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TRANSMITTAL OF COMMENT RESPONSE PACKAGE FOR THE DRAFT OPERABLE UNIT 3 INTEGRATED REMEDIAL DESIGN/REMEDIAL ACTION WORK PLAN

03/07/97

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DOE-FEMP EPAS
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RESPONSES

Department of Energy

Ohio Field Office
Fernald Area Office
P. O. Box 538705
Cincinnati, Ohio 45253-8705
(513) 648-3155

MAR 7 1997

DOE-0659-97

Mr. James A. Saric, Remedial Project Manager
U.S. Environmental Protection Agency
Region V - SRF-6J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Mr. Thomas A. Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

TRANSMITTAL OF COMMENT RESPONSE PACKAGE FOR THE DRAFT OPERABLE UNIT 3 INTEGRATED REMEDIAL DESIGN/REMEDIAL ACTION WORK PLAN

Reference: **Letter, J.A. Saric to J.W. Reising, "OU 3 Integrated RD/RA Work Plan," dated January 23, 1997.**

Letter, T.A. Schneider to J.W. Reising, "DOE FEMP MSL 531-029 Hamilton County, Comments: Draft OU3 Integrated RD/RA WP," dated February 7, 1997.

The purpose of this letter is to transmit to the United States Environmental Protection Agency (U.S. EPA) and Ohio Environmental Protection Agency (OEPA) the attached comment response package which provides Department of Energy (DOE) responses to comments from the regulatory agencies, referenced above, and changes made to the draft Operable Unit 3 (OU3) Integrated Remedial Design/Remedial Action (RD/RA) Work Plan.

The comment response package provides: 1) DOE responses to each of the U.S. EPA and OEPA comments; 2) a table that identifies additional, substantive DOE enhancements made to clarify or improve the document; and 3) work plan pages with affected text in redline/strikeout form. The pages of revised text in Section 3 of the response package reflect the draft final status of the work plan. Additionally, the Decontamination and Dismantlement Engineering Performance Specifications have been updated to incorporate lessons-learned from previous projects. The set of updated performance specifications replaces the Revision 0 version which was included in Appendix B of the draft work plan.

Recycled and Recyclable

With regard to DOE enhancements identified in the table provided in Section 2 of the response package, two items are of notable significance. The first item is listed as Enhancement No. 14, which retitles the milestone of "Certification of Construction Completion (CCC)" to "Completion of Field Activities (CFA)." The retitling also coincides with revisions of text that reflect the current site procedure for that activity. The second item is shown in Enhancement Nos. 19, 20, 21, and 23. These enhancements reflect the latest update to the OU3 base remediation schedule (Figure 6-1) and implementation plan submittal dates (Table 6-1), as provided for in Section 6.4 of the draft work plan, and are based on current funding projections for OU3 remedial action. Following approval of the revisions shown in the comment response package, DOE will execute redline/strikeout edits and finalize the work plan.

If you or your staff have any questions, please contact John Trygier at (513) 648-3154.

Sincerely,

Johnny Reising

Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Hall

Enclosure: As Stated

cc w/enc:

S. Fauver, EM-42/GTN
L. Parsons, DOE-OH
J. Hall, DOE-FEMP
J. Trygier, DOE-FEMP
G. Jablonowski, USEPA-V, 5HRE-8J
R. Beaumier, TPSS/DERR, OEPA-Columbus
F. Bell, ATSDR
D. S. Ward, GeoTrans
R. Vandegrift, ODOH
S. McLellan, PRC
AR Coordinator/78
EDC, FDF/52-7

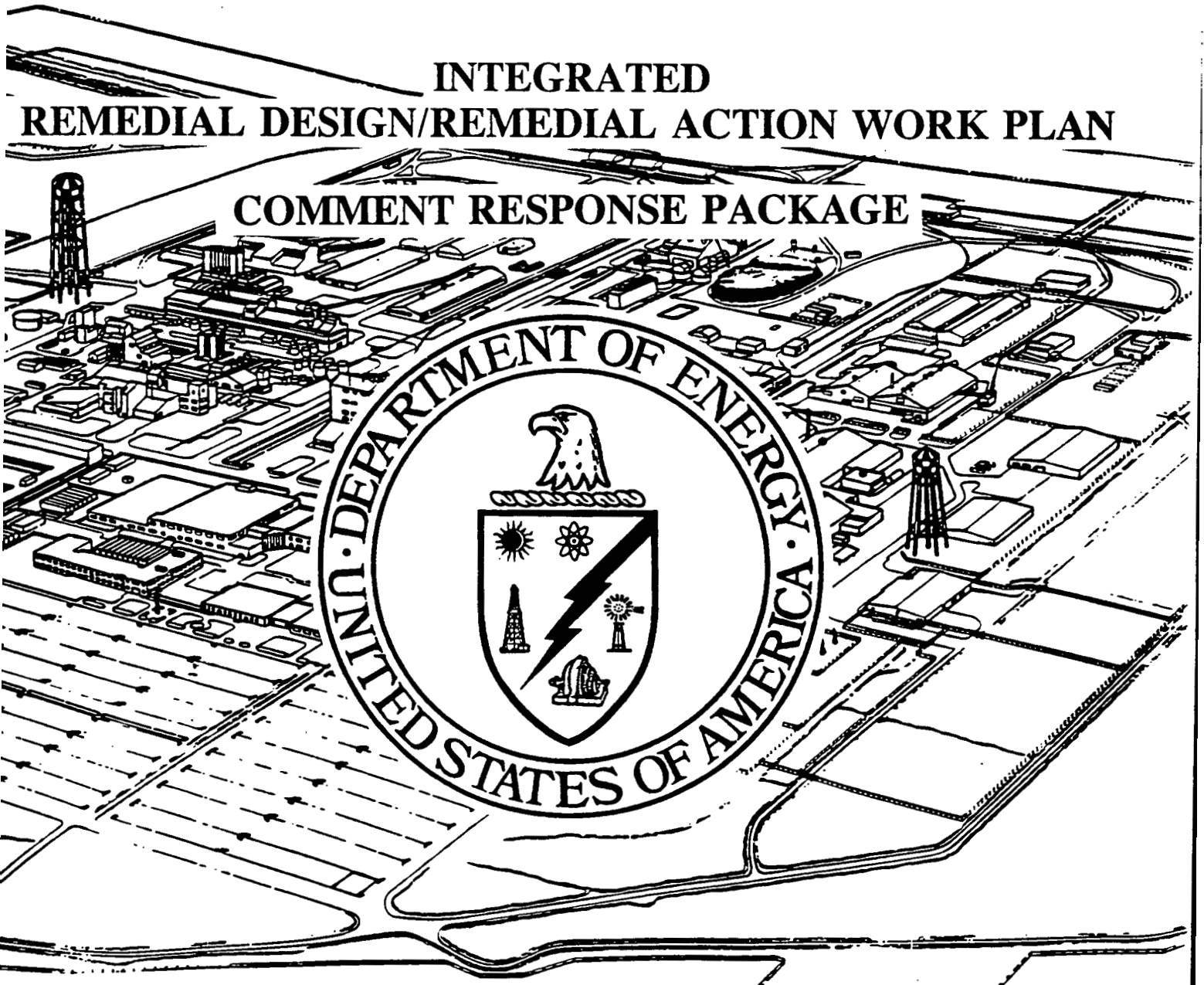
cc w/o enc:

T. Clark, FDF/52-3
P. Courtney, FDF/52-3
L. Goidell, FDF/52-3
T. Hagen, FDF/65-2
L. Miller, FDF/52-3

OPERABLE UNIT 3

INTEGRATED REMEDIAL DESIGN/REMEDIAL ACTION WORK PLAN

COMMENT RESPONSE PACKAGE



MARCH 1997

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

U.S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE

OPERABLE UNIT 3

INTEGRATED
REMEDIAL DESIGN/REMEDIAL ACTION WORK PLAN

COMMENT RESPONSE PACKAGE

MARCH 1997

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

U.S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE

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INTRODUCTION

This response package has been prepared in response to United States Environmental Protection Agency (U.S. EPA) and Ohio EPA (Ohio EPA) comments provided for the November 20, 1996 submittal of the Draft Operable Unit 3 (OU3) Integrated Remedial Design/Remedial Action (RD/RA) Work Plan. DOE comment responses and document revisions contained in this package result from the comments received from U.S. EPA dated January 23, 1997, and from the Ohio EPA dated February 7, 1997. This response package is organized into the following three sections:

Section 1: Includes a reiteration of U.S. EPA and Ohio EPA comments to the Draft OU3 Integrated RD/RA Work Plan, each of which are immediately followed by a DOE response.

Section 2: Provides a table that identifies additional DOE enhancements made to clarify or improve the document. The table references the appropriate redline/strikeout pages and line numbers included in Section 3.

Section 3: Provides pages from the work plan that have been revised as a result of U.S. EPA and Ohio EPA comments and DOE enhancements, showing the affected text in redline/strikeout form. The headers on the redline/strikeout pages contained in this section reflect the current status of the work plan (i.e., "Draft Final").

Additionally, since the decontamination and dismantlement engineering performance specifications were updated recently to incorporate lessons-learned from previous OU3 projects, a complete set of those specifications accompanies this comment response package as a separate attachment.

Following U.S. EPA and Ohio EPA approval of the revisions and enhancements made to the OU3 Integrated RD/RA Work Plan, the document will be finalized by removing redline markings for added text while deleting the text with strikeout markings. DOE will then provide the regulatory agencies with copies of the finalized document.

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SECTION 1

U.S. EPA and Ohio EPA Comments on the Draft OU3 Integrated RD/RA Work Plan and DOE Comment Responses

Section 1 includes a reiteration of U.S. EPA and Ohio EPA comments with corresponding comment responses by DOE. If a revision was made to the OU3 Integrated RD/RA Work Plan, the comment response will refer to a specific page or pages, and specific line numbers, in Section 3 of this comment response package wherein affected pages are shown in redline/strikeout form. Upon approval of these revisions, the redline/strikeout markings will be removed to finalize the document.

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Responses to U.S. EPA Comments on the Draft OU3 Integrated RD/RA Work Plan

GENERAL COMMENTS

U.S. EPA General Comment #1

The integrated work plan (IWP) indicates that project-specific implementation plans and project completion reports will be submitted for U.S. Environmental Protection Agency (U.S. EPA) review for each OU3 complex. The IWP should clarify that the project completion reports will present the results of project-specific environmental monitoring activities for each OU3 complex.

DOE Response:

Agree. Text has been added to Section 4.5 "Remedial Action Reporting" which requires that each project completion report present a summary of the results of environmental monitoring activities for each project. Please refer to the redlined text added to Page 4-29 (lines 12-13), which is included in Section 3 of this response package.

U.S. EPA General Comment #2

The IWP identifies an invitation for bid (IFB) process that includes issuing a list of questions that the low bidder has to answer to demonstrate that the bidder understands the statement of work (SOW), the design methodology, safety and health requirements, and quality assurance (QA) requirements (Page 4-17). These questions should be included in the IFB package so that all the bidders' responses can be formally evaluated.

DOE Response:

DOE does not agree that the "IFB" package should contain the referenced questions. As stated in Section 4.2.1 of the OU3 Integrated RD/RA WP, DOE may utilize either the IFB or Request for Proposal (RFP) process. The evaluation of an IFB is solely based on price (low bidder). The questions are sent to the "apparent low bidder" only as part of a responsibility determination. If the questions were included in the IFB package and the responses were evaluated formally to determine best value with the proposal, the type of solicitation would actually be an RFP.

U.S. EPA General Comment #3

The IWP provides insufficient detail regarding the integrated management of all OU waste materials (See Original Specific Comment 4). The IWP should be revised to address this issue.

DOE Response:

It should be noted that the OU3 Final Action ROD specifically adopted the Removal Action (RvA) 17 decisions made for the management of debris. The draft OU3 Integrated RD/RA Work Plan has been prepared with all of the detail that is necessary for OU3 to apply those decisions (including strategies and procedures) to debris from OU3 decontamination and dismantlement projects. Such detail is provided primarily in Sections 3.3.2.2 and 3.3.2.3 of the work plan. Although RvA 17 strategies and procedures adopted by OU3 also provide the framework for management of debris from other OUs, it is the responsibility of the other OUs to demonstrate that their debris management strategies are consistent with RvA 17.

Requirements that are central to management of all debris at the site under the strategies adopted from RvA 17 are reduction and potential fixation of contaminants from materials that will be stockpiled, containerization of materials that do not meet release criteria, control of potential contaminant release, and the integrated management of remediation materials.

Integrated management includes use of the Integrated Debris-Waste-Soil Model as a planning tool and the Sitewide Waste Information, Forecasting and Tracking System (SWIFTS) as the tracking and management tool. To emphasize that RvA 17 debris management strategies were developed for debris from all Ous, the clarifications made above have been added to the introduction of Section 3.2.3.3. Please refer to the redlined text provided on Pages 3-55 (lines 25-30) and 3-56 (lines 1-5) which are contained in Section 3 of this response package.

SPECIFIC COMMENTS

U.S. EPA Specific Comment #1

The text [Section 2.5: p. 2-16, lines 25 - 29; and p. 2-17, lines 1 - 2] identifies five aboveground structures that are planned to be used to support OU5 groundwater remediation and states that the schedule for dismantling these structures was not included in the prioritization and sequencing report (PSR) and the PSR schedule updated on July 24, 1996. The schedule for dismantling the five aboveground structures is not discussed in the IWP. The IWP should be revised to present the schedule for dismantling the five aboveground structures.

DOE Response:

Recognizing that the period of OU5 soil and water remediation efforts will most likely extend significantly beyond that for OU3 remediation, OU3 has deferred remediation planning and scheduling of OU5 long-term remediation facilities to OU5 remedial action planning. The referenced text on Pages 2-16 and 2-17 has been revised to refer the reader to the Sitewide Excavation Plan which provides scheduling and remedial action scope for the dismantlement of the five OU5 above-grade long-term remedial action facilities. Section 3.4.3.4 of the OU3 Integrated RD/RA Work Plan also has been amended to provide that reference. Please refer to the redline/strikeout text shown on Pages 2-16 (lines 27-32), 2-17 (lines 1-7), 2-18 (line 26), and 3-93 (lines 25-27) which are included in Section 3 of this response package.

U.S. EPA Specific Comment #2

The text [Section 2.5: p. 2-21, lines 6 - 8] states that the Miscellaneous Complex consists of general components that will be included piecemeal in other complexes. The text then identifies the Miscellaneous Complex reassignments. The text should be revised to clarify that the list of Miscellaneous Complex reassignments is a complete list of all general components to be included piecemeal in other complexes.

DOE Response:

Agree. This clarification has been added to Section 2.5. Please refer to the redline/strikeout text added to Pages 2-16 (lines 17-21) and 2-21 (lines 9-19), which have been included in Section 3 of this response package.

U.S. EPA Specific Comment #3

The text [Section 3.3.2.2: p. 3-52, lines 1 - 2] states that the Sitewide Waste Information, Forecasting and Tracking System (SWIFTS) database is a computerized system that was designed to allow for tracking of all wastes from project generation to disposition location. The text provides no information regarding how the SWIFTS database will assist in integrating the management of OU3 waste materials with the management of waste materials from the other Ous. In addition, no information is provided regarding the reporting capabilities of the

SWIFTS database. The text should be revised to clarify this issue or to appropriately reference where this information can be found.

DOE Response:
Agree. The text in Section 3.3.2.2 has been revised to address the points of clarification that U.S. EPA requested. In the revision, SWIFTS reporting capabilities and OU integration issues have been discussed. Please refer to the redline text added to Pages 3-55 (lines 4-19, 25-30) and 3-56 (lines 1-5), which are included in Section 3 of this response package.

U.S. EPA Specific Comment #4
The text [Section 3.3.2.3: pp. 3-52 through 3-57] discusses the details of staging and interim storage of debris. However, the text does not specify the measures that will be taken to prevent spreading of contaminated debris by wind, surface runoff, and animals. The text should be revised to discuss these measures.

DOE Response:
Agree. Section 3.3.2.3 has been revised to address measures that will be taken to provide controlled storage of debris to prevent potential spread of contamination. Text was also added regarding the use of Best Available Technologies for fugitive dust control. Please refer to the redline/strikeout text provided on Page 3-58 (lines 3-29), which is included in Section 3 of this response package.

U.S. EPA Specific Comment #5
The text [Section 3.6.2: p. 3-98, lines 6 - 10] refers to project-specific monitoring plans and the analysis of monitoring results. The text should be revised to clarify that project-specific environmental monitoring plans will be included in project-specific implementation plans and monitoring results will be included in project completion reports.

DOE Response:
Agree. The referenced text was revised to clarify that project-specific environmental monitoring planning will be detailed in project implementation plans, as applicable, and that a summary of monitoring results will be provided in project completion reports. Please refer to the redline text added to Page 3-106 (lines 10-12), which is included in Section 3 of this response package.

U.S. EPA Specific Comment #6
The text [Section 3.6.2.1: p. 3-99, lines 2 - 4] states that the objective of environmental air monitoring will be to quickly assess project results so that mitigative measures can be implemented should airborne concentrations of contaminants significantly exceed established background levels. The text should be revised to list the potential mitigative measures.

DOE Response:
Potential mitigative measures were identified in this section (of the draft OU3 Integrated RD/RA Work Plan) on Page 3-102, lines 7 - 12; examples include an increase in negative pressure within the enclosed work area, using additional HEPA filtration units, or additional surface cleaning (wash) steps before removing material from the containment. That text, however, has been deleted from the work plan in an effort to defer such details to project-specific implementation plans. Since each decontamination and dismantlement project has

particular concerns that may not necessarily be applied to all other OU3 projects, it is appropriate to elaborate on such detail in each of the project-specific implementation plans. To ensure that such detail is presented in the implementation plans, new text was added to Page 109 (lines 28-30) that lists the requirement for specifying potential mitigative actions and the emissions thresholds that would require their implementation.

U.S. EPA Specific Comment #7

The text [Section 3.6.2.1: p. 3-99, lines 8 - 10] states that individual air monitoring plans will be developed during the RD and detailed in the project-specific implementation plans. The text should be revised to discuss the basic components of the air monitoring plans that will be included in the project-specific implementation plans.

DOE Response:

Agree. Text has been added to Sections 3.6.2.1 and 4.1.5 that defines the basic components of a project-specific supplemental environmental radiological air monitoring program which will be presented in each project implementation plan, as applicable. Please refer to the redline/strikeout text provided on Pages 3-109 (lines 21-32), 3-110 (lines 1-4), and 4-14 (lines 30-32), which are included in Section 3 of this response package.

U.S. EPA Specific Comment #8

The text [Section 3.6.2.1: p. 3-101, lines 7 - 8] states that the number of continuous air monitors used in support of the project will be determined based on the dose magnitudes. The dose magnitudes, the information used to determine them, and the details of how the number of continuous air monitors will be determined based on the dose magnitudes should be included in the air monitoring plan, as a part of the project-specific implementation plan.

DOE Response:

This comment was acknowledged. Recognizing the differences that may exist between OU3 projects regarding project-specific supplemental radiological air monitoring and the need to evaluate the project-specific air monitoring needs on an individual basis, such detail has been deferred to the separate implementation plans. Please refer to the redline/strikeout text provided in Section 3.6.2.1 (Pages 3-106 through 3-112), and specifically on Page 3-109 (lines 31-32), which are included in Section 3 of this response package.

U.S. EPA Specific Comment #9

The text [Section 4.2.3.5: p. 4-23, lines 7 - 18] discusses prefinal inspection and the prefinal inspection report. The text should be revised to clarify whether a copy of the prefinal inspection report will be submitted to U.S. EPA as part of the project completion report.

DOE Response:

A copy of the pre-final inspection report will not be submitted with the project completion report since it is an intermediate internal contract management tool; however, the project completion report (as discussed in Section 4.5 of the work plan) will summarize activities completed by the subcontractor and also provide a comprehensive account of the entire remediation. To clarify the purpose and function of the pre-final inspection report, and to whom it will be provided for further action, text has been added to the end of Section 4.2.3.5. Please refer to the redline/strikeout text provided on Page 4-24 (lines 18-27), which is included in Section 3 of this response package.

