2 Background Soil Sampling

Background samples are used to compare the natural condition of soils to the potentially contaminated area. Background samples are needed when the hazardous waste constituent of interest naturally occurs in soil, such as heavy metals. For these constituents, evidence must be provided that the hazardous constituents are naturally occurring. Situations will exist where the surrounding area or matrix (i.e., groundwater, air, soil) has historically been affected by sources outside of the site under investigation. As indicated above, however, the sampling of soils adjacent to HWMUs and any sampling needs in these areas will be addressed by the OU5 RD/RA work plan.

3.6.3 Sampling Methods

Sampling methods and equipment will follow guidance in SW-846 (see 40 CFR 260.11 and OAC 3745-50-11). Volume II of SW-846 provides guidance on many areas of environmental and waste sampling. Field sampling methods, including soil sampling, not included in SW-846 must be acceptable to OEPA before they are used in conjunction with an HWMU. When available, standard procedures, as defined by USEPA or OEPA, will be followed.

3.6.4 Analytical Methods

Analytical methods from SW-846 will be used and cited, unless no SW-846 method exists, in which case the FEMP will propose and justify a method. Combustible gas indicators, calorimetric indicator tubes, and photoionization detectors commonly used as field instruments are not acceptable substitutes for SW-846 methods; they may be used to suggest the presence, but not the absence, of hazardous constituents. If portable field instruments are used, they will be confirmed by SW-846 methods.

3.6.5 Verification Sampling

OEPA discourages the use of wipe samples for verification of decontamination unless rinsate sampling or other means of decontamination are impractical or dangerous (e.g., electrical equipment). An independent engineer will certify the methods used and that the minimum

amount of residue remains in accordance with OEPA's rinsate standards. The following rinsate standards must be met before the surface of a storage pad or other structure of an HWMU could be considered "clean":

- Fifteen times the public drinking water maximum contaminant level (MCL) for hazardous constituents as promulgated in 40 CFR 141.11 and OAC 3745-81-11 for inorganics and 40 CFR 141.12 and OAC 3745-81-12 for organics;
- If an MCL is not available for a particular contaminant, then fifteen times the maximum contaminant level goal (MCLG) as promulgated in 40 CFR 141.50 shall be used as the clean standard; and
- If the product of fifteen times the MCL or MCLG exceeds 1 mg/l or if neither an MCL nor an MCLG is available for a particular contaminant, 1 mg/l shall be used as the clean standard.

Reusable equipment (e.g., earth moving equipment and stainless steel soil samplers) may be decontaminated by brushing or scraping material/debris from the exposed surfaces followed by at least three separate rinses. Although no chemical or physical analysis of the rinsate is required, rinsate must be managed as hazardous waste unless sampling results demonstrate that the rinsate is "non-hazardous." The solid material/debris should be managed as solid or hazardous waste or decontaminated soil depending on the wastes in the HWMU and the sampling results. In the absence of analytical data, material/debris is presumed to be hazardous waste.

All rinsates containing concentrations of hazardous constituents, including decay products, derived from listed waste(s) and exceeding the standards previously listed, shall be managed as listed hazardous wastes. For characteristic wastes, the rinsate need not be managed as hazardous waste unless it continues to exhibit one of the characteristics specified in 40 CFR 261 and OAC 3745-51. Rinsates may be managed as a wastewater as long as such activity is managed in strict compliance with the Clean Water Act and Ohio Water Pollution Control Law.

3.6.6 Responsibilities for Integration of OEPA Substantive Closure Requirements

Decontamination Effort of HWMUs

Decontamination of the structures and equipment within HWMUs will be conducted under the OU3 RD/RA work plan for interim action. Details will be outlined in the design packages. Activities concerning soils and groundwater will be conducted under the OU5 RD/RA work plan.

Sampling and Analysis Plan for HWMUs

The OU5 RI Report will describe the nature and extent of soil contamination with the OU5 RD/RA fulfilling any data gaps identified in the OU5 RI. The OU5 FS will offer options for treatability efforts. Verification of cleanup through sampling and analyses will be through OU5 RD/RA as well as OU3 RD/RA. This may be implemented by supplemental (additional) sampling for OU3 to support media interim storage and dispositional requirements.

