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DOCUMENTATION SUPPORTING FEMP MANAGEMENT PROJECT SAFE SHUTDOWN REMOVAL ACTION NUMBER 12

06/23/94

DOE-FN EPA
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REPORT

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FEMP

DOCUMENTATION SUPPORTING
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SAFE SHUTDOWN
REMOVAL ACTION NUMBER 12

SAFE SHUTDOWN REMOVAL ACTION NUMBER 12

PROCEDURE UPDATE INSTRUCTIONS

MAY 17, 1994

The following are updates to the Safe Shutdown Removal Action Number 12 procedures. Please file as noted.

- INDEX
  - Replace all pages with new index.

- TABLE 1
  - Replace all pages with new Table 1.

- U.S. Department of Energy—Order 5820.2A, Radioactive Waste Management
  - General Supporting Documentation
  - No change. A copy of this document is available upon request.

- U.S. Department of Energy, Radiological Control Manual DOE/EH-0256T*
  - General Supporting Documentation
  - No change. A copy of this document is available upon request.

- SSOP-0103, FEMP Site Document System
  - General Supporting Documentation
  - No change. First document following table.

- PO-D-007, Document Periodic Review Program
  - General Supporting Documentation
  - No change. Follows SSOP-0103.

- ES&H-1-1000, Comprehensive Environmental Occupational Safety and Health Program*
  - General Supporting Documentation
  - New name. A copy of this document is available upon request.

- ED-0001, Event Notification and Occurrence Reporting Procedure
  - General Supporting Documentation
  - New document. Insert after PO-D-007.

- RM-0006, Industrial Safety
  - General Supporting Documentation
  - No change. Follows ED-0001.

- RC-DPT-015, ALARA Review and Evaluation
  - General Supporting Documentation
  - Replaces SP-P-35-067. Remove all pages of SP-P-35-067. Insert RC-DPT-015, dated 05/05/94, after RM-0006.

- RM-2086, Chemical Hazard Communication Program
  - General Supporting Documentation
  - No Change. Follows RC-DPT-015.

- RM-0002, Training Department Program Manual*
  - General Supporting Documentation
  - Re-issued to update procedure. A copy of this document is available upon request.

- RM-0007, FEMP Respiratory Protection Requirements Manual
  - General Supporting Documentation
  - No Change. Follows RM-2086.

- IM-7006, Incident Building Evacuation Manual*
  - General Supporting Documentation
  - Re-issued to update procedure. A copy of this document is available upon request.

- SSOP-0077, Building Emergency Procedure
  - General Supporting Documentation
  - Re-issued to update procedure. Remove old procedure. Insert new procedure dated 02/16/94, after RM-0007.

- RM-0012, Quality Assurance Program Description*
  - General Supporting Documentation
  - Re-issued to update procedure. A copy of this document is available upon request.

- SSOP-0036, Quality Assurance Project Plans
  - General Supporting Documentation
  - No Change. Follows SSOP-0077.

- SSOP-0716, Control of Processes
  - General Supporting Documentation
  - No Change. Follows SSOP-0036.

- SSOP-0082, Quality Improvement
  - General Supporting Documentation
  - No Change. Follows SSOP-0716.

- SSOP-0023, Deviation and Corrective Action Report Processing
  - General Supporting Documentation
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 10/13/93, after SSOP-0082.

- SM-0005, FERMCO Operational Readiness Manual
  - General Supporting Documentation
  - Replaces SSOP-0100. Remove all pages of SSOP-0100. Insert SM-0005, dated 12/20/93, after SSOP-0023.

- FMPC-2214, Environmental Restoration and Waste Management Site Specific Plan*
  - General Supporting Documentation
  - No Change. A copy of this document is available upon request.

- Shutdown/Facility Acceptance and Criteria Plan
  - General Supporting Documentation
  - No Change. Follows SM-0005.

- IM-6001, Safe Shutdown Program Planning and Implementation Manual
  - General Supporting Documentation
  - New Document. Insert after Shutdown/Facility Acceptance and Criteria Plan.

- SSOP-0067, Spill Incident Reporting and Clean-up
  - General Supporting Documentation
  - No Change. Follows IM-6001.

- SSOP-0059, Control and Tracking of Chemical Substances
  - General Supporting Documentation
  - No Change. Follows SSOP-0067.

- SSOP-0027, Control of Box Type Containers
  - General Supporting Documentation
  - No Change. Follows SSOP-0059.

- RM-0005, FEMP Lot Marking and Color Coding System
  - General Supporting Documentation
  - Re-issued to update procedure. Remove old procedure. Insert new procedure dated 04/27/94, after SSOP-0027.

- FEMP-2304, FEMP Nuclear Criticality Safety Guide
  - General Supporting Documentation
  - New document. Insert after RM-0005.

- SOP 20-C-011, Physical Inventory of Nuclear Materials
  - General Supporting Documentation
  - No Change. Follows FEMP-2304.

- PO-D-023, Shift Orders
  - General Supporting Documentation
  - No Change. Follows SOP 20-C-011.

- U.S. Department of Energy Order 5820.2A Radioactive Waste Management
  - Step 1
  - No Change. Follows PO-D-023.

- SSOP-0002, Completing the Material Evaluation Form
  - Step 2
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 03/29/94, after DOE Order 5820.2A.

- SSOP-0039, Handling containers of Unidentified Material
  - Step 2
  - No Change. Follows SSOP-0002.

- SOP 20-C-625, Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment
  - Step 2
  - Re-issued to update procedure. Remove old procedure. Insert new procedure dated 02/04/94, after SSOP-0039.

- Amended Consent Decree
  - Step 2
  - No Change. Follows SOP 20-C-625.

- SOP 1-C-101, Sampling Residual and Waste Materials
  - Step 2
  - Procedure has been cancelled. Remove all pages of SOP 1-C-101.

- SOP 20-C-805, Sampling Drummed Waste for Hazard Identification
  - Step 2
  - Re-issued to update procedure. Remove old procedure. Insert new procedure dated 12/16/93, after Amended Consent Decree.

- SOP 20-C-912, Checking Scale Operation
  - Step 3
  - No Change. Follows SOP 20-C-805.

- SOP 20-C-904, General Nuclear Safety Requirements
  - Step 3
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 05/18/93, after SOP 20-C-912.

- SOP 20-C-917, Hydrogen Monitoring and Removing Nucfil Vent Plugs from Drums
  - Step 3
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 08/09/93, after SOP 20-C-904.

- SOP 20-C-910, Venting Potentially Explosive Drums
  - Step 3
  - Re-issued to update procedure. Remove old procedure. Insert new procedure dated 05/20/93, after SOP 20-C-917.

- SOP 20-C-918, Preparation for and Movement of Unvented Drums
  - Step 3
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 04/21/94, after SOP 20-C-910.

- SOP 1-C-608, Storage of Radioactive Material
  - Step 3
  - Re-issued to update procedure. Remove old procedure. Insert new procedure dated 07/22/93, after SOP 20-C-918.

- SOP 20-C-801, Storage of Enriched Material
  - Step 3
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 11/13/91, after SOP 1-C-608.

- SOP 20-C-100, Moving and Storing Depleted, Normal, and Enriched Uranium Materials <20% and Thorium Metal and Materials
  - Step 3
  - No Change. Follows SOP 20-C-801.

- SSOP-0060, Packaging and Loading Radioactive Material For Offsite Shipment
  - Step 3
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 06/18/93, after SOP 20-C-100.

- SR-2117, Nuclear Criticality Safety Requirements
  - Step 3
  - New procedure. Insert after SSOP-0060.

- SOP 20-C-017, Movement of RCRA and Hazardous Waste
  - Step 3
  - Replaces PO-S-06-001. Remove all pages of PO-S-06-001. Insert SOP 20-C-017, dated 09/24/93, after SR-2117.

- SSOP-0044, Management of Excess Soil, Debris, and Waste from a project.
  - Step 3
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 01/31/94, after SOP 20-C-017

- SOP 20-C-604, Control and Utilization of Contaminated Trash Dumpsters
  - Step 3
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 10/18/93, after SSOP-0044.

- SOP 2-C-923, Trash Baler Operation
  - Step 3
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 10/18/93, after SOP 20-C-604.

- PO-0307, Control and Accountability of Nuclear Material
  - Step 3
  - Replaces FMPC-307. Remove all pages of FMPC-307. Insert PO-0307, dated 06/30/93, after SOP 2-C-923.

- SSOP-0061, FEMP Work Request/Order Procedure
  - Step 4
  - No Change. Follows PO-0307.

- SSOP-0719, FERMCO Lockout/Tagout (Hazardous Energy and Material Control) Procedure
  - Step 4
  - Replaces PP-FMPC-0719. Remove all pages of PP-FMPC-0719. Insert SSOP-0719, dated 02/14/94, after SSOP-0061.

- SSOP-0069, Freon Management
  - Step 4
  - No Change. Follows SSOP-0719.

- FMPC-0508, Safety Analysis Documentation Program
  - Step 4
  - No Change. Follows SSOP-0069.

- PO-0712, Risk Assessment and Management (RAM) System Policy
  - Step 5
  - No Change. Follows FMPC 508.

- SM-0001, Risk Assessment and Management (RAM) System Manual
  - Step 5
  - No Change. Follows PO-0712.

- SSOP-0014, Documentation of a Subject Matter Expert
  - Step 5
  - No Change. Follows SM-0001.

- Safe Shutdown Health and Safety Plan
  - Step 5
  - No Change. Follows SSOP-0014.

- PO-0518, National Environmental Policy Act (NEPA) Program
  - Step 6
  - Replaces PP-0518. Remove all pages of PP-0518. Insert PO-0518, dated 12/06/93, after Safe Shutdown Health and Safety Plan.

- SSOP-0031, National Environmental Policy Act (NEPA) Document Process
  - Step 6
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 12/21/93, after PO-518.

- PO-D-028, Preparation and Implementation of Work Package
  - Step 7
  - No Change. Follows SSOP-0031.

- FMPC-0516, Control of Permits for Accomplishing Hazardous Work
  - Step 7
  - No Change. Follows PO-D-028.

- SPR-5-13, Permit Required Confined Space Program
  - Step 7
  - New procedure. Insert after FMPC-516.

- RC-DPT-008, Radiation Work Permits
  - Step 7
  - Replaces SP-P-35-016. Remove all pages of SP-P-35-016. Insert RC-DPT-008, dated 10/28/93, after SPR-5-13.

- PP-FMPC-5010, Management of Low Level Waste (LLW)
  - Step 7
  - No Change. Follows RC-DPT-008.

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- SOP 20-C-606, Hazardous Material Spill Clean-up
  - Step 7
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 07/28/93, after PP-FMPC-5010.

- SSOP-0035, Satellite Accumulation Areas and Interim Containers for Hazardous Waste
  - Step 7
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 09/28/93, after SOP 20-C-606.

- SOP 20-C-500, Inspecting RCRA Waste Load/Unload and Staging Areas
  - Step 7
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 08/09/93, after SSOP-0035.

- SSOP-0008, Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area
  - Step 7
  - No Change. Follows SOP 20-C-500

- SSOP-0028, Controlling Portable Ventilation Devices and Vacuum Cleaners
  - Step 7
  - No Change. Follows SSOP-0008.

- SOP 20-C-700, Norclean Portable Vacuum Operation
  - Step 7
  - No change. Follows SSOP-0028.

- SOP 20-C-701, Operation of Spencer & Hoffman Portable Dust Collectors
  - Step 7
  - No Change. Follows SOP 20-C-700.

- SOP 20-C-014, Wet and Dry Systems Clean-out
  - Step 7
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 12/03/93, after SOP 20-C-701.

- SSOP-0075, Packaging Low Level Radioactive Waste (LLRW) In Drums for Offsite Shipment
  - Step 7
  - No Change. Follows SOP 20-C-014.

- SSOP-0078, Packaging Low Level Radioactive Waste (LLRW) into ISO Containers for Offsite Shipment
  - Step 7
  - No Change. Follows SSOP-0075.

- SSOP-0079, Packaging Low Level Radioactive Waste (LLRW) in Metal Boxes for Offsite Shipment
  - Step 7
  - No Change. Follows SSOP-0078.

- PP-0314, Packaging, On-Site Movement and Off-Site Shipment of Material
  - Step 7
  - No Change. Follows SSOP-0079.

- SOP 2-C-601, Refinery Sump
  - Step 7
  - No Change. Follows PP-0314.

- SOP 8-C-116, Filtering Refinery Thickener Underflow
  - Procedure has been cancelled. Remove all pages of SOP 8-C-116.

- SOP 8-C-115, Large EIMCO Filter Operation
  - Procedure has been cancelled. Remove all pages of SOP.

- SOP 8-C-605, EIMCO Filter Operation
  - Step 7
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 06/21/93, after SOP 8-C-115.

- SSOP-0003, Receiving, On-Site Movement and Off-Site Shipment of Nonradioactive Hazardous Material
  - Step 7
  - No Change. Follows SOP 8-C-605.

- Task Specific Health & Safety Plan for Decontamination of Various Areas of Existing Fixed or Removal Contamination, June 5, 1991
  - Step 8
  - No Change. Follows SSOP-0003.

- SOP 20-C-612, Industrial Cleaning
  - Step 8
  - No Change. Follows Task Specific Health & Safety Plan.

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- SOP 20-C-610, Bird Carcass and Dropping Removal
  - Step 8
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 05/18/93, after SOP 20-C-612.

- SOP 20-C-709, Baghouse Type Dust Collector Filter Removal/Replacement
  - Step 8
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 07/26/93, after SOP 20-C-610.

- SOP 20-C-600, Overpacking Defective Containers
  - Step 8
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 08/09/93, after SOP 20-C-709.

- SOP 20-C-916, Cleaning Sump Systems
  - Step 8
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 08/09/93, after SOP 20-C-600.

- SOP 43-C-413, Handling Waste Materials with the Industrial Vacuum Loader Truck (Supersucker)
  - Step 8
  - No Change. Follows SOP 20-C-916.

- SSOP-1044, Management of Government Property
  - Step 9
  - Replaces FMPC-0303. Remove all pages of FMPC-0303. Insert SSOP-1044, dated 03/24/94, after SOP 43-C-413.

- SSOP-0034, Nuclear Materials Disposition Order Management
  - Step 9
  - No change. Follows SSOP-1044.

- PO-D-035, Shipment of Low Level Radioactive Waste Requirements
  - Step 9
  - No Change. Follows SSOP-0034.

- SSOP-0081, Radiologically Non-Contaminated Asbestos Containing Material Waste (ACM) Disposition
  - Step 9
  - No change. Follows PO-D-035.

- SP-P-35-010, Unrestricted Release of Materials from FMPC
  - Step 9
  - Re-issued to update procedure. Remove old procedure. Insert new procedure, dated 08/07/92, after SSOP-0081.

- SP-P-35-023, Routine Radiological Contamination Surveys
  - Step 9
  - New procedure. Insert after SP-P-35-010.

SAFE SHUTDOWN REMOVAL ACTION NUMBER 12

INDEX

MAY 17, 1994

A. Program Overview

B. Enclosure - Part One

I. General Supporting Documentation

- U. S. Department of Energy Order 5820.2A, Radioactive Waste Management (See document at Step 1)
- U. S. Department of Energy Radiological Control Manual DOE/EH-0256T*
- SSOP-0103, FEMP Site Document System
- PO-D-007, Document Periodic Review Program
- ES&H-1-1000, Comprehensive Environmental Occupational Safety and Health Program
- ED-0001, Event Notification and Occurrence Reporting Procedure
- RM-0006, Industrial Safety
- RC-DPT-015, ALARA Review and Evaluation
- RM-2086, Chemical Hazard Communication Program
- RM-0002, Training Department Program Manual*
- RM-0007, FEMP Respiratory Protection Requirements Manual
- IM-7006, Incident Building Evacuation Manual*
- SSOP-0077, Building Emergency Procedure
- RM-0012, Quality Assurance Program Description*
- SSOP-0036, Quality Assurance Project Plans
- SSOP-0716, Control of Processes
- SSOP-0082, Quality Improvement

I. General Supporting Documentation (continued)

- SSOP-0023, Deviation and Corrective Action Reporting
- SM-0005, FERMCO Operational Readiness Manual
- FMPC-2214, Environmental Restoration and Waste Management Site Specific Plan*
- Shutdown/Facility Acceptance and Criteria Plan
- IM-6001, Safe Shutdown Program Planning and Implementation Manual
- SSOP-0067, Spill Incident Reporting and Clean-up
- SSOP-0059, Control and Tracking of Chemical Substances
- SSOP-0027, Control of Box Type Containers
- RM-0005, FEMP Lot Marking and Color Coding System
- FMPC-2304, FEMP Nuclear Criticality Safety Guide
- SOP 20-C-011, Physical Inventory of Nuclear Materials
- PO-D-023, Shift Orders

*Copies of these documents will be made available upon request.

II. Implementing Procedures

Step 1. Preliminary Assessment of Process Facilities

- U. S. Department of Energy Order 5820.2A Radioactive Waste Management

Step 2. Characterize Process Equipment and Hold-Up Materials

- SSOP-0002, Completing the Material Evaluation Form
- SSOP-0039, Handling Containers of Unidentified Material
- SOP 20-C-625, Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment
- Amended Consent Decree

II Implementing Procedures (continued)

- SOP 1-C-101, Sampling Residual and Waste Materials
- SOP 20-C-805, Sampling Drummed Waste for Hazard Identification

Step 3. Transfer Existing Inventories of Chemicals, Materials, and Uranium Materials from Process Buildings to Approved Storage Locations

- SOP 20-C-912, Checking Scale Operation
- SOP 20-C-904, General Nuclear Safety Requirements
- SOP 20-C-917, Hydrogen Monitoring and Removing Nucfil Vent Plugs from Drums
- SOP 20-C-910, Venting Potentially Explosive Drums
- SOP 20-C-918, Preparation for and Movement of Unvented Drums
- SOP 1-C-608, Storage of Radioactive Material
- SOP 20-C-801, Storage of Enriched Material
- SOP 20-C-100, Moving and Storing Depleted, Normal, Enriched Uranium Materials <20% and Thorium Metal and Materials
- SSOP-0060, Packaging Radioactive Material for Offsite Shipment
- SR-2117, Nuclear Criticality Safety Requirements
- SOP 20-C-017, Movement of Hazardous Waste
- SSOP-0044, Management of Excess Soil, Debris, and Waste from a Project
- SOP 20-C-604, Control and Utilization of Contaminated Trash Dumpsters
- SOP 2-C-923, Trash Baler Operation
- PO-0307, Control and Accountability of Nuclear Materials

II. Implementing Procedures (continued)

Step 4. Energy Source Isolations, Lock & Tag-out Process Equipment

- SSOP-0061, FEMP Work Request/Order Procedure
- SSOP-0719, FERMCO Lockout/Tagout Hazardous Energy and Material Control Procedure
- SSOP-0069, Freon Management
- FMPC-508, Safety Analysis Documentation Program

Step 5. Prepare Safety Documentation

- PO-0712, Risk Assessment and Management (RAM) System Policy
- SM-0001, Risk Assessment and Management (RAM) System Manual
- SSOP-0014, Documentation of a Subject Matter Expert
- Safe Shutdown Health and Safety Plan

Step 6. Prepare NEPA Documentation

- PO-0518, National Environmental Policy Act (NEPA) Program
- SSOP-0031, National Environmental Policy Act (NEPA) Document Process

Step 7. Transfer of Substance from Process Equipment and Associated Support Systems

- PO-D-028, Preparation and Implementation of Work Package
- FMPC-516, Control of Permits for Accomplishing Hazardous Work
- SPR-5-13, Permit-Required Confined Space Program
- RC-DPT-008, Radiation Work Permits
- PP-FMPC-5010, Management of Low Level Waste (LLW)

II. Implementing Procedures (continued)

- SOP 20-C-606, Hazardous Material Spill Clean-Up
- SSOP-0035, Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers
- SOP 20-C-500, Inspecting RCRA Waste Load/Unload and Staging Areas
- SSOP-0008, Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area
- SSOP-0028, Controlling Portable Ventilation
- SOP 20-C-700, Norclean Portable Vacuum Operation
- SOP 20-C-701, Operation of Spencer & Hoffman Portable Dust Collectors
- SOP 20-C-014, Wet and Dry Systems Clean-out
- SSOP-0075, Packaging Low Level Radioactive Waste (LLRW) In Drums for Offsite Shipment
- SSOP-0078, Packaging Low Level Radioactive Waste (LLRW) into ISO Containers for Offsite Shipment
- SSOP-0079, Packaging Low Level Radioactive Waste (LLRW) in Metal Boxes for Offsite Shipment
- PP-0314, Packaging, On-Site Movement and Off-Site Shipment of Material
- SOP 2-C-601, Refinery Sump
- SOP 8-C-605, EIMCO Filter Operation
- SSOP-0003, Receiving, On-Site Movement, and Off-Site Shipment of Nonradioactive Hazardous Material

Step 8. Control Loose Contamination

- Task Specific Health & Safety Plan for Decontamination of Various Areas of Existing Fixed or Removal Contamination, June 5, 1991
- SOP 20-C-612, Industrial Cleaning

II. Implementing Procedures (continued)

- SOP 20-C-610, Bird Carcass and Dropping Removal
- SOP 20-C-709, Baghouse Type Dust Collector Filter Removal/Replacement
- SOP 20-C-600, Overpacking Defective Containers
- SOP 20-C-916, Cleaning Sump Systems
- SOP 43-C-413, Handling Waste Materials with the Industrial Vacuum Loader Truck (Supersucker)

Step 9 Disposition of Surplus Property

- SSOP-1044, Management of Government Property
- SSOP-0034, Nuclear Materials Disposition Order Management
- PO-D-035, Shipment of Low Level Radioactive Waste Requirements
- SSOP-0081, Radiologically Non-Contaminated Asbestos Containing Material Waste (ACM) Disposition
- SP-P-35-010, Unrestricted Release of Materials from FMPC
- SP-P-35-023, Routine Radiological Contamination Surveys

P	REGULATION/PROCEDURE	COMMENTS
General	U.S. Department of Energy Order 5820.2A, Radioactive Waste Management (see document at step 1)	This order establishes policies, guidelines, and minimum requirements by which the Department of Energy (DOE) manages its radioactive and mixed waste and contaminated facilities.
	U.S. Department of Energy Radiological Control Manual DOE/EH-0256T*	This manual establishes practices for the conduct of radiological control activities.
	SSOP-0103, FEMP Site Document System	This procedure establishes the document control system by which Fernald Environmental Restoration Management Company (FERMCO) develops, processes, and controls site documents at the Fernald Environmental Management Project (FEMP).
	PO-D-007, Document Periodic Review Program	This procedure defines the document periodic review program for documents.
	ES&H-1-1000, Comprehensive Environmental Occupational Safety & Health Program	This site plan provides the overall means for planning and implementing the job site characterization, health and safety training, and job orientation for personnel.
	RM-0006, Industrial Safety	This requirements manual provides the safety standards and requirements for operating the Fernald Environmental Management Project (FEMP).
	ED-0001, Event Notification and Occurrence Reporting Procedure	This procedure establishes the requirements for evaluating and reporting all reportable events and emergency events at or involving the FEMP.
	RC-DPT-015, ALARA Review and Evaluation	This procedure establishes the process for conducting an as-low-as-reasonably-achievable (ALARA) review and evaluation of work activities performed at the FEMP.
	RM-2086, Chemical Hazard Communication Program	The purpose of this manual is to provide information that will increase knowledge of workplace chemical hazards, promote an understanding of the Hazard Communication Program at the FEMP, and encourage personnel to comply with OSHA requirements.
	RM-0002, Training Department Program Manual*	This site manual establishes the requirements for all personnel involved in the development and delivery of training. The manual is prepared in accordance with DOE Order 5480.18. The manual also references the DOE Training Accreditation Program (TAP) Manuals.

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STEP	REGULATION/PROCEDURE	COMMENTS
General Continued	RM-0007, FEMP Respiratory Protection Requirements Manual	This requirements manual identifies respiratory requirements and provides practical guidance on the issuance, use, and care of respiratory protection equipment at the FEMP.
	IM-7006, Incident Building Evacuation Manual*	The purpose of this manual is to give guidance to all employees at the FEMP with regard to the evacuation of their respective work areas when an emergency occurs.
	SSOP-0077, Building Emergency Procedure	This procedure provides instructions to all FEMP employees for emergency response action to be taken during abnormal situations at the FEMP.
	RM-0012, Quality Assurance Program Description*	This document establishes the QA requirements for FERMCO and all other contractor and subcontractor organizations performing work at the FEMP.
	SSOP-0036, Quality Assurance Project Plans	This procedure assigns responsibilities and identifies the requirements for developing QAPjPs for FERMCO data generation activities. The Amended Consent Agreement establishes the need for quality assurance plans in accordance with EPA requirements.
	SSOP-0716, Control of Processes	This procedure provides instruction for FERMCO to maintain a program for the control of processes affecting the quality of items or services at the FEMP.
	SSOP-0082, Quality Improvement	This procedure provides instructions for establishing and implementing quality principles, practices, techniques, and responsibilities and promotes continual quality improvement of processes and products at the FEMP.
	SSOP-0023, Deviation and Corrective Action Reporting	This procedure describes the process for the identification, response, evaluation, and resolution of deviations and corrective actions required at the FEMP.
	SM-0005, FERMCO Operational Readiness Manual	This systems manual establishes conditions and/or requirements to be used by Fernald Environmental Restoration Management Corporation (FERMCO) for implementing a Readiness Review (RR) process. This manual also provides a systematic and documentable approach for validating planned actions and for ascertaining and recording that a state of readiness to proceed has been achieved.

.P	REGULATION/PROCEDURE	COMMENTS
General Continued	FMPC-2214, Environmental Restoration and Waste Management Site Specific Plan*	This site specific plan provides a detailed, comprehensive overview of environmental restoration and waste management corrective actions and related concerns.
	Shutdown/Facility Acceptance and Criteria Plan	This document includes general information on the current status of all shutdown facilities at the FEMP and provides a general overview of Safe Shutdown activities.
	IM-6001, Safe Shutdown Program Planning and Implementation Manual	This document is an information manual that describes the safe shutdown program planning aspects to the actual implementation of field activities.
	SSOP-0067, Spill Incident Reporting and Clean-up	This procedure provides instructions for FERMCO to maintain a policy at the FEMP by which all spill incidents are contained, cleaned up, classified, reported to responsible FEMP organizations, and reported to off-site organizations in accordance with state and federal regulations and laws.
	SSOP-0059, Control and Tracking of Chemical Substances	This procedure covers the "cradle-to-grave" tracking, record keeping, and reporting required for chemical substances stored or used at the FEMP.
	SSOP-0027, Control of Box Type Containers	This procedure details the tracking of box-type waste containers (white metal and International Shipping Organization) from purchase to final shipment off-site.
	RM-0005, FEMP Lot Marking and Color Coding System	This requirement manual details identification markings for containers of material on-site at the FEMP.
	FMPC-2304, FEMP Nuclear Criticality Safety Guide	This guide is a reference for those having responsibility for handling, processing, storing, and transporting enriched uranium.
	SOP 20-C-011, Physical Inventory of Nuclear Materials	The purpose of this document is to establish the procedure for conducting a physical inventory of nuclear materials and recoverable residues annually or as directed by the DOE.
	PO-D-023, Shift Orders	The shift orders are essential in providing a means for management to communicate Administrative Instructions to operating personnel. Shift orders are required when information such as special operations, administrative directions and other short term matters need to be communicated to the shift supervisor and the operation crew.

* Copies of these documents will be made available upon request.