The new text states that the report is provided to the FEMP project and contract managers to ensure that the tasks and other obligations specified in the subcontract statement of work have been met and to allow project managers to follow-up on those activities that remain to be completed before the final inspection. Inspection reports are detailed checklists of activities which the subcontractor must complete before demobilizing and vacating the work area.

U.S. EPA Specific Comment #10

The generic performance specifications for decontamination and dismantlement consist of Divisions 1, 3, 4, 5, 7, 14, and 15. However, the specifications should include Division 16, "Electrical," because dismantlement of equipment in certain OU3 structures could involve electrical wiring and connections.

DOE Response:

As described in Section 3.2.2 of the work plan (entitled "Preparatory Action: Safe Shutdown"), all OU3 structures will undergo either Facility Shutdown or Safe Shutdown prior to turnover to a D&D subcontractor. Please note that existing text (from the draft version of the work plan) on Pages 3-15 (lines 27 - 29) and 3-16 (lines 1 - 2) state that utilities (e.g., electrical, steam, water, etc.) are de-energized during Safe Shutdown/Facility Shutdown. Utility isolation is one of the major actions performed during the Safe Shutdown/Facility Shutdown preparatory action. In addition, prior to performing any D&D work, the subcontractor is required to conduct a survey, in accordance with Specification Section 01515, to verify that all utilities are isolated. If the subcontractor determines that a utility has not been isolated, the subcontractor shall notify FEMP Project Management to complete the activity.

If the subcontractor installs temporary utilities to support their D&D activities, the installation of temporary utilities shall also be in accordance with Specification Section 01515 and the references identified therein. To clarify this issue further in the work plan, text has been added to Section 3.2.2 that reiterates the response provided above. Please refer to the redline/strikeout text shown on Pages 3-16 (lines 27-29) and 3-17 (lines 1-10) which are included in Section 3 of this response package.

U.S. EPA Specific Comment #11

The text [Specification Section 01515, Part 1.5.A.3, Page 4] discusses complying with Soil Conservation Service standards and submitting a plan for providing erosion control and soil stabilization in all disturbed areas. However, no generic performance specification for soil erosion and sedimentation control is included. This specification should be provided in Appendix B.

DOE Response:

The referenced provision stated in Specification Section 01515, Part 1.5.A.3, has been deleted. Any soil which is disturbed during D&D will be managed by the Soil Characterization and Excavation Project. If soil is generated during landlord activities (e.g., maintenance), the soil will be managed by the sitewide procedure EW-0026, Management of Soil. Please refer to Revision 1 of Specification 01515, which is included in the revised set of performance specifications provided with this comment response package.

U.S. EPA Specific Comment #12

The text [Specification 05125, Part 1.2.B, Page 1] lists "Section 03900-Foundations" as a related section, but this section is not included in Appendix B. This section should be provided in Appendix B.

DOE Response:

The reference to Specification 03900 - Foundations, in Specification 05125 has been deleted since the project scope of work only includes above-grade D&D. Please refer to the Revision 1 of Specification 05125, which is included in the revised set of performance specifications provided with this comment response package.

U.S. EPA Specific Comment #13

The text in these reference sections [Section 1.3, pp. 1-2 and 1-3; and Section 2.5, pp. 2-20 and 2-23] discusses project-specific sampling and analysis plans (SAP). The text should be revised to state that the project-specific SAPs will be included in the project-specific implementation plans to be submitted to U.S. EPA for review.

DOE Response:

Although it is stated in Section 1.3 of the Sampling and Analysis Plan that project-specific data requirements will be defined during the design process, past experience with the Building 4A and Plant 1 Complex - Phase I projects has revealed that sufficient data was provided from the OU3 RI/FS database and existing process knowledge to support design and no additional data requirements were needed (for design). It is anticipated that the OU3 RI/FS database and process knowledge will be sufficient to support future D&D designs as well. Therefore, it is not anticipated that any project-specific SAPs (PSAPs) will be prepared prior to or during the development of an implementation plan. If a design effort does include the development of a PSAP, DOE will include it as an attachment to the project implementation plan.

As stated in Section 2.5.1, lines 22 - 23, of the November 1996 draft SAP, PSAPs may be prepared during project implementation. For the Building 4A and Plant 1 Complex - Phase I projects there have been a total of three PSAPs — all of which were used to characterize washwaters prior to discharge into the wastewater treatment system. In each instance, the FEMP project manager or engineer will initiate a request for sampling when an approximate time frame can be determined for the actual sampling event. Typically, this lead-time amounts to anywhere from a few weeks to a few days. In response to the request for sampling, a PSAP is prepared. Typically, such data is time critical for efficient project execution. In consideration of the timely need for such data and the minimal time available for review/comment on PSAPs, DOE proposes to provide U.S. EPA with a PSAP that is typical of those that will be prepared during implementation of each of the OU3 projects.

To provide U.S. EPA with a typical example, DOE has attached a copy of the PSAP for Building 4A water sampling to the OU3 RD/RA SAP as "Attachment 1". Additionally, due to a format revision to the standard PSAP since the development of the OU3 RD/RA Work Plan for Interim Remedial Action, the description of the typical PSAP in Section 2.5.1 has been updated. Please refer to Section 3 of this response package where the redline/strikeout pages (SAP, Pages 2-21 through 2-23) and the Plant 4 PSAP attachment have been included. Should U.S. EPA require review of PSAPs prepared for future OU3 projects, DOE will provide them upon request.

Responses to Ohio EPA Comments on the Draft OU3 Integrated RD/RA Work Plan

Ohio EPA Comment #1

Add a clarifying sentence here [Section 3.5: p. 3-88, line 10] reflecting DOE's commitment to satisfying the substantive requirements of the ARARs.

DOE Response:

Agree. The referenced text has been revised to reflect DOE's commitment to satisfying the substantive requirements of the ARARs. Please refer to the redline text shown on Page 3-94 (lines 14-15) provided in Section 3 of this response package to review the requested clarification.

Ohio EPA Comment #2

Please add a clarifying phrase to this sentence [Section 3.5.1: p. 3-89, line 15] to the effect that modeling referred to is approved by NESHAPs, that is CAP 88.

DOE Response:

Agree. The referenced text has been revised to clarify that the modeling method, CAP 88, is approved by NESHAPs. Please refer to the redline/strikeout text provided on Page 3-110 (line 10), which is included in Section 3 of this response package.

Ohio EPA Comment #3

Ohio EPA would like to clarify two points in this sentence [Section 3.5.1: p. 3-89, lines 17 - 18]. Firstly, NESHAPs Subpart A requires modeling ***any*** *source, not just point sources. Secondly, although the specifics of the NESHAPs compliance strategy are still being developed, the Ohio EPA continues to maintain that the* ***fenceline*** *is to be used to evaluate the potential doses. The sentence as written could be construed to mean that actual residential locations are used to evaluate doses.*

DOE Response:

40 CFR 61 Subpart A (Section 61.12) requires determining compliance by emission tests [emphasis added] established in Section 61.13 unless otherwise specified in an individual subpart. Subpart H, which is the individual subpart that applies sitewide monitoring as presented in the Integrated Environmental Monitoring Plan (IEMP), identifies modeling of dose to members of the public as the compliance determination method, but allows environmental measurements of radionuclide air concentrations at critical receptor locations as an alternate method. The revisions to Sections 3.5.1 and 3.6.2.1 of the work plan differentiate the application of NESHAPs Subpart H between sitewide monitoring under the IEMP and OU3 supplemental environmental radiological air monitoring for OU3 D&D projects. The work plan text revisions reflect the mutual understanding between the regulatory agencies and DOE, arrived through IEMP negotiations, that the IEMP will be the vehicle for demonstrating compliance with NESHAPs Subpart H while the OU3 supplemental radiological air monitoring will address project-specific concerns for evaluating process control needs of the project. As such, the OU3 Integrated RD/RA Work Plan defers discussions relating to demonstrating NESHAPs compliance to the IEMP.

DOE will continue to evaluate each D&D project for the need for process control by evaluating the potential emissions on a project-specific basis. The framework for developing and reporting OU3 supplemental radiological air monitoring details has been enhanced in the work plan and detail previously presented has been deleted. Provisions were added that require

greater project-specific detail in OU3 implementation plans. Please refer to the revised text shown in redline/strikeout form in Section 3.5.1 (Pages 3-95 and 3-96), and in Sections 3.6.2 and 3.6.2.1 (Pages 3-105 through 3-112), which are included in Section 3 of this response package.

Ohio EPA Comment #4
[Re: Section 4.1.5: p. 4-14] Please add two additional bullets to the list of key elements of the implementation plans. One bullet should restate the commitment to apply the "Decision Methodology for Fernald Scrap Metal Disposition Alternatives". The second bullet should repeat the commitment in the Operable Unit 3 Record of Decision to consider alternative technologies in each of the Implementation Plans. It is our expectation that these alternative technologies will encompass both D&D technologies and new technologies.

DOE Response:
The second bullet on Page 4-14 of the November 1996 draft work plan addresses the commitment to apply the disposition methodology evaluation by requiring the implementation plan to include summary results and matrix table. It is believed that this commitment to report the outcome of that evaluation process in the implementation plan adequately addresses the first statement in Ohio EPA Comment #4.

To address the second statement regarding alternative technologies, the second and fourth bullets have been revised to include reporting on any alternative technologies (including D&D and recycling) in the implementation plan. Please refer to the redline/strikeout text shown on Pages 4-14 (lines 24-25) and 4-15 (lines 4-7), which are included in Section 3 of this response package.

Ohio EPA Comment #5
[Section 4.2.1: Page 4-15, line 19] This is an incomplete sentence.

DOE Response:
Agree. The referenced sentence was rephrased to address Ohio EPA's comment. Please refer to the redline/strikeout text shown on Page 4-16 (lines 1-3), which is included in Section 3 of this response package.

Ohio EPA Comment #6
[Section 4.5: Page 4-27, line 9] Please add another bullet to the list of information in the project completion reports that summarizes the alternative technologies used or evaluated during the project. This should also address any recycling or alternative disposition options that were used or evaluated.

DOE Response:
Agree. A new bullet has been added to the list that includes reporting on any alternative technologies used or evaluated during the project, including recycling or disposition options. Please refer to the redline text shown on Page 4-29 (lines 9-11) provided in Section 3 of this response package to review the new text.

000014

SECTION 2

Other Significant DOE Enhancements to the Draft OU3 Integrated RD/RA Work Plan

The references identified in the table below identify significant DOE enhancements made to the draft work plan resulting from the need to provide greater clarification on certain topics as well as provide significant updated information. The table provided below also identifies the basis for each enhancement. Upon approval of the revisions contained in this section, the redline/strikeout markings will be removed to finalize the document.

Significant DOE Enhancements

Significant DOE Enhancements to Draft (Page/Line Nos.)	Basis for Enhancement
1. p. xi/15-27	The glossary term, "process-related" is used in several instances in Section 3.2.5 (Surface Decontamination) and requires clear definition for future interpretation during planning and implementation. The term was defined using Specification 01517 criteria and has significant relevance to classifying metals as Category B or Category C.
2. p. xii/16-18	The glossary term, "surface decontamination" required additional clarification to note that contaminant fixation is a surface decontamination option, and it is appropriate to refer to the applicable design documentation (Radiological Requirements Plan) which defines the surface contamination limits.
3. p. 3-4/15-16 p. 3-5/4-12, 21	Specific references to Site Support Contracting and Task Order Agreement Contracting are provided; supplementing OU3 remediation under the Invitation For Bid and Request For Proposal procurement methods, these are the two forms of subcontracting that the FEMP may use for remediation support.
4. p. 3-6/15-16	Updates the reference to the High and Low Nitrate Tank remediation project.
5. p. 3-21/17-20 and 26-29	Specific reference to the specification for concrete scabbling, which is clarified as a form of surface decontamination.
6. p. 3-43/8-10	Clarifies that procedures adopted from Removal Action 9 encompass characterization and management of unknown materials.
7. p. 3-43 through 3-45	Editorial clarifications were made to stress the conservative estimation practices that were used to demonstrate compliance with the On-Site Disposal Facility waste acceptance criteria.
8. p. 3-54/9-14	Text was added to the discussion on segregating materials which clarifies that not all materials will be segregated into one of the ten OU3 debris categories; some materials are to be segregated into contaminant categories as noted in the text.
9. p. 3-81/1-17	The list of materials prohibited from disposal in the OSDF was revised to be consistent with the OU3 Final Action ROD and the latest version of the OSDF Impacted Materials Placement Plan.
10. p. 3-90/7-10	Repeat of Enhancement No. 6 in the section that discusses key coordination/integration elements: clarifies that procedures adopted from Removal Action 9 encompass characterization and management of unknown materials.
11. p. 3-104/17	The OU3 Integrated Remedial Action HASP (Appendix E) adequately addresses the Health and Safety Issues required by Item 3.9.

Significant DOE Enhancements (Cont'd)

Significant DOE Enhancements to Draft (Page/Line Nos.)	Basis for Enhancement
12. p. 4-15/12-18	Text has been added to identify the project-specific enforceable milestones that will be included in project schedules contained in implementation plans.
13. p. 4-25/3-16	Text has been revised to conform to current site procedure that addresses final inspections for D&D projects.
14. p. 4-25/17-30 p. 4-26/1-5	Text has been revised to conform to current site procedure for final acceptance of subcontractor's field activities. It should be noted that the revision of the title of the subject activity, from Certification of Construction Completion (CCC) to Completion of Field Activities (CFA), applies to current and future decontamination and dismantlement projects; therefore all previous references to CCC shall now reflect CFA. This title revision will be reflected in U.S. EPA enforceable milestone tracking and project completion reports for Plant 1 Complex - Phase I, Boiler Plant/Water Plant Complex, and Thorium/Plant 9 Complex, and will be reflected in future implementation plans.
15. p. 4-29/18-23	Since decisions and procedures from OU3 ROD-adopted removal actions may be applied to at- and below-grade remediation, such as Removal Action 9 for management of OU3 Debris Category J materials, text was added to address additional applications of close-out reporting.
16. p. 6-1/21-23	Updated text to be current.
17. p. 6-1/29-32	Text was added to highlight the three enforceable milestones included with each implementation plan.
18. p. 6-1/40-42 p. 6-2/1-4	Text was revised to reflect the revision made to Section 4.2.4, which is discussed in Enhancement No. 14 above.
19. p. 6-2/33-34	The current schedule for OU3 remediation no longer references the FY-97 Phase I Baseline.
20. p. 6-3/Figure 6-1	OU3 Base Remediation Schedule was revised to reflect the current FY-98 budget projections and proposed budget guidance.
21. p. 6-5/16-19	Text revisions reflect the basis for the update made to the listing of enforceable OU3 remedial design milestones.
22. p. 6-5/23-27	Text was revised to clearly define the three enforceable milestones defined in the implementation plans.
23. p. 6-7/Table 6-1	Table 6-1 was revised to reflect the updated implementation plan submittal dates, resulting from reduced funding projections for near-term remediation.

SECTION 3

Redline/Strikeout Pages Resulting from U.S. EPA/Ohio EPA Comments and DOE Enhancements to the Draft OU3 Integrated RD/RA Work Plan

The pages contained in this section are shown in redline/strikeout form to show how text from the draft version was affected by U.S. EPA/Ohio EPA comments and DOE responses presented in Section 1, and DOE enhancements identified in Section 2. This redline/strikeout format is being used to facilitate review of changes to the draft version while also minimizing time and costs associated with reproducing the entire work plan document. Upon approval of the revisions contained in Section 3, the redline/strikeout markings will be removed to finalize the document.

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GLOSSARY

Primary material -

The material generated as a result of dismantlement activities of a specific project, including the structure, associated equipment, and contents of the building.

Process area -

A distinct area within an OU3 component where a particular chemical process was conducted. Each process area is assumed to have uniform contaminant composition.

Process knowledge -

Information available about a process from documentation of past operations or information from individuals who participated in the operation. This information includes, but is not limited to, process chemistry, history of accidents/spills, maintenance chemicals/materials, and other uses of the process vessels or work space.

Process-related -

A term that metals, such as pipe and equipment, as belonging to OU3 Debris Category C (process-related metals), and thereby subjects that material to the specific handling and off-site disposal requirements specified in this work plan for that category of materials. All metals that are not pre-determined to be Category C, as is the case with most metals listed as Category B (inaccessible metals), will be subject to visible inspection in the field pursuant to Specification 01517 to determine if they exhibit "visible process residues." If a material exhibits visible process residues, that material will be classified as "process-related." With the exception of equipment identified as being contaminated with uranium having an enrichment over two percent, materials designated or classified as Category C may be decontaminated to the extent that they become Category B.

Process residues -

Material on the interior or exterior surfaces of debris, such as yellow-cake and green salt, that is not obvious and that if rubbed, would be easily removed. Stains, rust, corrosion, and flaking do not qualify as [visible] process material.

Release cleaning -

Removal or fixation of surface contamination to meet regulatory limits or to levels which have been determined to allow safe handling of materials. Typically refers to an activity performed by the remediation subcontractor for radiological and non-radiological contaminants prior to dismantlement. Generally synonymous with *surface decontamination*.

Safe shutdown -

Preparatory activities originally performed under the direction of Removal Action 12 that have been incorporated into the OU3 integrated remedial action as provided in the OU3 Final Action ROD. The safe shutdown

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preparatory action provides planning, engineering, and program control for the proper characterization, removal and disposition of all uranium product and in-process hold-up materials, excess supplies, chemicals, and associated process equipment. The program also is intended to ensure the proper isolation of utilities for the majority of existing previously-operated, production-related equipment.

Secondary waste -

Waste other than primary waste associated with a remedial action generated as a result of occupying a jobsite, conducting decontamination and dismantlement activities, utilizing PPE, and demobilization activities.

Structural debris -

Material generated from the structural dismantlement of OU3 facilities; refers to load bearing structural members that are typically removed using dynamic dismantlement methods.

Surface decontamination -

The reduction or fixation of existing surface contamination levels to meet the limits that are stated in the applicable project Radiological Requirements Plan, thereby reducing direct exposure potential, as well as reducing available sources for air-borne or water-borne contamination. Generally synonymous with the subcontract term, *release cleaning*.

Transite -

Common construction material used as sheeting for walls and roofs for many OU3 components. It consists of a mixture of asbestos and cement.

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the components are likely to be constructed of the same types of materials, making design and dismantlement activities simpler and, therefore, cheaper.

The third major consideration that was factored into defining the complexes was the availability of the components for remediation. This was based on the anticipated time when the use of the component would either be eliminated or replaced. This is similar to the grouping of components based on current and/or future use, but allows the combination of two or more unrelated groupings into a complex. For example, the Elevated Potable Storage Tank (20D) was added into the East Warehouse Complex because the components in this complex would all be available around the same time, albeit for different reasons, and they are located together on the eastern boundary of the former Production Area.

After several iterations of the complex definitions, there were several components that could not be clearly grouped within a complex. Many of these components (e.g., pipe bridges, process trailers, etc.) are supportive of the operations within and around other components and are anticipated to be phased out rather than remediated all at once. Such components were originally placed in the Miscellaneous Complex with the understanding that they would be scheduled as part of other complexes rather than as a distinct remedial activity; however, with the exception of various general components such as railroad tracks (G-01), utility lines (G-04), process trailers (G-06), non-process trailers (G-07), and pipe bridges (G-08), this work plan updates the August 1996 complex definition list by assigning each of the Miscellaneous Complex components to the appropriate complexes. Further discussion of the August 1996 complex definition update is provided at the end of this section.

In addition to the current OU3 component identification list (Table 2-1), there are several structures that are either currently being constructed or are planned for future construction to support the remediation of other operable units. Since the OU3 IROD governs the dismantlement of all site structures, two additional complexes (i.e., OU1 complex and OU4 complex) were added to the July 24, 1996 revision to the PSR. There are also five above-grade components that are planned to be used to support OU5 groundwater remediation, and are hereinafter referred to as the OU5 Complex: High Nitrate Storage Tank (18M); Dissolved Oxygen Building (18P); IAWWT Valve House (18Q); Pilot Plant Ammonia Tank Farm (19B); and the Six to Four Reduction Facility #2 (51), which will be utilized as the new Advanced Wastewater Treatment (AWWT) facility. The remediation schedule for the OU5 Complex ~~scheduling of these five components~~ was not included in the PSR or the PSR update because

the duration of OU5 remediation has not yet been determined. Since the period for OU5 soil and water remediation efforts will most likely extend significantly beyond that for OU3 remediation, planning and scheduling of OU5 long-term remediation facilities have been addressed in OU5's draft Sitewide Excavation Plan. Accordingly, the SEP includes discussion regarding the task of scheduling the dismantlement of those five structures. Further discussion of the coordination and integration of OU3 and OU5 remedial actions is provided in Section 3.4.3.4.