3.7 Sampling Approach Implementation

As discussed throughout the SAP, once a remediation project is defined, a SAP addenda will be generated to identify the sampling needs reflective of the particulars of the components of which the package is comprised. Specifically, development of the SAP will take into consideration available information, as discussed in Section 3.1, identify data gaps, and establish a sampling approach to be undertaken to satisfy those data gaps. In actuality, the SAP addenda will be a living document in that it will need to cover sampling which could potentially take place at various stages in the design/remediation process, sampling that may not easily be defined in its entirety at the beginning, and which may change as additional data gaps arise through the process. As shown in Figure 2-1, sampling may be needed prior to the design, during design, during the OU3 interim remedial action, and/or after the OU3 interim remedial action (i.e., as part of the remedial action for the final action ROD). Sampling which is to take place during this last stage of the process will not be discussed herein, since it will occur as a part of the sampling associated with the final action ROD. Although the timing of some of the sampling identified in Sections 3.2 through 3.6 may be certain at the beginning of the project, uncertainties/unknowns/resampling may result in the need to supplement the SAP addenda as the project progresses through the various stages, to address these changes.

The following paragraphs take the sampling identified in Sections 3.2 through 3.6 and show how this sampling is expected to fit into the stages of the design/remediation process identified above. For the purposes of the discussion which follows, the term sampling is used to identify field screening and/or intrusive sampling. Specifics as to the actual type of sampling proposed to be employed can be obtained from the discussion is Sections 3.2 through 3.6.

Pre-Design

Efforts will be made early on in the design process (i.e., during pre-design) to identify as much of the needed sampling as possible. In this way, the process will facilitate the performance of sampling as early as possible to fulfill as many data needs as possible. This early sampling not only reduces coordination efforts (e.g., having to coordinate sampling activities with those activities of the *remediation subcontractor*), but more importantly places a higher degree of certainty on the information presented in the design package. Specifically, the more information that is available at the early stages of design, the more specific the current situation can be presented to the remediation subcontractor in the bid package, and the less chance that there will be for delays/changes necessitated by uncertainties.

It is anticipated that a limited amount of sampling will be required to support HWMU closure activities. HWMU closure verification sampling, if required, (discussed in Section 3.6) should be defined at this stage of design. It is also anticipated, and highly likely that sampling needed to support interim storage of the OU3 media generated through the decontamination and dismantlement efforts, can be defined during the pre-design stage. As discussed in Section 3.2, this applies to sampling which may also be economically feasible to fulfill data needs for potential treatment/disposition. If any baseline monitoring is needed to support assessment of the environmental monitoring during decontamination and dismantlement, as discussed in Section 3.4, this sampling could possibly be included at this stage.

During Design

During design, sampling will most likely consist of efforts to supplement data needs addressed through the pre-design. Specifically, sampling during design will generally consist of re-sampling to fill data gaps which arise in addressing the data needs upon which the pre-design sampling is based. Causes of such data gaps could include invalid data, unknown conditions,

etc. The primary purpose of this sampling is, as with the pre-design sampling, to minimize uncertainties in the design.

During the OU3 interim remedial action

During the actual decontamination and dismantlement, there are various data needs which will need to be addressed through sampling, which could not have been addressed through earlier sampling efforts, as well as any additional sampling which might be needed to further supplement previously initiated sampling efforts (particularly with respect to interim storage requirements). During the decontamination and dismantlement, the environmental monitoring discussed in Section 3.4 will be performed. In addition, the characterization of secondary waste streams generated through the decontamination and dismantlement efforts will be addressed. If HWMU cleanup is not completed under the Safe Shutdown efforts, verification sampling associated with any cleanup efforts to be undertaken by the remediation subcontractor need to be addressed.

Sampling during the OU3 interim remedial action will also include sampling not specifically associated with the decontamination and dismantlement of components. For instance, for the portion of the OU3 materials which can be dispositioned through the OU3 interim remedial action, sampling to support these disposition efforts will probably take place at this stage. Specifically, as discussed in Section 3.2, such sampling efforts would include sampling of non-recoverable/non-recyclable materials for shipment to NTS and/or sampling to support shipment of recyclable materials to a recycle/reuse facility.

In order to verify that control measures adequately minimize fugitive emissions, samplers will be installed in the vicinity of the facility being decontaminated or dismantled. Samplers will be placed on the perimeter boundary of each project area. The sample filters from these samplers will be removed and analyzed at a minimum for gross alpha and beta activity.

Due to current technology limitations, "real-time" monitoring for airborne uranium and thorium will not be performed any time in the near future at the FEMP. However, DOE is commited to continually seek more reliable, real-time air monitoring methods. The problem which results in the FEMP's inability to use real-time monitoring~~This~~ is due to naturally occurring and/or process enhanced radon and thoron (short-lived) daughters that are present in ambient air. These short-lived daughters have been found to interfere with the spectra in the specified region of interest for long-lived uranium and thorium, when utilizing state-of-the-art alpha spectroscopy Continuous Air Monitors.