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NOTE: ACTIVITIES REFERENCED UNDER THE INDIVIDUAL STEPS CAN BE FOUND ON THE LOGIC DIAGRAM IN FIGURE 2

STEP	REGULATION/PROCEDURE	COMMENTS
Step 1 Preliminary Assessment of Process Facilities - refer to Activity 1	U.S. Department of Energy Order 5820.2A, Radioactive Waste Management	Chapter V, "Decommissioning of Radioactively Contaminated Facilities", Section 3d, requires baseline data including the type, form, quantity, and location of materials and information on factors that could influence the selection of decommissioning alternatives.
Step 2 Characterize Process Equipment and Hold-up Materials - refer to Activities 2, 3, 4, and 5	SSOP-0002, Completing the Material Evaluation Form	This site standard operating procedure provides guidance for the proper completion of the Material Evaluation Form in order to classify substances or material.
	SSOP-0039, Handling Containers of Unidentified Material	The purpose of this document is to provide instruction for the processing of unidentified or mislabeled containers of material/substance.
	SOP 20-C-625, Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment	The purpose of this procedure is to allow waste generators to evaluate bulk waste streams designated as LLRW.
	Amended Consent Decree	This document provides for the evaluation materials not located in the appropriate hazardous waste storage units at the FEMP. The evaluation is to determine if such materials are hazardous or mixed wastes by reason of the criteria established in 40 CFR 262.11.
	SOP 20-C-805, Sampling Drummed Waste for Hazard Identification	The purpose of this document is to establish the procedure for sampling drummed waste.
Step 3 Transfer of Existing Inventories of Chemicals, Materials, and Uranium Materials from Process Buildings to Approved Storage Locations - refer to Activities 9, 10, 11, and 12	SOP 20-C-912, Checking Scale Operation	The purpose of this document is to establish the procedure for checking Site Services Department scales prior to operation.
	SOP 20-C-904, General Nuclear Safety Requirements	The purpose of this procedure is to define the criteria for nuclear safety handling and storage.
	SOP 20-C-917, Hydrogen Monitoring and Removing Nucfil Vent Plugs from Drums	This document provides the procedure for monitoring the atmosphere inside drums containing materials that could evolve hydrogen gas and for removing Nucfil 013 vent plugs.

STEP	REGULATION/PROCEDURE	COMMENTS
Step 3 Transfer of Existing Inventories of Chemicals, Materials, and Uranium Materials from Process Buildings to Approved Storage Locations (continued) - refer to Activities 9, 10, 11, and 12	SOP 20-C-910, Venting Potentially Explosive Drums	This document provides the procedure for venting drums containing materials that could evolve hydrogen gas.
	SOP 20-C-918, Preparation for Movement of Unvented Drums	This document provides the procedure for safe moving and handling of unvented drums containing potential hydrogen generating material.
	SOP 1-C-608, Storage of Radioactive Material	The purpose of this departmental procedure is to provide the requirements for storing radioactive material.
	SOP 20-C-801, Storage of Enriched Material	The purpose of this document is to establish the procedure for storing enriched material.
	SOP 20-C-100, Moving and Storing Depleted, Normal, and Enriched Uranium Materials <20% and Thorium Metal and Materials	The purpose of this document is to provide the procedure for the on-site movement of uranium with an enrichment of less than 20 percent and thorium.
	SSOP-0060, Packaging Radioactive Material for Off-site Shipment	This document provides the procedure for packaging radioactive material for off-site shipment.
	SR-2117, Nuclear Criticality Safety Requirements	This site requirement establishes required safety principles and program requirements for site remediation activities at the FEMP.
	SOP 20-C-017, Movement of Hazardous Waste	The purpose of this procedure is to establish a set of guidelines and practices to be used by motor vehicle operating personnel when transporting RCRA and other hazardous wastes.
	SSOP-0044, Management of Excess Soil, Debris, and Waste from a Project	This document provides the procedure for controlling and minimizing construction and maintenance waste while maintaining worker safety standards and environmental protection requirements.
	SOP 20-C-604, Control and Utilization of Contaminated Trash Dumpsters	This document provides instructions to waste generators for filling specially marked dumpsters with contaminated trash that is in compliance with governing regulations.
	SOP 2-C-923, Trash Baler Operation	The purpose of this document is to establish the procedure for preparing contaminated trash for shipment to a burial site.
	PO-0307, Control and Accountability of Nuclear Materials	This document states that FERMCO shall maintain control and accountability of nuclear materials at the FEMP in accordance with DOE orders.

STEP	REGULATION/PROCEDURE	COMMENTS
Step 4 Isolate, Lock & Tagout Process Equipment, Piping Systems, & Associated Utilities - refer to Activity 8	SSOP-0061, FEMP Work Request/Order Procedure	This procedure provides instructions for requesting, approving, and controlling service activities performed by the Maintenance and Support Services Section of the Site Services Department at the FEMP.
	SSOP-0719, FERMCO Lockout/Tagout (Hazardous Energy and Material Control) Procedure	This site procedure establishes the controls to ensure that all processes, machines, and/or equipment are isolated from all potentially-hazardous energy before personnel are allowed to perform any servicing, inspecting, maintenance, or construction activities where unexpected energization, start-up, or release of stored energy could cause injury to personnel or harm to the environment.
	SSOP-0069, Freon Management	This procedure provides for the recovery and recycling of commonly used freon by FERMCO at the FEMP.
	FMPC-508, Safety Analysis Documentation Program	This site procedure ensures that potential hazards are systematically identified for proposed operations; reasonable measures have been taken to eliminate, control, or mitigate the hazards; and potential risks have been evaluated.
Step 5 Prepare Safety Documentation - refer to Activity 6	PO-0712, Risk Assessment and Management (RAM) System Policy	New and modified facilities, restoration activities, process systems, and components shall be assessed for risks at least three times, and each of these assessments shall be designated by the phase it supports: (A) Design; (B) Operational; and (C) Decommissioning.
	SM-0001, Risk Assessment and Management (RAM) System Manual	This procedure is part of the Risk Assessment and Management (RAM) System, and is subordinate to IN-6034. Described herein are the methods and forms to be used for the performance of RAM System risk assessments and the preparation of Risk Assessment Reports (RARs), Risk Management Plans (RMPs), and Risk Management Reports (RMRs).
	SSOP-0014, Documentation of a Subject Matter Expert (SME)	The purpose of this document is to establish the procedure for documenting a subject matter expert (SME) when required by procedures such that information is provided in a consistent and auditable form.
	Safe Shutdown Health & Safety Plan	This plan warns against chemical, physical, biological, and safety hazards that are possible during Safe Shutdown activities. It describes required training, medical surveillance, personal protective equipment, decontamination, required documentation, and emergency and contingency plans.

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STEP	REGULATION/PROCEDURE	COMMENT
Step 6 Prepare NEPA Documentation - refer to Activity 7	PO-518, National Environmental Policy Act (NEPA) Program	FERMCO shall ensure that all actions/projects at the FEMP regarding potential environmental impacts comply with the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), DOE Guidelines and Orders, and Secretary of Energy Notices.
	SSOP-0031, National Environmental Policy Act (NEPA) Document Process	The purpose of this procedure is to provide the steps to obtain approval for a NEPA document from initiation through DOE official and final approvals. NEPA documents support the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEP), DOE Guidelines and Orders, and Secretary of Energy Notices.
Step 7 Transfer Substances from the Process Equipment and Associated Support Systems - refer to Activities 11 & 12	PO-D-028, Preparation and Implementation of Work Packages	This procedure shall apply to non-routine field activities performed by Site Services personnel that are not identified by existing Site or Site Services Procedures.
	FMPC-516, Control of Permits for Accomplishing Hazardous Work	This procedure establishes positive means for controlling work tasks that involve hazardous or potentially hazardous materials, equipment, operations, or activities to maintain employee health and safety and assure environmental compliance. The procedure describes the responsibilities and means for control of work by FERMCO employees, subcontractor personnel, and/or others involved with any of the following activities: working with asbestos; working on a chemically-hazardous system; working near open flame and/or welding; working with a radioactive material; and entering or working in a confined space.
	SPR-5-13, Permit-Required Confined Space Program	This procedure outlines the minimum safety requirements for work inside a permit-required confined space (permit space). This procedure also lists requirements for protecting individuals in a permit space from hazards such as hazardous atmospheres, hazardous materials, moving parts, and blocked escape routes.
	RC-DPT-008, Radiation Work Permits	This document assigns responsibilities and establishes the procedure initiation of, the use of, and termination of Radiation Work Permits (RWP).
	PP-FMPC-5010, Management of Low Level Waste (LLW)	This procedure establishes the policy of managing and controlling the generation of low level waste to minimize waste production in a manner that is consistent with established environmental standards.

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STEP	REGULATION/PROCEDURE	COMMENT
Step 7 Transfer Substances from the Process Equipment and Associated Support Systems (continued) - refer to Activities 11 & 12	SOP 20-C-606, Hazardous Material Spill Clean-up	This procedure defines the requirements for reporting, containing, controlling, and cleaning hazardous material leaks and spills.
	SSOP-0035, Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers	This procedure provides the instructions for establishing and maintaining a Satellite Accumulation Area (SAA), accumulating hazardous waste in SAA containers and interim containers, and preparing SAA containers and interim containers for transfer to storage at the FEMP.
	SOP 20-C-500, Inspecting RCRA Waste Load/Unload and Staging Areas	The purpose of this document is to establish the procedure for inspecting areas used for loading/unloading and staging containers of RCRA material.
	SSOP-0008, Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area	This document provides the procedure for the preparation and transport of uncharacterized waste to the Controlled Holding Area (CHA) located at the center of Building 64.
	SSOP-0028, Controlling Portable Ventilation Devices and Vacuum Cleaners	The purpose of the document is to establish the procedure for assigning ownership and controlling the movement of HEPA filter equipped portable vacuum cleaners and portable ventilation (negative air) devices used at the Fernald Environmental Management Project (FEMP).
	SOP 20-C-700, Norclean Portable Vacuum Operation	The purpose of this document is to establish the procedure for operating Norclean vacuum units.
	SOP 20-C-701, Operation of Spencer & Hoffman Portable Dust Collectors	The purpose of this document is to establish the procedure for operating the Spencer & Hoffman portable dust collectors.
	SOP 20-C-014, Wet and Dry Systems Clean-Out	This document provides the procedure for removing residue from both wet and dry systems at the FEMP.
	SSOP-0075, Packaging Low Level Radioactive Waste (LLRW) in Drums for Off-Site Shipment	This document provides the instructions for packaging low level radioactive waste (LLRW) in drums for shipment off-site from the FEMP.

STEP	REGULATION/PROCEDURE	COMMENT
Step 7 Transfer Substances from the Process Equipment and Associated Support Systems (continued) - refer to Activities 11 & 12	SSOP-0078, Packaging Low Level Radioactive Waste (LLRW) into ISO Containers for Off-Site Shipment	This procedure provides the instructions for packaging low level radioactive waste (LLRW) in metal boxes for shipment off-site from the FEMP.
	SSOP-0079, Packaging Low Level Radioactive Waste (LLWR) in Metal Boxes for Off-site Shipment	This procedure provides the instructions for packaging low level radioactive waste (LLRW) in metal boxes for shipment off-site from the FEMP.
	PP-0314, Packaging, On-Site and Off-Site Shipment of Material	It is the policy of FERMCO to ensure that the packaging, on-site movement, and off-site shipment of hazardous and non-hazardous materials, including radioactive materials, is conducted in a safe manner that provides for the protection of the public and the environment and is in compliance with the applicable federal, state, and local regulations, Department of Energy (DOE) Orders and Directives, and FERMCO policies and procedures.
	SOP 2-C-601, Refinery Sump	This document establishes the procedure for processing waste water through the Refinery Sump System and is also applicable to processing uranyl nitrate solutions from the Refinery Storage Tanks.
	SOP 8-C-605, EIMCO Filter Operation	The purpose of this document is to establish the procedure for operating the EIMCO Filter System (East and West Filters).
	SSOP-0003, Receiving, On-Site Movement and Off-site Shipment of Non-Radioactive Hazardous Material	This document defines the procedure for receiving, on-site movement, and off-site shipment of non-radioactive hazardous material.

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STEP	REGULATION/PROCEDURE	COMMENT
Step 8 Control of Loose Contamination - refer to Activity 13	Task Specific Health and Safety Plan for Decontamination of Various Areas of Existing Fixed or Removable Contamination, June 5, 1991	This document provides detailed information and controls necessary to remove loose contamination from the Process Facilities.
	SOP 20-C-612, Industrial Cleaning	This document provides the procedure for cleaning industrial facilities and equipment.
	SOP 20-C-610, Bird Carcass and Dropping Removal	This document defines criteria for disposal of bird carcasses and droppings.
	SOP 20-C-709, Baghouse Type Dust Collector Filter Removal/Replacement	The purpose of this document is to provide the procedure for removing and replacing baghouse type dust collector filters.
	SOP 20-C-600, Overpacking Defective Containers	The purpose of this document is to establish the procedure for overpacking defective containers.
	SOP 20-C-916, Cleaning Sump Systems	This procedure is for cleaning all sump systems located at the FEMP.
	SOP 43-C-413, Handling Waste Materials with the Industrial Vacuum Loader Truck	This document establishes the procedure for using the Vacuum Loader Truck (Supersucker) for handling waste liquids, liquid sludges, and solids.
Step 9 Disposition of Surplus Property - refer to Activities 14 through 24	SSOP-1044, Management of Government Property	This procedure identifies the responsibilities and requirements of the property management system which includes the acquisition, receipt, maintenance, utilization, protection, storage, subcontractor/vendor control, inventory, disposition, movement, and removal of non-nuclear, government-owned property at the FEMP.
	SSOP-0034, Nuclear Materials Disposition Order Management	This procedure provides the controlling order requirements for nuclear material disposition activities from order receipt through material release.
	PO-D-035, Shipment of Low Level Radioactive Waste Requirements	This document defines the requirements for the shipment of Low Level Radioactive waste.

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STEP	REGULATION/PROCEDURE	COMMENT
Step 9 Disposition of Surplus Property (continued) - refer to Activities 14 through 24	SSOP-0081, Radiologically Non-Contaminated Asbestos Containing Material (ACM) Waste Disposition	This document provides a protocol to permit disposition of ACM Waste produced in a radiologically non-controlled area as non-radiological.
	SP-P-35-010, Unrestricted Release of Materials from FMPC	This safety document establishes the radiation levels for unrestricted release of materials from the site.
	SP-P-35-023, Routine Radiological Contamination Surveys	This safety procedure provides the instructions for performing radiological contamination surveys.

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ED-0001
(Emergency Document)
Effective Date: Draft
Revision No. 2

Event Notification and Occurrence Reporting Procedure

ED-0001

Effective Date: 08-20-93

AUTHORIZED BY: J W Chesing for 8/20/93
N. C. Kaufman, President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
02-14-92	0	Emergency document required for Event Notification and Reporting per Request No. S92-045, initiated by M. S. McClane. Replaces OM-FMPC-0001, dated 12-03-90, Revision 0.
08-14-92	1	Document revised per Request No. S92-150, initiated by S. Duley.
08-20-93	2	Document revised per Request No. S93-098, initiated by S. Duley. This document supersedes ED-0001, Rev. 1, dated 08-14-92, and SSOP-4006, Rev. 0, dated 08-14-92.

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ACRONYMS AND ABBREVIATIONS

AEDO	Assistant Emergency Duty Officer
ASI	Advanced Science Inc.
CERCLA	Comprehensive Environmental Response Compensation, and Liability Act
CP	Command Post
DED	Deputy Emergency Director
DOE	Department of Energy
DOE FN EDO	Fernald Field Office Emergency Duty Officer
DOE-HQ-EOC	Department of Energy Headquarters Emergency Operations Center
DOE-HQ	Department of Energy, Headquarters
ED	Emergency Director
EDO	Emergency Duty Officer
EOC	Emergency Operations Center
EMS	Emergency Message System
EP	Emergency Preparedness
ERT	Emergency Response Team
ERPG	Emergency Response Planning Guide
FEMP	Fernald Environmental Management Project
FERMCO	Fernald Environmental Restoration Management Corporation
FN	Fernald Field Office
JIC	Joint Information Center
OEMA	Ohio Emergency Management Agency
OR	Occurrence Report
ORPS	Occurrence Reporting and Processing System
ORT	Occurrence Reporting Team
PAG	Protective Action Guideline
PBX	Plant Branch Exchange
RCRA	Resource Conservation and Recovery Act
RQ	Reportable Quantity
SARA	Superfund Amendments and Reauthorization Act
SNM	Special Nuclear Material
SOP	Standard Operating Procedure
TSCA	Toxic Substance Control Act

1.0 PURPOSE

This procedure establishes the requirements for evaluating and reporting all reportable events and emergency events at or involving the Fernald Environmental Management Project (FEMP) in accordance with DOE Orders, Federal and State Regulations, and Environmental Permits, to ensure that appropriate corrective action is taken and similar events are avoided in the future. This document establishes the mechanisms for consistent, timely reporting of events to the U.S. Department of Energy (DOE), Fernald Environmental Restoration Management Corporation (FERMCO) management, and for immediate notifications to regulatory agencies. Complete, accurate, and current information is provided about any events which could: 1) affect the health and safety of the public; 2) seriously impact the intended purpose of DOE facilities; 3) have a noticeable adverse effect on the environment; or 4) endanger the health and safety of workers. This procedure implements the requirements of DOE Order 5500.2B, (04/30/91) "Emergency Categories, Classes, and Notification and Reporting Requirements" and DOE Order 5000.3B, (3/22/92) "Occurrence Reporting and Processing of Operations Information". For appropriate response actions refer to the FEMP Emergency Plan, PL-3020.

2.0 SCOPE

This procedure is applicable to all personnel including employees, supervisors, Communications Center Operators, Duty Officers (Emergency Duty Officers and Assistant Emergency Duty Officers), Managers, and all other site contractors and subcontractors. This procedure also provides the actions required to prepare, track, and issue Occurrence Reports for reportable events at the FEMP.

3.0 DEFINITIONS

3.1 Assistant Emergency Duty Officer (AEDO): The emergency management authority onsite when the Emergency Operations Center (EOC) is not operational. The AEDO is the Incident Commander of the FEMP emergency response activities. The AEDO is the Facility Manager Designee.

3.2 Categorization: Relative ranking of an event or condition to ensure that the urgency of notification is readily identifiable and that the more serious occurrences are highlighted to management.

3.3 Classification: The placement of an event or condition in one of three classes under the Emergency categorization. The classes are: Alert, Site Area Emergency, and General Emergency.

3.0 **DEFINITIONS** (cont.)

3.4 Communications Center Operator: The person assigned responsibility for operating the communications equipment in the FEMP Communications Center for notifications, announcements and reports as necessary.

3.5 Counties: The Law Enforcement, and/or Emergency Management, and Civil Defense agencies of Hamilton and Butler Counties.

3.6 Critique: A critical discussion with the individuals involved in an abnormal event to ascertain the actions that took place before, during, and immediately following the event.

3.7 Daily Operations Report: A one-page bullet list of occurrence information condensed from the Fact Sheet.

3.8 Deputy Emergency Director (DED): The immediate successor to the Emergency Director. The DED's primary emergency responsibility is the direction and control of emergency incidents as manager of the EOC.

3.9 Division Vice-President: The FERMCO Vice-President with responsibility for providing technical assistance for event investigation, root cause determination, corrective action, and developing the information that will be uploaded into the ORPS database for the Ten Day and Final Occurrence Reports. In regard to the Ten Day and Final Occurrence Reports, the FERMCO Vice-President or his or her designee, has the responsibilities assigned to the individual designated "Facility Manager", in DOE Order 5000.3B.

3.10 DOE Fernald Field Office Manager: The senior DOE representative onsite for the FEMP.

3.11 DOE Fernald Field Office Duty Officer (DOE FN EDO): A designated, on call member of the DOE Fernald Field Office with the responsibility for acting as the Facility Representative for initial event notifications.

3.12 Emergency: An Emergency, the most serious event, consists of any unwanted operations, civil, natural phenomenon, or security occurrence which could endanger or adversely affect people, property, or the environment. The emergency category is subdivided into three classes:

3.0 **DEFINITIONS** (cont.)

A. **Alert**

- Non-reactor Facilities - Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the facility. Any release of hazardous materials (radiological or non-radiological) is expected to be limited to small fractions of appropriate PAG or ERPG exposure levels.

- Safeguards & Security - Events are in progress, have occurred, or are anticipated which could involve an actual or potential substantial degradation in the level of protection of the facility or the loss or possible loss of Special Nuclear Material (SNM).

- Transportation - Events are in progress or have occurred which involve an actual or potential substantial degradation of the safety of the shipment. Any release of hazardous materials (radiological or non-radiological) is expected to be limited to small fractions of the appropriate PAG or ERPG exposure levels.

B. **Site Area Emergency**

- Non-reactor Facilities - Events are in progress or have occurred which involve actual or likely major failures of facility functions needed for the protection of workers and the public. Any release of hazardous materials (radiological or non-radiological) is expected to exceed appropriate PAG or ERPG exposure levels onsite, but not expected to exceed the appropriate PAGs or ERPGs offsite.

- Safeguards & Security - Events are in progress or have occurred which involve actual malevolent acts resulting in major failures of protective systems.

- Transportation - Events are in progress or have occurred which involve an actual or potential major reduction in the safety of the shipment. Any release of hazardous materials (radiological or non-radiological) is expected to exceed appropriate PAG or ERPG exposure levels in the immediate vicinity of the accident or incident, but is not expected to exceed the appropriate PAGs or ERPGs in a general public area.

3.0 **DEFINITIONS** (cont.)

C. **General Emergency**

- Non-reactor Facilities - Events are in progress or have occurred that involve actual or imminent catastrophic reduction of facility safety systems with potential for loss of containment or confinement integrity, and/or release of hazardous materials (radiological or non-radiological) that can reasonably be expected to exceed appropriate PAG and ERPG exposure levels offsite.

- Safeguards & Security - Events are in progress or have occurred which involve malevolent action resulting in catastrophic degradation of protection systems that could lead to substantial offsite impacts.

- Transportation - Events have occurred which involve an actual or imminent catastrophic reduction in the safety of the shipment. Any release of hazardous materials (radiological or non-radiological) is expected to exceed appropriate PAG or ERPG exposure levels in a general public area. If the event has occurred on a DOE site, the release is expected to exceed the appropriate PAG and ERPG exposure levels offsite.

3.13 Emergency Director (ED): The FERMCO President or his designee has overall authority and responsibility for activities at the FEMP, including emergency management.

3.14 Emergency Duty Officer (EDO): The trained, senior management personnel responsible for the management and oversight of the FEMP emergency response activities until the FEMP EOC is declared operational.

3.15 Emergency Operations Center (EOC): The command and control center, located in the Administration Building, designed for management and oversight of the FEMP emergency response actions.

3.16 Emergency Preparedness: The functional organization within FERMCO responsible for compliance to DOE Orders related to Emergency Management, Occurrence Reporting, and for ensuring FERMCO personnel and management are prepared to respond to emergencies at the FEMP.

3.0 **DEFINITIONS** (cont.)

3.17 Employees: All persons employed by FERMCO, DOE Fernald Field Office, and subcontractors, including: Supervisors, Communications Center Operators, Duty Officers, Managers, DOE, Parsons, ASI, and all other site contractors and subcontractors.

3.18 Event: Any real-time occurrence or significant deviation from planned or expected behavior that could endanger or adversely affect people, property, or the environment.

3.19 Facility Manager: The President of FERMCO, or his or her designee, who has direct line responsibility for operation of a facility or group of facilities including authority to direct physical changes to the facility. The Facility Manager designee is a person within the facility operations organization who has been delegated responsibility by the facility manager. Within the scope of this procedure, the delegated responsibility has been assigned to the AEDO and the Occurrence Reporting Team (ORT).

3.20 Facility Representative: A field office individual or his/her designee assigned responsibility by the Head of the Field Organization for monitoring the performance of the facility and its operation. This individual shall be the primary point of contact with the contractor and will be responsible to the appropriate Program Secretarial Officer and Head of Field Organization for implementing the requirements of DOE Order 5000.3B. For the FEMP, this individual is a designated person from the DOE-Fernald Field Office and is normally the DOE Fernald Field Office Duty Officer that is on duty at the time of the occurrence.

3.21 Fact Sheet: Approximately one-page summary of occurrence information in outline form including the event summary, significance to ES&H/Public/Personnel, immediate actions taken, and notifications made. A Fact Sheet is required for all Off-Normal and higher events.

3.22 Joint Information Center (JIC): The FERMCO facility located at a predestinated location equipped to receive, coordinate, and disseminate emergency information to the media from the state, counties, and the FEMP.

3.0 DEFINITIONS (cont.)

3.23 Loggable Event: A non-routine event which is not required to be reported to DOE. It must, however, be recorded (along with all events of higher categorization) in a log maintained by the operating contractor. This log will be available to DOE and contractor management for trend analysis and review as a part of the functional appraisal process.

3.24 Occurrence Report: A documented evaluation of an event or condition that is prepared in sufficient detail to enable the reader to assess its significance, consequences, or implications and to evaluate the actions being proposed or employed to correct the condition or to avoid recurrence, there are four occurrence reports defined as follows:

A) **Notification Report:** (Attachment A)
The report that serves as the initial event report. This report, Items 1-18 of the Occurrence Report, is completed and uploaded into the ORPS data base. This report must be completed and issued by the close of the next business day from the time of categorization (not to exceed 80 hours) or recategorization, if the initially assigned level is modified prior to issuing the Notification Report.

B) **10-day Occurrence Report:** (Refer to Section 6.3.4)
The Occurrence Report that provides sufficient details of the event. This report must be completed on the ORPS database and uploaded within 10 working days of event categorization.

C) **Update Occurrence Report:** (Refer to Section 6.3.5)
This report updates the 10-day Occurrence Report with significant new information once it becomes available. The Update Report is completed on the ORPS database. An unlimited number of Update Reports may be submitted on any given event prior to submittal of the Final Occurrence Report.

3.0 **DEFINITIONS** (cont.)

D) **Final Occurrence Report:** (Refer to Section 6.3.6)
This report includes analysis of cause of occurrence, determination of root and contributing causes, determination and scheduling of corrective actions and identification of lessons learned. This report shall be submitted to the DOE Facility Representative within 45 calendar days of categorization of the occurrence. The Final Occurrence Report is completed on the ORPS database and uploaded by the Occurrence Report Team (ORT). The final report must be reviewed and approved by the DOE Facility Representative and the DOE Program Manager prior to being transferred into the general user-accessible portion of the database. This transfer is automatically performed by the database once approval is indicated by the Facility Manager, Facility Representative, and the DOE Program Manager.

3.25 Occurrence Reporting and Processing System (ORPS): A DOE-wide centralized database and computerized support for the collection, generation, distribution, updating, analysis, and sign-off of information in occurrence reports.

3.26 Occurrence Reporting Team: A group of FERMCO personnel, under the direction of the Manager of Emergency Preparedness, responsible for the creation and distribution of the Fact Sheet, Daily Operations Report, uploading of all Occurrence Reports, follow-up on corrective actions, supporting the Division Manager with critiques and identifying causes and corrective actions.

3.27 Off-Normal Occurrence: Abnormal or unplanned events or conditions, as described in DOE 5000.3B, that adversely affect, potentially affect, or are indicative of degradation in the safety, security, environmental or health protection performance or operation of a facility.

3.28 Ohio Emergency Management Agency (OEMA): The agency of the State of Ohio, reporting to the Attorney General, that insures adequate emergency preparedness for all facilities within the state.

3.29 Program Manager: The DOE-HQ individual, or his/her designee designated by and under direction of a Program Secretarial Officer, who is directly involved in the operation of the facilities under his/her cognizance, and with authority to provide technical direction through DOE Field Organizations to contractors for these facilities.

3.0 **DEFINITIONS** (cont.)

3.30 Public Affairs: The Division responsible for informing the public, neighbors, DOE Public Affairs, and employees of significant events at the FEMP.

3.31 Release: For the purpose of this manual, a release is defined as a spill incident.

3.32 Release Evaluator: A designated individual within the Environmental Protection Department with the responsibility for ensuring the FEMP notifications and reporting in response to a spill incident comply with federal and state environment laws and environmental permits.

3.33 Reportable Occurrence: An event(s) or condition(s) to be reported after evaluation and categorization in accordance with the criteria defined in DOE Order 5000.3B.

3.34 Reportable Quantity (RQ): The quality of a hazardous substance that triggers reports under CERCLA. If a substance is released in amounts exceeding its RQ, the release must be reported to the National Response Center (NRC), the State Emergency Response Center (SERC), and community emergency coordinators for areas likely to be affected.

3.35 Spill Incident: For purposes of this procedure, a spill incident includes any spilling, leaking, pumping, pouring, injecting, escaping, emitting, emptying, leaching, releasing, dumping, discharging or disposing of a hazardous substance, extremely hazardous substance, hazardous material, hazardous waste, toxic pollutants, hazardous air pollutants, radioactive substance, oil, chemical substance or mixture into the land, into the water, or into the air within or beyond the boundaries of the FEMP.

3.36 Unusual Occurrence: An unusual occurrence is a non-emergency occurrence that has significant impact or potential for impact on safety, environment, health, security or operations as defined by DOE 5000.3B.