At- and below-grade remedial activities involving OU3 components will be closely integrated with OU5 soil remediation in the former Production Area and Administration Area. Although impacts of at- and below-grade remediation were considered in the PSR, at- and below-grade remediation is contingent on RD/RA scheduling for OU5 and will be addressed in the SEP.

The development of the sequence for dismantlement of above-grade structures will be dismantled focused primarily on the need to clear an upgradient area to support OU5 soil remediation and also to accommodate the construction of the OSDF in accordance with OU2 RA scheduling. Surface water generally flows from north-to-south and the perched groundwater generally flows from east-to-west. Therefore, in order to avoid contamination of remediated soils, at- and below-grade dismantlement has more near-term priority in the northeast corner of the former Production Area. To support this, OU3 above-grade structures will be dismantled, to the extent possible, to integrate with OU5 contaminated soil excavation schedules. Also, dismantlement of structures with basements will require additional coordination with actions conducted by OU5 to ensure that effective stormwater management provisions are included in the design for those projects.

There are many component-specific constraints and considerations that were factored into determining the availability of the complexes for remediation. For example, many of the components have planned interim uses to support waste management operations, supply site utilities, or support the remediation of other operable units. Table 2-4 gives the updated sequence for the remediation of the 23 above-grade complexes based on these constraints and considerations. The OU3 complexes are shown in Figure 2-2.

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TABLE 2-4 Complex Remediation Sequence

Remediation Complex*	Components
Building 4A (completed)	4A
Plant 1 Complex - Phase I (in progress)	1A, 30B, 56B, 56C, 66, 67, 72
High & Low Nitrate Tanks (completed)	18K, 18L
Boiler Plant/Water Plant Complex	10A, 10B, 10C, 20A, 20B, 20C, 20H, 24A
Thorium/Plant 9 Complex	9A, 9B, 9C, 9D, 9E, 9F, 32A, 32B, 64, 65, 69, 78, 81
Tank Farm Complex	19A, 19C, 19D, 19E
Sewage Treatment Plant Complex	25A, 25B, 25C, 25D, 25E, 28F, 39D
Plant 3 Complex	3B, 3C, 3D, 3E, 3F, 3G, 3J, 3K, 39A, 39C
Plant 5 Complex	4B, 5A, 5B, 5C, 5D, 5E, 5F, 5G, 55A, 55B
Maintenance Complex	12A, 12B, 12C, 12D, 24B, 38A, 38B
Plant 2 Complex	2A, 2D, 2E, 2F, 2G, 39B
Plant 6 Complex	6A, 6B, 6C, 6D, 6E, 6F, 6G
Plant 8 Complex	8A, 8B, 8C, 8D, 8E, 8F, 80
East Warehouses Complex	20D, 77, 79, 82
Plant 1 Complex - Phase II	1B, 30A, 56A, 60, 61, 62, 63, 71, TS-004, TS-005, TS-006
Pilot Plant Complex	13A, 13B, 13C, 13D, 37, 54A, 54B, 54C, 68
Liquid Storage Complex	18J, 20E, 20F, 20G, 22A, 22B, 22D, 26A, 26B, 28D, 45A, 45B
Administration Complex	11, 14A, 14B, 16H, 16J, 23, 25J, 28E, 28A, 28B, 28G, 53A, 53B
General Sump Complex	2B, 2C, 3A, 3H, 3L, 18B, 18D, 18H
Laboratory Complex	15A, 15B
Electrical Station Complex	16A, 16B, 16C, 16D, 16E, 16F, 16G, 26C, 31A, 46
OU4 Complex	To be determined
OU1 Complex	18G; others to be determined
OU5 Complex	18M, 18P, 18Q, 19B, 51; others to be determined

* This list of remediation complexes does not include a separate "Miscellaneous Complex" as shown in previous versions since the components previously listed in that complex were assigned to the appropriate complexes or, for G-coded components such as utility lines, process and non-process trailers, and pipe bridges, will be dismantled according to availability status or association with the nearest remediation complex.

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In addition to the prioritization and sequencing functions of the PSR, it also served as the mechanism for supplanting the OU3 Facility Utilization Report and for providing the regulatory agencies with any schedule updates. Sections 4.4 and 6 of this work plan incorporate those requirements into the OU3 integrated remedial action.

Since the PSR was updated and submitted to the regulatory agencies in August 1996, the component listing for several complexes have been further revised; however, the overall schedule for completion of OU3 remedial action was not revised. The major revision to the complex listing was the assignment of all components previously defined for the Miscellaneous Complex, except the general components ("G" coded), to appropriate complexes. The general components (e.g., railroad tracks, roads, pipe bridges, non-process trailers), cannot be assigned to individual OU3 complexes as whole entities due to their extensive distribution throughout the FEMP and, as a result, are still discussed as the Miscellaneous Complex. Since the Miscellaneous Complex serves only to reserve the "general" components in somewhat of a queue for future dismantlement, the complex will not be scheduled individually for remediation. The Miscellaneous Complex has therefore been removed from the complex remediation sequence. All components that comprise the Miscellaneous Complex will be remediated under one of the defined complexes. ~~Since the Miscellaneous Complex now only consists of "general" components that will be included piecemeal in other complexes, the complex listing no longer lists that complex.~~ The above-referenced Miscellaneous Complex reassignments include: components 16H, 16J, 23, 25J, 28E, and 28G being placed in the Administration Complex; 18G being placed in the OU1 Complex; and 28D being placed in the Liquid Storage Complex. Other complexes revised include: the reassignment of 10E from the Boiler Plant/Water Plant Complex to OU5 for relocation in mid-1997 and long-term reuse in support of AWWT operations; P-005 (coal pile) will be removed for reuse; and since 28C was previously removed under an independent O&M activity (in 1991), it was deleted from the list.

2.6 Summary of the OU3 Record of Decision for Final Remedial Action

The OU3 Record of Decision for Final Remedial Action identified the selected remedy as the "Selected Material Treatment, On-Property Disposal, and Off-Site Disposition" of material

over 200 components and effectively manage resulting materials, the implementation of the OU3 integrated remedial action has been subdivided into 23 above-grade projects of manageable scope, each composed of a complex, as discussed in Section 2.5. Each project will address the decontamination and dismantlement of components and the management and disposition of generated materials as discussed in this work plan. The methodology that was used for establishing the sequence and schedule for remediation of the 23 complexes is discussed in Section 2.5 and the result of applying that methodology is provided in Section 6.2.

3.1.3 Design Document Preparation

Design packages will be prepared to address both decontamination and dismantlement and material handling. A design package will be prepared for each complex and will consist of engineering design drawings, photographs and videos, specifications, cost estimate, and schedule. The design will be of sufficient detail for inclusion into an Invitation for Bid (IFB) or Request for Proposal (RFP) package suitable for distribution to qualified remediation contractors for bid/proposal development or for inclusion into a task order for subcontractors retained under a Site Support Contract or a Task Order Agreement (TOA). Project specifications will be performance-based, unless project-specific situations dictate descriptive specifications (e.g., specific decontamination methods to meet radiological handling requirements). For each design project, an implementation plan will be used to summarize remedial action details developed during design. As demonstrated with the implementation plans for the Building 4A and Plant 1 Complex - Phase I projects, these documents provided concise summaries of their respective designs in a format that parallels this work plan. The implementation plan will be the sole deliverable to regulatory agencies for each design project. Each of the remedial design tasks performed during a typical design project are identified in Section 4.1.

3.1.4 Remediation Subcontracting

The remedial action phase for each above-grade project may be awarded as one contract or as multiple contracts, depending on the complexity, type of work necessary to complete the project, and available funding. For example, during design it may be determined that it would

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be more cost effective to perform the project in phases, addressing only some of the components contained in a design package, or it may be more cost effective to subcontract specific types of work, such as asbestos abatement, under a separate contract.

The IFB and RFP processes will be used as the primary methods for procuring remediation subcontractors; however, the TOA and Site Support Contract represent other methods for utilizing subcontractors for small scale decontamination and dismantlement tasks or projects. ~~Either an IFB or and RFP would be used to procure remediation subcontractors for above grade decontamination and dismantlement projects.~~ To convey the requirements to prospective subcontractors ~~for bidding~~ under the IFB/RFP processes, the technical scope and the administrative requirements of each contract ~~to potential remediation subcontractors, an IFB/RFP package~~ will be assembled from the design drawings and specifications.~~, and with additional subcontracting documentation as described in Section 4.2 of this work plan.~~ Included in the IFB/RFP package, typically as an exhibit to the Statement of Work, is a pay item schedule/description which identifies each of the performance items in the contract. Although more programmatic in its presentation, Section 3.2 and certain activities described in Section 3.3 of this work plan cover each of the performance items included in the pay item schedule/description.

For certain work elements of the decontamination and dismantlement phase of remediation, it is more effective to use the services of FEMP construction support contractors rather than acquire the services through competitive bid contracting. The construction support contractors, contracted through a Site Support Contract or TOA for a specified period of time, provide~~s~~ trained labor on an hourly basis to perform assigned tasks. Some of the circumstances that favor use of the support contract include, but are not limited to the following:

- the work cannot be sufficiently defined for fixed-price contracting;
- the work is experimental or exploratory;
- the element of work is small and training fixed-price personnel is not cost effective;

- work is urgent or an emergency and cannot be supported by the IFB/RFP process; and
- a decontamination and dismantlement project can be expedited by front end work while the contract is being solicited.

The use of a construction support contractor for the decontamination and dismantlement of the High and Low Nitrate Tanks (Components 18K and 18L) is an example of the effective use of this contracting mechanism. The High and Low Nitrate Tanks, which had been originally scheduled for remediation in 2001 as part of the Liquid Storage Complex (see Section 2.5 for definition of this complex), were found by project managers for OU1 and OU2 remedial actions to be obstructions to their respective project implementation (specifically regarding necessary ground improvements). As a result of the need to expeditiously remove those storage tanks to meet OU1 and OU2 RA schedules, an implementation plan was prepared to address the remedial design documentation needed for decontamination and dismantlement of the two components and a construction support contractor was tasked to perform that work. The remediation of the High and Low Nitrate Tanks has been completed. ~~The remediation of the Low Nitrate Tank is expected to be completed in the fall of 1996.~~

3.1.5 Remediation Management

Remediation subcontracting and work oversight will be managed by DOE's environmental management contractor. Support activities such as health and safety compliance, environmental monitoring activities, and material management — consisting of handling (outside the construction work zone), storage, ex-situ decontamination, packaging, and transportation management — are currently performed by DOE's environmental management contractor. A detailed listing of remedial design and remedial action responsibilities is provided in Section 7.

3.2 Decontamination and Dismantlement Tasks

Decontamination and dismantlement of OU3 components constitute the first of the two primary phases of the OU3 integrated remedial action. The second phase, management of

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performed under either safe shutdown or facility shutdown tasks will hereinafter in this work plan be referred to as only "safe shutdown".

OU3 complexes that require performance of safe shutdown activities prior to dismantlement include the Thorium/Plant 9 Complex, Pilot Plant Complex, Plant 5 Complex, Plant 2/3 Complex, Plant 6 Complex, and Plant 8 Complex. Safe shutdown activities were previously implemented as a separate CERCLA response action under Removal Action 12. Pursuant to the OU3 Final Action ROD, safe shutdown management decisions have been adopted by reference into the OU3 integrated remedial action. Safe shutdown activities become integrated into OU3 remediation by continuing to implement those activities as preparatory actions for selected facilities.

Hold-up material will be removed from equipment, auxiliary ductwork, and piping to reduce potential hazards from the work environment for the remediation subcontractor; to provide FEMP Health and Safety and Waste Management organizations with known starting conditions that are needed to develop the Safety Analysis, work permits, and Health and Safety Plan for remediation activities; and to aid in determining disposition options for the remediation materials. All systems will be inspected to ensure such material has been removed and any previously undetected material is located, quantified, and removed. Inspection techniques include visual inspection and non-destructive analysis/assay.

For process buildings, a general cleaning operation will be performed to remove gross levels of contamination and may include visible dust and loose debris (including pigeon remains) from building surfaces, walls, and floors. The purpose of this activity is to remove loose radiological contamination held within the dust as well as other hazards (e.g., biological and chemical), thereby reducing the potential personnel exposure during aggressive remediation activities. Building penetrations that allow animal access will be sealed to ensure no further intrusion from animals and to minimize the potential migration of loose contamination to the environment.

~~In most cases, u~~Utility isolation is one of the major actions performed during the Safe Shutdown/Facility Shutdown preparatory action. In addition, prior to performing any decontamination and dismantlement work, the subcontractor is required to conduct a survey

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in accordance with Specification 01515 to verify that all utilities are isolated. If the subcontractor determines that a utility has not been isolated, the subcontractor shall notify FEMP Project Management to complete the activity. Utilities such as steam, potable water, electrical power, fire protection systems, compressed air, communication systems, and radiation detection alarms will be de-energized and terminated at the equipment or at the building exterior to establish the known condition of each energy source within the remediation area. The fire alarm and radiation detection alarm systems will be re-routed and activated.

If the subcontractor installs temporary utilities to support its field activities, the installation of temporary utilities shall also be in accordance with Specification 01515 and the references identified therein.

Equipment that is not salvageable but is moved in order to access and remove salvageable equipment will remain in the building at this stage. Salvageable equipment will be segregated as it is removed according to material and contamination type and dispositioned in accordance with material management strategies discussed in Section 3.3 of this work plan.

Since safe shutdown activities will be performed on entire OU3 structures before above-grade decontamination and dismantlement, hold-up material removal during at- and below-grade remediation by the SCEP is not expected to be required.

3.2.3 HWMU Decontamination

Above-grade HWMU decontamination activities will be implemented for OU3 components that contain HWMUs to be closed under the integrated RCRA/CERCLA process discussed in Section 3.5.3. At- and below-grade HWMU decontamination requirements will be specified in the SEP. The integrated RCRA/CERCLA process is regulated by the DF&O which was issued by the Ohio EPA on June 6, 1996. Decontamination activities to be implemented under this process include in situ decontamination efforts to remove hazardous characteristic contamination from debris so that the debris may be dispositioned in the OSDF. Hazardous wastes stored in the HWMU will have been removed during the inventory removal task. Hold-up material would have been removed during safe shutdown.

as analyzed by phase contrast microscopy. This test will likely be performed in a manner that does not disturb other decontamination operations located adjacent to the abatement area.

3.2.5 Surface Decontamination

The provisions of this section pertain primarily to above-grade decontamination and dismantlement projects; the SEP will identify how the SCEP will address decontamination requirements for OU3 components located at- and below-grade.

Surface decontamination, also referred to as *release cleaning*, consists of the process of removing loose contamination to the greatest extent practicable from all buildings, structures, containments, equipment, and exposed interior surfaces in situ per the requirements of Specifications 01516, 01517, and the Radiological Requirements Plan (RRP) prior to removing the exterior shell and exposing interior surfaces. "Release," as used in the term release cleaning, refers to the removal of materials from a building containment where certain contamination criteria must be met prior to removal and exposure to the environment. Surface decontamination, which is typically a task that is assigned to a remediation subcontractor, also entails the collection and containerization of all residual dust, particles, debris, and rubble remaining from the removal of bulk materials, equipment, masonry, steel, and other appurtenances. ~~This activity includes the~~ Surface decontamination also specifically includes the process of scabbling concrete pursuant to Specification 01518, if that method is chosen, to remove specific volumes of concrete for off-site disposal as required by the OU3 Final Action ROD. Verification of adequate surface decontamination includes inspection of the top of structural beams, columns, window frames, door headers, and any other surfaces where residues might have accumulated.

The extent of surface decontamination will be determined on a project-specific basis. Any special surface decontamination requirements, beyond the general criteria discussed in this section, will be discussed in the project implementation plans. The extent of decontamination required is primarily going to be based on the radiological levels present on equipment or material surfaces but, as noted above, is also based on a OU3 Final Action ROD requirement which requires the removal of the top inch of concrete from three process areas and the top half inch of concrete from a fourth process area. The most recent radiological survey data will

were characterized and evaluated during the OU3 RI/FS. It is also recognized that the results from that evaluation will be readily usable during remedial design to complete most of the documentation needed for material handling, containerization, and disposition; however, some further evaluation will have to be performed in the field to differentiate between process and non-process metals based on the "visual process residue" standard which was discussed in Section 3.2.5. Additional confirmatory or verification sampling may be necessary for certain waste streams that are destined for off-site disposal or release based on off-site WAC. Procedures adopted by reference from Removal Action 9 will be used to characterize and manage OU3 materials classified as "unknowns" since such material would fall under "product, residues, and special materials (Category J)." The OU3 RD/RA SAP contained in Appendix D of this work plan addresses the potential application of sampling and analysis during the OU3 RD/RA process to support the attainment of off-site disposal WAC, restricted or unrestricted release of materials from the FEMP, treatment and disposition of decontamination washwater, environmental monitoring, and treatment of mixed wastes.

During project design, data from the OU3 RI/FS Report and SWIFTS database will be reviewed to identify OU3 materials to be generated during each OU3 decontamination and dismantlement project, estimate their volumes and weights, and classify them as either a specific material type per one of the OU3 debris categories (Categories A - J, as described in Section 2.3) or as a material having a certain description (e.g., equipment or pipe) that will be further evaluated in the field during remediation to determine its OU3 debris category designation. The classification of materials for each component during design according to a specific debris category is necessary to supply the remediation subcontractor, via project specifications, with the material segregation requirements necessitated by decisions made in the OU3 Final Action ROD. FEMP Project Management will also use this information to estimate the number of various containers and configuration of stockpiles needed for a project.

Based on the characterization data and analysis contained in the OU3 RI/FS Report and the decisions made per the OU3 Final Action ROD, the authorization ~~and certification~~ for on-site disposal of the materials listed for on-property disposal, referenced in Table 3-3,4 has been made. Materials will be field-certified by OU3 for OSDF disposal using a manifest (further discussion of OSDF disposal is provided in Section 3.3.6.2). The OU3 Final Action ROD provides that if all acid brick, process-related metals, process residues, product materials, and 2,400 cubic feet of concrete from specific locations (containing the highest levels of Tc-99)

are dispositioned off-site, then all remaining OU3 materials could be dispositioned in the OSDF provided that the OSDF WAC are met. The OU3 Final Action ROD also imposes the requirement that potentially mixed wastes may be disposed in the OSDF provided that those materials are treated to meet OSDF WAC and that the TCLP criteria of the LDRs are met.

The bases~~basis~~ for the OU3 Final Action ROD material disposition requirements stated above ultimately stems from the OSDF WAC developed through OU2 and OU5 FS modeling and the administrative decisions to dispose of heavily contaminated materials — namely process residues, product residues, product materials, and process-related materials — off-site. The one chemical-specific WAC established through that FS modeling effort limits the mass of Tc-99 in OU3 materials for OSDF disposal to 105 grams (specific details on the development of this WAC are provided in Appendix G of the OU3 RI/FS Report). The total amount of Tc-99 in OU3 materials was conservatively estimated during the OU3 RI/FS process to be ~~The OU3 RI/FS process, through very conservative estimation methods, revealed that the total amount of Tc-99 in OU3 materials is~~ approximately 127 grams. In order to not exceed this 105-gram limit for the OSDF, those materials that have the highest amounts of Tc-99 will be packaged and transported to NTS or an off-site PCDF. Because of the removal of this material from the site, the actual amount of Tc-99 that will be placed in the OSDF will be well below the WAC.