For the reason noted above regarding occupational air monitoring for airborne radioactivity, all air samples collected for long-lived uranium and thorium must be "decay counted" for a period long enough to ensure that all radon and thoron daughters are no longer present on the air sample filter when the sample count analysis is performed. Counting is performed on a laboratory alpha/beta low background counter, analyzed for gross alpha and beta, corrected for background and system efficiency, and the results recorded in microcuries per cubic centimeter. Verification of radionuclide(s) present is performed by alpha or gamma spectral analysis, after the decay count is performed, but only when there is reason to believe that isotopes other than uranium mat be present. Uranium is the primary radiological airborne hazard at the FEMP.

Asbestos air monitoring will be used for work that will potentially release asbestos fibers from non-friable asbestos. A thirty-minute breathing zone air sample will be collected where the potential for releasing asbestos fibers is greatest. General area air samplers will be collected outside the asbestos work area to evaluate the effectiveness of control measures used during asbestos work activities. See Section 4.1.3 of the OU3 RD/RA Sampling and Analysis Plan for further information on asbestos air monitoring. The proposed sampling for project-specific occupational asbestos monitoring is an average of 6 - 10 breathing zone samples collected and analyzed daily. This may be per component or per group of components, depending on

the established work zone. Samples are sent to off-site labs for analysis or to the on-site lab if available.

Personal Air Sampling (PAS) for airborne radioactivity will be emphasized for monitoring personnel per the guidelines listed below. Personal air sampling shall be conducted whenever the work permit specifies personal respiratory protection be worn, or when personnel are expected to perform any of the following activities:

- the opening or breaching of any closed system which has the potential for containing radioactive materials or uranyl nitrate solution;
- drum/waste container sampling, filling, or dumping activities associated with construction activities;
- miscellaneous waste material compaction, crushing, or shredding in support of construction activities;
- decontamination and/or demolition activities; and
- burning, welding, or weld cutting on contaminated surfaces which contain levels greater than either of the values (removable or total) specified in Table 2-2 of DOE Radiological Control Manual.

At least twenty-five percent of the individuals present in those areas where the above work activities are being performed will be equipped with a PAS sampling device.

General Area (GA) and Breathing Zone (BZ) high volume "grab" samples will be collected at select locations of each project area to supplement the collected PAS air data and monitor ambient and work area airborne concentrations.

A Photoionization Detector (PID) may be used periodically to test for organic vapors and measure breathing zone contaminants. Its use as well as monitoring frequency will be based upon recommendation of the Industrial Hygiene Section. If organic vapors are detected, process knowledge will be used to identify them; when process knowledge is not available, organics will be treated as unknowns. Calorimetric indicating detector tubes may be used to measure levels of specific organic vapors as well as inorganic vapors, such as NO_2, Nitric Acid, etc. The MIE RAM-1 may be used to monitor for airborne particulates.

Section 3

USEPA and OEPA Comments to the Building 4A Implementation Plan and DOE Comment Responses

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Section 3 -- USEPA and OEPA Comments to the Building 4A Implementation Plan and DOE Comment Responses

The following section includes a reiteration of the USEPA and OEPA comments with corresponding comment responses by DOE. If a revision was made to the Building 4A Implementation Plan, the comment response refers to Table 3 in Section 4 of this comment response package for an identification of the affected pages. These pages are as contained in the Draft Final Building 4A Implementation Plan submitted with this response package.

A summary listing of all affected pages resulting from revisions made to the Building 4A Implementation Plan has been included in Section 4 of this package. The comment responses reflect the discussions held between USEPA, OEPA, DOE, and FERMCO during the November 28, 1994 telephone conference and the December 6, 1994 meeting held at USEPA Region 5.

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Responses to USEPA General Comments on the Building 4A Implementation Plan

Section #: NA *Page #: NA* *Line #: NA*
Original General Comment #: 1
Comment: The implementation plan describes the materials expected to be generated by the decontamination and dismantling of Building 4A. However, the preliminary design drawings should be presented in order for the U.S. Environmental Protection Agency (EPA) to provide meaningful comments. In addition, the pre-final design drawings and specifications should be submitted for EPA review.

Response to General Comment #1

It was agreed at the December 6, 1994 meeting that the implementation plan generally contains the key elements of design in textual form in a description of the overall remediation approach, although some minor enhancements have been made to the text in the form of summary statements of information provided by the performance specifications. It was also agreed that the inclusion of some selected drawings, particularly of the floor plans of Building 4A, would be appropriate. In this regard, thirteen drawings have been added to the Building 4A Implementation Plan as Appendix D. Regarding the performance specifications, those prepared for Building 4A have been included in Appendix C to the RD/RA Work Plan. Table 3 of this comment response package identifies these revisions to both documents. In addition, it was agreed that if new performance specifications are developed for future projects, or if existing ones are revised for those projects, they will be provided to USEPA and OEPA with the respective Implementation Plan.