3.37 Visitor: Any person other than FERMCO and DOE employees, subcontractor or vendor personnel, who have been properly authorized and issued temporary or permanent credentials for access to the FEMP.

4.0 GENERAL

4.1 All FEMP personnel shall be trained annually on applicable building emergency procedures by supervisors and shall receive annual employee emergency response training. All such training shall specifically address how emergency and abnormal events are to be reported.

4.2 All spill incidents that occur at the FEMP, or at operations associated with the FEMP, shall be reported through the AEDO/EDO to the Release Evaluator for a determination of additional notification requirements. This would include activities offsite as well as incidents during transportation of materials from the FEMP.

4.3 Because of the need to quickly implement protective and response actions to ensure the safety of FEMP and offsite personnel, and to meet requirements for regulatory reporting, the AEDO/EDO shall, under all circumstances, categorize all events based on the information available within two hours of being notified that an event has occurred. This does not authorize the use of the full two hours for categorization if the pertinent information is available in a lesser period of time. If the AEDO/EDO cannot clearly determine the relative severity of the event within two hours of event discovery, then the event shall be initially categorized at the highest level being considered and DOE notified in accordance with this procedure. The event categorization shall be elevated, maintained, or lowered as information becomes available.

4.4 A critique will be held for any event at the FEMP categorized as an Off-Normal or higher.

The AEDO will inform the appropriate area supervisor whenever an event has occurred in his/her area of responsibility, as soon as possible after the event is categorized. The responsible supervisor will assist the ORT in a critique by the end of the shift if possible, but at least within 24 hours of event categorization.

The ORT will determine who should attend the critique. To the greatest extent possible, all individuals directly involved in the event, along with the affected Division Manager or his/her designee, should attend the critique.

4.0 **GENERAL** (cont.)

Minutes of the critique shall be recorded by the appropriate area supervisor and forwarded to the FERMCO management, the Manager of Emergency Preparedness, and the affected Division Manager within three days for review and inclusion in subsequent reports, as appropriate.

The critique should focus on the facts of the event and should avoid conjecture about why an event occurred, although apparent contributing causes should be included. Information discovered during the critique will ultimately be used to determine root cause of the event and possible corrective actions necessary to prevent recurrence.

4.5 All issues resulting in a dispute between the Contractor and DOE will be resolved expeditiously by elevating the issue in dispute to the Assistant Secretary for Environmental Restoration and Waste Management, the Program Secretarial Official (PSO), or, if necessary, to the Secretary of Energy.

4.6 Activation of the FEMP EOC by the AEDO is mandatory for all Emergency Classes. The DOE FN EDOs are notified immediately upon activation of the FEMP EOC via personal pagers. The FEMP Emergency Operations Center may be activated for Unusual Occurrences if the AEDO or EDO deem this action is necessary.

4.7 After receiving notification of an Alert or Site Area Emergency from the EDO, the Manager of Public Affairs determines the need to activate the JIC and directs this action. On General Emergency, the JIC shall be activated.

4.8 For any emergency, the first notification that must be initiated is an immediate warning to onsite and offsite personnel. This warning, as directed by the AEDO, is achieved in the Communications Center by activation of the FEMP Plant Alarm System, Sitewide Emergency Message System (EMS), and the Offsite Emergency Warning System.

4.9 All references to time periods in days are to be interpreted as calendar days unless otherwise noted.

4.0 GENERAL (cont.)

4.10 Any changes in categorization shall be documented in a 10-Day Occurrence Report and submitted before the close of the next business day from the time of re-categorization (not to exceed 80 hours). A justification for the new categorization shall be included in the report.

4.11 When an event is categorized as an Emergency and the EOC becomes operational, the responsibilities of the EDO are assumed by the DED and the EOC staff, per Section 6.2.5 of this procedure.

4.12 If, after assessing the event and coordinating with the EDO, Cognizant Senior Staff, and other concerned personnel, the AEDO recategorizes the event (up or down), appropriate renotification must be made to DOE-HQ and all other parties notified of the original categorization. Recategorization restarts the notification clock; the renotification time limits are now the same as required by the new categorization level.

5.0 RESPONSIBILITIES

5.1 Employee: Upon discovery of an emergency or abnormal event, the employee shall take immediate action to ensure his/her safety including evacuation of the area, sheltering, or other actions as may be appropriate; warn other personnel in the area to protect themselves; and promptly report the event either to his/her supervisor or directly to the Communications Center (via extension 6511, fire alarm pull box or hand-held radio for emergencies, extension 6295 or hand-held radio for non-emergency.

5.2 Supervisor: The Supervisor immediately reports the event to the AEDO through the Communications Center Operator, or directly to the AEDO by radio or telephone. The supervisor investigates and performs a preliminary evaluation of the magnitude and nature of the event, isolates and secures affected areas and initiates immediate or response actions if possible under safe conditions, until the AEDO responds to the scene. No action should ever be taken which would jeopardize the safety of the supervisor or any employee.

5.0 RESPONSIBILITIES (cont.)

The responsible supervisor or manager of the personnel involved in the event will make an entry into the daily logs as required by the Conduct of Operation Guidelines. Included in this entry will be enough information to reconstruct the event and its associated actions. A copy of this entry will be forwarded to Emergency Preparedness department within 24 hours. The Emergency Preparedness department will forward a copy of this daily log to appropriate site personnel.

5.3 Communications Center Operator: The Communications Center Operator receives reports of events from employees, supervisors, or by alarm circuits, and promptly contacts the AEDO. If an alarm signal is received in the Communications Center, the Communications Center Operator is responsible for taking whatever necessary emergency actions the system prompts the Operator to take, including activation of the ERT and the Plant Alarm System.

The Communications Center Operator is also responsible for making local regulatory and other notifications, as directed by the AEDO.

5.4 Assistant Emergency Duty Officer (AEDO): The AEDO assesses the event, consults with the EDO, categorizes the events, and determines if it is reportable to HQ-DOE or others, following event categorization guidelines outlined in SSOP-1018, "Categorization and Classification Procedure". The AEDO notifies the designated Release Evaluator if it is a spill incident, to determine reportability to regulatory agencies under RCRA, CERCLA, or other applicable regulations. The AEDO is delegated the responsibility for acting as the Facility Manager under the scope of this procedure. Any notifications to regulatory agencies are documented on the Notification Report. The AEDO logs all events (on Form #FS-F-3175) and ensures that original reports and logs are forwarded to Emergency Preparedness.

The AEDO has the authority to initiate all necessary response actions based on categorization of the event. This includes activating the ERT, Offsite Emergency Warning Systems, and/or the activation of the EOC. Further, the AEDO has the responsibility of keeping the appropriate emergency personnel and plant officials apprised of conditions, directing evacuation, determining the need for mutual aid, and directing follow-up monitoring and re-entry activities.

5.0 **RESPONSIBILITIES** (cont.)

5.5 Emergency Duty Officer (EDO): Once the AEDO contacts the EDO of a non-emergency event, the EDO takes responsibility for categorization. Ultimately, the EDO has the responsibility for ensuring that all required notifications are made. The EDO contacts or ensures that the FERMCO President, and the Manager of Public Affairs are notified as necessary for all events categorized as Off-Normal or higher. The EDO contacts the DOE FN EDO for all Off-Normal or higher events.

5.6 Release Evaluator: The Release Evaluator, using information provided by the EDO or AEDO, determines if a spill incident is reportable to regulatory agencies. The Release Evaluator advises the EDO and/or AEDO of this determination.

5.7 Manager of Public Affairs: The Manager of Public Affairs or his designee, assists the AEDO and/or EDO in determining whether to report event information to the public and/or plant neighbors. The Manager of Public Affairs is responsible for coordinating news releases, announcements, statements prepared for response to query, and information to be provided to neighbors with permission of FERMCO management and the DOE FN Public Affairs Director. The Manager of Public Affairs is responsible for reviewing Final Occurrence Reports to ensure the information is ready for release to the public.

5.8 Manager of Emergency Preparedness: The Manager of Emergency Preparedness is responsible for identifying and assigning the Division Manager responsible for providing technical support for the follow-up reporting on the event, as appropriate, and providing a copy of the Notification Report, Fact Sheet and Daily Operations Report.

The Manager of Emergency Preparedness will assure that the annual Emergency Preparedness training provided to all employees includes employee responsibilities upon discovery of an emergency or reportable event and will ensure that all AEDOs and EDOs receive annual training on the requirements contained in this document. The Manager of Emergency Preparedness has the responsibility for staffing and directing the Occurrence Reporting Team (ORT).

5.0 **RESPONSIBILITIES** (cont.)

5.9 Occurrence Reporting Team (ORT): The ORT is responsible for the creation, submittal and distribution of the Fact Sheet and Daily Operations Report within six working hours to the DOE-FN for every reportable event. The ORT will prepare and upload the Notification report by the end of the next business day and from the time of categorization (not to exceed 80 hours), and has the responsibility to prepare and upload all Occurrence reports. The ORT will track the status of all corrective actions listed in Occurrence Reports and support the Division Vice-President in critiques, identification of causes, and corrective actions.

5.10 Division Vice-President: The Division Vice-President or his/her designee shall be responsible for obtaining pertinent data about the event from the AEDO and other personnel involved in the event or in mitigation of the event, investigating events to determine root cause, initiating corrective actions, fully coordinating these with the DOE Facility Representative and the responsible DOE Program Manager. Recognizes and reports programmatic events within the Manager's area of responsibility in accordance with this procedure and SSOP-0018, "Event Categorization and Classification Procedure". Follows the progress of scheduled corrective actions and informs the Manager of Emergency Preparedness in writing when a corrective action is completed so that the completion date can be uploaded in the ORPS database.

5.11 Manager of Program Assessment & Reporting: The Manager of Program Assessment & Reporting shall be responsible for reviewing all Lessons-Learned from Occurrence Reports, tracking the status of Occurrence Reports and the quarterly trend review. The Manager of Program Assessment & Reporting shall provide copies of FEMP Final Occurrence Reports, within 10 days after approval by the DOE Program Manager, to the Administrator of the FEMP Public Reading Room and to the DOE HQ Freedom of Information Act Reading Room. Manager of Program Assessment & Reporting shall review Final Occurrence Report before uploading into ORPS.

5.0 **RESPONSIBILITIES** (cont.)

5.12 Administrator of FEMP Public Reading Room: The Administrator of the FEMP Public Reading Room shall place copies of approved FEMP Final Occurrence Report in the Public Reading Room within two weeks after approval by the DOE Program Manager.

5.13 DOE Fernald Field Office Duty Officer: The DOE FN EDO receives event information for all events categorized as Off-Normal and above, and is responsible for notifying all appropriate state and federal regulatory agencies, as necessary. The DOE FN EDO acts as the Facility Representative under the scope of this procedure and assumes the responsibilities of that position for event notification and reporting.

6.0 **PROCEDURE**

6.1 GENERAL

6.1.1 Each category has the notification and reporting requirements of all lesser levels as well as those listed. All employees have the responsibility to notify and report any abnormal event to the AEDO.

6.1.2 Table 1 provides a summary of the event notifications and reporting requirements of DOE Order 5000.3B and this procedure. Figure 6-1 provides an Event Notification and Reporting Process Flow Diagram.

6.2 VERBAL NOTIFICATIONS:

6.2.1 **LOGGABLE EVENTS**

RESPONSIBILITY	ACTION
AEDO	A. No verbal notifications are required on Loggable Events. The AEDO may notify the EDO, DOE FN EDO and the Release Evaluator for spill incidents.

TABLE 1
SUMMARY OF REPORTING REQUIREMENTS

NOTIFICATION		REPORTING			
EVENT CATEGORY	AEDO MAKES VERBAL REPORT TO DOE-FEMP AND DOE-HQ	ORT UPLOADS NOTIFICATION REPORT INTO ORPS DATA BASE AND ISSUES COPIES TO DOE-FEMP AND FERMCO MANAGEMENT	ORT UPLOADS OCCURRENCE REPORT & ISSUES COPIES TO DOE-FEMP AND FERMCO MANAGEMENT	ORT UPLOADS UPDATED OCCURRENCE REPORT AND ISSUES COPIES TO DOE-FEMP AND FERMCO MANAGEMENT	ORT UPLOADS FINAL OCCURRENCE REPORT AND ISSUES COPIES TO DOE-FEMP AND FERMCO MANAGEMENT
Emergency	Within 15 minutes of event categorization	By the end of the next business day from the time of categorization (not to exceed 80 hours)	Within 10 working days of event categorization	When significant new information is available	When root cause, contributing causes, and lessons learned have been determined and corrective actions scheduled within 45 days of categorization of the occurrence
Unusual Occurrences	Within two hours of event categorization	Same as above	Same as above	Same as above	Same as above
Off-Normal Occurrence	Not required	Same as above	Same as above	Same as above	Same as above
Loggable Event (1)	Not required	Not required	Not required	Not required	Not required

(1) Logged by the Assistant Emergency Duty Officer's Daily Event Log.

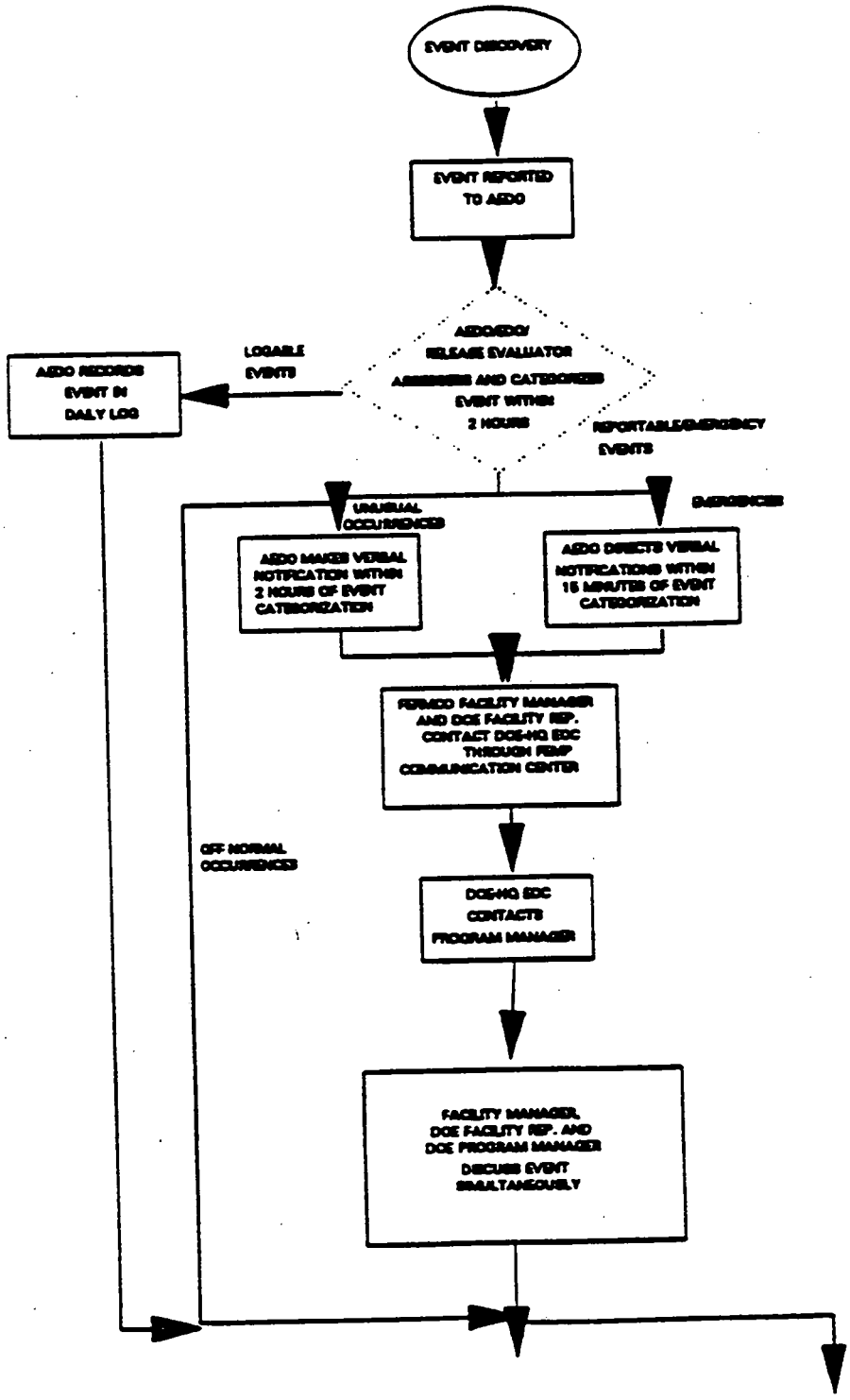

Figure 6-1 - Event Notification and Reporting Process Flow Diagram (Sheet 1 of 2)

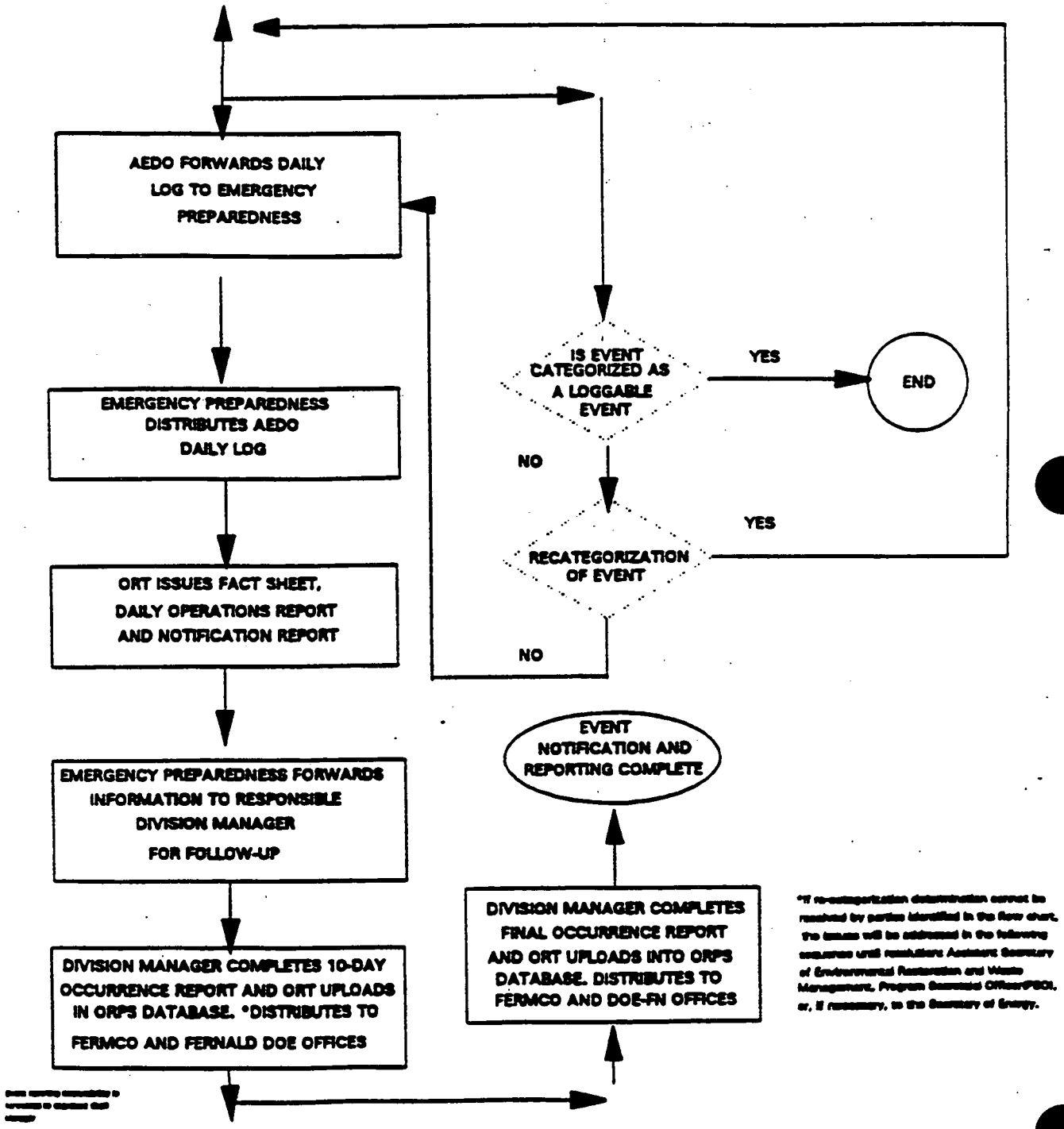

Figure 6-1 - Event Notification and Reporting Process Flow Diagram (Sheet 2 of 2)

6.0 **PROCEDURE** (cont.)

6.2.2 **OFF NORMAL EVENTS**

RESPONSIBILITY	ACTION
AEDO	A. Shall notify the EDO immediately and the Release Evaluator for spill incidents.
EDO	A. Shall notify the DOE FN EDO.
	B. Verify that the notifications were made.
RELEASE EVALUATOR	A. Shall determine regulatory reporting requirements and notify the AEDO/EDO.

6.2.3. **UNUSUAL OCCURRENCE EVENTS**

NOTE: Verbal notification to DOE Headquarters of Unusual Occurrences shall be made as soon as sufficient information is available to indicate the general nature and extent of the event, but in all cases, within two hours from event categorization.

RESPONSIBILITY	ACTION
AEDO	A. Shall establish a conference call, utilizing the DOE-HQ-EOC, with the DOE Facility Representative and the DOE Program Manager.
EDO	A. Shall notify the FERMCO President (as needed), Public Affairs (as needed), and Regulatory Agencies (required local notifications as needed).
DOE FN EDO	A. Shall notify the DOE FN Site Manager (as needed) and Regulatory Agencies (required federal and state notifications as needed)

6.0 **PROCEDURE** (cont.)

6.2.4 **EMERGENCY EVENTS**

NOTE: Verbal notifications to DOE Headquarters and offsite authorities for Emergency Classifications shall be made within 15 minutes or less of categorization. However, recognizing that the majority of, if not all, emergency events will result in external interest, oral notifications should be accomplished as soon as possible.

RESPONSIBILITY	ACTION
EDO	A. If the event occurs during off shift hours, the EDO shall direct the Communications Center Operator to notify DOE Headquarters, State of Ohio Emergency Management Agency, and Butler and Hamilton Counties immediately via their 24 hour notification points.
EOC	A. If the event occurs during working hours, the EOC Staff shall notify DOE Headquarters, State of Ohio Emergency Management Agency, and Butler and Hamilton Counties.
	B. After the EOC is operational, the Emergency Director (ED) acts as the Facility Manager and the DOE FN Site Manager acts as the Facility Representative. The ED and Site Manager will establish a conference call, utilizing the DOE-HQ-EOC, with the DOE Program Manager. The ED will relay all available information relating to the event to the DOE Program Manager.

6.0 **PROCEDURE** (cont.)

6.2.5 Transition Responsibility to EOC

Full activation of the FEMP EOC is mandatory for all emergency classifications levels. When the EOC is operational, the EDO will transfer responsibilities to the DED and EOC staff.

The EOC staff is a functional organization which oversees and manages emergency response actions and consists of four functional groups: a Policy Group, a Response Management Group, a Support Group, and an Offsite Communications Group.

Specific details of EOC operations are defined in the FEMP Emergency Plan, PL-3020. Under emergency conditions, responsibility for assuring that proper notifications are made is transferred from the EDO to the DED. The DED may assign specific notification responsibilities to members of the Response Management Group or the Offsite Communications Group. It is still, however, the responsibility of the DED to assure that the required notifications are made in a timely manner.

6.3 WRITTEN REPORTING

6.3.1 **LOGGABLE EVENTS**

RESPONSIBILITY	ACTION
AEDO	A. Shall complete the AEDO Daily Log, Form FS-F-3175 (Figure 6-2), and assign an event log number.
	B. Originals of the AEDO Daily Event Log shall be delivered to the Emergency Preparedness Section each regular weekday morning.
EMERGENCY PREPAREDNESS	A. Shall maintain a master file and provide distribution of the AEDO Daily Event Log to the EDOs, DOE FN EDOs, and various other site personnel.

AEDO'S DAILY EVENT LOG

EVENT LOG NUMBER (YR-MO-NO)	TIME AND DATE DISCOVERED	DESCRIPTION	AEDO'S BADGE NUMBER	LE	ON	UO	E	NOTIFIED RELEASE EVAL.	DIRECTED AREA MONITORING

COPIES OF THIS LOG MUST BE DELIVERED TO THE EOC DAILY.

NO.	DISTRIBUTION
1	EOC TO MAKE DISTRIBUTION
2	Originator
3	Manager, Utilities

Facility Owner: _____

LE - LOGGABLE EVENT
ON - OFF-NORMAL OCCURRENCE
UO - UNUSUAL OCCURRENCE
E - EMERGENCY

Figure 6-2 - AEDO's Daily Event Log

6.0 **PROCEDURE** (cont.)

6.3.2 **OFF NORMAL AND UNUSUAL OCCURRENCE EVENTS**

RESPONSIBILITY	ACTION
ORT	A. The ORT shall create a Fact Sheet and Daily Operations Report and submit these reports to the DOE FN within 6 working hours following the categorization of the event. The Fact Sheet and Daily Operations Report are intended to be concise summaries of occurrences. Information contained in the Fact Sheet should be kept short, 1-2 pages in length, and contain information relating to Event Summary, Significance to ES&H/Public/Personnel, Immediate Actions Taken, and Notifications Made. The Daily Operations Report is a 1/2 page short summary of the Fact Sheet. Distribution of the Fact sheet and Daily Operations Report shall be to DOE FN Manager, DOE FN EDO, Office of the President, FERMCO EDO, Manager, Emergency Preparedness, and Manager, Public Affairs.
	B. The ORT shall complete and issue the Notification Report for all events. This report shall be issued by the close of the next business day from the time of categorization (not to exceed 80 hours). The Notification Report, Items 1 through 18 of the Occurrence Report, must be completed and uploaded into ORPS database in Idaho. The instructions for completing it are provided in this procedure in Attachment A.

6.0 **PROCEDURE** (cont.)

RESPONSIBILITY	ACTION
ORT	C. Copies of the Fact Sheet, Daily Operations Report and the Notification will be provided to the responsible Division Vice-President.
RELEASE EVALUATOR	A. If the event is a spill incident, the Release Evaluator will recommend the necessary regulatory notifications on the Event Notification Verification Form (Figure 6-3) and telefax the form to the DOE FN and DOE Program Manager within sufficient time to complete regulatory notifications.
EDO	A. Shall make the required local regulatory notifications and note this information on the Event Notification Verification Form.
DOE FN EDO	A. Shall make the required federal and state notifications and note this information on the Event Notification Verification Form.
	B. If FERMCO and DOE-FN disagree about required regulatory notifications, the DOE-FN EDO makes the final determination of reporting requirements and notes any change in determination on the Event Notification Verification Form.
	C. Following verification of regulatory notifications by the DOE FN EDO and the EDO, a copy of the completed Event Notification Verification Form will be forwarded to the Release Evaluator, AEDO, and Emergency Preparedness.

FERNALD SITE
EVENT NOTIFICATION VERIFICATION

NOTIFICATION		ORGANIZATION/AGENCY	NAME OF PERSON NOTIFIED/ AGENCY REPORT NUMBER	TIME	VERIFIER BADGE NUMBER
REQUIRED	INFORMATIONAL				
1		DOE-FEMP (Facility Representative)			
1		DOE-HQ-EOC (202) 586-8100 FAX (202) 586-0420			
1		DOE-HQ (Program Manager) FAX (301) 903-8136			
2	1	BUTLER COUNTY LEPC 844-8020			
2	1	HAMILTON COUNTY LEPC (FAX) 851-5190			
2	1	CROSBY TOWNSHIP FIRE DEPARTMENT 825-2260			
3	1	NATIONAL RESPONSE CENTER (800) 424-8802			
	1	OEPA/SWDO/DHWM (513) 285-6357 P. PARDI. G. MITCHELL. P. HARRIS			
	1	US EPA Region 5 (312) 353-2318			
6	1	OHIO EMA (614) 889-7150			
2,7	1	OHIO EMERGENCY RESPONSE COMMISSION (800) 282-9378			
4		OHIO STATE FIRE MARSHAL (800) 686-0736			
5		SOUTHWEST OHIO AIR POLLUTION CONTROL 651-9437			

VERIFIER SIGNATURE: DATE:

DISTRIBUTION	
Original	Environmental Compliance Release Evaluator (MS 65)
Copy 1	Emergency Preparedness (MS 25)
Copy 2	AEDO (MS 68)

1	All Releases	5	Air Emission Violations
2	Offsite Releases	6	All Emergencies
3	Releases to Environment	7	RCRA Releases
4	UST & Oil-Type Releases		

Figure 6-3 - Event Notification Verification Form

6.0 **PROCEDURE** (cont.)