Process-related metals, acid brick, product, residues, and special materials generally have high concentrations of several contaminants, ~~including Tc-99~~ and, as a consequence of the administrative decisions noted above, these materials will not be placed in the OSDF. The result of these decisions, combined with the off-site disposal of certain concrete containing elevated levels of Tc-99, is that the amount of Tc-99 that will be placed in the OSDF is conservatively estimated to be well below the 105 gram WAC. ~~By administratively deciding to disposition these materials off-site, t~~The Tc-99 source term ~~remaining in~~of OU3 materials considered for on-site disposal is approximately 116 grams. Of all materials contributing to ~~this~~the Tc-99 source term, the most significant contributor is concrete (and concrete-like materials) with a total of less than 102 grams. In order to further reduce the amount of Tc-99 going into the OSDF, it was decided in the OU3 Final Action ROD that the top inch of three particular process areas, which have the most Tc-99 contamination, would be removed and dispositioned off-site. The three process areas include the Enriched Uranium Casting Area in Plant 9; the Uranium Machining Area in Plant 9; and the Muffle Furnace Area in Plant 8. Additionally, due to inherent chemical and radiological contamination in the Pilot Plant, the top

half-inch of concrete in the Southern Extraction Area ~~would~~ will also be removed. The removal and off-site disposition of the specific volume of ~~highly contaminated Tc-99~~ concrete from these four process areas ~~would~~ will reduce the total amount of Tc-99 going into the OSDF to less than an estimated 59 grams, which is about 44 percent below the 105-gram allowable mass limit.

On the basis of a conservative estimation approach, when the concrete most contaminated with Tc-99 along with other materials identified above are excluded from the OSDF, the remaining OU3 materials meet the OSDF contaminant-based WAC. ~~By excluding the highly contaminated Tc-99 concrete and the other OU3 materials identified above from on-site disposal, the remaining OU3 materials to be potentially disposed in the OSDF will have already been evaluated~~ Such an evaluation was performed by OSDF design engineers during the preparation of ~~conceptual design performed under~~ the OU2 FS. Therefore, since OU3 materials that are regulatorily ~~or~~ and administratively prohibited from on-site disposal will be dispositioned off-site, no additional characterization of OU3 materials will be required for materials destined for on-site disposal. Although sampling and analysis typically will not be required for OSDF disposal, all OU3 materials will require a visual inspection or verification during dismantlement to ensure that the OSDF prohibition of process-related metals and residues is met. To execute this regulatory requirement, the visual inspection requirement stipulated in Specification 01517 will be used to segregate materials accordingly. Materials that fail the visual inspection will be classified as process-related and be managed for off-site disposition.

By initially identifying the OU3 materials prohibited from OSDF disposal in this work plan, the main focus of a certification process is to properly segregate the materials during dismantlement and adequately track the materials to their respective dispositions. The segregation strategy and tracking system for debris were developed for the amended Removal Action 17 Work Plan revisions (DOE 1996f) and are discussed in Section 3.3.2.2. This segregation strategy and tracking system provides cradle-to-grave management of materials to ensure proper handling, treatment, and disposition according to the decisions of the OU3 Final Action ROD and determinations made during the project design.

The data gathered during the OU3 RI/FS are also sufficient to qualify materials for disposition off-site; however, further material characterization may be necessary to fulfill the license

marking procedure not only designates certain materials according to off-site disposition requirements, but also provides an administrative control measure to eliminate the possibility of generating washwaters that could possibly result in criticality conditions.

After material is decontaminated, if required, and removed, the material will be inspected by FEMP Project Management personnel to ensure that applicable size requirements are met. Following these quality assurance measures, the material can be containerized or staged in bulk and transported from a work area.

The segregation strategy for OU3 debris generally allows for materials which share the same debris category designations to be containerized together. ~~, with t~~The exceptions to this strategy are with ~~of~~ some Category J items (mixed wastes, filter residues, etc.), Category E - portions of surface concrete removed for off-site disposal, Category F - mixed waste acid brick, and Category D - lead flashing. ~~and the same containerization requirements from the MSCC, to be containerized together. The~~ Each loaded container will then be independently verified for material acceptability before the ownership of the container is transferred from the subcontractor to the FEMP workforce.

Only containers with materials destined for off-site shipment or treatment will be tracked according to the FEMP lot marking system specified in procedure RM-0005, "FEMP Lot Marking And Color Coding System." This marking system will be used to identify the contents for inventory control, support the tracking of materials from its generation to its final disposition, and provide the documentation needed to determine attainment of material acceptance criteria. All other above-grade material generated during OU3 remedial action will be tracked following procedure EW-0006. The tracking system defined by procedure EW-0006 was developed to manage materials identified by OU3 debris categories that were destined for the OSDF, regardless of storage configuration. The procedure for tracking identifies that a "Debris Transport Routing Sheet" will be utilized by field personnel to accompany each container or stockpile that is filled. The routing sheet directs the transport of the debris to either interim storage (container staging or interim debris pile) or directly to the OSDF and provides the necessary waste certification.

All information pertaining to the tracking of above-grade material will be entered into the FEMP Sitewide Waste Information, Forecasting and Tracking System (SWIFTS) database. The SWIFTS database is a computerized system that was designed to allow for tracking of all wastes from project generation to disposition location. SWIFTS tracks containerized and uncontainerized (bulk) waste from its point of origin to its final disposition, whether off-site shipment or burial in the OSDF. Waste in interim storage awaiting final disposition is tracked according to the originating project, current location, characterization status, debris type, and quantity of material, etc. Debris is currently tracked by the weight of the material while soil and soil-type wastes are tracked by volume. Reports using SWIFTS may be produced on demand to summarize the material management status for each of the projects or any variety of status reports using the input data for materials generated to date.

Integration of material tracking between OUs is mainly a concern between OU3 and OU5, specifically the SCEP, since OU3 will continue to maintain material tracking despite the fact that SCEP will perform at- and below-grade dismantlement and debris management. SWIFTS will remain an important tool for the integration of debris management between OU3 and the SCEP; however, the SCEP is developing a similar tracking system that is designed for its needs but also is compatible with OU3 debris tracking elements. By being compatible with the SCEP tracking system, SWIFTS will be able to provide reports that include at- and below-grade debris management.

3.3.2.3 Staging/Interim Storage

Planning is essential during project design to arrange for the appropriate staging and storage needs (containers, lay-down areas, queue areas, etc.). Following the completion of the material evaluation (identification, quantity estimation, characterization, and container assignment documentation), several staging/storage planning options will be assessed. The OU3 integrated remedial action adopts the principal strategy, previously established under Removal Action 17, for using best available storage configurations for OU3 debris until disposition can be arranged. It should be noted that the strategies developed for Removal Action 17, which were adopted into the OU3 integrated remedial action, not only address management of debris from OU3 but also establish the basic requirements for managing debris from other OUs that would require interim storage/staging. Requirements that are central to

all debris which will be managed under the strategies adopted from Removal Action 17 are reduction and potential fixation of contaminants that will be stockpiled, containerization of materials that do not meet release criteria, control of potential contaminant release, and the integrated management of remediation materials using the Integrated Debris-Waste-Soil Model (discussed in later in this section). Although project-specific storage/staging determinations will be made during design, the overall strategy established for segregation and storage of OU3 materials is provided in the text that follows.

Staging refers to the temporary, short-term placement of materials prior to disposition. The three instances of staging that will occur during the OU3 integrated remedial action are: 1) when materials are placed in a staging or queuing area within a construction boundary; 2) when materials are placed in an area designated for off-site packaging and shipment; and 3) when materials are placed in an area adjacent to the OSDF for disposal. Details regarding material staging will be identified during project design and reported in project-specific above-grade implementation plans.

Interim storage is defined as the placement of bulk or containerized materials in an established storage area or facility for a period of time beyond what is needed for direct disposition (i.e., without interim storage). Interim storage of above-grade debris is ultimately based on the final disposition determination made for OU3 materials and will follow the generalized strategy discussed in this work plan. These strategies will be applied to each project during design, documented in the project-specific MSCC, and any project-specific applications summarized in the implementation plan.

The interim storage strategies for materials generated during above-grade dismantlement allows storage in either containers or bulk piles. This strategy provides that all interim stored materials will be managed consistent with the criteria developed in site procedure EW-0006. Table 3-7 summarizes the general storage configuration projected for each OU3 debris category. It is emphasized that Table 3-7 shows the typical approach for interim storage of materials predominantly represented in each material category and that materials exhibiting characteristics such as hazardous or mixed waste or special management requirements (e.g., Tc-99 contaminated concrete removed prior to facility dismantlement) would be containerized separately.

minimizes costs by maximizing container use, and minimizes labor associated with maintenance.

~~Due to OU3 in situ decontamination criteria and release levels that must be met prior to exposing materials to the environment (discussed in Section 3.2.5), potential releases of contamination to the air and water environmental media are minimal. To protect the environment from the release of any contaminants from bulk stored materials, a polymer sealant has been applied to the Plant 1 Pad to create an impermeable barrier between concrete and soils.~~ The decontamination activities that occur under the Safe Shutdown preparatory action and the decontamination/dismantlement process include removal of residues, vacuuming loose media, washing of component surfaces and equipment, and removal of certain Tc-99-containing concrete to reduce radiological contamination to levels that will not impact human health or the environment (refer to Section 3.2.5 for the discussion of how these limits are established). By limiting contamination to such levels, the interim storage of debris may be managed more flexibly and in various configurations.

Certain debris may be staged in stockpiles including: accessible metals (Category A), non-process equipment (Category B), inaccessible metals (Category B), painted light-gauge metals (Category D), and concrete (Category E). In addition, transite panels (Category G) used for building roofing and siding will be stacked on and banded to pallets and placed in interim storage. The combination of decontamination efforts identified above and stormwater runoff collection systems at the interim storage locations will mitigate any potential release of previously fixed contamination from the stockpiled debris; loose (removable) contamination will be minimal because of the prior decontamination activities (e.g., water wash, HEPA vacuuming). The runoff from the debris piles will be collected and treated, as necessary, in the site wastewater treatment system.

Likewise, airborne contaminant concentrations from the stockpiled debris have been and will continue to be negligible based on removal or fixation of surface contamination. Control measures will be consistent with the determination of Best Available Technologies for fugitive dust control, and could include use of dust suppression materials such as water, resin, surfactant, or covers.

- Impacted material exceeding the WAC presented in Table 4-1 of the IMPP;
- ~~Impacted m~~Material from any off-site source, including any other DOE site, except as provided in the OU5 ROD;
- Pressurized gas cylinders;
- Process-related metals (OU3 Debris Category C);
- lead sheeting, which has not been treated to meet LDRs;
- Product, residues, and other special materials (OU3 Debris Category J);
- Materials containing free liquids;
- Intact drums (i.e., drums must be empty and crushed);
- Acid brick (OU3 Debris Category F);
- Transformers which have not been either crushed or their voids filled with grout or other acceptable materials;
- Used oils;
- Whole or shredded s~~S~~crap tires; and
- Materials not accompanied by ~~an applicable~~ the appropriate transportation manifest as specified in the IMPP.

As noted earlier, a general physical size constraint was placed on debris that are to be disposed in the OSDF by conditions provided in the OU2 IMPP. Section 4.3 of the IMPP lists physical waste acceptance criteria that must be applied to material destined for OSDF disposal. The dimensions provided in Table 3-8 represent the application of the general size constraint to OU3 material categories. The physical dimensions applied to OU3 materials have been accepted by OSDF design engineers as consistent with OSDF physical waste acceptance criteria.

Material dimensions would be limited in length to accommodate spreading and compaction equipment and limited in height to meet a specified lift thickness (i.e., thickness of OSDF compaction layers) for placement of construction materials in layers. Material placement will be also be specified by the IMPP developed pursuant to the OSDF design.

Removal Action 9 - Removal of Waste Inventories

The former Removal Action 9 decisions and procedures have been incorporated into the OU3 integrated remedial action through the preparatory action of Inventory Removal (Section 3.2.1) which is performed prior to facility decontamination and dismantlement, and during material management (Sections 3.3.5 and 3.3.6) for the characterization, treatment, packaging, and transportation of waste in a manner that ensures full compliance with DOE Orders, Department of Transportation shipping requirements, and NTS and PCDF WAC. As noted in Section 3.3.1, the procedures adopted from Removal Action 9 will be used to characterize and manage materials classified as "unknowns" since such material would fall under the category of "product, residues, and special materials".

Removal Action 12 - Safe Shutdown

The scope and decisions made for management of Removal Action 12 - Safe Shutdown have been incorporated into the OU3 integrated remedial action through the preparatory action - Safe Shutdown (Section 3.2.2), which is performed prior to decontamination and dismantlement of applicable facilities.

Removal Action 17 - Improved Storage of Soil and Debris[2]

The concepts for management of debris under Removal Action 17 - Improved Storage of Soil and Debris have been incorporated into the OU3 integrated remedial action by using applicable strategies and concepts previously developed for that removal action in the overall management of debris from OU3 above-grade decontamination and dismantlement projects. Section 3.3.2, Material Segregation and Containerization Criteria (Appendix A) and Specification 1120 (included in Appendix B) incorporate the essential elements of the approved Revision 3 of the Removal Action 17 Work Plan, including its addenda.

Removal Action 26 - Asbestos Removal

The management of asbestos abatement provided under Removal Action 26 - Asbestos Removal has been incorporated into the OU3 integrated remedial action by including its scope and work practices into the strategies for above-grade decontamination and dismantlement projects (Sections 3.2.3, 3.3.2, and Specification 1516).

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[2] *OU3 RD/RA integration refers only to the above-grade debris; integration with soil and at- and below-grade debris management will be detailed in the OU5 SEP.*

coordinate waste shipments and long range planning of each remedial action, particularly with regard to updating the Integrated Debris-Waste-Soil Model outputs.

3.4.3.3 Operable Unit 4 Remedial Action

The primary issue that must be coordinated between OU3 and OU4 remedial actions is the decontamination and dismantlement of OU4 treatment facilities. The basic strategies developed for material evaluation and material management in this work plan (treatment and disposition decisions, at least) will apply to debris generated from dismantlement of OU4 treatment facilities; however, the planning and implementation of decontamination and dismantlement of OU4 treatment facilities will be determined by OU4 (e.g., subcontractor procurement, remedial tasks). The responsibility of submitting the design and implementation documentation to the regulatory agencies for decontamination and dismantlement of OU4 treatment facilities will lie with OU4.

3.4.3.4 Operable Unit 5 Remedial Action

Key elements for integration of remedial actions between the remedial actions implemented pursuant to the OU5 ROD and the decontamination and dismantlement of OU3 facilities include: (1) coordination and scheduling of at- and below-grade dismantlement of OU3 facilities and related material evaluation and disposition; (2) decontamination, dismantlement, and disposition of long-term remedial action facilities (e.g., biodenitrification system, AWWT) consistent with the strategies provided in this work plan; and (3) treatment and disposal of stormwater and decontamination washwater generated by OU3 remediation, as necessary. The first issue is addressed by SEP documents, the second issue is addressed by OU5 Aquifer Restoration Project RA documentation, and the third issue has been addressed in Section 3.5.2 of this work plan.

Section 3.2.7 provides a general strategy for dismantlement of OU3 at- and below-grade facilities; however, the SEP will provide ~~specific~~ scheduling and strategies for design, procurement, and implementation that apply to ~~both~~ dismantlement of long-term remedial action facilities and at- and below-grade ~~dismantlement~~ components and material management. The SEP will address the specific strategies regarding methods for evaluating materials during

excavation design, shutdown of existing utilities, removal of concrete slabs and pilings, completion of HWMU decontamination activities, verification screening/sampling, material size reduction, staging, and disposal. SCEP Project Management will ensure that OU3 remedial action objectives are met during at- and below-grade remediation.

3.5 Compliance with ARARs

The remediation activities that fall within the scope of the OU3 integrated remedial action are required under Section 121(d)(1) of CERCLA to attain standards, requirements, or criteria that are "applicable or relevant and appropriate" (i.e., ARARs) under the circumstances of the release at a site. The ARARs for the decontamination and dismantlement phase of the OU3 integrated remedial action are identified in Section 10 of the IROD, and those ARARs that apply to the material treatment, storage, and disposition phase are defined in Section 9.2 and Appendix B of the OU3 Final Action ROD. The criteria and strategies for implementing RD and RA tasks are developed based on those ARARs and TBCs. No activity-specific permitting is required for remedial actions described in this work plan; however, the substantive requirements of the ARARs will still be achieved.

The information contained in this section and in Appendix B of the OU3 Final Action ROD constitute the plan for satisfying permitting requirements as required by the ACA. The purpose of this section is to highlight the most prominent programs and actions that will be implemented during the OU3 integrated remedial action to ensure attainment of those ARARs and other requirements. Sections 3.5.1, 3.5.2, and 3.5.3 provide detailed discussions on how ARARs will be attained for control of air emissions, management of contaminated water, and HWMU decontamination activities.

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3.5.1 Control of Air Emissions

The control of air emissions during activities performed under the OU3 integrated remedial action will occur through the selection and use of techniques that minimize air emissions and through the implementation of engineering controls. Engineering controls are required by performance specifications as well as the RRP developed for each project during design. The RRP specifies that radiological engineering controls be used to minimize, among other things, airborne radioactivity. The RRP provides stringent guidelines and contamination limits to the remediation subcontractor to ensure that airborne radioactivity is minimized.

Engineering controls will consist of physical barriers, air locks, fixatives, filtration equipment, sealants, water sprays, and wetting agents that will ensure the safety of workers and decrease airborne dust. The Ohio Air Pollution Control Regulations (OAC 3745-31-05) require the use of Best Available Technologies and work practices for the control fugitive dust emissions (e.g., forced negative air). The performance specifications require the remediation subcontractor to prepare plans detailing methods and materials to control fugitive emissions for various activities. For example, Specification 03315 includes such a provision for concrete removal. Such measures/controls, along with the project-specific air monitoring to be performed (see Section 3.6.2.1 of this work plan) will also ensure compliance with DOE Order 5400.5 - Radiation Protection of the Public and the Environment.

Two areas of the NESHAPs regulations with which the FEMP is required to comply are pertinent to the actions to be taken under the selected remedy. The first is a requirement under 40 CFR 61, Subpart H, for monitoring radionuclide emissions from the site and point sources (i.e., stacks/vents). In the FEMP air monitoring program presented in the Draft Final Integrated Environmental Monitoring Plan (IEMP) (Draft Final, DOE 1997), Subpart H compliance will be demonstrated through an approach that relies on actual measurements of ambient radionuclide particulate concentrations at or near potential receptor locations. As such, fugitive emissions from decontamination and dismantlement operations, as well as other project-specific diffuse and point source emissions, will be measured collectively and evaluated against the NESHAP dose limit of 10 millirem (mrem)/year for the FEMP. Therefore, the data collected through the IEMP air monitoring program provides a direct measure of the collective effectiveness of project-specific point souce and diffuse source emission controls relative to

a health-based standard. Based on this approach, the IEMP meets its objective of providing an independent appraisal of air emissions and controls. Additional monitoring at the project level are not necessary to support compliance or to ensure protection of the public; however, OU3 has developed a project-specific radiological air monitoring approach that is both consistent with the air monitoring approach described in the Draft Final IEMP and reflective of commitments made to the public in the OU3 IROD and Final Action ROD. The OU3 project-specific radiological air monitoring strategy is presented in Section 3.6.2.1 of this work plan. ~~Emissions estimates are prepared for fugitive and point source air emissions to demonstrate that no off-site member of the general public receives an annual effective dose equivalent in excess of the 10 millirem (mrem)/year standard via the air pathway. Each potential air emissions point source/activity (e.g., a decontamination and dismantlement project) shall be evaluated by modeling prior to implementation to determine the contribution that each source has to annual releases and if continuous sampling of the point source/activity is required. The air emissions model that is currently approved under NESHAPs and in use at the FEMP is identified as CAP 88. The CAP 88 model is discussed further in Section 3.6.2.1. Specifically, point sources/activities with the potential for releases that could exceed 0.1 mrem/year dose to any member of the general public will be continually monitored. Other point sources/activities with a potential to emit radionuclides (but with a potential dose rate less than 0.1 mrem/year) will be evaluated against the criteria identified in Section 3.6.2.1 and monitored accordingly.~~

The second pertinent area of NESHAPs, 40 CFR 61, Subpart M, includes compliance with applicable asbestos standards for renovation (asbestos abatement) and demolition activities. The FEMP is required to notify the Ohio Department of Environmental Services of its intent to undertake asbestos abatement and/or demolition projects that involve removal of asbestos over a specified amount. This local notification serves as notification to both the U.S. EPA and Ohio EPA. The Department of Environmental Services is a multi-county agency which serves this region of Ohio. All subcontractors performing asbestos removal and/or demolition work at the FEMP must also notify the Ohio Department of Health that the project is being undertaken. These requirements are passed on to the remediation subcontractor in Specification 01516.