Section #: NA *Page #: NA* *Line #: NA*
Original General Comment #: 2
Comment: The material segregation categories are described in detail. The material disposition is, however, not specified. DOE should provide waste acceptance criteria for the categories of materials specified in the document, and should detail the volumes of materials that will be disposed of off site or that will be retained on site for reuse, recycling, or future disposal.

Response to General Comment #2

With the proposed revisions to the OU3 RD/RA Work Plan, disposition options for specific material streams along with applicable waste acceptance criteria will be identified for all projects that take place during the interval period. It should be noted that the OU3 FS/PP will discuss the details of disposition with greater finality. However, Section 3.4 and Appendix A of the RD/RA Work Plan have been revised to identify the current disposal facilities for off-site disposal and off-site processing/disposition for each material category. Table 2-2 of the implementation plan was intended to identify only material volume estimates and

corresponding segregation and packaging information for the project. Although the implementation plan approach is to identify project-specific information that is not common to the overall interim action, it is evident that briefly repeating the intended disposal locations and referencing applicable material acceptance criteria would enhance the discussion of project-specific material management. Also, it is evident that a statement is needed for Section 2.3.3 which identifies that all materials listed in Table 2-2 are low-level radiologically contaminated. Please refer to Table 3 contained in Section 4 of this comment response package for the location of specific affected pages in the revised Building 4A Implementation Plan that addresses this comment.

40. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: *Pg.#1* *Line#: 10* *Code: C*
Original Comment #
Comment: *Building 4B will be available as an interim storage until it is available for remediation in another project. Does this imply that waste will be handled twice. Is a better storage location available?*

Response to Comment #40

This statement does not imply that waste will be handled twice. Building 4B has been identified as a facility that will be needed for storage of *existing waste inventories* prior to their disposition. The OU3 RD Prioritization and Sequencing Report will identify when Building 4B will be available for remediation. Note that the Plant 1 Storage Pad has been identified in Section 2.2.4 of the implementation plan as the primary location for interim storage of materials from the Building 4A project.

41. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: *Pg.#1* *Line#: 15* *Code: C*
Original Comment #
Comment: *The implementation plan "replaces" the submittal of multiple design and construction documents which have been prepared for this project. Please elaborate what technically is being replaced. Is the level of detail adequate to accomplish this replacement?*

Response to Comment #41

This statement in the Building 4A Implementation Plan has been revised to elaborate what is being replaced. Specifically, a reference has been added that refers back to the OU3 RD/RA Work Plan, Sections 4.5 and 4.6 where these documents are described. With the various modifications made as a result of the USEPA/OEPA comments, and miscellaneous unilateral enhancements (see Table 4 in Section 4 of this document), it is DOE's judgement that the implementation plan includes the level of detail needed to determine whether activities are consistent with the intent of the IROD. Please refer to Table 3 contained in Section 4 of this comment response package for the location of specific affected pages in the revised Building 4A Implementation Plan that addresses this comment.

42. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: *Pg.#2* *Line#: 7* *Code: C*
Original Comment #
Comment: *The preparatory actions: (1) removal of existing product and waste inventories; and (2) safe shut-down are described as not within the scope of the interim remedial action. These actions are clearly defined as Phases of Remedial Activities during the OU3 Interim Remedial Action in Volume One of the Work*

Plan, Page 3-15. Please correct or clarify both documents.

Response to Comment #42

As stated in the response to Comment #21, the title for Figure 3-1 has been revised to: "Remedial Tasks Prior to/During Remedial Action". The text supporting that figure has also been clarified to state that the remedial activities identified in the figure reflects two preparatory actions that will occur prior to remedial action. Please refer to Table 1 contained in Section 2 of this comment response package for the location of specific affected pages in the revised RD/RA Work Plan that addresses this comment.

43. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: *Pg.#2* *Line#: 5* *Code: C*
Original Comment #
Comment: Will the implementation of Operable Unit 5 remediation take place in a timely manner to allow at and below-grade remediation?

Response to Comment #43

As stated in Section 3.2.2, page 3-8, lines 27 - 29 of the September 1994 Draft RD/RA Work Plan, an integrated OU3/OU5 schedule for at- and below-grade remediation will be based on the outcome of planning related to the preferred alternative for OU5 and be included in the OU3 RD Prioritization and Sequencing Report. It is anticipated that the OU5 schedule will drive OU3 at- and below-grade remediation.

44. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: *Pg.#2* *Line#: 16* *Code: C*
Original Comment #
Comment: This appendix includes a list of the performance based specifications, not the specifications themselves. The statement is made that these specifications are appropriate; without the specifications this statement cannot be verified.