RESPONSIBILITIES	ACTION
DIVISION VICE-PRESIDENTS	A. Shall provide technical support to the ORT for the preparation of a 10-Day and Final Occurrence Report for uploading into the ORPS database. Requirements and instructions for completing the 10-Day and Final Occurrence Report are found in Sections 6.3.4 and 6.3.6 of this procedure and Attachment A.

6.3.3 Emergency Events

RESPONSIBILITY	ACTION
EDO	A. If the EOC is not operational, the EDO shall direct the Communications Center Operator to complete and telefax the Offsite Notification Report (Figure 6-4) to Butler and Hamilton Counties within one hour of the event classification.
EOC	A. If the EOC is operational, the EOC County Notification Advisor will complete and telefax the Offsite Notification Report to Butler and Hamilton Counties.

6.3.4 Preparation of the 10-Day Occurrence Report

RESPONSIBILITY	ACTION
DIVISION VICE-PRESIDENT	A. Receives a copy of the Notification Report, Fact Sheet, and Daily Operations Report from the Manager, Emergency Preparedness.

OFFSITE NOTIFICATION REPORT

FEMP	OFFSITE
# _____	Log # _____
Date _____	Date _____
Time _____ : Sent / : Rec'd	Time _____ : Sent / Rec'd
	Routing Code _____

FEMP Communicator _____
Butler County Communicator _____
Hamilton County Communicator _____

1. Incident occurred on _____ (date) at _____ (time) and is
   A. ☐ escalating B. ☐ de-escalating C. ☐ stable
2. Emergency Categorization Level Categorized by: _____
   SITE AREA GENERAL
   A. ☐ **ALERT** B. ☐ **EMERGENCY** C. ☐ **EMERGENCY**
3. Type of incident
   ☐ **Chemical Release** ☐ **Radiological Release** ☐ Other
   A. ☐ Hydrogen Fluoride D. ☐ Thorium G. ☐ Uranium Tetrafluoride
   B. ☐ Chlorine E. ☐ Radon H. ☐ _____
   C. ☐ _____ F. ☐ Uranium Trioxide I. ☐ _____
4. Amount Released _____
5. Incident Location and Brief Description _____
6. Meteorological Data
   Wind from _____ to _____ Speed _____ mph Temperature _____ °F
   A. ☐ Clear B. ☐ Cloudy C. ☐ Rain D. ☐ Snow E. ☐ Ice F. ☐ Fog
7. Offsite Concentrations

At site	ppm	mg/m³	Field Measurement	Projection	Exposure Limit
A. ☐ boundary	ppm	mg/m³	Time	ETA	
B. ☐ At 1 mile	ppm	mg/m³	Time	ETA	
C. ☐ At 2 miles	ppm	mg/m³	Time	ETA	
D. ☐ Other	ppm	mg/m³	Time	ETA	

8. Onsite Protective Action ☐ No Action ☐ Shelter ☐ Evacuation _____
9. Offsite Protective Action ☐ No Action ☐ Shelter ☐ Evacuation _____
10. Offsite Warning System Activated ☐ Yes ☐ No Time _____
11. Request for Mutual Aide ☐ Yes ☐ No ☐ Time _____
    ☐ Department and Equipment _____
12. FEMP Casualty Status
    A. ☐ No Injuries B. ☐ Number of Injuries _____
    C. ☐ Onsite Treatment D. ☐ Transported Offsite to _____
13. County Response Activities
    _____
14. Other information.
    _____

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Figure 6-4 - Offsite Notification Report

6.0 **PROCEDURE** (cont.)

RESPONSIBILITY	ACTION
DIVISION VICE-PRESIDENT	B. Supports investigation of the event.
	C. Within 8 working days from the event categorization submits the necessary information to the ORT for review and preparation of the Occurrence Report. See instructions contained in Attachment A.
	D. Obtains approvals for the Occurrence Report from the appropriate line management, must include Division Vice-President.
ORT	A. ORT transmits Occurrence Report via cover letter from FERMCO President to DOE-FN Manager.
	B. ORT transmits the Occurrence Report by 10 working days and distributes copies of the transmittal letter and Occurrence Report to: - Manager, Program Assessment & Reporting - Manager, Emergency Preparedness - Appropriate Line Management for the particular event

6.0 **PROCEDURE** (cont.)

6.3.5 Preparation of 10-Day Update Occurrence Report

RESPONSIBILITY	ACTION
DIVISION VICE-PRESIDENT	A. Provides technical support and information to the ORT for the preparation and transmittal of new or significant information when available.
	B. Obtains approvals for the Occurrence Report from the appropriate line management, must include Division Vice-President.
ORT	A. ORT transmits Occurrence Report via cover letter from FERMCO President to DOE-FN Manager.
	B. ORT transmits and makes distribution copies of the transmittal letter and Occurrence Report to: - Manager, Program Assessment & Reporting - Manager, Emergency preparedness - Appropriate Line Management for the particular event

6.0 **PROCEDURE** (cont.)

6.3.6 Preparation of the Final Occurrence Report

RESPONSIBILITY	ACTION
DIVISION VICE-PRESIDENT	A. Continues technical support for the event investigation and assists the ORT in identifying the root cause and contributing causes, lessons learned for the event and investigation. Assists in assuring that corrective actions are appropriate and establishes completion dates for the actions.
	B. Within 43 days from the event categorization submits the necessary information to the ORT for review and preparation of the Occurrence Report.
	C. Obtain approvals for the Occurrence Report from the appropriate line management; must include Division Vice-President.
ORT	A. ORT will verify causes to ensure accuracy, and that corrective actions satisfy listed causes to help prevent reoccurrences.
	B. ORT transmits Occurrence Report via cover letter from FERMCO President to DOE-FN Manager.

6.0 **PROCEDURE** (cont.)

RESPONSIBILITY	ACTION
ORT	C. ORT transmits the Occurrence Report by 45 days and distributes copies of the transmittal letter and Occurrence Report to: - Manager, Program Assessment & Reporting - Manager, Emergency Preparedness - Appropriate Line Management for the particular event
DOE FACILITY REPRESENTATIVE	A. Within 7 working days of the uploading and the system acceptance, completes a review of the report and adds any additional input required to complete the Facility Representative's section. Uploads acceptance or rejection of the report.
DOE PROGRAM MANAGER	A. Reviews the report and uploads acceptance or rejection within 14 days of receipt. If accepted, the Final Report will be available in the ORPS database for reviewing throughout the DOE ORPS system. If rejected, the report will remain unavailable to other ORPS users.

6.0 **PROCEDURE** (cont.)

6.3.7 Revision of Rejected Reports

RESPONSIBILITY	ACTION
DIVISION VICE-PRESIDENT	A. Provides the required technical support to the ORT, who will prepare a revised report within 19 days from the date of rejection. The ORT will consult with the Facility Representative or Program Manager, as needed, to address the reason why the report was rejected and any additional information needed in the revision.
	B. Obtain approvals for the Occurrence Report from the appropriate line management; must include Division Vice-President.
ORT	A. ORT transmits Occurrence Report via cover letter from FERMCO President to DOE-FN Manager.
	B. ORT transmits the Occurrence Report by 21 days and distributes copies of the transmittal letter and Occurrence Report to: - Manager, program Assessment & Reporting - Manager, Emergency Preparedness - Appropriate Line Management for the particular event

6.0 **PROCEDURE** (cont.)

6.3.8 Tracking, Trending, and Status Reports

RESPONSIBILITY	ACTION
DIVISION VICE-PRESIDENT	A. Completes corrective actions as described in Final Occurrence Report.
	B. Submits a letter of completion to the Manager of Emergency Preparedness, including all documentation used to complete the action. This will then be verified and approved by the ORT for each corrective action.
ORT	A. ORT updates Correction Action status in the ORPS database.
PROGRAM ASSESSMENT & REPORTING	A. Performs a trend analysis of Occurrence Reports and issues a periodic trend report to FERMCO Management.
	B. Reviews the ORPS database for Occurrence Reports with potential lessons learned value to the FEMP. Distributes copies of selected reports to Division Vice-Presidents for appropriate action.
	C. Maintains a file of documents related to trending and status reporting for Occurrence Reports. Periodically transfers the file to the Archives/Historic Records Section for permanent retention.

6.0 **PROCEDURE** (cont.)

RESPONSIBILITY	ACTION
PROGRAM ASSESSMENT AND REPORTING	D. At least once each week, reviews the ORPS database for FEMP Final Occurrence Reports that have been approved by the DOE Program Manager. Obtains a printout of the report from the ORPS database and within 10 days after the Program Manager's approval, sends a copy to the Program Assessment Manager who serves as Public Reading Room Administrator. Also, mails a copy of each FEMP Final Occurrence Report to the DOE-HQ Reading Room, address as follows:

Freedom of Information Act (FOLA) Reading Room: IE-190, AD-62-FORS U.S. Department of Energy, Washington, D.C. 20585-0002.

PUBLIC READING ROOM ADMINISTRATOR	A. Maintains in the Public Reading Room a file of FEMP Final Occurrence Reports. Receives additional Final Reports from the Program Assessment & Reporting Manager and adds the reports to the Reading Room file. Reports shall be placed in the Reading Room within two weeks after approval by the DOE Program Manager.

7.0 APPLICABLE DOCUMENTS

7.1 DRIVERS

- DOE Order 5000.3B, "Occurrence Reporting and Processing of Operation Information"
- DOE Order 5500.1B, "Emergency Management System"
- DOE Order 5500.2B, "Emergency Categories, Classes, and Notification and Reporting Requirements"
- DOE Order 5500.3A, "Planning and Preparedness for Operational Emergencies"
- "FEMP RCRA Contingency Plan"

7.2 REFERENCES

- PL-3020, "FEMP Emergency Plan"
- "Occurrence Reporting and Processing System (ORPS) Manual"
- SSOP-1018, "Categorization and Classification" (Draft)
- SSOP-0088, "Fernald Environmental Management Project (FEMP) Offsite Emergency Warning System"
- SSOP-0067, "Spill Incident Reporting and Clean-up"
- SOP-20-C-606, "Hazardous Materials Spill Clean-up"

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INSTRUCTIONS FOR COMPLETING AN OCCURRENCE REPORT

1. GENERAL

The numbers on the specific report items correspond with the numbers used in the Occurrence Report format. Reports concerning certain sensitive facilities or activities may contain classified information and shall be reviewed for classification where appropriate. Items 1 through 18 of the occurrence Report constitute the Notification Report. A Notification Report is to be completed for all reportable occurrences and submitted to DOE per this Order before the close for the next business day from the time of categorization of the event/condition (not to exceed 80 hours). The DOE Facility Representative and Program Manager may provide comments in item 31 and 32, respectively, for all reports other than a Notification Report shall be retained and updated as better information becomes available.

The following instructions apply to the reporting of occurrences via hard copy or the electronic database, the Occurrence Reporting and Processing System (ORPS). For those occurrences containing classified information, the reports shall be prepared by the Facility Manager in accordance with this Order in writing, using a hard-copy of the Occurrence Report. The unclassified versions of these reports, after review and removal of all classified information by a classification official and review by a Reviewing Official to identify if UCNI is present, shall be entered onto the ORPS database by the Facility Manager. The lack of detail in such reports is recognized by DOE Management. In addition, where required by Paragraph 7e(1) of the Order, unclassified reports shall be reviewed by a Reviewing Official to identify if UCNI is present prior to being entered onto the ORPS database.

Please note that all fields with an asterisk (*) preceding it are required fields for all (notification, 10-Day Update, and Final) reports. Fields marked with a pound (#) are required under certain conditions, for example, depending on occurrence type, report type, or the answer to a previous question.

Occurrences reported per Attachment 1 under Groups 1 (Facility Condition) and 4 (Personnel Radiation Protection) are of special significance to nuclear safety. Therefore, Final Reports for occurrences at nuclear facilities within these groups should contain a thorough narrative discussion of all the items listed below and in particular, Item 26.

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2. OCCURRENCE REPORT ITEMS.

A. Facility/Personnel Information.

1. *Name of Facility. Enter the name of the facility where the occurrence took place.

2. *Facility Function. Enter the type of facility or the activity/function performed by the facility. Only one function can be selected. Possible entries are:

A. Plutonium Processing and Handling
B. SNM Storage
C. Explosive
D. Uranium Enrichment
E. Uranium Conversion/Processing and Handling
F. Irradiated Fissile Material Storage
G. Reprocessing
H. Nuclear Waste Operations
I. Tritium Activities
J. Fusion Activities
K. Environmental Restoration Operations
L. Category "A" Reactors
M. Category "B" Reactors
N. Solar Activities
O. Fossil and Petroleum Reserves
P. Accelerators
Q. Balance-of-Plant (e.g., offices, machine shops, site/outside utilities, safeguards/security, and transportation)

3. *Name of Laboratory, Site, or Organization. Enter the name of the laboratory, site, or organization. If ORPS is being used, the laboratory, site, or organization and, in addition, the name of the DOE contractor for the facility will be automatically provided by the computer.

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4. *Facility Manager/Designee. Enter the name, title, and telephone number of the Facility Manager of designee who has direct line responsibility for operation of the facility. If ORPS is being used, the Facility Manager's or designee's name will be automatically provided by the computer when he/she uploads the input to ORPS.

5. *Originator. Enter the name, title, and telephone number of the person who originated this report. This person is the person who gathered the information and is most knowledgeable about the event.

B. Specific Report Items.

1. *Occurrence Report Number. Enter an alphanumeric designation that identifies the DOE Field office, area office (if applicable), DOE contractor or laboratory involved, facility, the calendar year of the occurrence, and sequential number of the occurrence by facility. If ORPS is being used, the OR number will be automatically generated by the computer. Examples are SR-WSRC-MED-1991-0005 and AL-AO-MHSM-PANTEX-1991-0003.

2. *Report Type and Date. Check the block that identifies the type of Occurrence Report being submitted. Use a 10 Day/10 Day Update Report for recategorization of an occurrence. Check only one box unless you are submitting a 10-Day and a Final together, which is the only case where two boxes can be checked. Possible entries are:

Notification Report
10-Day Report
Latest 10-Day Update
Final Report

A. Items 1 through 18 of the Occurrence Report constitute the Notification Report, which remains a part of subsequent Occurrence Reports.

B. All dates and the time of the Notification Report submission are computer generated. The date that the report is entered into the ORPS database is the Occurrence Report's submission date.

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C. For hard-copy reports, show all dates. That is, for a Final Report, this block must show the Final Report submission date and the dates of the Notification, 10-Day and Update Report submissions. If subsequent 10-day Update Occurrence Reports were submitted, only the latest date needs to be shown.

D. To cancel an Occurrence Report, check the blocks under Report Type for 10-Day Report (if a 10-Day Report has not already been submitted) and Final Report, as well as the block for Cancelled under Occurrence Category (Item 3 below). Cancelled reports must go through the approval process and be completed the same as all other Occurrence Reports; however, Items 19 through 32 are not required fields for cancelled reports and, upon signature of the DOE Facility Representative and Program Manager, the Occurrence Report will be removed from the active database.

3. *Occurrence Category. Indicate which category has been determined for the occurrence. Only one category can be selected. Possible entries are:

Emergency Unusual Off-Normal Cancelled

4. *Division or Project. Identify in full the project or the contractor organizational unit responsible for the facility at which the occurrence took place.

5. *DOE Program Office. Identify the DOE Program Office to which this facility is operationally responsible. Only one Program Office can be selected. If the facility is operationally responsible to more than one Program Office, enter the Program Office that is most directly involved in the specific work activity during which the occurrence took place. Possible entries are:

CE - Conservation and Renewable Energy
ER - Energy Research
FE - Fossil Energy
EM - Environmental Restoration and Waste Management
DP - Defense Programs

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NE - Nuclear Energy
RW - Civilian Radioactive Waste Management
EH - Environmental, Safety, and Health
NP - New Production Reactor
AD - Administration and Management
EI - Energy Information Administration
RG - Economic Regulatory Administration
IN - Intelligence
SA - Security Affairs

6. *System, Building, or Equipment. Identify all systems, equipment, or structural items involved in the occurrence, as applicable.

7. *UCNI. When required by Paragraph 7E(1) of the Order an when appropriate UCNI guidance is available, a Reviewing Official shall make a Final Determination that the report does contain (enter "Y" for Yes) or does not contain (enter "N" for No) UCNI. Where appropriate UCNI guidance is not available, a Reviewing Official shall make a Preliminary Review Determination that the report may contain UCNI (still enter "Y" for Yes) or does not contain (enter "N" for No) UCNI.

8. #Plant Area. Indicate the name of the site-specific plant area (e.g., F-Area, M-Area) where the occurrence took place.

9. *Date and Time Occurrence Was Discovered. Enter the date and time when the facility staff discovered the event or condition being reported.

10. *Date and Time Occurrence Was Categorized. Enter the date and time when the Facility Manager determined that the event or condition constituted a Reportable Occurrence and determined its category (Emergency, Unusual, or Off-Normal occurrence).

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11. #DOE Notification. Enter the name and organization of the DOE Program manager and the date and time when the DOE Program Manager was notified (via the simultaneous notification to the DOE Field Representative and DOE Program Manager).

12. #Other Notifications. Enter the name(s), organization(s), date(s), and time(s) of notification of State and local officials or other agencies.

13. *Subject or Title of Occurrence. Enter a brief title or description (20 words or less) that best details the nature, cause, and result of the occurrence.

14. *Nature of Occurrence. Enter the nature of the occurrence as given in Attachment I of DOE Order 5000.3B. Up to three selections can be made. Possible entries are:

Facility Condition

A. Nuclear Criticality Safety
B. Fires/Explosions
C. Safety Status Degradation
D. Loss of Control of Radioactive Material/Spread Contamination
E. Vital System/Component Degradation
F. Violation/Inadequate Procedures
G. Unsatisfactory Surveillance/Inspections
H. Costly Vital Structure/System/Component/Facility Deficiency
I. Operational Occurrence
J. Inadequate Experiment/Test Performance

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Environmental

A. Radionuclide Releases
B. Hazardous Substances/Regulated Pollutants/Oil Releases
C. Hazardous Material Contamination
D. Ecological Resources
E. Agreement/Compliance Activities

Personnel Safety

A. Occupational Illness/Injuries
B. Vehicular Incidents
C. Miscellaneous

Personnel Radiation Protection

A. External Radiation Exposure
B. Personnel Contamination
C. Internal Exposure

Safeguards/Security

A. Criminal Acts
B. Loss of Control of Classified Matter
C. Substance Abuse
D. Foreign Intelligence Activities
E. Computer Equipment/Systems
F. Unplanned/Unscheduled Outage of Site Security System
G. Demonstrations/Protests
H. Firearms
I. Other Security Concerns
J. Material Control and Accountability

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Transportation

A. Offsite Transportation (DOT jurisdiction) Occurrences.
B. Onsite Transportation (DOE jurisdiction) Occurrences.

Value Basis Reporting

Facility Status

A. Facility/Process Securing/Curtailing Operations
B. Facility/Process Shutdown Extension
C. New Facility/Process Startup Delay

Cross-Category Items

A. Collectively Significant Related Occurrences
B. Near-Miss Occurrences
C. Potential Concerns/Issues

15. *Description of Occurrence. Enter a clear, concise, objective description of what happened and what was observed. To the maximum extent possible, a sequence of events shall be provided. The type of information to be provided in the description includes all of, but is not limited to, the following:

The method of discovery;
Any component failures and the failure modes;
Any personnel errors involved, including the type and result of the error;
Any procedure problem encountered;

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16. *Operating Conditions of Facility at Time of Occurrence. Describe the operational status of the facility or equipment at the time of the occurrence including, for example, pertinent temperatures, pressures, or other parameters necessary for evaluation of the occurrence and its consequences. If said information is not applicable, enter "Does not apply."

17. *Activity Category. Enter one of the following activities that best describes the ongoing activity at the time of the occurrence:

Construction
Maintenance
Normal Operations
Startup
Shutdown
Facility/System/Equipment Testing
Training
Transportation
Emergency Response
Inspection/Monitoring
Facility Decontamination/Decommissioning

18. *Immediate Actions Taken and Results. Describe the immediate or remedial actions taken to return the facility, system, or equipment item to service; to correct or alleviate the anomalous condition; and to record the results of those actions.

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19-21. #Cause. This must be thoroughly addressed as the information becomes available. Enter the cause(s) that best describes the apparent direct and contributing cause. Only one direct cause may be entered, but up to three contributing causes may be entered.. In the final evaluation of a Reportable Occurrence, there must be complete consideration of the cause, including contributory factors, with analysis to show what cause was root to the occurrence and what causes were only contributory. The root cause (only one allowed) is that fundamental cause that, if corrected, will prevent recurrence of this or similar events. The possible entries are the same for all three cause fields. The direct, contributing, and root causes of reportable occurrences are classified into seven broad categories and various subcategories.

The seven categories of causes and their associated subcategories are as follows:

EQUIPMENT/MATERIAL PROBLEM. An event resulting from the failure, malfunction, or deterioration of equipment or parts, including instruments or material.

A. Defective or Failed Part. A part/instrument that lacks something essential to perform its intended function.

B. Defective or Failed Material. A material defect or failure.

C. Defective Weld, Braze, or Soldered Joint. A specific weld/joint defect or failure.

D. Error by Manufacturer in Shipping or Marking. An error by the manufacturer or supplier in the shipping or marking of equipment.

E. Electrical or Instrument Noise. An unwanted signal or disturbance that interferes with the operation of equipment.

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F. Contamination. Contamination due to radiation damage or foreign material such as dirt, debris, or impurities.

PROCEDURE PROBLEM. An event that can be traced to the lack of a procedure, an error in a procedure, or a procedural deficiency or inadequacy.

A. Defective or Inadequate Procedure. A procedure that either contains an error or lacks something essential to the successful performance of the activity.

B. Lack or Procedure. No written procedure was in place to perform the activity.

PERSONNEL ERROR. An event due to an error, mistake, or oversight.

A. Inadequate Work Environment. A deficiency or fault in the physical conditions of the work area.

B. Inattention to Detail. Inadequate attention to the specific details of the task.

C. Violation of Requirement or Procedure. The inappropriate use or violation of written instruction, procedures, or other documentation.

D. Verbal Communication Problem. Inadequate spoken presentation or exchange of information.

E. Other Human Error. Human error other than those described above.

DESIGN PROBLEM. An event that can be traced to a defect in design or other factors related to configuration, engineering, layout, tolerances, calculations, etc.

A. Inadequate Man-Machine Interface. Inadequate design of equipment used to communicate information from the facility to a person (displays, labels, etc.).

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B. Inadequate or Defective Design. A design in which something essential was lacking (defective) or when a detail was included but was not adequate for the requirement (inadequate).

C. Error in Equipment or Material Selection. A mistake in the equipment or material selection only, not to include a procurement error (see 3E) or a specification error (see 4D).

D. Drawing, Specification, or Data Errors. An error in the calculation, information, or specification of a design.

TRAINING DEFICIENCY. An event that can be traced to a lack of training or insufficient training to enable a person to perform a desired task adequately.

A. No Training Provided. A lack of appropriate training.

B. Insufficient Practice or Hands-On Experience. An inadequate amount of preparation before performing the activity.

C. Inadequate Content. The knowledge and skills required to perform the task or job were not identified.

D. Insufficient Refresher Training. The frequency of refresher training was not sufficient to maintain the required knowledge and skills.

E. Inadequate Presentation or Materials. The training presentation or materials were insufficient to provide adequate instruction.

MANAGEMENT PROBLEM. An event that can be directly traced to managerial actions or methods.

A. Inadequate Administrative Control. A deficiency in the controls in place to administer and direct activities.

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B. Work Organization/Planning Deficiency. A deficiency in the planning, scoping, assignment, or scheduling of work.

C. Inadequate Supervision. Inadequate techniques used to direct workers in the accomplishment of tasks.

D. Improper Resource Allocation. Improper personnel or material allocation resulting in the inability to successfully perform assigned tasks.

E. Policy Not Adequately Defined, Disseminated, or Enforced. Inadequate description, distribution, or enforcement of policies and expectations.

F. Other Management Problem. A management problem other than those defined above.

EXTERNAL PHENOMENA. An event caused by factors that are not under the control of the reporting organization or the suppliers of the failed equipment or service.

A. Weather or Ambient Condition. Unusual weather or ambient conditions, including hurricanes, tornadoes, flooding, earthquake, and lightning.

B. Power Failure or Transient. Special cases of power loss that are attributable to outside supplied power.

C. External Fire or Explosion. An external fire, explosion, or implosion.

D. Theft, Tampering, Sabotage, or Vandalism. Theft, tampering, sabotage, or vandalism that could not have been prevented by the reporting organization.

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Specific information pertaining to each cause field is as follows:

19. #Direct Cause. The cause that directly resulted in the occurrence. For example, in the case of a leak, the direct cause could have been the failure in the component or equipment that leaked. In the case of a system misalignment, the direct cause could have been operator error in the alignment. Enter only one direct cause for the occurrence. One subcategory for the direct cause selected must also be checked. The direct cause is not required for 10-Day Reports or 10-Day Update Reports; however, it is required for Final Reports.

20. Contributing Causes. The cause that contributed to the occurrence but, by itself, would not have caused the occurrence. For example, in the case of a leak, the contributing cause could be lack of adequate operator training in leak detection and response resulting in a more severe event than would have otherwise occurred. In the case of a system misalignment, the contributing cause could be excessive distractions to the operators during shift, resulting in less than adequate attention to important details during system alignment. Enter up to three contributing causes for the occurrence. One subcategory for each of the contributing causes must also be checked. This is not a required field.

21. #Root Cause. The cause that, if corrected, would prevent recurrence of this and similar occurrences. The root cause does not apply to this occurrence only, but has generic implications to a broad group of possible occurrences, and it is the most fundamental aspect of the cause that can logically be identified and corrected. There may be a series of causes that can be identified, one leading to another. This series shall be pursued until the more fundamental, correctable cause has been identified.

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For example, in the case of a leak, the root cause could be a failure of management to ensure that maintenance is effectively managed and controlled. This cause could have led to the use of improper seal material or missed preventive maintenance on a component, which ultimately led to the failure. In the case of a system misalignment, the root cause could be failure in the training program, leading to a situation in which operators are not fully familiar with control room procedures and are willing to accept excessive distractions. Enter only one root cause for the occurrence. One subcategory for the root cause selected must also be checked. The root cause is not required for 10-Day Reports or 10-Day Update Reports; however, it is required for Final Reports.

22. #Description of Cause. Discuss the cause of the occurrence to include root, direct, and contributing causes (do not repeat a description of the occurrence but discuss the results of the causal analysis). The Root Cause analysis methodology used should be identified. When appropriate, separate documentation for the root cause analysis may be attached. If ORPS is being used, the separate analysis may be attached. If ORPS is being used, the separate documentation should be referenced as attachments to the Occurrence Report, with specifics as to where or from whom they can be obtained. This field is not required for 10-Day Reports or 10-Day Update Reports; however, it is required for Final Reports.

23. #Evaluation by Facility Manager. With the information available, the Facility Manager shall provide his or her evaluation of the occurrence and its effect or possible effect on the plant, system, program, etc., in the 10-Day Occurrence Report.

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24. #Is Further Evaluation Required? Check "Yes" or "No." This is a required field on all reports except the Notification Report. It is not expected that this response would be "Yes" in a Final Report since further evaluation could change the root cause or identify additional corrective actions.

    If further evaluation is required, the "Yes" or "No" must be checked as to whether that evaluation is required before further operation.

    If further evaluation is required before further operation (i.e., both "Yes" blocks checked), then who will take the action (a person's name, title, or a specific organizational unit) and a date when the action shall be taken must be provided.

25. #Corrective Actions. List all actions identified to correct the problem which, when completed, will prevent recurrence. In addition, provide actual or target completion dates for all of the corrective actions listed. This field is not required for 10-Day Reports or 10-Day Update Reports; however, it is required for Final Reports.