TABLE 3-12 Crosswalk Between RCRA Closure Guidance Requirements and CERCLA Documentation For OU3 HWMUs

OEPA Closure Guidance Item	CERCLA Documentation for Above-Grade Structural Components	CERCLA Documentation for At- and Below-Grade Structural Components
Description/Detailed Drawings of Waste Management Units (Item 3.2/3.4)	Figure 2-2 and Table 3-10 of OU3 Integrated RD/RA WP, Implementation Plans for Above-Grade Decontamination and Dismantlement	OU5 RI Report
List of Hazardous Waste Managed In Units (Item 3.5)	Implementation Plans for Above-Grade Decontamination and Dismantlement	OU3 RI/FS Report; OU5 RI and FS Reports
Removal of Waste (Item 3.6)	OU3 Integrated RD/RA Work Plan (Secs. 3.2.3, 3.3, and 3.5.3); Implementation Plans for Above-Grade Decontamination and Dismantlement	SEP and Integrated Remedial Design Packages
Schedule For Closure (Item 3.7)	OU3 Integrated RD/RA Work Plan (Sec. 6); Implementation Plans for Above-Grade Decontamination and Dismantlement	OU5 Integrated Remedial Design Packages
Health & Safety Issues (Item 3.9)	OU3 Integrated Remedial Action HASP (Appendix E)~~; Project Specific HASP~~	SEP and Integrated Remedial Design Packages
Decontamination Efforts (Item 3.10)	OU3 Integrated RD/RA Work Plan (Secs. 3.2.3, 3.5.3); Implementation Plans for Above-Grade Decontamination and Dismantlement	SEP and Integrated Remedial Design Packages
Remediation Standard for Soil & Ground Water (Item 3.11/23.12)	N/A	OU5 Record of Decision
Sampling Plan and Analytical Procedures (Item 3.13)	N/A	OU5 SEP, and Integrated Remedial Design Packages
Description of Removal Efforts/ Treatment Processes (Item 3.14)	Implementation Plans for Above-Grade Decontamination and Dismantlement	SEP and Integrated Remedial Design Packages
Landfill Closure Requirements (Item 3.15)	N/A	OU5 ROD, SEP, Integrated Remedial Design Packages
Certification (3.16)	Project Completion Reports for Above-Grade Decontamination and Dismantlement; Remedial Action Report.	Certification Reports and Remedial Action Report
Status of Facility After Closure (Item 3.17)	IROD	OU5 SEP

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3.6 Environmental Monitoring

The current focus of environmental monitoring at the FEMP is the implementation of: 1) site-wide environmental monitoring; and 2) project-specific environmental monitoring. Site-wide environmental monitoring is addressed in the ~~Integrated Environmental Monitoring Plan (IEMP) (Draft, DOE 1996j)~~ while project-specific environmental monitoring will be addressed by project-specific environmental monitoring plans. For remediation activities that fall within the scope of the OU3 integrated remedial action, project-specific environmental monitoring requirements will be included in individual implementation plans.

3.6.1 Integrated Environmental Monitoring

The IEMP has been prepared in a manner that focuses on groundwater, surface water, and air surveillance and reporting necessary to ensure protection of human health and the environment during the site-wide remediation activities. The IEMP replaces the previous site Environmental Monitoring Plan (EMP). The IEMP includes the programmatic environmental monitoring requirements that have been prescribed for the OU3 integrated remedial action. The previous EMP had provided comprehensive on-property and off-property environmental surveillance requirements that specifically addressed the monitoring and reporting needs associated with an active uranium production facility and pre-remediation activities. The IEMP represents a revision of the EMP that focuses primarily on site remediation. The IEMP incorporates new regulatory requirements for site-wide monitoring, reporting, and tracking. The IEMP provides the central reporting mechanism to the regulators and stakeholders for the ongoing emission control/monitoring activities at the FEMP. Site-wide reporting under the IEMP does not preclude project-specific reporting for OU3 above-grade decontamination and dismantlement projects.

3.6.2 Project-Specific Environmental Monitoring

The project-specific environmental monitoring plans address sampling of air, wastewaters, and groundwater within and surrounding specified project boundaries. The need and extent of project-specific monitoring is based on the evaluation of the following three criteria:

- project complexity, extent of contamination, and scope;

- applicable ARARs, Occupational Safety and Health Act requirements and DOE Orders; and,
- existing ~~area-specific~~ monitoring data, modeling, and monitoring programs ~~that are related to the scope of the project~~.

The project-specific monitoring plans, if needed, are modeled and designed based on the location specific constraints. Modeling for potential emissions early in the project design is the basis for identifying and instituting process controls and emission controls. The effectiveness of the project-specific emission controls will be evaluated through analysis of monitoring results to identify whether increased or altered emission control methods are necessary. Project-specific environmental monitoring planning will be documented in project implementation plans and a summary of monitoring results will be provided in project completion reports.

3.6.2.1 Environmental Air Emissions Monitoring

The project-specific e~~E~~nvironmental air emissions monitoring for individual above-grade projects consists of air monitoring performed under one or more of three programs: 1) the Fernald Site Environmental Monitoring Program; 2) the Occupational Air Monitoring Program, which addresses worker safety; and if needed, based on additional process control requirements, 3) the supplemental environmental air monitoring program. The first two sub-programs are established programs that will continue throughout remediation; the first being addressed entirely within the IEMP, and the second being addressed in the OU3 Integrated Remedial Action HASP (Appendix E) and applied to each project via the project-specific RRP. The third program, supplemental environmental air monitoring, will be developed as needed specifically for each of the individual projects designed under the OU3 integrated remedial action. The supplemental environmental air monitoring program will be designed to address specific process control needs. ~~determine the effectiveness of engineering controls.~~ Due to the predominance of radiological contaminants in OU3 components, since they represent the primary contaminants of concern, the focus of environmental monitoring will be for radionuclides; however, monitoring for other contaminants of concern will be added on a project-specific basis when warranted, such as for asbestos during decontamination of a component containing friable ACM. Section 8.1 of the OU3 Integrated Remedial Action HSP addresses air monitoring for work that will potentially release asbestos fibers.

Supplemental Radiological Air Monitoring

Any supplemental radiological air monitoring that is developed will be in accordance with the commitments provided in the IROD and OU3 Final Action ROD to use air sampling devices in a manner that ensures that airborne radiological activity is maintained at low levels. Although existing occupational monitoring efforts described in the OU3 HASP and environmental monitoring described in the IEMP may be sufficient to achieve the goal of ensuring that project-specific emissions are maintained at low levels, the OU3 supplemental radiological air monitoring program has been developed as a framework that allows project designers to evaluate the extent of its application for any particular project. The supplemental air monitoring program is broadly designed to take advantage of existing and potential new sampling technologies to achieve the above-stated goal (i.e., samplers that would provide useful data on a timely basis to support prompt decision making). The supplemental program strategy includes a use of a combination of additional occupational and environmental air monitoring efforts which employ personal air sampling, breathing zone sampling, general area sampling, and perimter sampling.

Whereas the sitewide radiological air monitoring program presented in the IEMP is designed to demonstrate compliance with NESHAPs Subpart H, the OU3 supplemental radiological air monitoring program is designed to evaluate the effectiveness of emissions control measures implemented for a project. As a supplemental program to the sitewide radiological environmental air monitoring program, it does not serve as a method to determine compliance with NESHAPs Subpart H.

~~The supplemental air monitoring program provides data on the effectiveness of control measures implemented for a project. This is done by comparing field readings during remediation to a baseline concentration determined over a period of pre-remediation background monitoring. The objective of environmental air monitoring will be to readily assess project results in the fastest time possible so that mitigative measures can be implemented should airborne concentrations significantly exceed established project background levels.~~

~~The project specific air monitoring program will require that continuous emissions monitoring at optimal receptor locations be implemented in response to either of the following issues: 1) if the potential exists for radiological air emissions to exceed 1.0 x 10^{-1} mrem/year at the FEMP boundary; or 2) to address public concern. Individual project specific air monitoring~~

~~plans will be developed during the remedial design and detailed in the project specific implementation plan.~~

The supplemental radiological air monitoring approach for each project will be defined during project design, as appropriate. During remedial design, the criteria listed below will be considered to determine the extent of radiological environmental air monitoring appropriate for a project.

- Availability and adequacy of existing air monitoring stations.
- Occupational monitoring program to be implemented.
- Project-specific phases and activities that have the potential for radiological air emissions, such as decontamination, dismantlement, material management, and the type of monitoring (continuous versus grab) that should be performed. Continuous sampling is desirable if airborne radionuclide concentrations have the potential to fluctuate widely.
- The need for pre- and post-project monitoring to compare data obtained during each project. Such data will also be used to verify the success of decontamination techniques.
- The potential hazard of the materials available for release, considering both the expected quantities and relative radiotoxicities. The review of previously obtained characterization data of radionuclides in a particular component, including ratios to other nonmeasurable radionuclides, is necessary since the control of radionuclide releases depends on the source available and any treatment system used.
- The expected dispersion of airborne releases, including predominant wind directions and the degree to which the radionuclides of concern may be diluted or reconcentrated in the biosphere. Air monitors will generally be concentrated downwind of the monitoring facility, but monitors in all directions are preferred.
- The length of time required to complete each activity that has the potential to cause fugitive emissions.
- Sample representativeness. Measurements should be made at the points/areas at which the data best represent what is being released to uncontrolled areas.
- Other remediation projects being performed simultaneously. Project-specific monitoring with results that can be attributed solely to one project may not be possible.

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- The radionuclides or analytes to be measured. Gross radioactivity measurements will probably be inadequate, except under the following circumstances: when gross radioactivity releases are a small fraction of the off-site Derived Concentration Guide (DCG) values for "unidentified" mixtures; when ratios of specific radionuclides are sufficiently known (and constant) for which gross activity measurements are truly indicative; and when radionuclide concentrations are so low as to preclude specific nuclide measurements.

- Accessibility to the air monitoring station for maintenance and calibration.

~~Based on the criteria listed above, with primary input from OU3 RI/FS data, air emissions computer modeling will be performed to determine the potential emissions from each project. The results of that modeling effort will indicate whether levels of radiological emissions will exceed the 0.1 mrem/year threshold at the FEMP boundary that would require continuous emissions monitoring. As a point of reference for this threshold value, pursuant to Subpart H of NESHAPs, the allowable off-site maximum for radiological emissions is 10 mrem/year. However, as a conservative measure to ensure protection of human health and the environment, environmental air monitoring may still be employed to supplement current site-wide air monitoring during remediation. The monitoring location designed for a project will be illustrated in the project specific implementation plan.~~

The results of each project supplemental air monitoring evaluation will be presented in the respective implementation plans. For OU3 projects that include supplemental environmental radiological air monitoring, the project implementation plans shall include the following basic elements:

- results of computer modeling, including the base assumption for the distance to the theoretical "maximally exposed individual" and the maximum Effective Dose Equivalent calculated;

- identification of any emissions thresholds for which, if exceeded, would require mitigative actions;

- potential mitigative actions;

- type, number, and locations of supplemental radiological air sampling and the basis for chosing them;

- requirements for pre-implementation background monitoring, if necessary;
- sampling frequency; and
- reporting criteria.

Based on the criteria listed above, with primary input from OU3 RI/FS data, air emissions computer modeling will be performed to determine the potential dose from each project. The air emissions computer modeling method that has been used thus far for ~~the first two~~ decontamination and dismantlement projects to assess potential radiological environmental emissions is the CAP88PC model, which is the personal computer version of the U.S. EPA model CAP88 that is the approved method ~~used~~ for predicting emissions of radionuclides under the NESHAPs regulations. It is anticipated that use of this model will continue throughout OU3 remediation unless superseded by new U.S. EPA guidance. It should be emphasized that the CAP88 model is being used as a tool for assessing potential emissions from a project for the purpose of identifying potential mitigative controls and possibly the use of supplemental monitoring measures; it is not being used as a means to demonstrate compliance with NESHAPs Subpart H. As discussed in Section 3.5.1, the method to be used for demonstrating NESHAPs Subpart H compliance is presented in the IEMP as a collective sitewide strategy. Either CAP88 or a comparable modeling tool will be used, as necessary. The modeling methodology used for each project will be described in the project implementation plans along with modeling results.

The results of the modeling will be evaluated by DOE, OU3 project managers, and IEMP managers to determine the applicability of supplemental monitoring and the potential need for additional emission control measures. Additionally, OU3 project management will proactively coordinate with IEMP planning and monitoring activities to evaluate the adequacy of sampling frequency and analytical regime to ensure that project emissions control objectives are going to be met.

~~The modeling methodology to be used is prescribed by the U.S. EPA reference manual: U.S. EPA User's Guide for CAP88, Version 1.0, 402-B-92-001. Computer modeling of potential emissions from a project will utilize contaminant source terms information from Attachment B.I of Appendix B to the OU3 RI/FS Report, as appropriate. The methodology assumes no~~

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~~engineering controls on emissions release, such as HEPA filters on containment ventilation systems, and potential emissions sources are treated as being in readily dispersible forms. The results of the computer modeling will indicate what the maximally exposed individual at the closest off-site receptor location would receive. The model result will yield a maximum Total Effective Dose Equivalent value that can be compared to the FEMP boundary threshold of 0.1 mrem/year.~~

The project design evaluation of the need for project-specific monitoring will also take into account modeling and air monitoring data from previous OU3 projects, such as Plant 7, Building 4A, and Plant 1 Complex - Phase I. The decision as to the types and number of samplers for a project will be made by evaluating the nature of the potential source, existing site air monitoring network, computer-generated air dispersion modeling (CAP88PC) results, project engineering requirements, and stakeholder concerns. Practical considerations such as availability of electrical power, process knowledge, accessibility for air monitoring, and siting criteria will also be evaluated.

For projects where supplemental environmental radiological air monitoring is not performed, the commitments in the OU3 IROD and Final Action ROD will be met by utilization of occupational monitoring data generated from breathing zone and general work area sampling (described in Section 8.1 of the OU3 Integrated Remedial Action HASP) and data from the extensive network of high volume air monitors operated under the FEMP integrated environmental monitoring program described in the IEMP.

~~Based on the dose magnitudes, the extent of continuous air monitors placed in support of the project will be determined. Based on modeling and results from radiological air monitoring performed for the decontamination and dismantlement of Plant 7, Building 4A, and Plant 1 Complex - Phase I, the number of supplemental continuous air monitors needed for the project may vary. Average results for airborne uranium during these projects have been approximately 5 percent of the DOE maximum off-site guidelines of 0.1 pCi/m^3. The relationship between pCi/year and mrem/year may be understood by the conversion factor used to equate the two terms at the FEMP: if inhaled continuously (24 hours/day, 365 days/year) 0.1 pCi/m^3 of uranium in air will result in a dose of 100 mrem/yr. It should be noted that other assumptions have been incorporated into this conversion factor.~~

~~To establish a background or baseline level with which to compare project results, supplemental air monitors will be set up and operated continuously 24 hours a day for a representative period prior to the dismantlement activities described in Section 3.2.6 of this work plan. The representative period will be determined based in part on an evaluation of preliminary radiological air monitoring for other decontamination and dismantlement projects that have been previously performed; however, background monitoring may not be feasible or its results reliable due to multiple upwind remediation activities being performed at the site.~~

~~For air monitoring to be useful in the evaluation of engineering controls, results from air monitoring will be reported as expeditiously as possible. In consideration of requisite decay periods for some types of samples and time needed to perform analytical and reporting tasks, it is anticipated that the preliminary results of sampling would be delivered to the FEMP Project Manager in no less than seven calendar days from the date that the sample is taken. Preliminary results will provide the data, albeit unvalidated at that point, needed to evaluate project concentrations against the baseline concentration. If the 0.1 mrem/year threshold value is exceeded, work may be stopped, exposed areas covered or otherwise controlled, and engineering controls increased prior to restarting work. Mitigative action will also be taken if radiological levels from four consecutive weeks of air monitoring are at least twice as high as baseline levels. In this case, remediation activities will be reviewed to determine the effectiveness of engineering controls and to identify any need for additional mitigative measures. Validated data will be compiled, reported monthly, and used to trend sample results and to further evaluate the effectiveness of engineering controls.~~

~~Additional mitigative measures that might be employed in the event of exceedance of the criterion stated above would include an increase in engineering and administrative controls during a particular operation that has been identified as the cause or probable cause of the elevated radiological levels. Such controls could include an increase in negative pressure within the enclosed work area using additional HEPA filtration units or additional surface cleaning (wash) steps before removing material from the containment.~~

Further details regarding the sampling and analytical strategies for the project-specific environmental air emissions monitoring program have been included in the RD/RA SAP contained in Appendix D.

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substantive requirements for above-grade remediation of HWMUs in lieu of submitting separate closure plans.

The above-grade implementation plans, which will in most cases be prepared prior to the pre-final design phase using performance specifications, the remediation subcontract SOW, and environmental monitoring requirements, will provide a summary of the key elements of a specific design effort that are pertinent to the remediation of one or more buildings/components contained within that design package. It summarizes all project-specific information developed during the remedial design that document how a project will be performed in compliance with the requirements of this work plan. Since most of the strategies for performing remediation activities are discussed in detail in this work plan, each implementation plan will represent a streamlined report of important project-specific applications not available during the preparation of this work plan.

Above-grade implementation plans incorporate by reference the engineering specifications used for bidding the project, as well as other key aspects of remediation (e.g., environmental monitoring, HWMU remediation requirements, etc.). This information is compiled in a format that parallels this work plan. Since implementation plans can be prepared and submitted concurrent with the bidding process, they are particularly suited for turnkey subcontracting — a effort which results in expedited remedial action. Listed below are the are the key elements of the remedial design that will be included in each implementation plan.

- an introductory section which provides a project statement, scope of work, and description of the components that make up the project;
- a section which describes material management details, such as volume and weight estimates for materials, segregation and containerization of materials, interim storage requirements, alternative technologies to be used for material management (e.g., recycling), and waste treatment and disposition decisions, including summary results and matrix table from the disposition methodology evaluation;
- a section which describes the project lay-out, including project site drawing, site preparation requirements, and sequence for component dismantlement, and environmental monitoring (see Section 3.6.2.1 for the basic elements of the project supplemental radiological air monitoring program that will be described in each implementation plan);

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- subsections which describe the component-specific remediation approach for each of the components in the project, including requirements for each of the remediation tasks that were not defined in Section 3.2 of this work plan; ~~specifically,~~ This section will discuss in particular, materials removed during inventory removal and safe shutdown, any details regarding HWMU remediation, friable asbestos removal, ~~particular~~ alternative technologies to be applied to surface decontamination and above-grade dismantlement, and references to applicable performance specifications;

- reporting on any alternative technologies (including D&D and recycling) in the implementation plan;

- a schedule for implementation and deliverables which will include the three enforceable milestones: 1) Notice to Proceed; 2) Completion of Field Activities; and 3) Submittal of the Project Completion Report to U.S. EPA and Ohio EPA; and supplemental (non-enforceable) information will also be included in the remediation schedule which identifies the subcontract award date and projected durations for field activities and document preparation;

- a section describing how the project will be managed; and

- appendices which contain a listing of the performance specifications, selected design drawings, and photographs.

4.2 Decontamination and Dismantlement

This section describes the activities that will be performed by the FEMP construction manager and subcontractors to implement and manage the remedial action, including: subcontractor procurement, execution of work, oversight activities, and documentation and certification of action. The following discussions detail the scope of work and oversight and inspection processes.