Response to Comment #44

The list of performance specifications was provided, rather than the specifications themselves, to provide the reader with a reference to each specification (under SECTION). Sections 2 and 3 of the Building 4A Implementation Plan has been revised to make the connection clear between the material management (Section 2.2) and other task requirements (Sections 3.1 through 3.6) and the performance specifications by explaining that those specifications were used in developing the task descriptions and by providing the references to the list within each task. Also, specific text contained within Sections 2 and 3 was enhanced to add more detail from the performance specifications, as appropriate. To facilitate an understanding of the role

that the performance specifications play in the overall remediation process, the specifications for the Building 4A project have been included in the RD/RA Work Plan as an appendix (Appendix C), as agreed in the December 6, 1994 meeting. As also agreed upon at the December 6, 1994 meeting, if new specifications are developed for future projects or if existing ones are revised for those projects, they will be provided to USEPA/OEPA with the respective Implementation Plans. Please refer to Table 3 contained in Section 4 of this comment response package for the location of specific affected pages in the revised Building 4A Implementation Plan and RD/RA Work Plan that address this comment.

45. Commenting Organization: OEPA *Commentor: OFFO*
Section#: 2 *Pg.#4* *Line#: Figure 1-1* *Code: C*
Original Comment #
Comment: Figure 1-1 is not detailed enough to evaluate potential impacts of Building 4A remediation on adjacent areas. Provide detail such as that in a detailed design package.

Response to Comment #45

Section 1.4 and Figure 1-1 were included in the implementation plan to show the location of Building 4A in proximity to surrounding FEMP features. Figure D-2, which shows the surrounding areas and structures and identifies items requiring special attention for protection from damage, has been added to the Implementation Plan in an attempt to address this issue. Figure 2-2 (Construction Zone) provides additional summary level features of the construction zone that relate to potential impacts to surrounding areas and structures. Please refer to Table 3 contained in Section 4 of this comment response package to identify the pages that were affected by addressing this comment.

46. Commenting Organization: OEPA *Commentor: OFFO*
Section#: 2 *Pg.#6* *Line#: Table 2-1* *Code: C*
Original Comment #
Comment: Please list the values for total alpha in this table.

Response to Comment #46

Alpha values were not obtained in earlier investigations/surveys and therefore are represented in Table 2-1 as "Not Available". A footnote has been added to that table to clarify the meaning of "N/A". Please refer to Table 3 contained in Section 4 of this comment response package for the location of specific affected pages in the revised Building 4A Implementation Plan that addresses this comment.

47. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: *Pg.#7* *Line#: 3* *Code: C*
Original Comment #
Comment: *The document refers to the Work Plan for additional detail on the management of primary materials. The Implementation Plan should provide additional detail beyond the original Work Plan, which is expected to be more general and less project specific. The Implementation Plan should allow the original strategies and general tasks to be more focussed and specific.*

Response to Comment #47

Some additional project-specific information was added to Section 2.2 of the Building 4A Implementation Plan. DOE is unaware of a statement in the implementation plan that infers that additional detail is available in the RD/RA Work Plan. The first sentence of Section 2.2 is accurate by stating that the information provided in that section are project-specific applications of the concepts and strategies for material management that were presented in Section 3.4 of the RD/RA Work Plan. Please refer to Table 3 contained in Section 4 of this comment response package to identify the location of pages affected by the revisions noted above.

48. Commenting Organization: OEPA *Commentor: OFFO*
Section#: 2 *Pg.#7* *Line#: 15* *Code: C*
Original Comment #
Comment: *Not enough detail is presented on decontamination waters and the incentives that the subcontractor will have to reduce the volume of secondary wastes that are generated. OEPA will also need more detail on the batch-wise collection of wash waters and the storage and sampling thereof. It is not clear when samples will be collected for wash waters and what the criteria are for sampling them.*

Response to Comment #48

Section 3.4.3 of the SAP provides considerable detail on sampling (e.g., criteria, analytes, etc.) that applies to the Building 4A project. However, it is appropriate to identify any specific analytes, beyond what is specified in Section 3.4 of the RD/RA Work Plan and Section 3.4.3 of the SAP, in Section 2.2.2 of the implementation plan. This revision has been made. Additionally, project-specific detail on the collection mechanism (containers or sump) and incentives that the remediation subcontractor has to reduce the volume of secondary wastes that are generated have been included in the revision to Section 2.2.2 of the implementation plan. In addition, Section 3.4.3 of the RD/RA Work Plan (Waste Minimization) has been revised to clarify that performance specifications are prepared in a manner that requires the minimization of wastes. Section 3.4.2 of the RD/RA Work Plan (Management of Secondary

Wastes) has also been revised to include a reference to waste minimization. Please refer to Table 3 contained in Section 4 of this comment response package for the location of specific affected pages in the revised Building 4A Implementation Plan that address this comment.