26. #Impact on Environment, Safety, and Health. Provide an assessment of the environment, safety, and health consequences and implications of the occurrence. Describe the impact of the occurrence on the environment, safety, and health of workers, the public, and onsite/offsite environs. This shall include amounts and types of hazardous or radioactive materials released, levels and types of contamination, exposure levels of workers and the public, and known or projected environmental, safety, and health impacts. This assessment may be based on the conditions existing at the time of the occurrence. The evaluation must be carried out to the extent necessary to fully assess the safety consequences and safety margins associated with the occurrence.

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For occurrence related to nuclear safety, an assessment of the occurrence under alternative conditions must also be included if the occurrence could have been more severe (e.g., the facility would have been in a condition not analyzed in the Safety Analysis Report) under reasonable and credible alternative conditions such as power level or operating mode. For example, if the occurrence happened while the facility was at 15 percent power and the same occurrence could have taken place while the facility was at 100 percent power, and, as a result, the environment, safety, or health consequences would have been considerably more serious, the assessment must describe those conditions and consequences. This field is not required for 10-Day Reports or 10-Day Update Reports; however, it is required for Final Reports.

27. #Programmatic Impact. Describe the impact of the occurrence on the program or project affected. This could be a loss of data, loss of plant availability for a specified period, additional costs, schedule delays, or other measurable consequences of the occurrence. This field is not required for 10-Day Reports or 10-Day Update Reports; however, it is required for Final Reports.

28. #Impact Upon Codes and Standards. If the occurrence affects the requirements of national codes and standards, program standards, or DOE Orders, a statement regarding the adequacy of the codes or standards shall be provided, along with any recommended changes. This field is not required for 10-Day Update Reports; however, it is required for Final Reports.

29. #Final Evaluation and Lessons Learned. This item shall be completed only in the final Occurrence Report. Include any lessons that others might learn from the occurrence that could be of importance to other facility operators or that should be addressed in personnel training or facility procedures. Consequences of the occurrence and steps taken to alleviate those consequences should not be described here unless they contribute to an understanding of the occurrence. This field is not required for 10-Day Reports or 10-Day Update Reports; however, it is required for Final Reports.

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30. #Similar Occurrence Report Numbers. Indicate by their report numbers any similar occurrence(s) of which you are aware for this or other facilities. The purpose of this item is to identify, if recognized, occurrences that might suggest a generic problem. This field is not required for 10-Day Reports or 10-Day Update Reports; however, it is a required field for Final Reports.

31. DOE Facility Representative Input. The DOE Facility Representative or designee should provide his or her evaluation of the occurrence. Including an evaluation of the initial and proposed corrective actions and all follow-up by the contractor, and should describe any other actions that DOE has taken since the occurrence. The Facility Representative may supplement such information with subsequent additional entries, as appropriate. After completing the input, enter the Facility Representative's name and the date. If ORPS is being used, the Facility Representative's name and the date will be automatically entered by the computer. This is not a required field on any report.

32. Program Manager Input. The DOE Program Manager or designee should provide his or her evaluation of the occurrence, including an evaluation of the initial and proposed corrective actions and all follow-up, and should describe any other actions that DOE has taken since the occurrence. The DOE Program Manager may supplement such information with subsequent additional entries, as appropriate. If a Final Occurrence Report is being rejected the DOE Program Manager may use this space to indicate why. This is not a required field on any report.

33. #Signatures. The Facility Manager's or designee's name, after transmitting the Final Report to the mainframe computer, will automatically be provided with an indication of acceptance. The Final Report will then be available for the Facility Representative and Program Manager, or their designees, to review, it will automatically be available to all DOE Elements for their use in analysis and trending. This field is required for Final Reports only.

UNCONTROLLED

5692

Fernald Environmental FERMCO Restoration Management Corporation	ENVIRONMENTAL SAFETY AND HEALTH DIVISION RADIOLOGICAL CONTROL	PROC NO: RC-DPT-015 EFFECTIVE DATE: 05/05/94 REV NO: 0
TITLE: ALARA Review and Evaluation		PAGE 1 OF 20 AUTHOR: Chris Schilling
APPROVAL: Michael L. Tester, Manager, Radiological Control		DATE: 5/3/94

SUPERSEDES SP-P-35-067

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SUMMARY LOG

UNCONTROLLED

Revision Number	Description of Revision	Pages Affected
0	Initial Implementation	All

1.0 PURPOSE

It is the policy of FERMCO to maintain the dose from ionizing radiation and the spread of radioactive materials As Low As Reasonably Achievable (ALARA).

2.0 SCOPE

This procedure outlines the steps to follow when performing preliminary ALARA assessments, ALARA reviews, monitoring and evaluating dose and post ALARA reviews of non-routine or complex work activities.

3.0 REFERENCES

3.1 DOE Order 5480.11, Radiation Protection for Occupational Workers.

3.2 DOE/EH-0256T, DOE Radiological Control Manual.

4.0 DEFINITIONS

4.1 DAC - Derived Air Concentration (values in DOE 5480.11).

4.2 DAC-hour - Product of the concentration of radioactive material in air (expressed as a fraction or multiple of the derived air concentration for each radionuclide) and the time of exposure to that radionuclide, in hours.

4.2.1 $$\text{DAC-hour} = \frac{\text{Airborne concentration } (\mu\text{Ci/cc})}{\text{DAC of radionuclide (DOE 5480.11)}} \times \text{hours exposed}$$

4.3 Technical Work Document (TWD) - A term used to generally identify approved documents that direct work, such as procedures, work packages, or job or research plans.

4.4 TLD - Thermoluminescent Dosimeter.

4.5 Trigger Level - Radiological conditions that may require additional engineering or administrative controls and are defined as follows.

NOTE: The values assigned to the trigger levels are not intended to signify an acceptable level but, to be used as an aid in assessing whether the engineering or administrative controls are adequate.

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4.0 **DEFINITIONS** (continued)

4.5.1 Any individual involved in the activity with the potential to exceed a whole body dose exceeding 500 mrem for the duration of the activity or in one year.

4.5.2 Any activity in which collective dose has the potential to exceed 2 person-rem for the duration of the activity or in one year.

4.5.3 Any individual involved in the activity with the potential to accumulate more than 100 DAC-hours of the specific radionuclide in one quarter or less.

4.5.4 Work area removable contamination levels greater than 100 times the values given in Table 2-2 (DOE/EH-0256T).

4.5.5 Any entry into an area where general area effective dose rate exceed 1 rem/hour.

4.5.6 Any activity that has a potential for an environmental release to the surrounding area.

5.0 **RESPONSIBILITIES**

5.1 Manager, Radiological Control

Ensure that affected personnel are informed or trained to the extent necessary, before initiation of that work.

5.2 Radiological Compliance Section

Perform ALARA reviews to prescribe additional controls necessary to eliminate or reduce the sources of exposure, trend dose data, conduct post ALARA reviews, correct and resolve dose problems, and maintain completed ALARA records for non-routine or complex work activity.

5.3 Radiological Engineering Section

Provide technical support to the Radiological Compliance Section for dose reduction techniques (e.g., shielding, ventilation, etc.).

5.0 RESPONSIBILITIES (continued)

5.4 Radiological Control Technician Supervisor (RCTS) or Designee

Determine if an ALARA review is necessary for activities performed in their area.

5.5 Radiological Control Technician (RCT)

Collect all radiological data for the preliminary ALARA assessment. This will include contamination and radiation surveys and air sample data (as applicable) for the activity.

6.0 PROCEDURE

6.1 PRELIMINARY ALARA ASSESSMENT

RCT

6.1.1 Perform required radiation and contamination surveys to adequately characterize the radiological conditions of an activity.

6.1.2 Obtain air sampling data (as applicable) and evaluate the potential for the generation of airborne radioactivity in the work area.

NOTE: **IF** historic or the most recent radiological surveys of the area are adequate to characterize the radiological hazards, **THEN** additional surveys may not be required.

RCTS or DESIGNEE

6.1.3 Obtain all pertinent information and any TWDs that concerns the activity from line supervision.

6.1.4 Assign a RCT to perform the necessary radiation and contamination surveys and air sampling.

NOTE: Allot sufficient time in advance of the activity to allow for a proper assessment of the radiological conditions.

6.1.5 Evaluate the radiation and contamination surveys and air sample data to estimate the following.

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6.0 PROCEDURE (continued)

6.1 PRELIMINARY ALARA ASSESSMENT (continued)

NOTE: Attachment A, TRIGGER LEVEL WORK SHEET, is provided to aid in evaluating the radiological hazards.

A. Highest whole body dose (mrem) that an individual general employee might receive during the activity.

B. Estimation of the collective whole body dose (person-rem) expected during the activity.

C. Total DAC-hours a general employee might accumulate during the activity.

1. Consider the actual airborne radioactivity levels and the potential airborne radioactivity caused by disturbing loose surface contamination during the activity.

2. Determine the specific radionuclide of concern.

3. Estimate the maximum amount of time (hours) a general employee will spend working under these conditions.

4. After estimating the number of DAC-hours, apply the corresponding Protection Factor (P.F.) of the respiratory protection to obtain the total DAC-hours.

D. Determine the highest contamination levels that will be encountered during the activity.

E. Determine the highest general area dose rate (mrem/hr).

F. Evaluate the potential for an environmental release to the surrounding area.

1. Ensure that the methods to control, reduce, or eliminate environmental releases to the surrounding area are addressed in the TWDs governing the activity; or

2. Consult the Environmental Protection Department if not addressed in the TWDs governing the activity.

6.0 PROCEDURE (continued)

6.1 PRELIMINARY ALARA ASSESSMENT (continued)

6.1.7 Complete FS-F-3749, PRELIMINARY ALARA ASSESSMENT, Attachment B. Provide the required information in blocks (1) through (10) and check **YES** or **NO** for blocks (11) through (16) in **PART I**.

A. **IF** blocks (11) through (16) are all checked **NO**, **THEN** do the following.

1. Sign and date in the block provided.

2. Forward Attachment B with copies of the contamination and radiation surveys and air sample results to the ALARA Coordinator (Radiological Compliance Section) for review, filing and retention.

OR

B. **IF** any block is checked **YES** in **PART I**, **THEN** determine if the administrative or engineering controls are adequately identified in either ES&H procedures or the TWD governing the activity to reduce doses below the trigger levels, prevent personnel contaminations (internal and external), or environmental release and do the following.

1. **IF** the necessary administrative or engineering controls are adequately identified, **THEN** check **YES** in **PART II**, block (17), and do the following.

a. Briefly describe the controls in block (18).

b. Sign and date in the block provided.

c. Forward with copies of the contamination and radiation surveys and air sample results to the ALARA Coordinator (Radiological Compliance Section) for review, filing and retention.

OR

2. **IF** the necessary administrative or engineering controls are NOT adequately identified, **THEN** check **NO** in **PART II**, block (17) and do the following.

a. Annotate in **Part II**, block (18), "*ALARA REVIEW REQUIRED*."

6.0 PROCEDURE (continued)

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6.1 PRELIMINARY ALARA ASSESSMENT (continued)

b. Sign and date in block provided.

c. Forward with copies of the contamination and radiation surveys, air sample results and other pertinent information concerning the activity, to the ALARA Coordinator (Radiological Compliance Section) for an ALARA review.

3. **IF** collective and/or individual exposures exceed their respective trigger level, **THEN** provide the names and badge numbers of the individuals involved in the activity to allow the evaluation of year-to-date doses.

ALARA COORDINATOR

6.1.8 Provide guidance, as needed, to RCTS in completing Attachment B.

6.1.9 Assign an assessment number to aid in the tracking and filing of ALARA records associated with an activity.

6.1.10 Review Attachment B for completeness and accuracy, sign and date in the block provided.

6.1.11 **IF** an ALARA review is required proceed to 6.2, **OTHERWISE** go to 6.5.

6.2 ALARA REVIEW

ALARA COORDINATOR or REVIEWER

6.2.1 **IF** the requirements exist for an ALARA review, **THEN** complete FS-F-3750, ALARA REVIEW, (Attachment C) as follows.

A. Provide the necessary information in blocks (1) through (4).

B. Check **YES** or **N/A** in blocks (5) through (19) for "*ITEMS TO CONSIDER FOR THE ALARA REVIEW.*"

C. List the necessary requirements in the block (20) for the items checked **YES**.

6.0 PROCEDURE (continued)

6.2 ALARA REVIEW (continued)

D. Check block (21) **YES** or **NO** with respect to an ALARA Committee review.

NOTE: A review by the ALARA Committee is required if the dose received by an individual general employee or the collective dose **CANNOT** be reduced below its trigger level after the application of additional controls.

E. Check block (22) **YES** or **NO** if any cost benefit analyses were performed in support of additional controls, attach to Attachment C.

MANAGER, RADIOLOGICAL COMPLIANCE or DESIGNEE

6.2.2 Review, sign and date Attachment C.

RADIOLOGICAL ENGINEER

6.2.3 Support in the development of engineering controls required to maintain exposures ALARA (e.g., ventilation, shielding, etc.).

MANAGER, RADIOLOGICAL ENGINEERING or DESIGNEE (as required)

6.2.4 **IF** special engineering controls were developed for the activity, **THEN** review, sign, and date Attachment C.

ALARA COMMITTEE (as required)

6.2.5 Review, sign and date Attachment C.

6.3 MONITORING REQUIREMENTS

ALARA COORDINATOR

6.3.1 **IF** a dose budget is established for the activity, **THEN** complete FS-F-3747, TLD DOSE TRACKING, (Attachment D) as follows.

A. Provide the required information in blocks (1) through (3).

B. Enter general employee's name and badge number in columns (4) and (5).

6.0 PROCEDURE (continued)

6.3 MONITORING REQUIREMENTS (continued)

C. Enter general employee's TLD dose (job specific TLDs or assigned TLDs) in column (6) for the period covered.

D. Enter the general employee's total TLD dose (job specific TLDs or assigned TLDs) accumulated during the activity, including the current periods TLD dose in column (7).

E. Enter appropriate comments in column (8).

F. Enter the totals of columns (6) and (7), at the end of the period covered, at the bottom of the columns.

6.3.2 Evaluate Attachment D.

A. **IF** the TLD results (Attachment D) exceeds 20% of the estimated collective dose or other monitoring results indicate or exhibit a unacceptable trend during the activity, **THEN** do the following.

1. Determine the cause of the unacceptable trend.

2. Recommend the course of action that will correct the problem.

NOTE: Work stoppage is not required.

OR

B. **IF** the real or potential hazards being monitored or tracked approach established administrative limits, **THEN** the activity shall be stopped and placed in a safe condition to prevent further exposures or releases and the following is done.

1. Evaluate the activity to determine the root cause of the problem.

2. Determine and document the corrective actions.

3. Forward to Manager, Radiological Control for review and approval of corrective actions.

NOTE: Review and approval is required prior to restart of the activity.

6.0 **PROCEDURE** (continued)

6.3 MONITORING REQUIREMENTS (continued)

MANAGER, RADIOLOGICAL CONTROL DEPARTMENT

6.3.3 Review corrective actions and approve the restart of the activity.

6.4 POST ALARA REVIEW

ALARA COORDINATOR

6.4.1 Upon completion of the activity, use FS-F-3751, POST ALARA REVIEW, (Attachment E) **PART I** to identify the following:

NOTE: A post ALARA review is required for an activity that required special engineering controls, reviewed by the ALARA Committee, or work stoppage of 6.3.2.B exercised.

A. Initiatives employed to reduce exposures and contamination levels.

B. Incidents of internal and external contamination of personnel and corrective actions.

C. Successful efforts involving new technologies.

D. Lessons learned and ways to improve similar activities in the future.

6.4.2 Completing **PART II** of Attachment E.

NOTE: Only required if a dose budget (estimated collective dose) established for the activity.

A. Compare the actual collective dose to the estimate collective dose.

B. **IF** the absolute value of the percent variance is greater than 25, **THEN** determine the cause and attach to Attachment E.

F. Sign and date in block provided.

MANAGER, RADIOLOGICAL COMPLIANCE

6.4.2. Review, sign and date Attachment E.

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6.5 RETENTION OF ALARA RECORDS

ALARA COORDINATOR

6.5.1 Maintain a file on all ALARA assessments and completed reviews to aid in future assessments and demonstrate compliance with applicable DOE Orders.

UNCONTROLLED

7.0 FORMS

7.1 FS-F-3749, Preliminary ALARA Assessment.

7.2 FS-F-3750, ALARA Review.

7.3 FS-F-3747, TLD Dose Tracking.

7.4 FS-F-3751, Post ALARA Review.

8.0 ATTACHMENTS

8.1 Attachment A - "Trigger Level Work sheet."

8.2 Attachment B - "Preliminary ALARA Assessment."

8.3 Attachment C - "ALARA Review."

8.4 Attachment D - "TLD Dose Tracking."

8.5 Attachment E - "Post ALARA Review."

9.0 CHARTS

9.1 CHART 1 - "Preliminary ALARA Assessment Flow Chart."

9.2 CHART 2 - "ALARA Review Flow Chart."

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ATTACHMENT A
TRIGGER LEVEL WORK SHEET

ACTIVITY:

I. INDIVIDUAL DOSE

TASK 1				
	LOCATION	DOSE RATE	HOURS WORKING	DOSE
GENERAL AREA				
LOCATION 1				
LOCATION 2				
			TOTAL	

TASK 2				
	LOCATION	DOSE RATE	HOURS WORKING	DOSE
GENERAL AREA				
LOCATION 1				
LOCATION 2				
			TOTAL	

II. COLLECTIVE DOSE

	INDIVIDUAL DOSE (mr)	NUMBER OF WORKERS	PERSON-REM
TASK 1			
TASK 2			
	TOTALS		

III. AIRBORNE RADIOACTIVITY

NUCLIDE	CONCENTRATION (μCi/cc)	PERCENT DAC	HOURS[NOTE 1]	PROTECTION FACTOR (P.F.)	DAC-HOURS

NOTES: 1) Based on longest exposure time of an individual worker.

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ATTACHMENT B
PRELIMINARY ALARA ASSESSMENT

FEMP
RADIOLOGICAL CONTROL DEPARTMENT
PRELIMINARY ALARA ASSESSMENT

To be assigned by Radiological Compliance Section
ASSESSMENT NUMBER:

PART I

(1) RCTS OR DESIGNEE:	(2) EXTENSION:	(3) DATE:

(4) RWP NUMBER:	(5) TECHNICAL WORK DOCUMENT (TWD)	(6) START DATE:	(7) NUMBER OF PEOPLE INVOLVED IN ACTIVITY:	(8) ESTIMATED PERSON-HOURS:
	☐YES ☐NO			

(9) LOCATION:

(10) ACTIVITY DESCRIPTION:

TRIGGER LEVELS		YES	NO
(11)	Any individual with the potential to exceed 500 mrem for the activity or in one year?		
(12)	Collective exposure with the potential to exceed 2 person-rem for the activity or in one year?		
(13)	Any individual with the potential to exceed 100 DAC-hours in one quarter?		
(14)	Removable radioactive contamination levels exceeding 100 times table 2-2 values, DOE/EH-0256T?		
(15)	General area exposure rate exceeding 1 rem/hr in the work area?		
(16)	Potential release to the environment?		

PART II		YES	NO
(17)	If any trigger level is checked (✓) YES in part I, Can the dose and/or levels be reduced below the trigger levels utilizing Administrative/Engineering Controls specified in ES&H Safety Procedure or TWD?		

If "YES", Briefly describe the controls in the "COMMENTS" section, forward to the ALARA coordinator (Radiological Compliance Section) for review and filing.
NOTE: Radiological Compliance Section concurrence is not required to start the activity if the controls utilized can reduce the exposures or levels below the trigger levels.
If "NO", annotate "ALARA REVIEW REQUIRED" in "COMMENTS" section and forward to the ALARA coordinator (Radiological Compliance Section) for an ALARA Review.
NOTE: The ALARA review must be completed prior to the start of the Activity.

(18) COMMENTS:

REVIEWS

RCTS OR DESIGNEE	DATE	MANAGER, RADIOLOGICAL COMPLIANCE OR DESIGNEE	DATE

PS-F-3749 (REV. 02/14/94)

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ATTACHMENT C
ALARA REVIEW

FEMP
RADIOLOGICAL CONTROL DEPARTMENT
ALARA REVIEW

(1) ACTIVITY:		
(2) REVIEWED BY:	(3) ASSESSMENT NUMBER:	(4) DATE:

YES	N/A	ITEMS TO CONSIDER FOR THE ALARA REVIEW
		(5) Inclusion of Radiological Hold Points in the Technical Work Document (TWD).
		(6) Elimination or reduction of radioactivity through line flushing and decontamination.
		(7) Use of work processes and special tooling to reduce time in the work area.
		(8) Use of engineering controls to minimize the spread of contamination and generation of airborne radioactivity.
		(9) Specification of special radiological training or monitoring requirements.
		(10) Use of mock-ups for high exposure or complex tasks.
		(11) Engineering, design and use of temporary shielding to reduce radiation exposure.
		(12) Walkdown or dry-run of the activity using applicable procedures.
		(13) Staging and preparation of necessary materials and special tools.
		(14) Maximization of prefabrication and shop work.
		(15) Review of abnormal and emergency procedures and plans.
		(16) Identification of points where signatures and second party or independent verifications are required.
		(17) Establishment of success or completion criteria, with contingency plans to anticipate difficulties.
		(18) Development of a Pre-Job Estimate of collective exposure to be incurred for the job.
		(19) Provisions for waste minimization and disposal.

(20) FOR ITEMS CHECKED "YES," EXPLAIN HOW THEY WILL BE INCORPORATED IN THE ACTIVITY *(ATTACH SUPPORTING DOCUMENTATION)*:

(21) ALARA COMMITTE REVIEW REQUIRED?
☐ YES ☐ NO

NOTE: Only required if the Administrative/Engineering controls utilized CANNOT reduce either the individual or collective dose below its trigger level.

(22) WERE COST BENEFIT ANALYSES PERFORMED?
☐ YES ☐ NO

If "YES," attach to this form.

REVIEWS		
	REVIEWER:	DATE:
NOTE: Only required if special Engineering control(s) utilized.	MANAGER, RADIOLOGICAL ENGINEERING OR DESIGNEE:	DATE:
	MANAGER, RADIOLOGICAL COMPLIANCE OR DESIGNEE:	DATE:
NOTE: Only required if the Administrative/Engineering controls utilized CANNOT reduce either the individual or collective dose below its trigger level.	ALARA COMMITTEE:	DATE:

PS-F-3750 (REV. 02/14/94)

ATTACHMENT D
TLD DOSE TRACKING

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FEMP
RADIOLOGICAL CONTROL DEPARTMENT
TLD DOSE TRACKING

(1) PERIOD:	(2) ASSESSMENT NUMBER:
(3) ACTIVITY:	

(4) EMPLOYEE	(5) BADGE NUMBER	(6) TLD DOSE (mrem)	(7) TLD DOSE TOTAL (mrem)	(8) COMMENTS
TOTALS				

FS-F-3747 REV. 02/14/94

ATTACHMENT E
POST ALARA REVIEW

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FEMP
RADIOLOGICAL CONTROL DEPARTMENT
POST ALARA REVIEW

PART I

ACTIVITY:			
REVIEWED BY:		ASSESSMENT NUMBER:	DATE:
ACTUAL START DATE:	ACTUAL COMPLETION DATE:	ACTUAL PERSON-HOURS:	ACTUAL NUMBER OF PERSONS INVOLVED:

INITIATIVE:

INCIDENTS:

SUCCESSES:

LESSONS LEARNED:

PART II

EXPOSURE EVALUATION *(ONLY REQUIRED IF TLD EXPOSURE TRACKED DURING THE ACTIVITY.)*	A	ESTIMATED COLLECTIVE DOSE (PERSON-REM)	
	B	ACTUAL COLLECTIVE DOSE (PERSON-REM)	
	C	PERCENT VARIANCE = [(A-B)/A]*100	
	D	HIGHEST INDIVIDUAL DOSE (mRem)	
	E	AVERAGE INDIVIDUAL DOSE (mRem)	

IS THE ACTUAL COLLECTIVE DOSE (B) GREATER THAN THE ESTIMATED COLLECTIVE DOSE (A)?
☐ YES ☐ NO *IF "YES," ATTACH EXPLANATION.*

IS THE PERCENT VARIANCE'S (C) ABSOLUTE VALUE GREATER THAN 25?
☐ YES ☐ NO *IF "YES," ATTACH EXPLANATION.*

REVIEWS

REVIEWER'S SIGNATURE:	DATE:	MANAGER, RADIOLOGICAL COMPLIANCE OR DESIGNEE:	DATE:

FS-F-3781 (REV. 02/14/94)

CHART 1

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PRELIMINARY ALARA ASSESSMENT FLOW CHART

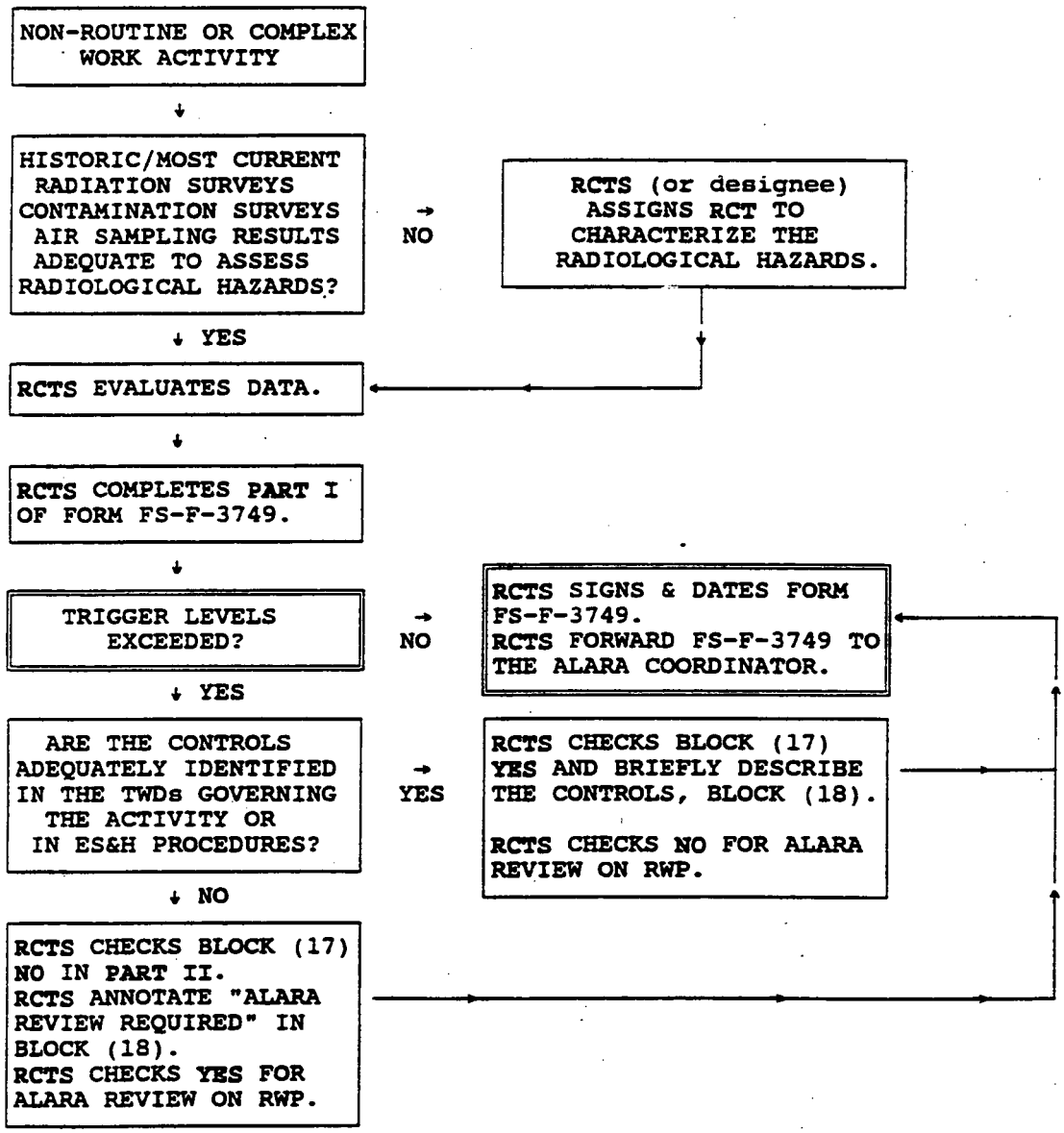

CHART 2

ALARA REVIEW FLOW CHART

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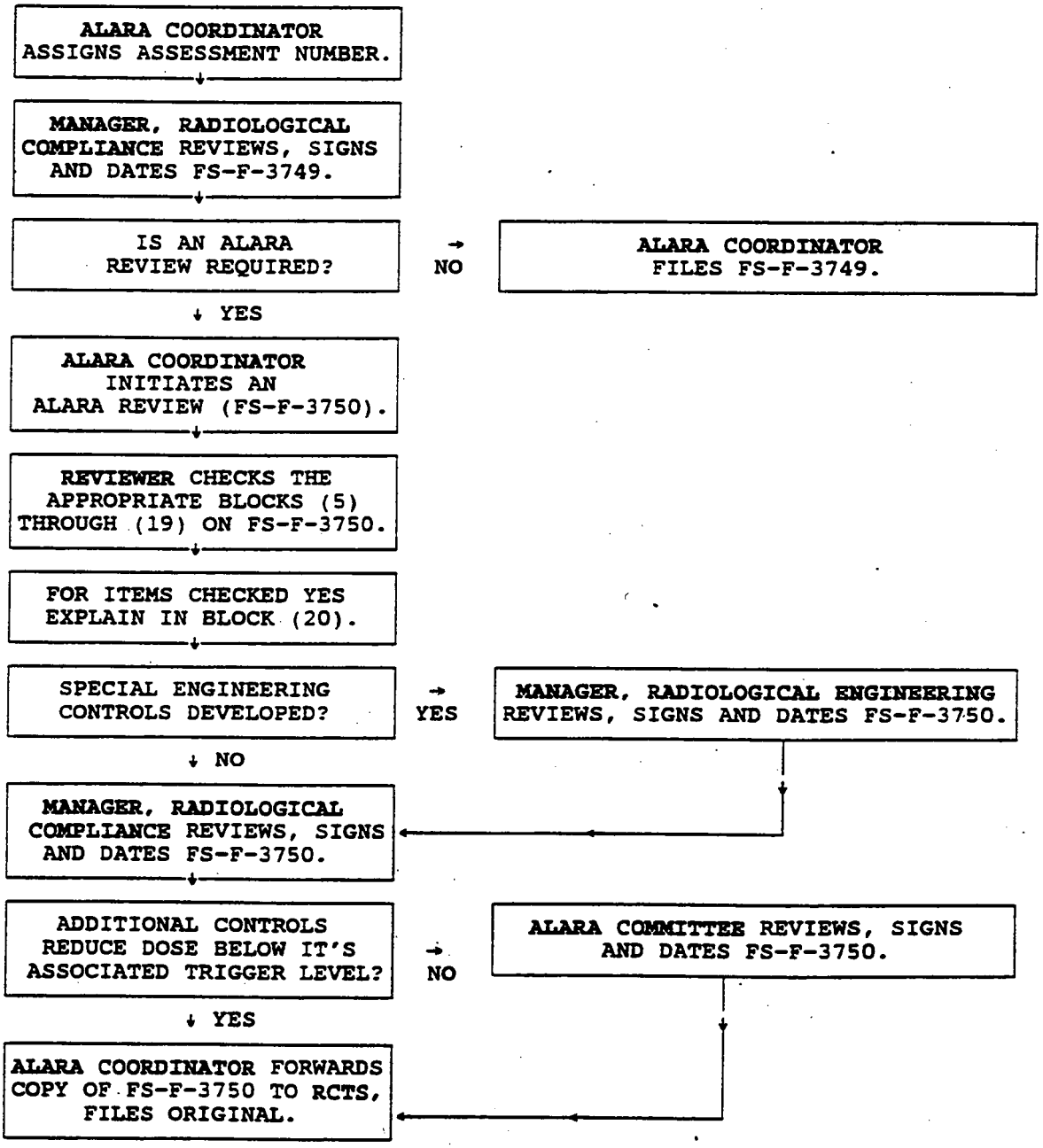