4.2.1 Remediation Subcontractor Procurement

The remediation subcontractor procurement begins during the preliminary stage of each project design for above-grade decontamination and dismantlement. At that time, a contracting strategy will be developed that considers optional approaches, potential number and scope of contracts, contract types, and contracting procedures. The number and scope of contracts will be dependent on the complexity of each project and funding availability. The method for

subcontracting may utilize either the IFB or RFP process, or the Site Support Contract/TOA methods, as introduced in Section 3.1.4. ~~standing labor support contract method whereby a remediation support contractor.~~ Each of the three methods require a well-defined scope of work, adequate competition, and realistic estimates of proposed costs and uncertainties.

Discussions will be held with the preferred subcontractor prior to award to ensure the work scope, list of deliverables, schedule, work phasing, and all other requirements for the project are truly understood. If appropriate, potential subcontractors will be pre-qualified to determine their resources and capabilities prior to being allowed to compete in the IFB/RFP process.

Statement of Work

Developed during the remedial design, the remediation SOW defines the activities that the remediation subcontractor will be required to perform. This SOW is a subset of the overall RD/RA project SOW developed by the remedial design subcontractor. The remediation SOW identifies the following project-specific information and requirements for a project:

- General Scope of Work;
- Specific Description of Work;
- Material, Equipment or Services Furnished by the FEMP;
- Interfaces and Restraints;
- Temporary Facilities and Utilities;
- Site Location, Access, Laydown Areas and Limits of Construction Area;
- Work Hours;
- Performance Schedule and Sequence of Work;
- Pay Item Schedule;
- Requirements for Subcontractor's Schedule;
- Subcontract Progress Report;
- Submittals; and
- Alignment and Kickoff Meeting.

Prequalification

Qualifications required for potential remediation subcontractors will be specified in the IFB/RFP documentation. These qualifications address safety record, similar work experience, government contracting experience (determined on a package-by-package basis), etc., and may range from normal construction experience to very sophisticated experience on heavy industrial and/or hazardous waste sites.

If deficiencies are noted during inspection and surveillance activities, the subcontractor shall be notified immediately so that corrective actions are taken as soon as possible. Failure of the subcontractor to correct deficiencies will constitute cause for FEMP construction management to stop work until the subcontractor is willing to correct deficiencies or until the deficiencies are eliminated using a change request. Situations where there is an immediate danger to life and health shall be cause for immediate stoppage of work activities until the situation is reviewed and a safe corrective action is implemented.

4.2.3.5 Pre-Final Inspection

When the project is near completion, a pre-final inspection will be conducted to identify and "punchlist" incomplete or deficient work. The pre-final inspection will consist of a walk-through inspection of the entire project site. An inspection of the work will be conducted to determine whether the project is complete and consistent with the contract documents, the implementation plan, and this work plan. Responsible site personnel and remediation subcontractor personnel will participate ~~attend~~ inspections in order to prepare and document a punchlist of unsatisfactory or remaining activities and deliverables. Work activities will be controlled and conducted in accordance with findings of the punchlist. An update on the status of the project will be required at remediation coordination meetings.

Following the pre-final inspection, a punchlist is developed and serves as the pre-final inspection report. ~~Pre-Final Inspection Report will be completed~~. This punchlist/report will outline the outstanding remediation items, actions required to resolve them, completion date for these items, and date for the final inspection. The punchlist/report is provided to the FEMP project and contract managers to ensure that the tasks and other obligations specified in the subcontract statement of work have been met and to allow project managers to follow-up on those activities that remain to be completed before the final inspection. The project completion report (discussed in Section 4.5 of the work plan) will summarize activities completed by the subcontractor and also provide a comprehensive account of the entire remediation.

4.2.3.6 Final Inspection

Upon completion of punch-listed activities and deliverables, a final acceptance inspection walk-through (referenced under site procedure CT-3.6.1 (7.4.4): Subcontract Punchlist Walkdown) will be performed. For the final inspection, the FEMP field construction coordinator, field construction engineer, and subcontractor will walkdown all punchlist items to verify that they were completed correctly. Upon verification of the punchlist items, the field construction engineer will sign the punchlist. ~~the Pre-Final Inspection Report will be used as a checklist, with the inspection focusing on the outstanding remediation items identified in the pre-final inspection.~~ The remediation subcontractor's demobilization activities should also be completed. If any items remain unresolved, the inspection will be considered a pre-final inspection requiring that another punchlist be developed. ~~Pre-Final Inspection Report. The acceptance of all listed items will be verified and documented. Final acceptance and turnover of the project will be documented and signed off in a final acceptance and turnover document (reference: Section 7.7 of procedure CT-3.6.1). The remediation subcontractor will be notified of final acceptance of the remediation activities via its receipt of the approved final acceptance document.~~

4.2.4 ~~Certification of Construction~~ Completion of Field Activities

Completion of Field Activities will be achieved when the Final Acceptance and Turnover Document is signed by the FEMP Contracts Manager (reference: Section 7.7 of site procedure CT-3.6.1). The remediation subcontractor will be notified of final acceptance of the remediation activities via its receipt of the approved final acceptance document. Following issuance of the final acceptance and turnover document, the FEMP contract manager will issue a transfer document to the facility/system owner which signifies acceptance of the project. The issuance of this transfer document, referred to as the Transfer of Care, Custody and Control Letter (reference: Section 7.8.1 of the procedure), will allow for the proper transfer of the project area for future use or at- and below-grade remediation. ~~Following the final inspection and acceptance of completed activities and deliverables, a remediation subcontractor closeout checklist is prepared to document a mutual agreement between the FEMP contractor and the remediation subcontractor. This checklist ensures that all obligations and requirements of both parties, as set forth in the remediation subcontract, have been fully~~

~~executed. The remediation subcontractor closeout checklist, following review and approval, is the final document certifying that construction is complete, that all engineering requirements are complete and approved, and that all contractual obligations are finalized. As-built engineering drawings will be required after the completion of remediation for each subcontract package.~~

4.3 Material Management

Beginning with the mobilization stage and continuing throughout each above-grade decontamination and dismantlement project, material management tasks need to be performed. Material management field activities required by the FEMP workforce include at least the following:

- delivering and removing containers and palletized material from the queuing area;
- maintaining project log book of all containers generated throughout the project;
- providing field guidance regarding segregation and size requirements;
- verifying that proper material characterization, segregation, and handling is being conducted per the PWID, the MSCC, and subcontractor work plans;
- ensuring tracking paperwork has been prepared for each container generated and entered into SWIFTS;
- providing a material summary report at the end of the project, including container quantities, contents, and current status;
- ensuring all material has been managed in accordance with its identified disposition;
- if applicable, for material remaining to be packaged by site personnel, packaging the material for identified disposition route;
- overseeing that material generated during decontamination efforts and demobilization is managed correctly; and
- ensuring that all containers requiring interim bulk storage are identified, emptied, and reallocated to other decontamination and dismantling projects.

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- reiteration of remediation activities defined in the project-specific implementation plan and a statement indicating their performance in accordance with project specifications;

- substantive deviations to project performance specifications that impacted remediation strategies;

- HWMU remediation activities per the DF&O;

- identification of materials that have or will be treated and disposition locations for materials listed in the MSCC; ~~and~~

- description of any alternative technologies used or evaluated during the project, including those being used or pursued to execute recycling or disposition options;

- summary of results from project-specific environmental monitoring activities; and

- explanations of any modifications to this work plan and/or implementation plan, and the reasons these were necessary for the project.

The removal actions adopted into the scope of the OU3 integrated remedial action will require a form of reporting to programmatically close-out those actions as they apply to above-grade decontamination and dismantlement. Since applications of decisions and procedures adopted from removal actions may be used during at- and below-grade remediation (e.g., Removal Action 9 for management of any product, residues, or special materials), amendments to removal action close-out reports would be included as elements to remedial action reporting for the SCEP. Applicable elements of removal action close-out reporting outlined under 40 CFR 300.165 will be documented in individual close-out reports unless the timing is such that removal action completion coincides with the overall completion of OU3 remedial action, whereupon such reporting would be included in the OU3 Final Remedial Action Report.

The Final Remedial Action Report will serve as the final report for the OU3 integrated remedial action. Although OSWER Directive 9355.4A applies to fund-financed remedial action, this report will be prepared consistent with that directive by including the following elements:

- an introduction which summarizes the scope of the OU3 integrated remedial action;

6.0 SCHEDULE AND DELIVERABLES

Documents and reports, as listed in Section 6.1, will be submitted to the regulatory agencies for review, comment, and/or approval throughout the OU3 integrated remedial action. Section 6.2 presents the current schedule for the decontamination and dismantlement of OU3 complexes. Section 6.3 identifies the remedial design milestone dates that were developed based on the remediation schedule, and Section 6.4 discusses the submittal of any future schedule modifications.

6.1 Submittals to the Regulatory Agencies

This section identifies the reports and work plans to be submitted to the regulatory agencies to support the OU3 integrated remedial action. The descriptions of reports and work plans listed below reflect the initial draft submittals of those documents, which will undergo review, comment and revision, as necessary, until agency approval unless otherwise noted:

- OU3 Integrated RD/RA Work Plan - This document supersedes the OU3 RD/RA Work Plan for Interim Remedial Action, the OU3 PSR, and the debris management aspects of the Removal Action 17 Work Plan. This submittal consists of a single volume which contains the body of the work plan and five appendices. The submittal of the draft version of this document to the regulatory agencies, which was ~~is~~ due 60 days from signature of the OU3 Final Action ROD, was accomplished on November 20, 1996.

- Implementation Plans - An implementation plan will be prepared for each above-grade decontamination and dismantlement project (as defined in Table 2-4) and submitted for review, comment, and approval in accordance with the implementation plan submittal schedule provided in Section 6.3. Each implementation plan will define three regulatory project milestones: 1) Notice to Proceed (see Sec. 4.2.3); 2) Completion of Field Activities (see Sec. 4.2.4); and 3) submittal of the Project Completion Report to the regulatory agencies. The contents of the implementation plans are discussed in Section 4.1.5.

- Updated Implementation Plan Submittal Schedules - The schedule for submitting draft implementation plans will be reviewed periodically. Any necessary updates to this schedule will be submitted to the regulators for review and approval.

- Project Completion Reports - Within sixty days from the execution of the final Acceptance and Turnover Document for each above-grade decontamination and dismantlement project, which identifies to the

subcontractor that DOE recognizes the completion of field activities, ~~DOE approval of the final inspection of the Certification of Construction Completion for decontamination and dismantlement activities addressed in an implementation plan,~~ a Project Completion Report for Above-Grade Decontamination and Dismantlement will be submitted to the regulatory agencies for review and approval. Elements to be included in these documents are discussed in Section 4.5.

- Removal Action Close-out Reports - Unless included as reporting elements in the OU3 Final Remedial Action Report, individual removal action closeout reports will be prepared and submitted to the regulatory agencies to fulfill the substantive reporting elements for completion of the removal actions adopted into the OU3 integrated remedial action. These reports will be submitted to the regulatory agencies within 60 days following the programmatic completion of the specific removal action activities adopted into the OU3 integrated remedial action. Since the overall completion of these removal action activities are dependent on decontamination and dismantlement project scheduling, proposed close-out report submittal dates cannot be provided in this work plan.

- Final Remedial Action Report - Within sixty days from completion of the disposition of materials from the last above-grade decontamination and dismantlement project, a Final Remedial Action Report will be submitted to the regulatory agencies for review and approval. Elements to be included in this report are discussed in Section 4.5.

6.2 OU3 Remediation Schedule

Section 2.5 presented the sequence for remediating OU3 complexes. The major milestones, as discussed in Section 6.1, are the submittals of the implementation plans for each complex or a portion thereof, status updates, and project completion reports.

Figure 6-1 shows the current schedule for OU3 remediation ~~as defined by the DOE FN FY 97 Phase I Baseline~~. This schedule reflects a strategy that provides the best utilization of anticipated funds to complete the goals of the OU3 integrated remedial action. The projected remediation schedule provides the anticipated durations for remediation activities for each of the complexes, including the safe shutdown effort. This schedule provides the basis for determining the submittal dates for the implementation plans, which are discussed in Section 6.3 as the regulatory remedial design milestones for OU3. As noted in Section 6.1, complex-specific remediation schedules will be submitted in the respective complex implementation plans.

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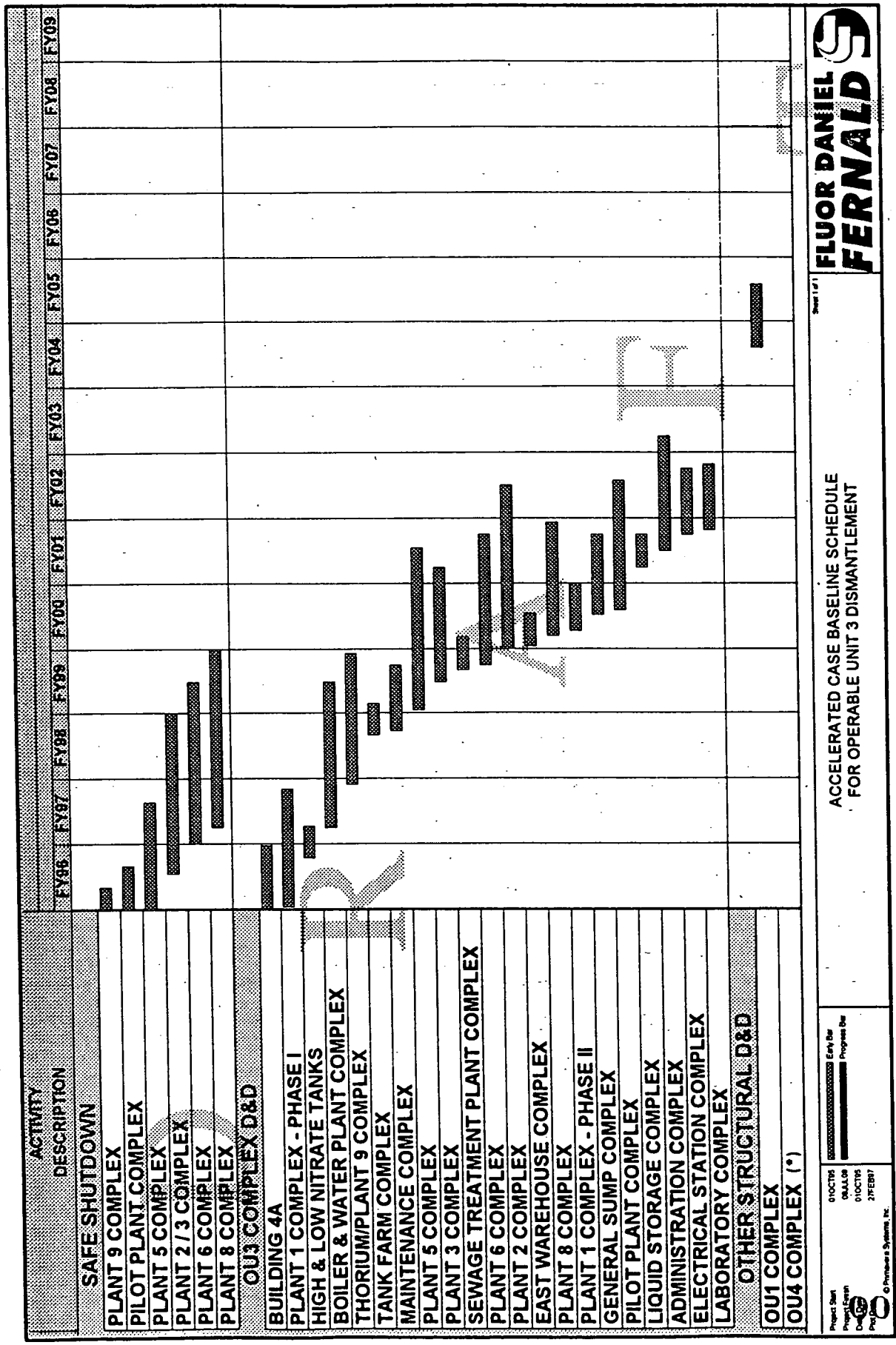

FIGURE 6-1 OU3 Base Remediation Schedule

(*) To be determined; D&D schedule pending resolution of OU4 milestone rescheduling effort.

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6.3 OU3 Remedial Design Milestone Dates

The establishment of regulatory milestones follows an iterative process wherein certain milestones can be established at the design phase, while others cannot be established until design is complete and remediation is set to begin. Even though the RD/RA planning documents for the OU3 integrated remedial action are somewhat different than those traditionally seen, the establishment of milestones needs to still follow that same iterative process. Specifically, prior to design, milestones should be reflective of the submittal of design documents, and through the design, more definitive remediation start and completion dates can be established. Therefore, the regulatory remedial design milestones which can be legitimately established are the submittal of the draft implementation plan for each of the complexes. Until details of the design have been completed, definitive project durations cannot be established. Without these durations, project start and completion dates are uncertain.

Table 6-1 provides an updated listing of the regulatory milestones. The revised regulatory milestone listing was necessary due to reduced funding projections for OU3 decontamination and dismantlement projects in FY 97 and FY 98. ~~the current listing of enforceable milestones dates which were approved by the U.S. EPA with the August 1996 PSR update.~~ These milestones reflect the submittal of the draft implementation plan for each of the complexes defined in Table 2-4 of this work plan. Submittal dates are based on a 60-day review period by the regulators and coincide with 90 days prior to issuance of a Notice to Proceed. When the individual implementation plans are submitted, they will then propose the following three regulatory milestones: 1) Notice to Proceed; 2) Completion of Field Activities; and 3) submittal of the Project Completion Report to the U.S. EPA and Ohio EPA. ~~enforceable milestones for the start and completion of remediation activities for that particular project (e.g., Notice to Proceed, submittal of the Project Completion Report, etc.).~~

6.4 Submittals of Updated Schedules

As discussed in Section 6.1, the schedule for implementation plan submittals will be updated when necessary and submitted to the regulatory agencies for review and approval. The most

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TABLE 6-1 OU3 Remedial Design Regulatory Milestones

Complex	Old Implementation Plan Submittal Dates	Revised Implementation Plan Submittal Dates
Building 4A	~~19 Sep 94~~	19 Sep 94 [a]
Plant 1 Complex - Phase I	~~3 Nov 95~~	3 Nov 95 [a]
High and Low Nitrate Tanks	~~20 Feb 96~~	20 Feb 96 [a]
Boiler Plant/Water Plant Complex	~~20 Sep 96~~	12 Sep 96 [a]
Thorium/Plant 9 Complex	~~6 Jan 97~~	2 Jan 97 [a]
Tank Farm Complex	~~2 Jun 97~~	5 Mar 98
Maintenance Complex	~~4 Jan 98~~	2 Apr 98
Plant 5 Complex	~~1 Jul 97~~	18 Jul 98
Plant 3 Complex	~~1 Jul 97~~	2 Dec 98
Sewage Treatment Plant Complex	~~1 Jul 97~~	5 Mar 99
Plant 6 Complex	~~1 Jan 99~~	2 Apr 99
East Warehouse Complex	~~1 Jul 99~~	16 Jul 99
Plant 2 Complex	~~1 Oct 98~~	14 Aug 99
Plant 8 Complex	~~1 Apr 99~~	15 Sep 99
Plant 1 Complex - Phase II	~~1 Jul 99~~	6 Oct 99
General Sump Complex	~~1 Mar 01~~	20 Dec 99
Pilot Plant Complex	~~3 Jan 00~~	17 Jan 00
Liquid Storage Complex	~~2 Oct 00~~	4 Oct 00
Administration Complex	~~3 Jan 01~~	18 Dec 00
Laboratory Complex	~~2 Apr 01~~	1 May 01
Electrical Complex	~~2 Apr 01~~	3 Apr 01
OU1 Complex	~~1 Apr 04~~	11 Feb 04
OU4 Complex	~~15 Jan 03~~	(b)

(a) actual submittal date
(b) to be determined; submittal date pending resolution of OU4 milestone rescheduling effort.

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The project-specific SAP will specify sample numbers according to sample locations previously identified in the request for site sampling services. Total sample volume needs are discussed relative to laboratory requirements to perform the relevant analyses for each location and media.