49. Commenting Organization: OEPA *Commentor: OFFO*
Section#: 2.3 *Pg.#7* *Line#:* *Code: C*
Original Comment #
Comment: The described environmental air monitoring program does not appear to be adequate to determine if excessive airborne releases are occurring. Samples that are collected weekly will not alert those in charge of health and safety of a problem until it is too late to take preventative measures (see Comment under Section 8.1 in the Health and Safety Plan). In addition, the FEMP has not provided a list of technologies under consideration to help control airborne contaminants. Please provide in the document a list of the alternatives available and a description of the method selected. OEPA has not seen any commitment to the development of real time air monitoring or to change this plan to utilize new air monitoring technologies as they develop.

Response to Comment #49

DOE is committed to using the best available real-time air monitoring technology that can be reliably used at the FEMP. Upon development of a better, more reliable technology, the FEMP will employ it. This commitment has been added to Section 8.1 of the HASP as noted in the response to Comment #38. However, this comment identifies a health and safety concern as opposed to environmental air monitoring. Please note that Section 2.3 of the Building 4A Implementation Plan primarily addresses the project-specific *environmental* sampling efforts that supplement the overall environmental air monitoring program described in Sections 3.7.3 of the RD/RA Work Plan and Sections 3.4.1 and 4.1.3 of the SAP. *Health and safety* air monitoring, is detailed in SAP Sections 3.4.1 (Occupational Air Monitoring) and 4.1.3 (Health and Safety and Physical Measurement Instruments), and Section 8.1 of the Health and Safety Plan. In recognition that occupational air monitoring results will not be immediately available, a radiation exposure assessment is performed prior to any activity within a radiological controlled area based on existing radiological levels in the work area and the type of activities to be performed. This assessment is done to determine what requirements are needed (e.g., personal protective equipment, engineering and administrative controls, contamination removal/fixing requirements, etc.) to ensure that exposure levels do not exceed 25% of Derived Air Concentration (DAC) values. DACs limits are specified in 10 CFR 835 for particular radionuclides. A Radiation Work Permit (RWP) which specifies all applicable requirements is required prior to commencing work. If conditions exist or are likely to exist

in the work area whereby radiation levels are elevated, real-time pocket dosimeters will be stipulated in a RWP. These devices, which are used in addition to standard thermoluminescent dosimeters, provide a worker with real time indication of gamma radiation dose received. When results from Personal Air, Breathing Zone, and General Area sampling (discussed in Section 8.1 of the HASP) become available from occupational monitoring, an evaluation is performed by FEMP radiological engineers to determine the effectiveness of the methods used to reduce exposure.

For a listing of potential methods for preventing the release of airborne contaminants, please refer to Section 3.3.5 of the RD/RA Work Plan. In particular, the first paragraph of that section discusses potential methods, refers to Table 3-2 which lists them, and states that the selection will be made by the remediation subcontractor subject to DOE approval.

50. Commenting Organization: OEPA *Commentor: OFFO*
Section#: 2.3 *Pg.#10* *Line#:* *Code: C*
Original Comment #
Comment: *Ohio EPA believes that an independent environmental manager should have the ultimate authority to shut down any operation that is not performing to best management practices. Activities would not resume until new work practices are implemented.*

Response to Comment #50

DOE, as the lead agency for overseeing the performance of the OU3 interim remedial action, will be the ultimate authority to ensure that the RD/RA is performed in a manner that meets all project goals, standards, and specifications. Section 7 of the RD/RA Work Plan has been revised to include some discussion on this, as has Section 5 of this implementation plan. Please refer to Table 3 contained in Section 4 of this comment response package for the location of specific affected pages that addresses this comment. Also, it is anticipated that USEPA, OEPA, and other stakeholder inspections and review of the OU3 interim remedial action will provide additional independent oversight. In that regard, any concerns expressed by these groups would be properly addressed.

51. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: *Pg.#14* *Line#: 1* *Code: C*
Original Comment #
Comment: *Component-specific remediation should be referenced to the appropriate detailed performance specifications that apply.*

Response to Comment #51

References have been added, as appropriate. Please refer to Table 3 contained in Section 4 of this comment response package for the location of specific affected pages in the revised Building 4A Implementation Plan that address this comment.