CONTROL NO. 5692
SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-0077
REVISION NO. 2

BUILDING EMERGENCY PROCEDURE

SSOP-0077

Effective Date: 02-16-94

AUTHORIZED BY: _____ 2/3/94
J. A. Rasile, Executive Vice President — Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
09-30-92	0	Building Emergency Procedure, required per Request No. S92-160, initiated by Sam Duley.
07-14-93	1	Changes to procedure required per Request No. S93-074, initiated by Sam Duley and to update procedure format to reflect current changes.
02-16-94	2	Minor revision to reflect latest changes to procedure per Request No. S93-219, initiated by Sam Duley. This document supersedes SSOP-0077, dated 07-14-93, Rev 1.

1.0 PURPOSE

This procedure provides instructions to all Fernald Environment Management Project (FEMP) employees for emergency response action to be taken during abnormal situations at the FEMP.

2.0 SCOPE

This procedure applies to all FEMP employees, Department of Energy (DOE) employees, and all other persons at the FEMP site at the time of an abnormal situation. This procedure is used in conjunction with IM-7006, "Incident Building Evacuation Manual."

3.0 DEFINITIONS

Acts of Violence - Use of physical force to cause damage or injury to persons or property.

Assistant Emergency Duty Officer (AEDO) - The Emergency Management Authority onsite when the Emergency Operational Center (EOC) is not operational. Also the AEDO is the Incident Commander & the FEMP emergency response activities.

All Clear Signal - A 3-3 horn signal sounded over the Plant Alarm System (PAS) that precedes an announcement of ALL CLEAR.

Beta Cam Detection System - Individual units that monitor Beta radiation in the air. If radiation levels exceed the preset level, an alarm sounds and personnel must evacuate the area

Emergency - Any significant deviation from planned or expected behavior or course of events which could endanger or adversely affect people, property, and/or the environment.

Emergency Message System (EMS) - A one-way speaker system used by Communication Center personnel to transmit instructions and/or information to site personnel following the sounding of an alarm signal.

Emergency Response Team (ERT) - A group of professional and volunteer personnel trained for emergency response to fire, hazardous material release, radiological release, on medical emergencies.

Employees - All persons employed by Fernald Environmental Restoration Management Corporation (FERMCO), and the DOE site office normally assigned to work areas at the FEMP facility.

3.0 **DEFINITIONS** (cont.)

Explosion - Violent expansion, usually accompanied by noise, caused by a sudden release of energy from a rapid chemical reaction or release of highly compressed gases or vapors.

FEMP Employees - Personnel employed by FERMCO, the DOE, and subcontractors employed by either FERMCO or the DOE.

Fire/Ambulance Signal - The 2-2 horn signal will be sounded only when additional ERT personnel are needed. The announcement over the EMS will give the location of the fire/ambulance run for the additional ERT personnel.

NOTE: Pulling a lever on fire alarm boxes located throughout the site transmits a coded signal identifying the box location to the communication center.

Hazardous Material Release - Any unplanned spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of closed containers in an unpermitted area).

Building Evacuation Siren - A rising and falling electronic emergency signal, activated by the Communications Center to alert building occupants to evacuate.

Nuclear Accident Dosimeter (NAD) - A mounted area dosimeter which may be used to investigate the dose from a criticality accident.

Plant Alarm System (PAS) - The sitewide horn alarm system used by the Communication Center to transmit the Emergency Response (2-2), Supervisor Alert (3-3), and CO Alert (4-1) signals.

NOTE: The 2-2 signal will only precede an announcement for additional ERT personnel. The 3-3 signal precedes an announcement of general interest or All Clear. The 4-1 signal precedes a warning to discontinue the use of airline respirators.

Radiation Detection Alarm (RDA) System - Air horns and rotating red lights that are activated when the radiation level exceeds 80 mR/hr.

Subcontractors - Direct employees of companies other than FERMCO, who are assigned to work at the FEMP facility, or vendors who require access to the FEMP to fulfill contractual obligations.

Visitors - Any persons other than FERMCO and DOE employees, subcontractor or vendor personnel who have been properly authorized and issued temporary or permanent credentials for access to the FEMP.

4.0 RESPONSIBILITIES

FEMP Employee

- Notifies nearby personnel to evacuate danger areas and proceed in accordance with this procedure.
- Becomes familiar with the provisions of this procedure for reporting emergencies.
- Proceeds in accordance with this procedure in emergency situations.
- Becomes familiar with the location and use of emergency items.
- Becomes familiar with and carries out the response to the emergency signals in use at the FEMP.
- Participates in emergency procedure drills conducted in accordance with the FEMP Emergency Plan.
- Notifies the supervisor or the AEDO of emergency or non-routine events immediately.

Supervisor/Manager

- Directs the activities of personnel in emergency situations and calls for assistance.
- Informs the AEDO of existing conditions and cooperates with the AEDO to resolve the emergency situation.
- Conducts the periodic training of:
  - Assigned employees in the location and use of fire and evacuation alarm system controls and building exits.
  - Assigned employees in the provisions of this procedure.
  - New and newly relocated employees in the location and basic use of fire extinguisher and safety shower/eye bubblers in their immediate work area and
  - Employees with regard to immediate actions to be taken for all credible types of emergencies that could occur in their building.
- Assigns employee/alternate to turn off equipment and utilities in the event of an emergency shutdown.

4.0 **RESPONSIBILITIES** (cont.)

- Assigns/designates employees to perform specific tasks relating to an individual building during an emergency situation.

AEDO

- Complies with SSOP-0089, "Personnel Accountability," as follows:
  - Conducts a Rally Point Accountability only for those personnel affected when a building or area is evacuated.
  - Conducts an In-Place Accountability for the personnel that have been directed to shelter, and
  - Conducts a Sitewide Accountability if more than 50 employees are evacuated from a building or area, Rally Point Accountability for those persons evacuated to rally points and an In-Place Accountability for the remainder of site personnel.
- Complies with all site procedures relating to emergency and abnormal situations.

5.0 **GENERAL**

To report an emergency or summon an ambulance in case of fire, explosion or hazardous material release, personnel shall initiate an alarm by pulling the lever on the nearest Fire Alarm Box. If there is no Fire Alarm Box nearby, use a portable radio or phone 738-6511 and report to the Communication Center.

When an emergency occurs in a building and evacuation is ordered, all employees will bypass the Personal Contamination Monitors.

When an emergency has been declared for any reason, e.g., fire, explosion, hazardous material release, the rescue of persons from an evacuated building or area shall be undertaken only by the ERT.

When an alarm sounds, personnel shall follow instructions broadcast over the EMS, portable radio, and/or Supervisors' directions.

All personnel shall refer to the individual building tabs as shown in IM-7006, "Incident Building Evacuation Manual" for information concerning evacuation routes, location of Fire Alarm Boxes, and specific information relevant to their individual buildings.

6.0 PREREQUISITES

This "Building Evacuation Procedure" (SSOP-0077) must be used with IM-7006, "Incident Building Evacuation Manual."

7.0 PROCEDURE

NOTE: This Section applies to all FEMP Employees.

7.1 FIRE

1. Pull lever on the nearest Fire Alarm Box. If an alarm box is not near, report directly to the Communication Center on 738-6511 or use a portable radio.

> **WARNING**
>
> **USING THE WRONG TYPE OF EXTINGUISHER CAN BE HAZARDOUS. DO NOT USE WATER TO EXTINGUISH ELECTRICAL, LIQUID, OR METAL FIRES.**

2. If trained to use fire fighting equipment and you can do so without endangering yourself, combat the fire cautiously until the ERT arrives.

   NOTE: Use METL-X for burning metal fires. Use CO_2, ABC, or dry chemical for electrical or flammable liquid fire. Use Class "A" (water) extinguisher or ABC fire extinguisher for trash, wood, and paper fires.

3. If possible and safe, shut off gas, electrical power, and operating equipment. Remove combustible or other hazardous material to a secure location.

4. If it becomes evident that the fire cannot be controlled by local action, immediately notify all personnel to evacuate the building by contacting the Communication Center by telephone or portable radio.

> **WARNING**
>
> **DO NOT LOCK FIRE OR EXIT DOORS**

5. Close all Fire and Exit doors after building has been evacuated.

7.1 FIRE (cont.)

6. After evacuation, report to your Primary Rally Point.

   NOTE: Management shall account for personnel per SSOP-0089.

   NOTE: Instruct all persons in transit to avoid the building and the surrounding area.

7.2 EXPOSURE TO SMOKE OR FUMES

NOTE: The following steps apply when the building is not directly involved by a fire in a nearby building.

1. Close doors and windows facing fire or those through which smoke or fumes may enter.

2. Close air intakes of ventilation systems and shut down any exhaust fans that are drawing in smoke or fumes.

3. If outside, avoid smoke or fumes that are visible or have an odor. Do not enter the area containing smoke or fumes and avoid their path of travel.

4. If exposed to smoke or fumes, report to Medical Services as soon as possible after exposure.

5. If ordered to evacuate the building by a supervisor or an announcement by the EMS, proceed to the appointed Primary Rally Point using a safe route away from smoke or fumes.

6. Instruct all persons in transit to avoid the building and surrounding area.

   NOTE: Management shall account for personnel per SSOP-0089.

7.3 EXPLOSION

1. Pull lever on nearest Fire Alarm Box. If an alarm box is not near, report directly to the Communication Center on the telephone 738-6511 or use a portable radio.

2. After evacuating the building, proceed to the appointed Primary Rally Point or as directed by the EMS.

3. Instruct all persons in transit to avoid the building and surrounding area.

   NOTE: Management shall account for personnel per SSOP-0089.

7.4 HAZARDOUS MATERIAL RELEASE (OUTSIDE BUILDING)

1. Shut off all ventilation air intakes, air conditioners, and any other mechanism that brings air into the building if hazardous release causes fumes.

2. Do not evacuate the building unless so directed by an evacuation alarm, the EMS, or a supervisor.

3. If evacuation is ordered for your building, avoid fumes which are visible or have an odor. Do not enter the fume release area or the path of the fume travel.

4. Evacuate to the appointed Primary Rally Point.

   NOTE: Management shall account for personnel per SSOP-0089.

7.5 HAZARDOUS MATERIAL RELEASE (INSIDE BUILDING)

1. Shut down equipment and/or operations causing the hazardous material release if it can be done safely and by trained personnel.

2. If the release is minor in nature and can be controlled by personnel present, notify your supervisor or AEDO if your supervisor is not present.

3. If the hazardous material release presents any danger to personnel, pull the lever on a Fire Alarm Box if one is available.

4. Notify the Communication Center by phoning 738-6511 or by portable radio, of the situation and reason for the building evacuation. Inform the Communication Center if there is a possibility of other buildings or areas being affected.

5. Evacuate to the Primary Rally Point.

   NOTE: Management shall account for personnel per SSOP-0089.

7.6 MEDICAL EMERGENCIES

1. Notify the supervisor of the involved employee of illness or injury. If supervisor is not available, request assistance from the nearest person.

2. If qualified, perform first aid.

7.6 MEDICAL EMERGENCIES (cont.)

3. Notify the Communication Center by either phoning 738-6511, or using a portable radio, and/or pull lever of the nearest Fire Alarm Box. Inform the Communication Center of the type of injury or illness, location, your name and badge number, and any other information requested.

   NOTE: Someone shall remain with the ill or injured person at all times.

4. Upon arrival of the medical personnel, direct the team to the injured or ill person. Inform the medical team if a chemical was involved.

7.7 EARTHQUAKE

WARNING

RESPONSE SHALL BE IMMEDIATE. DO NOT WAIT FOR INSTRUCTIONS.

1. Take shelter under a sturdy desk or table. If a desk or table is not available, go to a supported doorway.

2. If possible, kneel down, bend head close to knees, cover the sides of head with the elbows, and clasp hands firmly behind neck.

3. Avoid walls, shelves, and glassed areas. If inside, do not evacuate while tremors are occurring.

4. If outside, move to an open area away from power lines, piping, buildings, and kneel or lie down.

5. After the shock has subsided, evacuate the building.

   NOTE: Do not use elevators following an earthquake.

6. While evacuating, move away from structures, avoid electrical wires, broken/leaking pipes, visible fumes, and other hazards that may be encountered. Do not enter building.

7. Assemble at your Primary Rally Point or as directed by the EMS.

   NOTE: Managers shall account for personnel per SSOP-0089.

7.8 TORNADO WARNING ANNOUNCEMENT

NOTE: Tornado has been sighted in or near the vicinity of the FEMP.

1. All personnel in trailers are to evacuate the trailers and seek shelter in permanent structures.

2. All personnel in permanent structures will proceed to assigned shelter area or interior hallway.

> **WARNING**
>
> **AVOID GLASSED AREA, LARGE ROOF SPANS, CORRIDORS WITH OPENINGS TO SOUTH OR WEST WINDWARD SIDE OF BUILDING, AND LOAD BEARING WALLS.**

3. If outside, lie face down in the nearest depression (such as a ditch). Protect your head with your hands.

4. Await instructions from your supervisor or the All Clear Message.

7.9 TORNADO WATCH ANNOUNCEMENT

NOTE: Conditions are favorable for the formation of a tornado or tornados.

1. Proceed according to instructions of your supervisor or an announcement over the EMS.

7.10 SEVERE WEATHER (HIGH WINDS AND THUNDERSTORMS AND/OR LIGHTNING)

> **WARNING**
>
> **AVOID WORKING IN HAZARDOUS SITUATIONS SUCH AS HIGH, UNPROTECTED AREAS OR AREAS WHERE MATERIALS MAY BE BLOWN BY WIND.**

1. When the announcement of severe weather approaching is made do one of the following:

   a. If in an isolated area, secure equipment/material and leave the area.

   OR

7.10 SEVERE WEATHER (HIGH WINDS AND THUNDERSTORMS AND/OR LIGHTNING) (cont.)

b. In external storage areas, secure loose materials (e.g., empty drums and boxes) by tying, weighing down, reducing stack height, or sheltering; move into a permanent structure; and continue procedure.

OR

c. If outside, secure all equipment/material and move into a permanent structure and continue procedure.

OR

d. If indoors, continue procedure.

2. Close and secure windows, doors, and other openings through which wind or rain could enter.

3. Move away from windows.

4. Shut down equipment that is unsafe to operate during wind or rainstorm.

5. Move valuable equipment and materials to a sheltered location.

6. Cover equipment that cannot be moved but may be damaged.

7.11 ACTS OF VIOLENCE

1. Any act(s) of violence shall be reported to Security (738-6511) immediately.

2. Give details of person(s) involved, the incident and location.

3. Isolate the incident as much as possible.

4. Await arrival of Security personnel and provide any information, details and assistance if requested.

5. All personnel in the immediate area shall leave in an inconspicuous manner and move to another convenient area until the incident is resolved.

7.12 CRITICALITY

WARNING

ROTATING RED LIGHTS ON THE EXTERIOR OF A BUILDING INDICATE ACTIVATION OF A RADIATION ALARM. DO NOT ENTER OR APPROACH THE BUILDING.

NOTE: This section is performed in response to an RDA signal.

1. Upon hearing the RDA, respond in one of the following ways:

   a. If inside a building emitting an RDA, immediately leave the building by the nearest exit and continue procedure.

   OR

   b. If inside a building other than the one emitting an RDA, remain inside until the all-clear message is sounded.

   OR

   c. If outside of a building emitting an RDA, enter the nearest non-alarmed building and remain inside until the all-clear message is sounded.

   OR

   d. If you are in a vehicle, please park your vehicle and go into a non-alarmed building and wait until the all-clear message is sounded.

WARNING

IF NAD RETRIEVAL WOULD PREVENT PROMPT EVACUATION OF BUILDING THE NAD SHOULD BE LEFT FOR LATER RETRIEVAL.

2. If available, pick up a NAD.

3. After leaving the building, proceed to the middle of the street and continue to one of the following locations:

   - Personnel in Process Area: Evacuate to the first floor hallway at the rear of the Service Building.

7.12 CRITICALITY (cont.)

- Personnel in Laboratory: Evacuate to the cafeteria.
- Personnel in Receiving Building: Evacuate to their Rally Point #1.

4. Upon reaching the assembly area, report to supervisor.

   NOTE: Supervisors shall accompany employees to assembly area. Using a portable radio or nearest telephone call the Communication Center on 738-6511 and report "This is (Name) reporting from extension (_____). A RDA has sounded at (Building)." Report results of accountability.

5. If "All-Clear" signal sounds, return to work.

6. If a NAD was obtained, turn the NAD over to a Radiation Safety Technician or the supervisor.

7. If alarm was not a test, submit a urine sample for radiation monitoring, and complete questionnaires that may be required.

   NOTE: Supervisors shall maintain order in the group and assist employees in following instructions for radiation monitoring, if necessary.

8. Supervisors of non-alarmed buildings should conduct an In-place Accountability.

7.13 RECEIVING BOMB THREATS

NOTE: Anyone who receives a threat or finds a suspicious object in his/her area shall immediately notify the Security Communication Center (738-6511).

1. By Telephone:

   a. Signal someone to listen to the call.

   b. If another line is available, have another employee call the Communication Center (738-6511).

      NOTE: Keep the line open to Communication Center.

   c. Keep the caller on the line as long as possible. Ask that the message be repeated.

7.13 RECEIVING BOMB THREATS (cont.)

d. Write down every word spoken by the person.

e. If the caller does not reveal the location of the bomb or the time of possible detonation, ask for the information.

f. Inform the caller that the building is occupied and the detonation of a bomb could result in death or serious injury to many people.

g. Listen for background noises, such as motors running, background music, and any other sounds that give a clue to the location.

h. Pay close attention to the voice characteristics of the caller.

NOTE: Listen for the following characteristics: sex, age, emotional state, accent, speech impediments, intoxication.

i. Immediately after the caller hangs up, take over the open line and report to the Communication Center (738-6511).

2. In Writing

CAUTION

HANDLE MATERIALS AS LITTLE AS POSSIBLE TO PRESERVE THE CONDITION AND ANY FINGERPRINTS.

a. Save all materials, including any envelope or container.

b. If possible, place the message between sheet of clear plastic or on a clipboard.

c. Record where the message was found and/or how delivered, by whom, and at what time.

d. Notify the Communication Center (738-6511)

e. Release the message only to a Security Officer.

7.13 RECEIVING BOMB THREATS (cont.)

3. Personal Contact

CAUTION

DO NOT ATTEMPT ANY PHYSICAL ACTIONS TOWARD THE INFORMANT.

a. Question the informant for the time of detonation, location of the device, size of the device, type of explosive and arming device, who planted the explosive, how the device was planted, and why the device was planted.

b. Determine where, when, under what circumstances, and from whom did the informant learn about the explosive.

c. Ask the informant how he rates the reliability of the person alleged to have planted the bomb.

d. Verbally attempt to detain the informant. If possible, get the informant's license plate number and vehicle description.

e. If the informant can not be detained, attempt to obtain the informant's name, address, and a good physical description.

f. Immediately notify the Communication Center (738-6511) of the contact. Supply the AEDO with information collected.

4. Finding a Suspicious Object

NOTE: Reasons for an object being noted are: foreign to the area; origin is questionable; labeled "bomb", "danger", or "dangerous"; or has unusual shape, size, or audibility.

a. Call the Communication Center (738-6511) immediately and notify the AEDO of the location of the object. State your name and extension number.

b. Follow instructions given by AEDO or supervisor.

5. Searching Area For a Bomb

NOTE: Action to be taken by the Manager or Department Head.

7.13 RECEIVING BOMB THREATS (cont.)

WARNING

DO NOT USE RADIOS DURING THE SEARCH. RADIOS MAY CAUSE DETONATION.

a. If advised by the AEDO, ask local personnel to conduct a search of the area for any suspicious objects.

NOTE: Reasons for an object to be suspect are: foreign to area; origin is obscure; labeled "bomb", "danger", or similarly; has an has an unusual size, shape, or audibility.

NOTE: Employees not involved in the search shall evacuate as directed and await instructions.

b. Inform the searchers that they are not to move, jostle, jar, or touch the object or anything attached to it.

c. If a suspicious object is found, notify the Communication Center of the location. Describe the object briefly and accurately.

d. Open windows and doors to minimize primary blast damage.

e. Move hazardous materials from the surrounding area if time permits.

f. If personnel complete the search without finding anything, report this to the Communication Center and withdraw searchers to the perimeter.

7.14 EMERGENCY SHUTDOWN ANNOUNCEMENT (3-3 SIGNAL)

1. Turn off gas-burning equipment or gas sources.
2. Shut down all operations.
3. Turn off all window-type air conditioners.
4. Shut down ventilation equipment.
5. Turn off electrical equipment.
6. Close all windows in the building.

7.15 POST DISASTER

WARNING

IF HAZARDOUS MATERIALS (I.E., ACIDS, CAUSTICS, MERCURY, ASBESTOS) WERE RELEASED, DO NOT ENTER THE BUILDING OR AREA UNTIL MONITORING HAS BEEN CONDUCTED BY INDUSTRIAL HYGIENE.

NOTE: The measures necessary and the procedures advisable for resumption of plant operations will depend on damage surveys as reported to management.

1. Do not start equipment until the following checks have been made.

   NOTE: The manager shall request Maintenance to check utilities.

WARNING

IF PROPANE OR NATURAL GAS WERE INVOLVED WHEN EQUIPMENT WAS DAMAGED, DO NOT START EQUIPMENT UNTIL FIRE AND SAFETY HAS CHECKED FOR EXPLOSIVE GAS.

WARNING

IF RADIOACTIVE MATERIALS WERE RELEASED, DO NOT ENTER THE BUILDING OR AREA UNTIL A CHECK FOR RADIOACTIVITY HAS BEEN CONDUCTED BY RADIOLOGICAL SAFETY.

a. Check equipment, unit by unit, in accordance with applicable SOPs.

b. Check materials for damage.

c. Check with Boiler Plant to ensure the availability of steam.

d. Check with Water Treatment to ensure that water is available.

e. Check with Utilities engineer to ensure that electrical power is available.

7.15 POST DISASTER (cont.)

f. Check product supplies for damage.

g. Ensure that Fire and Safety, Industrial Hygiene and Radiological Safety have checked the area.

h. A complete engineering survey of damage, necessary repairs, and replacements is required if thc building was involved with fire and/or corrosive or damaging fumes.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- DOE Order 5500-3A, "Planning and Preparation for Operational Emergencies"
- DOE Order 5480.9 "Conduct of Operations"

8.2 REFERENCES

- PL-3020, "FEMP Emergency Plan"
- SSOP-0089, "Personnel Accountability"
- IM-7006, "Incident Building Evacuation Manual"

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DEVIATION AND CORRECTIVE ACTION REPORT PROCESSING

SSOP-0023

Effective Date: 10-13-93

AUTHORIZED BY: N. C. Kaufman, President 10/10/93 Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
06-27-91	0	Issued to identify the assigned responsibilities and required actions for identifying, documenting, and providing dispositions for deviations and corrective actions observed during audits and reviews per Request No. P91-220, initiated by M. A. Malone.
02-04-92	1	Minor revision to incorporate temporary revisions T91-021 through T91-025 per Request Nos. S92-012 thru S92-016, initiated by M. Malone. This document supersedes SSOP-0023, dated 06-27-91, Revision 0.
06-25-92	2	Minor revision to reflect organizational changes per Request No. S92-048, initiated by M. Malone. This document supersedes SSOP-0023, dated 02-04-92, Revision 1.
10-13-93	3	Major revision to reflect organizational changes per Request No. S93-119, initiated by Linda Lockerd. This document supersedes SSOP-0023, dated 06-25-92, Rev 2.

1.0 PURPOSE

This document describes the procedure for the identification, evaluation, documentation, and resolution of deviations at the Fernald Environmental Management Project (FEMP) using Deviation Reports (DRs) and Corrective Action Reports (CARs).

2.0 SCOPE

This procedure applies to all FERMCO personnel who discover a deviation from applicable requirements and all FERMCO personnel involved in the correction process.

3.0 DEFINITIONS

Administrator of Deviation and Corrective Action Reports (DRs and CARs) - The Quality Assurance Division Representative responsible for providing sequential report numbers and maintaining the database and records for the DR and CAR programs.

Condition Adverse to Quality - An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, and nonconformances.

Corrective Action - Measures taken to rectify significant conditions adverse to quality, violations of regulatory requirements or deviations from specified requirements, and to preclude repetition of the condition identified.

Corrective Action Report (CAR) - A form used by the Quality Assurance Division for the identification, disposition, verification of corrective action, and closure of a condition identified as significantly adverse to quality, or a programmatic breakdown.

Deviation - A departure from specified requirements.

Deviation Report (DR) - A form used to document the identification, disposition, verification of resolution, and closure of a specific deviation. DRs are to be used for the documentation and resolution of isolated incidents versus a CAR, which is used for significant conditions adverse to quality that go beyond isolated incidents.