A typical project-specific SAP will follow the outline provided below:

Signature/Authorization Block: This includes authorizations from the OU3 Management, Quality Assurance, and Environmental Programs. ~~site management to implement the proposed field activity. The preparer, the sampling project supervisor, and the remediation project manager will authorize the document.~~

Section 1 - Introduction: This section provides a purpose statement, short description of the components within the project, a location drawing showing all pertinent components, scope that includes analytical requirements, and highlights any logistical issues or special requirements for field crews.

Section 2 - Responsibilities: Describes key project personnel for coordinating and reporting sampling and analysis. ~~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 - Sampling Program: This section describes the manner in which samples will be taken and references appropriate procedures that apply. It also specifies locations for sampling. ~~Sample Locations: This section describes the sampling locations to be determined. This section also breaks down the sampling effort into the non-intrusive field screening and intrusive (i.e., core sampling, chips, etc.) sampling requirements for the project.~~

Section 4 - Quality Assurance/Quality Control Requirements: Describes requirements for self assessments, surveillances, and field changes. ~~Sampling Activities, Sample Handling, and Procedures: This section references the appropriate sampling and handling procedures. It also outlines which type of sample containers and lids are required.~~

Section 5 - Equipment Decontamination: Discusses use of disposable equipment and references procedures to be used for equipment decontamination. ~~Needed: A standardized table is marked in this section according to the specific sampling needs of the component. Any special requirements are also addressed in this section.~~

Section 6 - Health and Safety: References are included in this section for appropriate health and safety requirements for sampling activities.

Section 7 - Disposition of Investigation-Derived Wastes: Statement which identifies the requirements for proper disposition of investigative-derived wastes.

Section 8 - Data Management Plan: References applicable requirements of the SCQ for data management.

Appendix A - Data Quality Objective: This appendix includes the site DQO established for the sampling activities addressed in the project-specific SAP. The DQO provides a logic flow of the sampling and analysis process, identifies analytical support levels that apply, equipment, methods, etc.

Appendix B - Job Safety Analysis: Provided is a table which identifies the sampling steps, the hazards that can be anticipated, and the recommended safe job procedures.

Provided with this SAP as Attachment 1 is the project-specific SAP developed for supporting management of wastewaters generated from the washdown of Building 4A. This project-specific SAP has been attached to this SAP to provide a typical example of such documents.

~~*Attachment 1 - Summary of Non-Intrusive Sampling:* This attachment includes a table that 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, ASLs, 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 sampling event.~~

~~*Attachment 2 - Summary of Intrusive Sampling*: This attachment includes a table that 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 sampling event, including field QA samples.~~

~~*Attachment 3 - Sample Containers Needed per Media Type*: This attachment provides a chart that gives the total number of sample containers required for the 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 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/Health and Safety Matrix*: This attachment is an activity specific application of the Health and Safety Plan (HASP) and Matrix which are provided in Volume II of the OU3 Integrated RD/RA Work Plan.~~

2.5.2 Procedure for Preparing Project-Specific SAPs

A project-specific SAP will be prepared based on a review of the information discussed in Section 3.1. The following steps are provided as guidelines for preparing project-specific SAPs:

- review the analytical data from the OU3 RI/FS Report and database to determine COCs and data completeness;
- evaluate changes in sample matrix that may have occurred since OU3 RI/FS sampling by performing a visual inspection to verify that information is current;

DRAFT

PROJECT SPECIFIC PLAN

FOR

PLANT 4 DISMANTLING - DECONTAMINATION WATER SAMPLING

RI/FS WBS 04.112

REVISION 0

SEPTEMBER 19, 1995

Prepared by

Fernald Environmental Restoration Management Corporation

Prepared for

U.S. Department of Energy
Fernald Field Office

Under Contract DE-AC05-92OR21972

PROJECT SPECIFIC PLAN
PLANT 4 DISMANTLING - DECONTAMINATION WATER SAMPLING
RI/FS WBS 04.112, REVISION 0
SEPTEMBER 19, 1995

APPROVAL:

9-19-95

Todd Clark, Manager of Environmental Engineering — Date
CERCLA/RCRA Unit 3

9-19-95

Reinhard Friske, Project Manager — Date
Performance/Quality Assurance

9-19-95

Karen Voisard, Manager — Date
Environmental Programs Development

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A	Data Quality Objective
B	Job Safety Analysis

1.0 INTRODUCTION

1.1 PURPOSE

This Project Specific Plan (PSP) describes the field sampling activities to be performed by Environmental Technical Services (ETS) Division, Environmental Field Operations (EFO) field personnel. This PSP also identifies analyses to be performed by FEMP and contract laboratories. Sampling and Analysis shall be consistent with the SCQ and DQO WW-011, Revision 0 (Appendix A).

The Remedial Design/Remedial Action (RD/RA) Work Plan for the "Operable Unit 3 Draft Interim Remedial Action", Revision 0, March 1995, outlines the strategy for decontaminating, decommissioning and dismantling activities at Plant 4. Such planned activities will generate large volumes of waste water resulting from the washing and decontamination of various equipment to be removed from Plant 4.

1.2 SITE DESCRIPTION

Plant 4 is the former Hydrofluorination Processing Plant where Uranium Tetrafluoride was processed from Uranium Trioxide. Plant 4 is located at the north end of the block bordered by 2nd Street on the north side, 1st Street on the south side, "B" Street on the west side, and "C" Street on the east side, in the former process area. Babcock & Wilcox/Nuclear Environment Services, Inc. shall conduct dismantling and decontamination activities inside Plant 4. Waste water generated during these activities shall be temporarily stored in 4 bermed 6,500 gallon temporary storage tanks (10 feet in diameter by 12 feet high) located on the west side of Plant 4 (see Figure 1).

1.3 SCOPE

The decontamination waste water shall be sampled one tank at a time. One sample shall be collected from one of the four tanks as the tanks are filled in order to characterize the waste water for discharge into the FEMP Wastewater Treatment System. An expected total of two decontamination waste water sampling events (samples collected from two tanks) shall be conducted. Following receipt of the analytical results, additional samples may be collected at the discretion of the CERCLA/RCRA 3 (CRU 3) Project Engineer. The samples shall be analyzed for the parameters listed in Table 1-1. Trip blanks shall accompany samples for volatile organic compound (VOC) analysis.

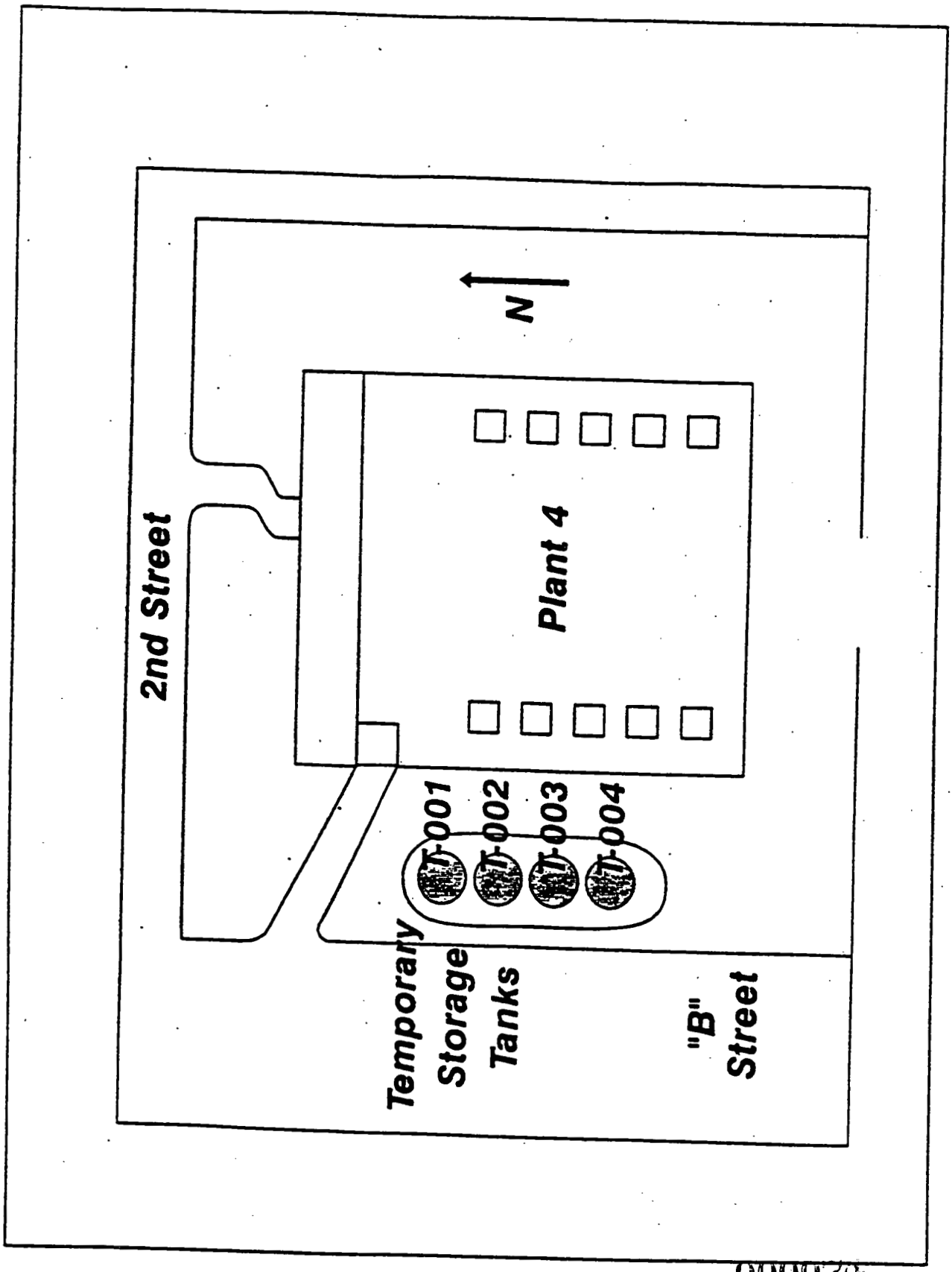

FIGURE 1

TEMPORARY STORAGE TANK LOCATION, PLANT 4

TABLE 1-1

ANALYTICAL PROGRAM REQUIREMENTS - WASTE WATER

MEDIA/ MATRIX CODE	ANALYSIS	COC CODES ANALYSIS, UNIT, PRESERVATIVE	CONTAINER	NO. X VOL.	HOLDING TIMES	PRESERVATIVE
Decon Water M325	Total Volatiles	2300, U02, P01	amber glass	4 X 40 ml	7	Cool to 4° C
	Oil and Grease	1054, U, P08	glass	1 L	28	H_2SO_4 pH<2 Cool to 4°C
	Total Metals*	2402,2057,2060,2065, 2071,2076,2078,U06, P11	poly	1 X 1 L	180/28 Hg	HNO_3 to pH < 2
	Fluoride	2045,UO2,POO	poly	1 X 4 oz.	28	None
	Isotopic Uranium	2026-2029,UOO,P11	glass or poly	1 X 1 L	180	HNO_3 to pH < 2
	Total Uranium	2001,UO6,P11	glass or poly	1 X 4 oz	180	HNO_3 to pH < 2

* Total Metals include: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, and Zinc.
** Add 1064 = "Total Petroleum Hydrocarbons" to Remarks Section.

2.0 RESPONSIBILITIES

The personnel of CRU3, Environmental Programs Development (EPD), Environmental Field Operations (EFO), and Performance/Quality Assurance (P/QA) listed below are key project personnel to the performance of this project.

TABLE 2-1

KEY PROJECT PERSONNEL

TITLE	PRIMARY	ALTERNATE
Project Engineer, CRU3	Todd Weese	Don Luken
Project Coordinator, EPD	Cliff Lee	Karen Voisard
Manager, EFO	Mike Frank	Mike Schley
Field Supervisor, EFO	Mike Schley	June Love
Project Manager, P/QA	Reinhard Friske	Harold Swiger
Project Contact, ACS	Lee Ann Stroud	Jenny Vance

3.0 SAMPLING PROGRAM

Babcock & Wilcox/Nuclear Environmental Services Inc. shall conduct dismantling and decontamination operations inside Plant 4 and pump waste water into four 6,500 gallon temporary storage tanks. The four 6,500 gallon temporary storage tanks shall be utilized for containment of the decontamination waste water and provide adequate temporary storage capacity between sampling events.

EFO Sampling Technicians shall collect waste water samples in accordance with Standard Operating Procedure EP-SMS-009 "Sediment/Sludge Sampling", Section 6.7.1 through Section 6.7.6.C., "Sediment/Sludge Sampling with a Sludge Judge". The Sludge Judge shall be lowered to the bottom of the tank and the sample shall be collected from the entire height of the tank contents. The bottom check valve of the sampling device shall be closed as the device rests on the bottom of the tank. The top of the Sludge Judge shall be above the waterline. A peristaltic pump shall then be used to pump the contents of the Sludge Judge directly into the sample containers (see Table 1-1) at the top of the tank. One additional 120 mL container of waste water shall be collected in a glass container and measured for pH using a Horiba Water Quality Meter; the pH measurement shall be recorded on the Sample Collection Log. The water for pH measurement shall then be returned to the tank from which it was collected.

4.0 QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

EFO sampling events follow Quality Assurance/Quality Control (QA/QC) protocol established in Section 4 and Appendix K of the SCQ.

4.1 PROJECT REQUIREMENTS FOR SELF-ASSESSMENTS, SURVEILLANCES

Self-assessment and independent assessments of work processes and operations shall be undertaken to assure quality of performance. Self-assessment shall be performed by the Environmental Technical Services Division, shall encompass technical and procedure requirements, and may be conducted at any point in the project.

Independent assessment shall be performed by the FEMP QA organization by conducting surveillances. As a minimum, one surveillance shall be conducted, consisting of monitoring/observing on-going project activity and work areas to verify conformance to specified requirements. Surveillances shall be planned and documented in accordance with Section 12.3 of the SCQ.

4.2 FIELD CHANGES TO THE PROJECT SPECIFIC PLAN

Prior to the implementation of field changes, the EPD Project Coordinator and EFO Manager or EFO Supervisor shall be informed of the proposed field changes and the circumstances requiring them. Once the EPD Project Manager has obtained approval (verbal or written) from the CRU3 Project Engineer and QA representative for the field changes to the PSP, the field changes may be implemented Field changes to the PSP shall be noted in the field activity log and on a Variance Request form. QA must receive the completed Variance Request, which includes the minimum signatures of the CRU3 Project Engineer, the requestor, and QA, within one week of the granting of the verbal approval.

5.0 EQUIPMENT DECONTAMINATION

Disposable equipment shall be used to collect the samples; therefore, no decontamination is required. In the event that any piece of reusable equipment is suspected of having become contaminated, and as a precaution to protect worker safety and health, any such items shall be isolated and decontaminated in accordance with Level II Decontamination, Section K.11 of the SCQ and as described in the Standard Operating Procedure EP-SMS-003, "Equipment Decontamination."

6.0 HEALTH & SAFETY

EFO Sampling Technicians shall conform to precautionary surveys performed by the personnel representing, Industrial Hygiene, and Radiological Control. Concurrence to applicable safety permits (indicated by the signature of each EFO Sampling Technician assigned to this project) is expected by EFO Sampling Technicians in the performance of their assigned duties.

The EFO Lead Sampling Technician shall insure that each EFO Sampling Technician performing sampling related to this project has read the applicable permits and Job Safety Analysis (Appendix B) to protect worker safety and health. EFO Sampling Technicians who do not sign the applicable health and safety survey forms shall not participate in the execution of sampling activities related to the completion of assigned project responsibilities. A copy of applicable safety permits/surveys issued for worker safety and health shall be posted at the exclusion zone boundary of the sample location and, at the completion of the project, the completed forms shall be submitted for incorporation into the project files.

7.0 DISPOSITION OF INVESTIGATION-DERIVED WASTES

During completion of sampling activities, EFO Sampling Technicians may generate contact wastes. Following completion of sampling, the EFO Sampling Technicians shall place contact wastes into properly labeled bags and disposition in accordance with appropriate FEMP waste management policies.

Any excess unpreserved sample shall be returned to the tank from which it was collected. All decontamination water shall be containerized and transported to Plant 8 for disposal.

8.0 DATA MANAGEMENT PLAN

This data management plan will be implemented so information collected during the investigation will be properly managed following completion of the field activities. As specified in Section 5.1 of the SCQ, sampling teams shall describe daily activities on the Field Activity Log (FAL) sufficient for the sampling team to reconstruct a particular situation without reliance on memory. Sample Collection Logs shall be completed according to instructions specified in Appendix B of the SCQ.

8.1 VERIFICATION

To assure proper documentation was completed during field activities and that documentation was completed correctly, field documentation shall be validated by EFO. Analytical data shall be verified by the CRU3 Project Engineer.

8.2 DATA ENTRY

Analytical data shall be entered into the FEMP Site-Wide Environmental Database (SED) by Analytical Data Management. Manual, double keyed, data entry shall be performed and the entered data shall be compared to the original data sheets; corrections shall be initialed and data, and made as necessary. Hard-copy documents are kept in permanent storage in the project files and the electronic database is permanently archived in a neutral ASCII file format.

Fernald Environmental Management Project

Data Quality Objectives

Title: Disposition of OU 3 Remedial Action Decontamination Waste Water

Number: WW-011

Revision: 0

Effective Date: September 19, 1995

Contact Name: Cliff Lee

Approval: Richard Fiske **Date:** 9-19-95
DQO Coordinator

Rev. #	0				
Date	09/19/95				

DATA QUALITY OBJECTIVE LOGIC FLOW

Disposition of OU 3 Remedial Action Decontamination Waste Water

1 Problem Statement

Planning team consists of:

- Todd Weese, CRU3 Environmental Engineering-oversight
- Cliff Lee, Environmental Programs Development-writer
- Steve Witters, Environmental Programs Development-guidance
- Frank Johnston, Environmental Compliance-guidance

Planned decontaminating, decommissioning and dismantling activities of former processing plant buildings within Operable Unit 3 (OU 3) will generate large quantities of waste water resulting from the washing and decontamination of various parts and appurtenances in the buildings. The identity and amounts of hazardous or controlled constituents in decontamination waste water must be determined to maintain proper handling and system control. Waste water analyses must be completed in a timely manner in order to protect the environment and ensure timely processing.

Characterization of waste is required under the Resource Conservation and Recovery Act (RCRA) as promulgated in 40 CFR 261 and Ohio Administrative Code 3745. RCRA must be followed as an Applicable, Relevant, or Appropriate Requirement (ARAR) to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process at the Fernald Environmental Management Project (FEMP).

Sampled waste waters from the decontamination of FEMP OU 3 Decontamination and Decommission (D&D) complexes are anticipated to contain suspected contaminants of concern (as listed in the OU 3 Interim Remedial Design/Remedial Action (RD/RA) Work Plan and in the OU 3 complex-specific Implementation Plans. Clean Water Act/SEC. 402 [33 U.S.C. 1342] and 40 CFR 122 National Pollutant Discharge Elimination System (CWA and NPDES) discharge limits and treatment efficiency monitoring, in addition to treatment facility process controls, provide the regulatory drivers beyond the scope of the RCRA and RD/RA requirements noted above.

The specific problem to be addressed by this Data Quality Objective is to confirm the presence and amounts of hazardous or controlled constituents in decontamination waste water, based on process knowledge. The logic continues with a comparison of the amounts of these constituents with the limits established in the RCRA/CWA/NPDES permitting regulations, and established process controls defining acceptable constituent levels for the Plant 8 VOC Treatment Sump. If the concentration of any hazardous or controlled contaminants of concern (COCs) from a waste water sample of a given temporary storage tank exceeds the limits published in the above mentioned regulations or limits established for the treatment facility, the material is considered hazardous or controlled waste.

*NOTE: THIS DQO DOES **NOT** PERTAIN TO DRUM SAMPLING.*

2 Identification of a Decision that Addresses the Problem

The major decisions that must be resolved in this DQO are:

1. Does the decontamination waste water contain hazardous or controlled waste and what ar the hazardous or controlled waste constituents of concern?