52. Commenting Organization: OEPA *Commentor: OFFO*
Section#: 3 *Pg.#14* *Line#: 5* *Code: C*
Original Comment #
Comment: OEPA would like more detail on the building. A simplified blueprint or a detailed schematic that delineates the process areas, and gives an idea of the layout of the various floors would probably be detailed enough. This should also show the closed RCRA storage area. Photographs of some of the more unusual or non-standard equipment would be helpful.

Response to Comment #52

As agreed in the December 6, 1994 meeting, selected drawings from the design have been included in the Implementation Plan in Appendix D. In addition, selected photographs have been included as Appendix E. Please refer to Table 3 contained in Section 4 of this comment response package that identifies the new appendices to the Building 4A Implementation Plan. As agreed in the December 6, 1994 meeting, video images are available on request, but are not specifically part of this submittal.

53. Commenting Organization: OEPA *Commentor: OFFO*
Section#: 3 *Pg.#16* *Line#: 1* *Code: C*
Original Comment #
Comment: It should be explicitly stated here that the residual materials mentioned here are RCRA wastes and that this HWMU has been clean-closed under RCRA.

Response to Comment #53

This statement has been revised accordingly. Please refer to Table 3 contained in Section 4 of this comment response package for the location of specific affected pages in the revised Building 4A Implementation Plan that addresses this comment.

54. Commenting Organization: OEPA *Commentor: OFFO*
Section#: 3 *Pg.#20* *Line#: Table 3-2* *Code: C*
Original Comment #
Comment: Please state explicitly the substances that comprise the hold-up material.

Response to Comment #54

Hold-up materials referenced in Table 3-2 are compounds or materials in the form of residuals

that are left over in conveyance lines and equipment that resulted from the materials processed in those Process Areas listed in the table. Section 3 of the implementation plan identifies those compounds by Process Area. Table 3-2 has been revised to include a footnote that makes this reference. Please refer to Table 3 contained in Section 4 of this comment response package for the location of specific affected pages in the revised Building 4A Implementation Plan that addresses this comment.

55. Commenting Organization: OEPA *Commentor: OFFO*
Section#: 3 *Pg.#22* *Line#:* *Code: C*
Original Comment #
Comment: It appears that pipe wrapped in ACM will be disposed of as a unit. It seems that considerable cost savings would result if the pipe and the ACM were disposed of separately.

Response to Comment #55

Due to the high cost of labor and the additional exposure times involved, the decision to dispose of sections as bulk was made. Costs are anticipated to be comparable, since overall volume for disposal may not be greatly increased.

56. Commenting Organization: OEPA *Commentor: OFFO*
Section#: 3 *Pg.#23* *Line#: 2* *Code: C*
Original Comment #
Comment: This sentence is unclear. Is the criteria for radiological decontamination 1,000 dpm/100 cm^2 or 100 dpm/100 cm^2?

Response to Comment #56

The threshold value of 1,000 dpm/100 cm^2 is correct, however clarification has been made to the text to state that the values referenced pertain to criteria that must be met to open the structure's containment to the environment and that those values were derived by extrapolating free-release limit criteria stipulated in DOE Order 5400.5. The text, "or greater than 200 dpm/100cm^2 removable" has been deleted since it was included by error. Please refer to Table 3 contained in Section 4 of this comment response package for the location of specific affected pages in the revised Building 4A Implementation Plan that addresses this comment.

57. Commenting Organization: OEPA *Commentor: GeoTrans*
Section#: *Pg.#33* *Line#: 2-17* *Code: C*
Original Comment #
Comment: The same comments on the Work Plan management organization apply here.

Responses to OEPA General Comments on the Building 4A Implementation Plan

The roles of the various organizations, and their interactions should be presented more clearly. The reference to the Work Plan should be programmatic issues; more project specific project management information should be provided.

Response to Comment #57

As noted in the responses to Comment #s 34, 35, and 37, Section 7 of the RD/RA Work Plan has been revised to clarify responsibilities between the DEC team and the organizations that make it up. However, the statement made on Page 33, line 4 - 5, of the September 1994 Draft Implementation Plan is accurate in that the management structure presented in Section 7 of the RD/RA Work Plan is applicable to this project. The intent of Section 5 of the implementation plan was that it would describe only the project-specific responsibilities not already presented in Section 7 of the RD/RA Work Plan (i.e., the subcontract strategy). In the Draft Final version of the Building 4A Implementation Plan, however, the responsibilities of various individuals/organizations performing oversight of remediation subcontractor activities have been added to provide a more comprehensive picture of how the project will be managed to ensure that the project activities meet the intent of the IROD. Please refer to Table 3 contained in Section 4 of this comment response package for the location of specific affected pages in the revised Building 4A Implementation Plan that addresses this comment.