Disposition - The action necessary to resolve a specific deviation, which include the following:

- Accept-as-is - A disposition permitted for a nonconforming item when it can be established (with technical justification) that the item is satisfactory for its intended use.

3.0 **DEFINITIONS** (cont.)

NOTE: An unsupported belief, opinion, or recommendation is not an acceptable technical justification.

- Reject - The disposition declaring an item either economically or technically infeasible to accept-as-is, rework, or repair. Rejected items shall be scrapped, identified or altered so as to be inapplicable for their original use or returned to the supplier, as appropriate.

- Repair - The disposition of restoring an item to a usable condition such that the capability of an item to function reliably and safely is unimpaired while not conforming to the original specified requirements.

- Rework - The disposition of restoring an item to usable condition equal to original requirements.

- Other - The disposition to describe the specific actions to be taken (e.g., revise procedure, develop procedure, provide training) to resolve the deviation when none of the above dispositions are applicable.

Occurrence Report (OR) - An event reportable to DOE. Reference procedure ED-0001, "Event Notification and Reporting."

Quality Representative - A person (Quality Assurance or Quality Control) trained according to procedure SSOP-0023 and responsible for writing, processing, verifying, and closing DRs.

Root Cause - The reason for an effect that will prevent recurrence of that effect if corrected.

Significant Condition Adverse to Quality - A condition that could have a serious effect on safety or operability if left uncorrected. Significant conditions adverse to quality found in a program or a system shall be documented on the Corrective Action Report (CAR) form and processed as such by the QA organization.

Evaluator - The Quality Representative who physically verifies acceptable completion and resolution of a deviation report. This person shall be trained in accordance with this document, and technically competent in the specific area they are evaluating. The verifier should be the preparer of a DR whenever possible.

4.0 **RESPONSIBILITIES**

Employees alert the Quality Assurance Division or a Quality Representative of known or suspected deviations.

4.0 **RESPONSIBILITIES** (cont.)

All Divisions/CRUs maintain a system for internal tracking of DRs or CARs.

Quality Assurance (QA) Division

- Maintains DRs/CARs as quality records.
- Implements and maintains the DR and CAR program.
- Trains and qualifies Quality representatives in accordance with this procedure.

Quality Control (QC) Department

- Performs inspections and acceptance tests.

Responsible Manager

- Signs and dates DR or CAR to signify ownership.
- Informs Quality Representative of DR/CAR acceptance or justification for non-acceptance.
- Responds to DRs and/or CARs.
- Ensures that corrective measures are effectively implemented in a timely manner (i.e., within the time frame agreed upon with the Quality representative).
- Identifies and addresses root cause for deviation noted on a CAR in order to prevent recurrence of the deviation.
- Provides resources to implement DR disposition and CAR corrective actions.

Administrator of Deviation and Corrective Action Reports (DRs/CARs)

- Issues DR and CAR control numbers.
- Maintains and updates DR and CAR databases.
- Maintains a qualified Quality Representative list.
- Issues status reports to responsible Quality Representatives, Responsible Managers, FERMCO Senior Management, and DOE-FN.
- Maintains QA files for DRs and CARs as QA records.

4.0 **RESPONSIBILITIES** (cont.)

- Performs trend analysis of DRs and CARs to identify chronic areas.
- Reports by memorandum to senior FERMCO management on a quarterly basis.

Quality Representative

- Identifies deviations by employee notification, audit, surveillance, inspection, or assessment.
- Coordinates the issuance of a DR with the DR/CAR Administrator.
- Writes and processes DRs.

5.0 **GENERAL**

- Stop work performed in unsafe work conditions immediately.
- Items shall be locked out, tagged out, or segregated immediately following SSOP-1020, "QA/QC Tagging."
- Those deviating conditions determined to be significant conditions adverse to quality require a CAR; all other conditions which deviate from specified requirements shall be identified on DRs.
- Figure 1, "DR and CAR Flow Chart," outlines the procedural flow.

  NOTE: Findings from external audits and appraisals (e.g., DOE, Tiger Team, EPA, and NTS) which may lead to CARs are outlined in Figure 2, "FERMCO External Audit Flow."

- Repetitive deviations may be considered programmatic breakdowns and documented as such on a CAR form.
- Only QA Management may approve corrective action and issue and close a Corrective Action Report.
- The Quality Representative shall coordinate DR or CAR ownership transfer. Transfer of a DR or CAR shall be documented, signed, and dated by sending and receiving management. If the Quality Representative disagrees with Responsible Manager, the DR or CAR will be resolved by higher management.
- Requests for extension on completion dates shall be in writing and with concurrence of the Quality Representative, who shall notify the DR/CAR Administrator of the change.

DR AND CAR FLOW CHART

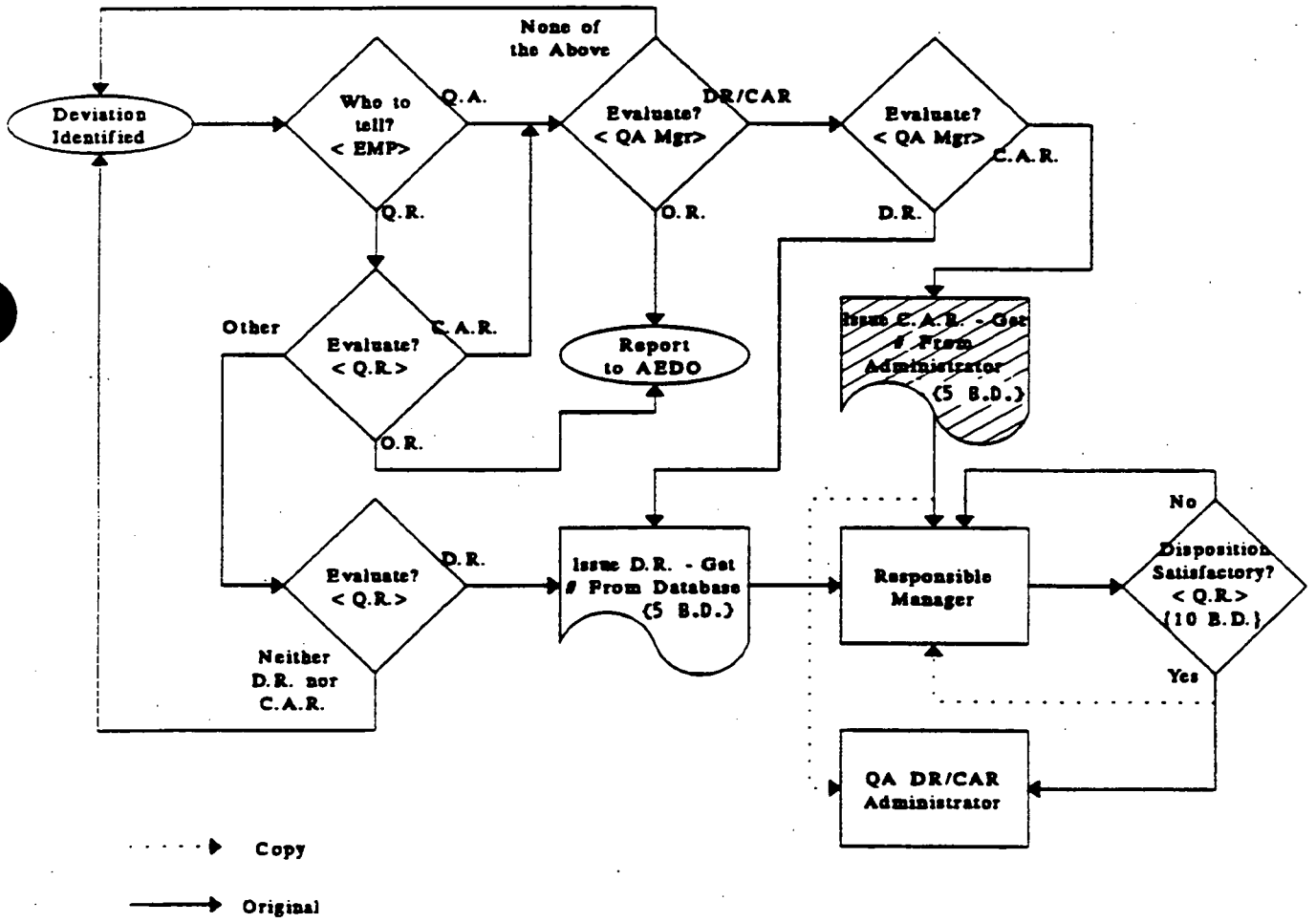

Figure 1 - DR and CAR Flow Chart

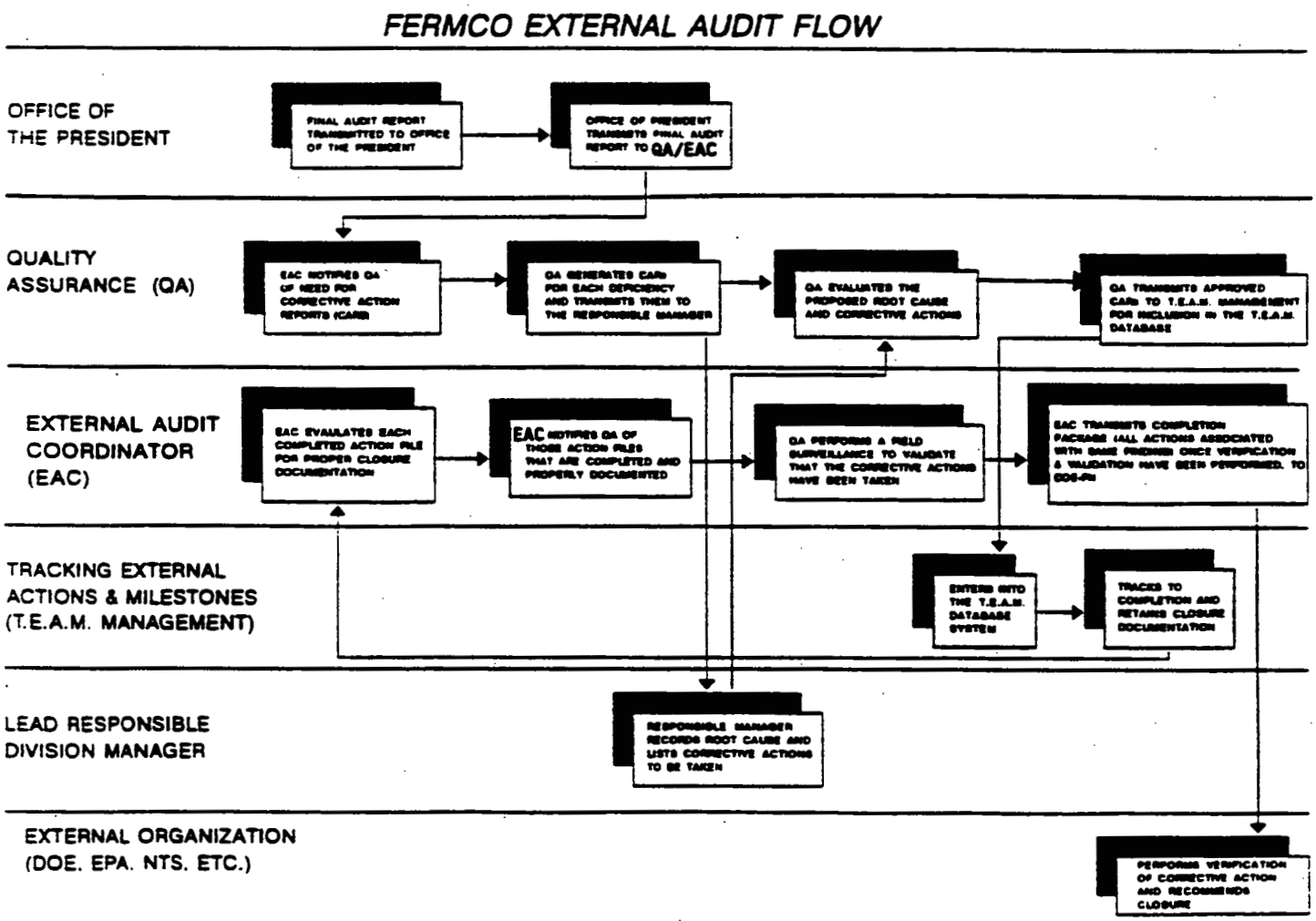

Figure 2 - FERMCO External Audit Flow

6.0 PREREQUISITES

6.1 INDUSTRIAL SAFETY AND HEALTH REQUIREMENTS

None

6.2 PERSONNEL REQUIREMENTS

Quality Representatives shall successfully complete training to this procedure before writing a DR.

Quality Representatives shall attend FERMCO Auditor Training to SSOP-0049 before conducting audits.

Quality Representatives shall receive surveillance or QC Inspection training before writing DRs.

7.0 PROCEDURE

7.1 PROCESSING DEVIATION REPORTS AND CORRECTIVE ACTION REPORTS

ALL EMPLOYEES

1. Notify QA Division or a Quality Representative of a suspected condition adverse to quality.

QUALITY ASSURANCE/QUALITY CONTROL

2. Cite reason for the deviation.

   a. If a written FERMCO requirement specified in FERMCO procedures, instructions, work plans, project specific plans, program plans, or contracts describing how work shall be performed has been violated, cite it on a DR (see Figure 3) or a CAR (see Figure 4).

      NOTE: REGULATORY REQUIREMENTS MAY BE REFERENCED AS SUPPORT DOCUMENTS ONLY.

   b. If there are similar deviations, they may be grouped into one DR.

      NOTE: The DR should reflect the number of occurrences for trend analysis purposes.

DR NUMBER	REVISION:

SECTION 1

DATE DISCOVERED	RESPONSIBLE ORGANIZATION
RESPONSIBLE MANAGER	
ACTIVITY	LOCATION

SECTION 2

REQUIREMENTS

DEVIATION

VERBALLY NOTIFIED MANAGEMENT	PREPARED BY	DATE
PROVIDE DISPOSITION BY	CORRECTIVE ACTION REPORT REQUIRED? ☐ Yes CAR# ☐ No	
QUALITY REP WHO EVALUATED DR		DATE

SECTION 3 - RESPONSE TO THE REQUEST FOR DISPOSITION

DISPOSITION ☐ Accept-As-Is ☐ Rework ☐ Repair ☐ Reject ☐ Other

ACCEPT-AS-IS/REPAIR JUSTIFICATION

SCHEDULED COMPLETION DATE:S

RESPONSIBLE MANAGER	DATE

SECTION 4 - EVALUATION OF DISPOSITION RESPONSE

EVALUATOR/QUALITY REP	DATE

SECTION 5 - COMPLETION OF DISPOSITION ACTION

RESPONSIBLE MANAGER	DATE

SECTION 6 - VERIFICATION OF DISPOSITION ACTION

QUALITY REPRESENTATIVE	DATE

VERIFICATION ACTION

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Figure 3 - Deviation Report (Sheet 1 of 2)

PREPARER - COMPLETE SECTION 1 AND 2 AS FOLLOWS:	
ITEM	**INSTRUCTIONS**
DATE DISCOVERED	Enter date that deviation was discovered.
RESPONSIBLE ORGANIZATION	Enter the organization responsible for the item or activity in which a deviation is discovered.
RESPONSIBLE ORGANIZATION'S REPRESENTATIVE	Enter name of the representative responsible for disposition/corrective action.
ACTIVITY	Enter activity performed. (i.e., Audit 189-1)
LOCATION	Enter location of the activity (i.e., Plant 6)
REQUIREMENTS	Enter the procedure, instruction, standard, or code which establishes the acceptance criteria for the activity or item being evaluated.
DEVIATION	Describe the deviation as it relates to the requirements.
VERBALLY NOTIFIED MANAGEMENT	Enter the date that the responsible organization's management was verbally notified of the deviation.
PREPARED BY	Sign and date (Section 2).

EVALUATOR - COMPLETE SECTION 2 AND HEADING AS FOLLOWS:	
IS CORRECTIVE ACTION REPORT REQUIRED?	Check "Yes" if a CAR is required, or "No" if one is not required.
DR NO.	Enter DR Number on the DR Form (obtained from the DR database or from the DR and CAR Administrator).
REVISION	Enter the current revision number.
PROVIDE DISPOSITION BY DATE	Enter date disposition action outline is due.
EVALUATOR	Sign and date (Section 2).

RESPONSIBLE MANAGER - COMPLETE SECTION 3 AS FOLLOWS:	
DISPOSITION	Check the appropriate block for Accept-as-is, Rework, Repair, Reject or Other and indicate the appropriate disposition in the space provided. If disposition is Accept-as-is or Repair, provide a technical justification. Enter the date that disposition action will be completed.

EVALUATOR - COMPLETE SECTION 4 AS FOLLOWS:
Evaluate the proposed disposition to determine its adequacy for solving the specific problem identified in the deviation report.
Document acceptance of the proposed disposition in Block 4 by signature and date.
Notify the organization responsible for disposition action of the rejection of the proposed disposition action and coordinate with the organization to obtain a revised response.

RESPONSIBLE ORGANIZATION REPRESENTATIVE - COMPLETE SECTION 5 AS FOLLOWS:
Sign and date indicating completion.

EVALUATOR - COMPLETE SECTION 6 AS FOLLOWS:
Monitor the disposition and verify that the actions taken to correct the deviation have been completed satisfactorily.
Approve acceptance of verified disposition in Section 6 by signature and date. Enter the verification action performed.
Ensure the removal of nonconforming item tag(s) only after verifying satisfactory completion of all disposition actions.
Forward the closed out deviation report (DR) to the Administrator of Deviations with a copy to responsible organization management.

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Figure 3 - Deviation Report (Sheet 2 of 2)

CAR NUMBER		REVISION
SECTION 1		
DATE DISCOVERED	RESPONSIBLE ORGANIZATION	
RESPONSIBLE ORGANIZATION REPRESENTATIVE		
ACTIVITY	LOCATION	
SECTION 2		
REQUIREMENTS		
DEVIATION		
VERBALLY NOTIFIED MANAGEMENT	PREPARED BY:	DATE
PROVIDE DISPOSITION BY	EVALUATING QA MANAGER	DATE
SECTION 3 - RESPONSE TO THE REQUEST FOR CORRECTIVE ACTION		
A. REASON FOR THE DEVIATION (ROOT CAUSE):		
B. ACTION TAKEN/PROPOSED TO INVESTIGATE SIMILAR WORK		
C. ACTION TAKEN TO PREVENT RECURRENCE		
D. DATE(S) ACTION(S) WILL BE COMPLETE		
RESPONSIBLE ORGANIZATION REPRESENTATIVE		DATE
SECTION 4 - EVALUATION OF CORRECTIVE ACTION RESPONSE		
QA EVALUATOR		DATE
EVALUATING QA MANAGER		DATE
SECTION 5 - COMPLETION OF CORRECTIVE ACTION		
RESPONSIBLE ORGANIZATION REPRESENTATIVE		DATE
SECTION 6 - VERIFICATION OF CORRECTIVE ACTION COMPLETION		
QA EVALUATOR		DATE
VERIFICATION ACTION		
CAR CLOSED QA MANAGER	DATE	

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Figure 4 - Corrective Action Report (CAR) (Sheet 1 of 2)

EVALUATOR - COMPLETE SECTION 1 AND 2 AS FOLLOWS	
ITEM	INSTRUCTIONS
DATE DISCOVERED	Enter date that corrective action was discovered to be required.
RESPONSIBLE ORGANIZATION	Enter the organization responsible for the item or activity in which a corrective action is required.
RESPONSIBLE ORGANIZATION'S REPRESENTATIVE	Enter name of the manager responsible for corrective action.
ACTIVITY	Enter activity performed. (i.e., Audit I89-1)
LOCATION	Enter the location of the activity (i.e., Plant 6)
REQUIREMENTS	Enter the procedure, instruction, standard, or code which establishes the acceptance criteria.
DEVIATION	Describe the deviation as it relates to the requirements.
VERBALLY NOTIFIED MANAGEMENT	Enter the date that the responsible manager was verbally notified of the potential deviation.
CAR NO.	Enter the CAR Number on the CAR Form.
REVISION	Enter the current revision number.
PROVIDE DISPOSITION BY DATE	Enter the date the disposition action outline is due.
EVALUATOR	Sign and date (Section 2).
EVALUATING MANAGER	Obtain QA Manager's signature.
RESPONSIBLE ORGANIZATION REPRESENTATIVE - COMPLETE SECTION 3 AS FOLLOWS:	
A. REASON FOR THE DEVIATION (ROOT CAUSE)	Enter the underlying (root) cause of the problem.
B. ACTION TAKEN/PROPOSED TO INVESTIGATE AND CORRECT SIMILAR WORK	Enter the proposed action and schedule.
C. ACTION TAKEN TO PREVENT RECURRENCE	Enter the action taken to correct the root cause and prevent recurrence of the problem.
D. DATE(S) ACTION(S) WILL BE COMPLETE	Enter the scheduled completion date for corrective action.
EVALUATOR - COMPLETE SECTION 4 AS FOLLOWS:	
Evaluate the proposed corrective action to determine its adequacy for solving the problem identified in the deviation report.	
Document acceptance of the proposed corrective action in Block 4 by signature and date.	
Notify the organization responsible for corrective action of the rejection of the proposed corrective action and coordinate with the organization to obtain a revised response.	
RESPONSIBLE ORGANIZATION REPRESENTATIVE - COMPLETE SECTION 5 AS FOLLOWS:	
Sign to signify acceptance of corrective action.	
EVALUATOR - COMPLETE SECTION 6 AS FOLLOWS:	
Verify that the actions taken to correct the deviation have been completed satisfactorily.	
Approve acceptance of verified corrective action in Section 6 by signature and date. Enter the verification action performed.	
Ensure the removal of nonconforming item tag(s) only after verifying satisfactory completion of all disposition actions.	
Forward the closed out CAR to Commitment Control with a copy to the responsible organization management.	

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Figure 4 - Corrective Action Report (CAR) (Sheet 2 of 2)

7.1 PROCESSING DEVIATION REPORTS AND CORRECTIVE ACTION REPORTS

QUALITY ASSURANCE/QUALITY CONTROL

<u>or</u>

c. If no FERMCO requirement exists for known applicable regulatory requirements, a CAR shall be issued to the responsible organization citing such.

3. Describe deviation in the Deviation Report relative to specified requirements.

4. Evaluate deviation for the existence of a significant condition adverse to quality.

5. Reference audit, surveillance, or inspection number on the DR or CAR, where applicable.

6. Obtain the following information:

   a. A unique DR number from DR database

<u>or</u>

QUALITY ASSURANCE MANAGER

   b. Obtain a unique CAR number from the CAR database.

QUALITY ASSURANCE/QUALITY CONTROL

7. Stamp original DR or CAR form with red ink identifying it as the original.

8. Verbally notify Responsible Manager of forthcoming DR or CAR to confirm ownership.

9. Issue DR or CAR within five business days from deviation identification, qualified evaluation of the deviation, or post-audit meeting.

10. Distribute DR or CAR as follows:

    - Original to Responsible Manager for disposition
    - Copy to the DR/CAR Administrator
    - Copy to the Quality Representative's file and/or audit file
    - Copy to Division/CRU tracker, as applicable

RESPONSIBLE MANAGER

11. Evaluate CAR to determine the root cause.

12. Determine the following:

    a. DR disposition for Quality Representative approval by checking the appropriate block which addresses the action to correct the deviation.

7.1 PROCESSING DEVIATION REPORTS AND CORRECTIVE ACTION REPORTS

RESPONSIBLE MANAGER

b. CAR corrective action for QA Managerial approval.

13. Provide specific explanation of corrective action using additional paper if necessary.

14. Determine expected date of completion for DR or CAR and enter this date on the form in the space provided.

15. Return original DR or CAR form complete with disposition or corrective action to the Quality Representative within 10 business days of DR or CAR issue or within the requested time frame.

QUALITY ASSURANCE/QUALITY CONTROL

16. Evaluate disposition response within 10 business days of date of the disposition response.

QUALITY REPRESENTATIVE AND RESPONSIBLE MANAGER

17. Evaluate proposed disposition/corrective action for completeness of DR or CAR resolution to prevent recurrence.

QUALITY ASSURANCE/QUALITY CONTROL

18. Review proposed disposition or corrective action (aided by a knowledgeable technical expert, if necessary).

    a. If the proposed disposition/corrective action is acceptable, do the following:

        (1) Sign and date the DR or CAR form.

        (2) Forward the original copy to Responsible Manager.

    b. If the proposed disposition is unacceptable, do the following:

        (1) Notify Responsible Manager in writing.

        (2) Issue next revision of the DR or CAR form.

        (3) Forward original revision (i.e., Rev. 0) to the DR/CAR Administrator.

ADMINISTRATOR OF DEVIATION AND CORRECTIVE ACTION REPORTS

        (4) File original revision with QA records.

RESPONSIBLE MANAGER

19. Provide resources to implement DR disposition or CAR corrective actions.

7.1 PROCESSING DEVIATION REPORTS AND CORRECTIVE ACTION REPORTS

RESPONSIBLE MANAGER

20. Sign DR or CAR Section 5 upon completion of disposition action.

21. Notify Quality Representative immediately after disposition action has been completed.

QUALITY ASSURANCE/QUALITY CONTROL

22. Verify the following within 10 business days of the date in Section 5:

    a. Disposition action has been implemented and that deviation conditions have been resolved.

    <u>or</u>

    b. Corrective action has been completed.

QUALITY ASSURANCE/QUALITY CONTROL AND RESPONSIBLE MANAGER

23. Review DR or CAR for completeness, accuracy, and legibility.

QUALITY ASSURANCE/QUALITY CONTROL

24. Sign and date closure verification section including brief discussion on verification activity (e.g., on this date, I witnessed....).

25. Ensure DR or CAR contains information necessary to make the DR or CAR a stand-alone document.

26. Forward the following information to the correct individuals:

    a. Completed, original DR or CAR with all signatures, dates, and supporting documentation to the DR/CAR Administrator.

    b. Copy of the closed DR or CAR to Responsible Manager.

ADMINISTRATOR OF DEVIATION AND CORRECTIVE ACTION REPORTS

27. Perform final check for completeness and accuracy.

28. Validate original DR or CAR as a quality record with a stamp.

29. File completed, original DR or CAR as official QA record.

QUALITY ASSURANCE/QUALITY CONTROL

30. Ensure nonconformance tags are removed.

31. Release items from hold status, where applicable.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- RM-0012, "Quality Assurance Program Description"

8.2 REFERENCES

- ED-0001, "Event Notification and Reporting"
- SSOP-0049, "FEMP Quality Assurance Audit Program"
- SSOP-0709, "Conduct of Independent QA Surveillance Activity"
- SSOP-1019, "Quality Assurance Stop Work Authority"
- SSOP-1020, "QA/QC Tagging"

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Fernald Environmental
FERMCO
Restoration Management Corporation

FERMCO OPERATIONAL READINESS MANUAL

SM-0005

Revision No. 1

Effective Date: 12/20/93

AUTHORIZED BY: _____ 12/29/93
J. A. Rasile, Executive Vice President — Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
11/19/93	0	New manual to provide an Operational Readiness Manual, initiated by Dick Kline and Carol Kilberg.
12/20/93	1	Revised to incorporate the Operational Readiness Assessment and Routine Restart Processes, initiated by Dick Kline and Carol Kilberg. This document replaces SSOP-0100, dated 9/3/93, Revision 1.

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1.0 INTRODUCTION

The Operational Readiness Manual establishes the conditions and/or requirements to be used by Fernald Environmental Restoration Management Corporation (FERMCO) for identifying, selecting, and conducting Operational Readiness Reviews (ORRs) and Operational Readiness Assessments (ORAs). Both processes provide a uniform and consistent strategy which include an independent overview of startup and restart activities. The ORR and ORA processes provide a systematic approach for verifying that planned actions are complete and are recorded to demonstrate that a state of readiness to proceed has been achieved. The U. S. Department of Energy, Fernald Field Office (DOE-FN) monitors all ORRs and ORAs.

1.1 Purpose

The purpose of an Operational Readiness Program is to obtain assurance that an activity:

- Can be started up and performed safely and properly.
- For shutdowns or decommissioning, except for Safe Shutdown activities, the facility, process, and equipment are returned to a stable and environmentally sound state.
- Will be conducted by trained and qualified personnel.
- Will be operated in conformance with applicable DOE Orders and regulatory requirements.
- Is prepared for startup/restart and is properly and adequately documented.
- Has adequate plant equipment, structures, and other hardware.
- Includes adequate procedures that incorporate Conduct of Operations to an appropriate degree.
- Has the sitewide support systems identified, in place and functional.
- Is in compliance with the commitments made in the applicable safety analysis and any technical safety requirements outlined in the safety analysis.