In order to determine whether or not the decontamination waste water is hazardous or controlle waste, process knowledge will be utilized to confirm the process function of the unit. If the materia within the unit cannot be fully characterized using process knowledge, samples will be taken an analyzed to confirm the identity and/or to determine if the material is a hazardous or controlled waste A full list of suspected contaminants of concern is shown in the OU 3 Interim RD/RA Work Plan an in the OU 3 complex-specific Implementation Plans. Sampling and laboratory analysis will determin the presence/absence and amounts/concentrations of such suspected contaminants of concern.

2. Is the decontamination waste water acceptable to the treatment facility so as not to hinde facility operation or established facility procedure ?

Grease and oils present a process control issue because these materials can hinder the operation o the Plant 8 Sump. Such waters would be unacceptable for delivery and would require alternativ control measures. Additionally, current FEMP procedure requires waters with above 48 mg/l Uraniun to be filtered through the Plant 8 Sump. In order to determine whether or not the decontaminatior waste water is or is not acceptable to the treatment facility, process knowledge will be utilized t confirm the use or presence of such materials.

If the materials within the temporary storage tank(s) cannot be fully characterized using proces knowledge, samples (or representative aliquots of samples) will be taken and analyzed to confirm th identity and/or to determine if grease/oil is present in the decontamination waste water. Also laboratory analysis will confirm the amounts of Uranium present in the decontamination waste water

3. Do analytical results provide ample data to determine compliance with the NPDES Permit ?

In order to demonstrate that current Plant 8 Sump operations are being performed in compliance witt NPDES Permit, Section III, 3. B., upstream waste water sampling will be conducted to determine the measurable amounts of contaminants/levels of pollutant concentrations to be introduced into the Plant 8 Sump and to monitor said treatment facility efficiency.

3 Identification of Inputs that Affect the Decision

The inputs (analytical sampling) needed to effect the decisions listed above will be based on process knowledge (to include any previous waste characterization sampling). The decontamination waste water samples will be analyzed for all contaminants of concern identified based on process knowledge as listed in the OU 3 Interim RD/RA Work Plan and in the OU 3 complex-specific Implementation Plans.

The materials to be sampled are all liquid materials that are water-based mixtures that may contain some product and metals. Note that all decontamination washwaters are run through both 20 and 5 micron filters prior to accumulation in the temporary storage tanks. Liquids can be further broken down into an waters containing acid, organics (chlorinated solvents, petroleum or related product, etc.) or an unknown liquid. Any of these three liquid categories can contain little or no percentage of suspended particles or solids after filtration.

Also, analyte lists may be reduced or expanded based on process knowledge or preliminary waste water laboratory analysis. A list of the inputs to these decisions are also described below.

If the contaminant(s) of concern also include radionuclides, then the analysis performed will be for Total Uranium and Isotopic Uranium only, based on process knowledge.

If the contaminant(s) of concern is metals, then analysis will be performed for any one or all of the metal analytes as listed in the OU 3 Interim RD/RA Work Plan and in the OU 3 complex-specific Implementation Plans.

Of particular concern in the delivery of decontamination waste water to the Plant 8 Sump are the metals chromium, copper, and nickel: Analytical results will be used for determining compliance with downstream NPDES Permit effluent limitations. The most conservative limitation defined in the NPDES Permit, for the specific contaminants is one hundred micrograms per liter (100 μg/l) (of any one metallic analyte).

If the contaminant(s) of concern is a hazardous characteristic (i.e., corrosivity), then the analytical testing will be specific to the characteristic and will include testing such as pH.

If aqueous solvent residues (i.e. 1,1,1 trichloroethane) and dissolved low-grade residues (i.e. fluorides) are suspected to be present in decontamination waste water (as would be expected at Plant 4), then laboratory analysis for such materials would be required to ensure downstream compliance with NPDES permits prior to discharge.

If the material is determined not to be a hazardous waste and if the contaminants of concern were petroleum-based (e.g., grease and oil), then analysis will be done to determine acceptability for delivery to the Plant 8 Sump and to ensure compliance with NPDES permits prior to discharge.

4 Specification of the Domain of the Decision

Spatial boundary: the spatial boundaries are to be distinctly specified as a bermed area surrounding (typically) four 6,500 Gallon Plastic Tanks. These are currently located on the west side of Plant 4A, the former Hydrofluoridation facility, for the Plant 4 D&D Project.

Temporal boundaries will depend on the location of the unit. As the unit is located outside, the collection of decontamination waste water will be weather dependent. Additionally, the timing of sample delivery will be essential if holding times are to be met.

5 Development of Logic Statements

1. Characteristic Hazardous Waste (potentially applicable characteristics)

If the concentration of the contaminants of concern in the decontamination waste water sample is above the regulatory limits as specified in 40 CFR 261.24, then the substance is characterized hazardous for toxicity.

If an aqueous solution has a pH of less than or equal to 2 or greater than or equal to 12.5, then the substance is characterized hazardous for corrosivity.

If a substance has been classified as characteristically hazardous for reactivity, then a representative sample of the waste has at least one of the properties discussed in 40 CFR 261.23.

2. Controlled Effluent Wastes

If the concentration of the contaminants of concern in the decontamination waste water sample i above the regulatory limits in 40 CFR 122 (as specified in the site-specific NPDES permit an renewal), then the facility owner must document and report such concentrations in a timely an forthright manner. A NPDES "notification level" of One hundred micrograms per liter (100 μg/l) i generally considered to be the acceptance limit for the Plant 8 Sump (of any one metallic analytel Intake process control provides some of the information required for NPDES permit compliance an renewal.

3. Listed Hazardous Wastes

The listing of hazardous wastes is specified in 40 CFR 261.31 through 40 CFR 261.33.

6 Establish Constraints of Uncertainty

A false negative error would occur when analytical results do not confirm the presence of hazardou or controlled waste, rejecting process knowledge claims that there was hazardous or controlle waste; when in actuality, the material does exhibit hazardous or controlled waste characteristics o contain a listed hazardous waste. The consequence of this type of error would be to treat th material as non-hazardous (or non-controlled), rather than hazardous (or controlled). This error ha possible health and political consequences, as well as economic and social.

False positive error would occur when the analytical results of the decontamination waste wate sampling were incorrectly identified as exceeding the characteristics described in Section 5 (or bein a listed hazardous waste), showing that the material contained hazardous or controlled waste an needed to be treated as such when in fact no such treatment was needed. The consequence of thi type of error would be to increase both the processing time and the expenses associated with eithe treatment, storage and/or disposal of large volumes of this material. The major consequence woul be economic with political and social consequences being secondary.

The major concern for this DQO would be the false negative errors. These errors can be reduced b the analysis of laboratory duplicate and matrix spike analyses.

7 Development of a Cost-Effective Design for Obtaining Data

In order to obtain a representative sample, a visual inspection of the temporary storage tank contents or may be required. Examples of sampling techniques used for expected homogenous an heterogeneous liquids would be grab and coliwasa samplers respectively. Multiple samples may be collected depending on the heterogeneity of the material per the guidelines of the SCQ. The analyte lists may be reduced or expanded based on process knowledge or preliminary waste water laboratory analysis.

In some instances, percent composition and/or acid-base normality will be performed in order t confirm if the identity of the waste water material is consistent with process knowledge claims.

Holding times for raw and product materials may differ from the listed SCQ holding times fo environmental samples. Holding times and preservation techniques will be chosen to insure the integrity of the samples and appropriate cost benefits. Variations from the SCQ holding times wil be described in the individual Project Specific Plan (PSP).

8 Summary of DQO Logic Flow

Samples are collected along with the field QA/QC samples as per Appendix A of the SCQ. Specific requirements will be specified in the PSP. Trip blanks are not required because the sample is process water rather than an environmental sample. Only certified sampling containers shall be used, eliminating the need for a container blank. Performance evaluation samples will be provided by the QC department, as needed.

The analyses requested is dependent on process knowledge of the COCs as described in Attachment C. Field monitors such as Photoionization Detectors (PIDs), X-ray Fluorescence (XRF) and Flame Ionization Detectors (FIDs) used to support process knowledge claims will use Analytical Support Level (ASL) A. For the majority of the sampling program though, ASL B (SW-846 methods, Vol. II) is required. The radiological samples will also be collected at ASL B.

1.A. Task/Description: OU #: 3

Decontamination Waste water Sampling

1.B. Project Phase: (Put an X in the appropriate box.)

RI ☐ FS ☐ RD ☒ RA ☒ OTHER ☐ Specify: _____

1.C. DQO No.: WW-011 DQO Reference No.: _____

---

2. Media Characterization: (Put an X to the right of the appropriate box.)

Air ☐ Biological ☐ Groundwater ☐ Sediment ☐ Soil ☐

Waste ☐ Waste water ☒ Surface water ☐ Other (specify)

---

3. Data Use with Analytical Support Level (A-E): (Put an X in the appropriate box. Analytical Suppor Level (ASL) selection(s) should be marked to the right of each applicable Data Use.)

Site Characterization
A ☐ B ☐ C ☐ D ☐ E ☐

Risk Assessment
A ☐ B ☐ C ☐ D ☐ E ☐

Evaluation of Alternatives
A ☐ B ☐ C ☐ D ☐ E ☐

Engineering Design
A ☐ B ☐ C ☐ D ☐ E ☐

Monitoring during remediation activities
A ☐ B ☐ C ☐ D ☐ E ☐

Other (Explain) Waste Characterization
A ☒ B ☒ C ☐ D ☐ E ☐

4.A. Drivers: **CERCLA Amended Consent Decree, Resource Conservation and Recovery Act, Ohio Administrative Code 3745.51; 40 CFR 261.23 and 261.24, Clean Water Act (SEC. 402 [33 U.S.C. 1342]), 40 CFR 261.31 through 40 CFR 261.33, and 40 CFR 122, the National Pollutant Discharge Elimination System.**

4.B. Objective: **To show, through the use of decontamination waste water sampling, the presence of hazardous or controlled waste.**

---

5. Site Information (Description): **Operable Unit 3 (OU3) Plants and buildings are located in the former production area at the Fernald Environmental Restoration Project. It incorporates all above- and below-grade improvements, including, but not limited to, the facility structure, equipment, utilities, tanks, waste waters, product, and effluent lines.**

DQO Number: WW-011

6.A. Data Types with appropriate Analytical Support Level Equipment Selection and SCQ Reference: (Put an X in the appropriate box or boxes selecting the type of analysis or analyses required. Then select the type of equipment to perform the analysis if appropriate. Please include a reference to the SCQ Section.)

1.	pH	X	2. Uranium	X	3. BTEX	X
	Temperature	☐	Full Radiologic	☐	TPH	X
	Specific Conductance	☐	Metals	X	Oil/Grease	X
	Dissolved Oxygen	☐	Cyanide	☐		
	Silica	☐				
4.	Cations	☐	5. VOA	X	6. Other (specify)	X
	Anions	☐	ABN	☐	Isotopic Uranium	
	TOC	☐	Pesticides	☐	Fluorides	
	TCLP	☐	PCB	☐		
	CEC	☐	COD	☐		

6.B. Equipment Selection and SCQ Reference:

Equipment Selection		Refer to SCQ Section
ASL A	XRF, PID, FID, etc.	SCQ Section: K
ASL B	Per SCQ	SCQ Section: G
ASL C		SCQ Section:
ASL D		SCQ Section:
ASL E		SCQ Section:

7.A. Sampling Methods: (Put an X in the appropriate selections.)

Biased	☐	Composite	X	Environmental	☐	Grab	X	Grid	☐
Intrusive	☐	Non-Intrusive	☐	Phased	☐	Source	☐		

Other (specify):

DQO Number: WW-011

7.B. Sample Work Plan Reference: (List the samples required. Reference the work plan or sampling pla guiding the sampling activity, as appropriate.)

Background samples: **Individual projects will have a PSP or similar approved sampling plan outlinin all sampling to be performed.**

7.C. Sample Collection Reference: (Please provide a specific reference to the SCQ Section and subsectio guiding sampling collection procedures.)

Sample Collection Reference: **SCQ Appendix K, Section K.5.5 and EPA SW-846,Chapter 9.**

---

8. Quality Assurance/Control Samples: (Place an "X" to the right of the appropriate selection(s).)

8.A. Field Quality Assurance Samples:

Trip Blanks	X	Container Blanks	
Field Blanks		Duplicate Samples	
Equipment Rinsate Samples		Split Samples	
Preservative Blanks		Performance Evaluation Samples	

Other (specify) _____ Refer to the sampling plan for additional QA samples, if requested

8.B. Laboratory Quality Control Samples:

Method Blank	X	Matrix Duplicate/Replicate	X
Matrix Spike	X	Surrogate Spikes	X
Other (specify)			

9. Other: Please provide any other germane information that may impact the data quality or gathering of this particular objective, task or data use.

Analyte lists may be reduced or expanded based on process knowledge or previous analytical results. Lists are expected to be typical requirements. Coordination with waste compliance and treatment facility personnel will ensure NPDES compliance.

APPENDIX B

JOB SAFETY ANALYSIS

JOB: Wastewater Sampling		DATE: 8-28-95
JOB TITLE: Plant 4 Dismantling - Decontamination Water Sampling (RI/FS WBS 04.112)	DEPARTMENT: Site Restoration Services	SECTION/GROUP: Environmental Field Operations
SUPERVISOR: M. Schly	ANALYZED BY: [illegible]	REVIEWED BY: Lawrence Love	APPROVED BY: [illegible]

REQUIRED AND/OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT: Hard hat, Safety glasses w/rigid side shields, Goggles, Steel-toed safety boots, Safety Harness and Lanyard; Refer to PPE page of FERMCO Work Permit.

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENT OR HAZARD	RECOMMENDED SAFE JOB PROCEDURE
1. Preplan	1a. Radiation and volatile vapor exposure to the contents of wastewater tanks.	1a. Maintain minimum time and maximum distance from source 1b. Baseline and incident urinalysis samples. 1c. Monitor tanks for radiation. Set action levels, engineering controls. 1d. Contact IH to monitor area and tanks for organic vapors, NO_2, and HNO_3 prior to entering zone. 1e. Eye wash/safety shower within 100 feet and 10 seconds.
2. Access to top of tank	2a. Unsecured ladder falling over. 2b. Unsecured personnel falling from ladder or top of tank.	2a. Set ladder base flush and ladder at proper angle, secure to holdfast eye (located at top of 12 foot high tank), have spotter securely holding base of ladder when climbing/carrying sampling equipment. Ladder must be extended 2 feet above top of tank (and 16 feet or greater in length). 2b. Tie sampling personnel's safety harness and lanyard off to other holdfast eyes (located at top of tank).
3. Fill sample jars by using the Sludge Judge inserted into the tank. A peristaltic pump and tygon tubing will then be used to pump water from the Sludge Judge to the sample jar.	3a. Radiation and volatile vapor exposure to the contents of wastewater tanks. 3b. Splash hazard. 3c. Potential for skin/clothing contamination of radioactive materials.	3a. Nitrile gloves (inner). 3b. Nitrile gauntlet gloves (outer). 3c. Water-resistant coveralls. 3d. Goggles. 3e. Refer to FERMCO Work Permit for additional requirements.

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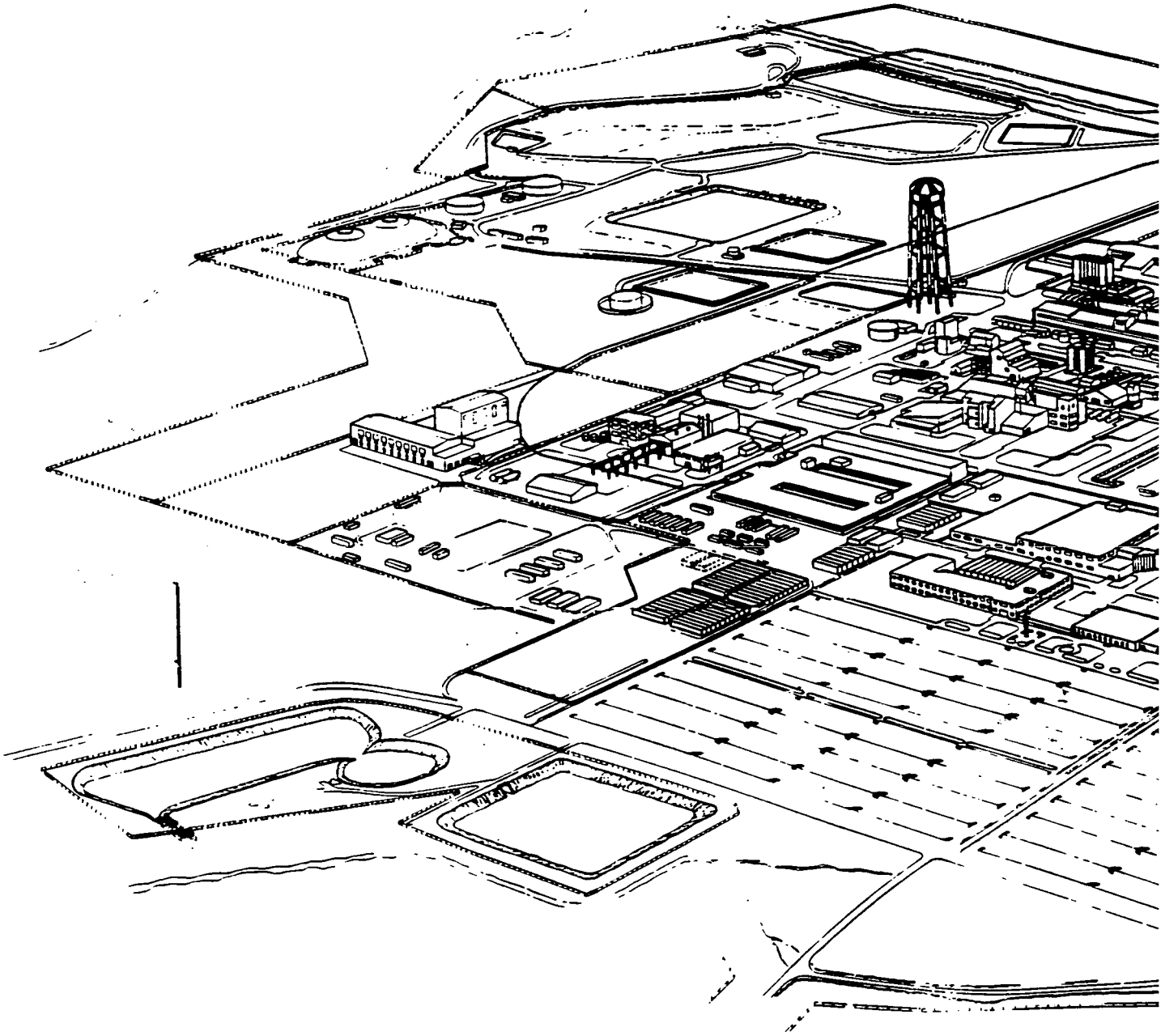
SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENT OR HAZARD	RECOMMENDED SAFE JOB PROCEDURE
3. Add HNO_3 preservative.	3a. Radiation and volatile vapor exposure to the contents of wastewater tanks. 3b. Splash hazard. 3c. Potential chemical contamination. 3d. Potential for skin/clothing contamination of radioactive materials.	3a. Nitrile gloves (inner). 3b. Nitrile gloves (outer). 3c. Water-resistant coveralls. 3d. Goggles. 3e. Refer to FERMCO Work Permit for additional requirements.
4. Cap and dry sample bottle.	4a. Radiation and volatile vapor exposure to the contents of wastewater tanks. 4b. Splash hazard. 4c. Potential chemical contamination 4d. Potential for skin/clothing contamination of radioactive materials.	4a. Nitrile gloves (inner). 4b. Nitrile gloves (outer). 4c. Water-resistant coveralls. 4d. Goggles. 4e. Refer to FERMCO Work Permit for additional requirements.
5. Dispose of contact waste as instructed by site procedures for waste disposition and the radiological technician covering the activity.	5a. Radiation and volatile vapor exposure to the contents of wastewater tanks. 5b. Potential chemical contamination. 5c. Potential for skin/clothing contamination of radioactive materials.	5a. Nitrile gloves (inner). 5b. Nitrile gloves (outer). 5c. Water-resistant coveralls. 5d. Refer to FERMCO Work Permit for additional requirements.

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