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Section 4

Building 4A Implementation Plan

Affected Pages Cross-Reference Tables

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Section 4 -- Building 4A Implementation Plan Affected Pages Cross-Reference Tables

This section includes Table 3, which lists the pages of the Building 4A Implementation Plan that were affected by revisions made as a result of USEPA and OEPA comments, and Table 4, which lists the pages of the Building 4A Implementation Plan that contained substantive revisions resulting from an internal review of that document. These listings refer to revised pages in the Final Draft Building 4A Implementation Plan which has been included with the submittal of this comment response package. The basis for inclusion of a Final Draft Building 4A Implementation Plan document is the anticipation of USEPA conditional approval of the document.

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TABLE 3 USEPA/OEPA Comment Responses and Building 4A Implementation Plan Affected Pages

USEPA Comment Response	Affected Section/Table	Affected Page(s)
USEPA General Comment #1	Appendix C to RD/RA WP (Specifications); Appendix D to Bldg. 4A IP (drawings)	WP Appendix C (new) IP Appendix D (new)
USEPA General Comment #2	IP Sects. 2.2.3, 2.2.4; Table 2-2	IP pp. 9 - 12, Table 2-2

OEPA Comment Response	Affected Section/Table	Affected Page(s)
OEPA Comment #40	IP Sect. 1.1	IP p. 1
OEPA Comment #41	IP Sect. 1.1	IP p. 1
OEPA Comment #42	IP Sects. 3.1 - 3.6	IP p. 21 - 28
OEPA Comment #43	IP Sect. 1.2	IP p. 2
OEPA Comment #44	IP Sects. 2.2 and 3 (incl. all subsects.); WP Appendix C	WP Appx. C IP pp. 8 - 9, 11 - 12, 15, 26 - 35
OEPA Comment #45	IP Appendix D (new)	IP Figure D-2
OEPA Comment #46	IP Table 2-1	IP p. 7
OEPA Comment #47	IP Sect. 2.2 (inclusive)	IP pp. 7 - 12
OEPA Comment #48	IP Sects. 2.2, 2.2.2	IP pp. 8 - 9
OEPA Comment #49	No revisions	N/A
OEPA Comment #50	WP Sects. 7.0, 7.2, Figure 7-2 IP Sect. 5	WP pp. 7-1, 7-7 through 7-9 IP pp. 40 - 41
OEPA Comment #51	IP Sects. 2.2 and 3 (incl. all subsects.)	IP pp. 8 - 9, 11 - 12, 15, 26 - 35
OEPA Comment #52	New Appendix required for drawings; New Appendix required for photos	IP Appendix D; IP Appendix E
OEPA Comment #53	IP Sect. 3.0	IP p. 19
OEPA Comment #54	IP Table 3-2	IP p. 24
OEPA Comment #55	No revision	N/A
OEPA Comment #56	IP Sect. 3.5	IP p. 27
OEPA Comment #57	IP Sect. 5	IP p. 40 - 41

IP = Building 4A Implementation Plan
WP = RD/RA Work Plan

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TABLE 4 (Introduction)

The revisions identified in Table 4 reflect changes made to the Building 4A Implementation Plan as a result of the need to update various aspects of strategies and other information previously presented in the September 1994 Draft. Although some revisions were made to improve clarity and grammatical correctness, this table does not identify those revisions unless they imparted any new or revised information. The most significant of these unilateral revisions are briefly discussed below.

The most significant unilateral DOE revision was the revision of the schedule for remediation of Building 4A. Since the contract award and Notice to Proceed were issued, the remediation schedule was revised to show actual calendar dates. The other significant DOE unilateral revision was the revision of the list of performance specifications to reflect Revision 3 which was made on November 30, 1994. The performance specifications that are in Appendix C of the December Draft Final Work Plan contains these revisions.

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TABLE 4 Other DOE Revisions and Building 4A Implementation Plan Affected Pages

Other DOE Revision	Affected Section/Table	Affected Page(s)
Glossary: added "Queuing Area", revised "Staging Area	Glossary	P. vi
Glossary: added "Roll-off box"	Glossary	P. vii
Component 4C and 7A now shown as pads	Figures 1-1 and 2-1	Figures 1-1 and 2-1
Category "C or K" revised to "A or C"	Section 2.2.3	P. 11
Remedial "phases" revised to "tasks"	Sections 2.4, 3.1 through 3.6	Pp. 15, 23, 26, 28 - 29
Basis of surface decontamination levels	Section 3.5	P. 28
Remediation schedule updated	Section 4 (Figure 4-2)	Figure 4-2
Sampling for Envirocare of Utah	Appendix A	P. A-2
Performance specifications list updated	Appendix C	P. C-2

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