In accomplishing the above purpose, it should be noted that the readiness reviews are not to be used by line management to achieve readiness, but as a verification that readiness has been achieved.

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The Readiness Methodology Selection Process establishes the methodology used to evaluate all FERMCO activities to determine which readiness determination process (ORR and ORA) is applicable to the proposed activity. Appendix C is the FERMCO ORR Process Flowsheet which outlines FERMCO's Operational Readiness Review Process. Appendix D is the FERMCO ORA process which outlines FERMCO's Operational Readiness Assessment Process.

2.0 APPLICABILITY

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2.1 Applicability Considerations

2.1.1 The ORR and ORA Processes are applicable to all technical aspects of the FEMP organizations that are responsible for the startup, safety, design, engineering, operations, maintenance, and construction of facilities and activities.

2.1.2 The ORR and ORA Processes apply to all facilities, operations, or activities that desire initial startup or restart after a shutdown. Types of shutdowns are:

- Unplanned shutdown by DOE management because of safety or other reasons.
- Shutdown because of operations outside the safety basis.
- Shutdown for enhanced safety which requires changes in a DOE approved safety basis.
- Shutdown for extensive modifications
- Extended Shutdown (Hazard Category 2 = 12 months; Hazard Category 1 = 6 months)

2.1.3 The ORR and ORA Processes apply to all FERMCO and Subcontractor startups and restarts.

2.1.4 The type of review and level of approvals are contained within this manual.

2.1.5 The ORRs and ORAs use the results of design reviews and safety analysis reports; however, they do not take the place of these documents.

2.2 Exclusions

2.2.1 Activities on the Startup Notification Report that are identified as "In Progress" are exempt from this manual and will be performed within the guidelines of site procedure SSOP-0100, "Readiness Review Process" dated 9/3/93.

2.2.2 Activities identified by the Safety Analysis Department as "Standard Industrial Hazard" are exempt from this manual.

2.2.3 The readiness review will not apply to activities that have through Safe Shutdown.

2.2.4 The readiness review process does not apply to construction work that is considered to involve standard industrial/construction hazards (i.e., new facility or facility modification construction).

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2.2.5 The readiness review process does not apply to construction demolition projects where the facility has gone through a safe shutdown in which nuclear materials have been removed and the facility is in a stable or de-energized condition. NOTE: Nuclear material removal does not require removal of fixed contamination (i.e., contaminated piping or building steel).

2.2.6 The ORR and ORA processes do not approve foundation documents (like SARs, environmental documents, or DOE program documents); they only verify that they are approved and have been properly implemented.

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3.0 DEFINITIONS

Activity - A facility, operation, process, system, or project.

Administrator of the Operational Readiness Program - Appointed by the Manager of Systems Integration and Assessment. The Administrator will manage the administrative attributes of both the ORR and ORA processes.

Approval Authority - The minimum level of management signature required to grant the authorization to proceed after a readiness review has been successfully completed. If other DOE orders (e.g., DOE 4700.1) require a higher level of startup authorization than this order, the official described in this order will recommend startup to the higher level official.

Checklist - An itemized list of all identified startup/operational or shutdown criteria (e.g., hardware, personnel, administrative controls) to be satisfactorily resolved in order to achieve a specified state of readiness. Each criterion must be documented on a certification statement as to resolution and acceptance (based on acceptance criteria or performance objectives) prior to the readiness determination.

Criteria - A formalized listing of prerequisite detailed conditions or issues which must be satisfactorily resolved to achieve a specific state of readiness.

DOE-ORR - A DOE Operational Readiness Review conducted according to DOE 5480.31 that verifies the adequacy of the FERMCO ORR and the effectiveness of the contractor's preparation for operation.

Closeout Report - The Closeout Report will include closure of any open findings from the Final Report. The Closeout Report will also include a lessons learned section. The report may also identify observations that would not impact startup and restart.

Final Report - A formal report that contains a brief summary of the review activities, the conclusions reached, the basis for the conclusions, and confirmation of any prestart findings that were resolved along with explanations of any deviations as well as open findings with the corrective action proposals.

Finding - A departure from a specified requirement that is a deficiency in characteristic, documentation, procedure, personnel training and/or qualification, or design that renders the item or activity unacceptable or indeterminate. The severity and potential consequences should be addressed in describing the deficient condition.

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Graded Approach - A process by which the level of analysis, documentation, and actions necessary to comply with a requirement are commensurate with:

- The relative importance to safety, safeguards, and security.
- The magnitude of any hazard involved.
- The life cycle of an activity.
- The programmatic mission of an activity.
- The particular characteristics of an activity.
- Any other relevant factor.

Hazard Categories - The consequences of unmitigated releases of radioactive and/or hazardous material are evaluated (by site processes) as required by DOE 5480.23 and DOE-STD-1027-92, and classified by the following hazard categories (Nuclear Facilities): (DOE 5480.31)

- Category 1. The hazard analysis shows the potential for significant offsite consequences.
- Category 2. The hazard analysis shows the potential for significant onsite consequences.
- Category 3. The hazard analysis shows the potential for only significant localized consequences.

An additional hazard category used at the FEMP is Category 4 which is defined as:

- Category 4. Below Category 3 threshold as defined in DOE-STD-1027-92 but containing nuclear or contaminated material.

Hazard Classes - The consequences of unmitigated releases of hazardous material are evaluated as required by DOE 5481.1B. When radioactive material is below the Category 3 threshold (Category 4) as defined in DOE-STD-1027-92 and determined by site processes, they will be utilized to determine approval authorities.

- High - Those with the potential for onsite or offsite impacts to large numbers of persons or for major impacts to the environment.
- Moderate - Those which present considerable potential onsite impacts to people or the environment, but at most only minor offsite impacts.
- Low - Those which present minor onsite and negligible offsite impacts to people or the environment.

Nonreactor Nuclear Facility - Those activities or operations that involve radioactive and/or fissionable materials in such form and quantity (see DOE-STD-1027-92) that a nuclear hazard potentially exists to the employees or the general public. Included are activities or operations that:

- Produce, process, or store radioactive liquid or solid waste fissionable materials, or tritium;

- Conduct separation operations;

- Conduct irradiated materials inspection, fuel fabrication, decontamination, or recovery operations;
- Conduct fuel enrichment operations; or
- Perform environmental remediation or waste management activities involving radioactive materials.

Incidental use and generating of radioactive materials in a facility operation (e.g., check and calibration sources, use of radioactive sources in research and experimental and analytical laboratory activities, electron microscopes, and x-ray machines) would not ordinarily require the facility be included in this definition. (5480.31)

Observations - Items identified during the ORR and ORA process that are not required for startup or shutdown, but if resolved would lead to excellence in operations. A discussion of the observations should be included in the ORR Report. The ORR and ORA Teams are not required to track the completion of observations.

Operational Readiness Assessment (ORA) - A review that is conducted to determine an activities readiness to start up or restart when the activity has a hazard category assigned and an ORR is not required. (DOE 5480.31)

Operational Readiness Assessment Implementation Plan - The ORA Implementation Plan is a graded approach of the ORR Implementation Plan. See definition of ORR Implementation Plan.

Operational Readiness Assessment (ORA) Team Leader - The leader chosen by the Approval Authority to be responsible for planning, staffing, and conducting an ORA. An ORA Team Leader will be assigned for each ORA after the determination has been made indicating that an ORA is required. The ORA Team leader may be from the performing organization but cannot review his/her own work.

Operational Readiness Assessment Team - See ORR Team definition.

Operational Readiness Review (ORR) - A disciplined, systematic, documented, performance-based examination of facilities, equipment, personnel, procedures, and management control systems to ensure that an activity will be operated safely within its approved safety envelope as defined by the activity safety basis. The Operational Readiness Review scope is defined based on the specifics of the activity and/or the reason for the shutdown as related to a minimum set of core requirements. A graded approach will be used in defining the depth of the Operational Readiness Review based on these core requirements. (DOE 5480.31)

Operational Readiness Review Breadth - The set of core requirements which will be evaluated by the Operational Readiness Review Team during the conduct of the Operational Readiness Review. (DOE 5480.31)

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Operational Readiness Review Depth - The level of analysis, documentation, and/or actions necessary to evaluate an applicable core requirement. (DOE 5480.31)

Operational Readiness Review Implementation Plan - The plan developed by the Operational Readiness Review Team describing the specifics of approach, schedule, methodology, team members and their qualifications, and reporting requirements of the Operational Readiness Review. The Operational Readiness Review Implementation Plan is used by the ORR Team Leader to execute the ORR. (DOE 5480.31)

Operational Readiness Review Scope - The overall magnitude of the Operational Readiness Review as defined by the breadth of core requirements selected and the depth of evaluation of these core requirements during conduct of the Operational Readiness Review. (DOE 5480.31)

Operational Readiness Review (ORR) Team Leader - The leader chosen by the FERMCO Office of the President to be responsible for planning, staffing, and conducting an ORR. An ORR Team Leader will be assigned for each ORR after the determination has been made indicating that an ORR is required.

Operational Readiness Review (ORR) Team - The ORR Team is appointed by the ORR Team Leader to conduct the ORR. The ORR Team is a multi-disciplined group that is assembled to judge an activity's "Readiness to Proceed" by conducting an ORR. Qualification requirements include technical expertise in the area being evaluated and experience in conducting assessments, but the members should not be directly responsible for the activity being reviewed. Members may be assigned to the ORR Team on a full or part-time status. The ORR Team does not approve the startup of the activity; they only make a recommendation to the approval authority.

Performing Organization - Senior line manager that reports directly to the FERMCO President and is responsible for the activity.

Plan of Action - The high level document describing the breadth and prerequisites of the Operational Readiness Review, the composition of the team performing the review, and the designated startup or restart authority. (DOE 5480.31)

Prestart Finding - A finding that must be corrected before an activity can be started. (DOE 5480.31)

Program Work - Work in a nonreactor nuclear facility or reactor that is accomplished to further the goals of the facility mission and/or the program for which the facility is operated. Program work does not include work that would be required to maintain the facility in a safe shutdown condition or to accomplish modifications and correct deficiencies required before program work can recommence. This also excludes demolition work of or within the facility that has been safely shut down and the nuclear material removed. (DOE 5480.31)

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Readiness - When the plant, equipment, personnel, procedures, and administrative systems are in place and verified to be at the required state to support operation, a demonstrated capability to proceed to the next program or project phase.

Readiness Methodology Selection Process - A systematic method that compares the hazard category against the activity classification (new start or restart) as a way of selecting the readiness determination method (ORR or ORA). This selection process also determines the appropriate Approval Authority.

Readiness to Proceed Memorandum - The formal document submitted by the FERMCO President which certifies the conclusion that the activity is prepared to start or resume operations. This document will initiate the DOE ORR. A small manageable list of prestart items may exist.

Ready to Operate - A documentation by FERMCO Line Management that the activity has completed all pre-operational requirements and is ready to start operations. This document must be submitted prior to commencing the FERMCO ORR/ORA.

Restart - Recommencing reactor critical operations and/or program work in nonreactor nuclear facilities. (DOE 5480.31)

Routine Restart - A routine restart is when the activity occurs as a normal part of an activity and is covered by an approved procedure which includes a mechanism for verifying the activity can be restarted safely. An ORR or ORA is not required for routine restarts.

Safe Shutdown - An effort to mitigate potential sources of contamination to the environment and to stabilize, isolate, and/or treat any existing contamination to prevent release or migration. The effort will prepare the process facilities for either removal or remediation.

Safety Basis - Combination of information relating to the control of hazards at a nuclear facility (including design, engineering analyses, and administrative controls) upon which DOE depends for its conclusion that activities at the facility be conducted safely (DOE 5480.23)

Standard Industrial Hazard - Hazards which are routinely encountered or accepted in the course of everyday living by the vast majority of the general public. (Standard hazards are usually covered by OSHA, FEMP Health and Safety Plans, etc.)

Start (Startup) - Commencing a specific predetermined step that is considered the beginning of an activity that has resulted in the hazard category for that activity.

Startup Notification Report - A periodic FERMCO report which identifies all known activities. The report will identify the activity based on the criteria of DOE 5480.31. The report will receive semiannual updates at a minimum. The Startup Notification Report format is in Appendix J.

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Technical Scope - The boundary of technical criteria used to develop, design, and operate a component, system, structure or facility.

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4.0 RESPONSIBILITIES

4.1 Office of the President (OP) - The OP has overall responsibility for the ORR and ORA Processes to ensure compliance with procedures and DOE orders. The responsibilities include:

4.1.1 Establishes the FERMCO ORR and ORA Process.

4.1.2 Appoints the ORR Team Leader.

4.1.3 Approves FERMCO ORR and ORA recommendations (where the OP is the approval authority) for activity starts/restarts.

4.1.4 Issues the Readiness to Proceed Memorandum to DOE-FN.

4.1.5 Issues the Startup Notification Report.

4.1.6 Interfaces with DOE-FN/HQ.

4.2 Performing Organization - The Performing Organization has the following responsibilities:

4.2.1 Defines the technical scope of the ORR and ORA in writing to the Administrator of the Operational Readiness Program.

4.2.2 Requests and documents the Hazard Category and Hazard Class that was established by the Safety Analysis Department to the Administrator.

4.2.3 Ensures that all activities under his/her cognizance are identified for inclusion in the Startup Notification Report.

4.2.4 Ensures resources and funding for the reviews are identified, allocated, and included in the schedule and budget of the activity.

4.2.5 Issues written notice to the ORR/ORA Team Leader that activities are ready to proceed.

4.2.6 Appoints the Point of Contact for the activity who will prepare the documentation supporting readiness for submittal to the ORR Team in a timely manner.

4.2.7 Ensures that actions are taken to correct deficiencies that result in findings identified during the ORR and ORA process.

4.2.8 Compiles and retains the ORA process records as quality records.

4.2.9 Develops routine startup procedures to be followed for the Performing Organization to start a new activity or restart a shutdown activity.

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4.2.10 Provides input and resources for developing, ensuring compliance with, and obtaining the approved safety analysis through the Safety Analysis department.

4.3 Administrator of the Operational Readiness Program - Administrator of the ORR is appointed by the Manager of SIA and supports the ORR Team by performing the following.

4.3.1 Issues ORR and ORA control numbers.

4.3.2 Develops the Startup Notification Report and updates on a semiannual basis.

4.3.3 Interfaces with the Performing Organization.

4.3.4 Receives and submits all documentation concerning the ORR and ORA.

4.3.5 Maintains and tracks ORR and ORA progress, schedules, and open items.

4.3.6 Maintains ORR files.

4.4 Operational Readiness Review Team Leader - The ORR Team Leader is appointed by the OP and reports to the Systems Integration and Assessment (SIA) Manager on matters concerning the ORR. The following items are included in the ORR Team Leader's responsibilities but he can delegate responsibilities to the ORR Team Members:

4.4.1 Selects and trains the ORR Team Members.

4.4.2 Estimates the level of effort and schedule requirements including objectives and milestones needed for the activity's review.

4.4.3 Provides startup recommendations to the OP concerning activity readiness.

4.4.4 Prepares the ORR Implementation Plan.

4.4.5 Uses analytical techniques (checklists or MORT Analysis) to ensure appropriate coverage of the subject activity.

4.4.6 Develops measurable ORR criteria that fully demonstrate that an activity is ready to start up and proceed to completion.

4.4.7 Identifies the objective evidence that supports the status of readiness for each ORR criteria element.

4.4.8 Integrates issues raised by external committees, previous audits, and reports into the review process.

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4.4.9 Verifies compliance with ORR criteria, through interviews, observations, personnel training records, personnel qualification records (if applicable), inspection of hardware, and review of management practices.

4.4.10 Documents all ORR actions and ensures that such documents are included as part of the ORR process permanent record.

4.4.11 Compiles lists of prestart findings and observations, and defines closure for each finding. Documents recommendations for approvals for readiness notification, prestart finding closure, and startup authorization.

4.4.12 Serves as FERMCO and DOE point-of-contact for information regarding the ORR.

4.4.13 Resolves ORR Team conflicts.

4.4.14 Prepares and issues the Final Report and Closeout Report.

4.4.15 Interfaces with the DOE ORR Team Leader and the Dispute Resolution Team.

4.5 ORA Team Leader - The ORA Team Leader is responsible for the overall direction of the ORA Process and can delegate responsibilities to the Team Members. The items below are to be addressed for each ORA. Using the graded approach, the items may not be required or may be reduced in scope. Regardless, an explanation should be documented for excluded items:

4.5.1 Coordinates ORA activity and ensures the Administrator of the Operational Readiness Program is informed as required.

4.5.2 Uses a graded approach to develop the ORA criteria and ORA Implementation Plan using analytical techniques (checklists or MORT Analysis) to ensure total coverage of the subject activity. The breadth and depth of the ORA will reflect the degree of hazard for the activity, which is assigned by the Safety Analysis department.

4.5.3 Verifies the objective evidence which supports the status of readiness for each of the ORA Criteria.

4.5.4 Selects and trains ORA Team members as determined by the Team Leader.

4.5.5 Estimates the ORA resource and schedule requirements, and provides this information to the Performing Organization for budgeting and scheduling.

4.5.6 Verifies compliance with the ORA criteria through interviews, observations, records of examination of personnel, inspection of hardware, review of management practices, and overall administrative systems of the activity, as required.

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4.5.7 Prepares and issues the ORA Final Report and/or Closeout Report.

4.5.8 Recommends restart/startup to the Approval Authority.

4.5.9 Serves as FERMCO and DOE management liaison for ORA items during the review.

4.5.10 Ensures closure of all prestart findings prior to startup.

4.6 Operational Readiness Assessment Approval Authority - The Approval Authority for Operational Readiness Assessments is responsible for the documentation and approval as follows:

4.6.1 Appoints a qualified individual as the ORA Team Leader.

4.6.2 Issues letter granting approval for activity start.

4.7 Manager, Safety Analysis Department - The Manager of the Safety Analysis Department is responsible for:

4.7.1 Providing the hazard categories and hazard classes as defined in DOE 5480.23 or DOE 5481.1B, and recording them in the Safety Basis (e.g., Safety Assessment, Auditable Safety Record, Safety Analysis Report.)

4.7.2 Assures the Safety Assessment, Auditable Safety Records, and Safety Analysis Reports are completed as required by DOE 5480.23 and 5481.1B.

4.8 Manager, Systems Integration & Assessment - The Manager of the Systems Integration & Assessment Division is responsible for the ORR and ORA process:

4.8.1 Recommends ORR Team Leaders to the OP.

4.8.2 Approves ORR Team members.

4.8.3 Approves the independence of the ORR Team Leader.

4.9 Point of Contact - The Point of Contact is appointed by the Performing Organization and may be the project engineer for the activity being reviewed.

4.9.1 Acts on behalf of the Performing Organization.

4.9.2 Attends the pre- and post-ORR and ORA meetings.

4.9.3 Supplies information and acts as an escort during walkthroughs with the ORR/ORA Team.

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5.0 PROGRAM PLAN

5.1 The FERMCO Operational Readiness Manual is divided into the following sections:

5.1.1 Section 6.0, FERMCO Methodology Determination Process

5.1.2 Section 7.0, FERMCO ORR Procedure

5.1.3 Section 8.0, FERMCO ORA Procedure

5.1.4 Section 9.0, Routine Restart Procedure

5.1.5 Section 10.0, FEMP Plan of Action and Startup Notification Report

5.2 The FERMCO Methodology Determination Process is contained in Section 6.0. The methodology will determine whether an ORA or an ORR is required and the appropriate approval authority. Appendix A is a flowsheet to be used by the Performing Organization as an aid to determine the approval authorities and process. The Startup Notification Report identifies all known activities and an example of the report format is included as Appendix J. The Startup Notification Report will be updated semiannually or as changes occur.

5.3 The FERMCO ORR Process is contained in Section 7. A checklist will be developed using Management Oversight Risk Tree (MORT) or some other root cause analysis. The core requirements from DOE 5480.31 and the Minimum ORR Core Requirements in Appendix E shall be used in checklist development.

5.4 The FERMCO ORA Process is contained in Section 8. An activity specific checklist will be developed using the checklist in Appendix F or other methods. The graded approach shall be used to identify applicable criteria.

5.5 The Routine Restart Process is contained in Section 9. If the activity is a routine restart with an approved procedure and falls into the ORA process, the activity can be deferred from further review.

5.6 Section 10 provides a description of the Plan of Action and Startup Notification Report.

5.7 Appendix H provides the FERMCO documents that are generated to comply with DOE 5480.31, and to be consistent with the intent of DOE-STD-3006-93. The preparation of the documents is provided for in the specific section of this manual.

Each document generated for the Operational Readiness Program will be maintained with the record of the review.

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6.0 ORR AND ORA METHODOLOGY DETERMINATION

6.1 General

6.1.1 Readiness determinations conducted by FERMCO will fall into one of three classes: Operational Readiness Reviews, Operational Readiness Assessments, and Routine Restarts.

6.1.2 The flowsheet in Appendix A identifies the minimum approval authority and review method (ORR or ORA) necessary.

6.1.3 The Startup Notification Report will be updated annually or as required.

6.2 Procedure

6.2.1 The Performing Organization has identified, described, and bound the activity, and prepared a preliminary activity schedule.

6.2.2 The Performing Organization has submitted a Request for Safety Assessment to the Safety Analysis Department.

6.2.3 The Safety Analysis Department has determined the hazard categories, and hazard classes per site processes.

6.2.4 The Performing Organization determines if the activity is an Initial Start, Restart, or Routine Restart.

6.2.5 The Performing Organization determines the appropriate approval authority by reviewing Appendix A and documents the process flow decision by marking the flowchart itself.

6.2.6 The Performing Organization shall review other factors relating to the activity, such as public perception, personnel radiation exposure, chemical/process hazards, and environmental considerations.

6.2.7 The Performing Organization shall determine the minimum level of review that is appropriate based on Steps 6.2.1 through 6.2.6. The review and approval authority can be raised to a higher level by the OP or DOE-FN, if deemed appropriate.

NOTE: The following steps are used in preparing the Startup Notification Report.

6.2.8 The Performing Organization sends a notification letter to the Administrator of the Operational Readiness Program, which describes the activity and identifies the proposed readiness determination method. Deviations from this manual must be justified.

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6.2.9 The Administrator of the Operational Readiness Program develops the Startup Notification Report and transmits it to the OP.

6.2.10 The OP reviews and approves the Startup Notification Report and submits to DOE-FN.

6.2.11 The Administrator of the Operational Readiness Program will send the Startup Notification Report to the Performing Organization for updating on a semiannual basis.

6.2.12 The Performing Organization will update the activity information and add new activities to the Startup Notification Report.

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7.0 ORR PROCEDURE

7.1 General

7.1.1 The ORR evaluations provide an independent verification of the determination made by FERMCO that an activity is ready to begin.

7.1.2 A formal Plan of Action, Implementation Plan, Final report, and Closeout shall be prepared.

7.1.3 The resolution and verification of all findings from the Operational Readiness Review shall be documented and maintained.

7.1.4 The breadth of the ORR is addressed in the Plan of Action. The breadth may be expanded at a later time by the ORR Team if appropriate.

7.1.5 When an activity has been identified as requiring an ORR, the activity shall not start until the ORR process, including the DOE ORR, has been completed and the approval authority specified in the Startup Notification Report has authorized startup in writing.

7.1.6 The breadth of the ORRs will be fairly constant, but may vary if approved by a specific Plan of Action. Due to the many variations in hazard and risk of various activities, the depth of various ORR's will be different; but the breadth and depth of a specific ORR will reflect the hazard and risk of that activity. Focus will be based on the activity's technical scope and criteria needed to demonstrate a satisfactory state of readiness to proceed.

7.1.7 The ORR Team Leader may request assistance from the Independent Safety Review Committee (ISRC) or use the results of an ISRC review in the conduct of an ORR.

7.1.8 The OP will document to DOE-FN in a Readiness to Proceed Memorandum that the FERMCO ORR Team has evaluated all ORR criteria, identified all prestart findings and observations, and a recommendation as to whether the activity is ready to proceed. At the start of the DOE review, all actions required for startup or restart shall be complete with the exception of a manageable list of open prestart findings that have a well defined schedule for closure to allow review of the results of the closure process.

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7.1.9 Phased execution of the ORR process may be considered if the ORR involves the assessment of a number of different processes or systems that may be brought on line at different times or if the ORR will be conducted over an extended period of time. Each phase must be certified ready to start before the next phase can begin.

7.2 Prerequisites

7.2.1 The Performing Organization has determined that the activity requires an ORR and the activity is documented on the Startup Notification Report and approved by the OP.

7.2.2 The FEMP Plan of Action has been approved by the DOE-FN.

7.2.3 DOE-FN has been notified via the Startup Notification Report that the activity will require an ORR and the anticipated timing of the review.

7.2.4 The Performing Organization has defined and bound the activity, defined startup/restart, identified the anticipated activity preparation schedule, identified startup responsibilities, and has documented these to the ORR Team Leader.

7.2.5 The ORR Team Leader has identified budget requirements and ORR schedule, and has documented this information to the Performing Organization.

7.2.6 The ORR Team Leader has identified and approved the ORR Team qualifications and members.

7.2.7 The Performing Organization has identified those high priority activities that justify an expedited startup approval.

7.2.8 The Performing Organization ensures the safety basis is approved.

7.2.9 The Performing Organization certifies to the ORR Team Leader that activity readiness has been achieved.

7.3 ORR Implementation Plan

The ORR Team prepares the ORR Implementation Plan in accordance with Sections 7.3.1 through 7.3.4. A Prerequisite Sign-off Sheet will be supplied by the ORR Team Leader and will be included in the ORR Implementation Plan.

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7.3.1 An ORR Implementation Plan shall be prepared by the ORR Team with assistance from the Performing Organization. The format will be as follows:

- A description which also bounds the technical scope of the proposed activity, specific definition of whether the activity is an initial start or restart, proposed schedule for startup/restart and organizational responsibilities for readiness preparation tasks;
- Any prerequisites published in the Plan of Action;
- ORR Criteria and measurements to determine readiness (i.e., breadth of ORR as stated in the Plan of Action with additional requirements as needed, and depth of ORR);
- Reporting requirements;
- ORR Team Leader, ORR Team Members and their qualifications;
- ORR Team training and qualification requirements if applicable;
- Detailed ORR checklists covering each readiness element to be verified; and
- ORR Schedule.

7.3.2 The Implementation Plan will also identify whether an expedited startup is justified and the proposed alternative to waiting for the DOE ORR review cycle.

7.3.3 Development of the ORR Checklists may include evaluation of the criteria considerations listed in Appendix E and shall be attached to the ORR Implementation Plan.

7.3.4 The ORR Implementation Plan shall be approved by the ORR Team Leader and a copy transmitted to the OP, Performing Organization, and DOE-FN for their information.

7.4 <u>Graded Approach</u>

7.4.1 With respect to planning an ORR, a graded approach is used to determine both the breadth and depth of the ORR. The combination of breadth and depth is the scope of the ORR.

7.4.2 The supporting principle governing the use of the graded approach must be that knowledgeable personnel analyze the factors surrounding the activity, determine the breadth and depth of the review needed, and then document this determination.

7.4.3 Application of the Graded Approach should meet the definition in Section 3.0 and include analysis of the following items as a minimum:

- Physical modifications to the activity;
- Procedural changes;
- Personnel changes;
- Length of shutdown;
- Overall hazard and risk characteristics of the activity;
- Operating history of the activity; and
- Visibility of the process.

7.5 Checklist Development

7.5.1 Methodology

Many reference items will be needed by the ORR Team during the review. These should be identified and collected before the review. Examples of information that may be needed include, but should not be limited to: system diagrams, operating procedures, data packages, system requirement definitions, ISRC findings, and incident reports. In addition to these types of information, the team should have appropriate equipment, instruments, and safety equipment that will be needed to perform the review.

The ORR Team shall determine the criteria and review approaches to be used for the review based on the approved breadth given in the Plan of Action and document the criteria in the ORR Implementation Plan. There are two recommended methods for developing the checklist.

- The analytical tree method may be used as a basis for the checklist. The Management Oversight and Risk Tree (MORT) analysis is an example of this approach to be used. This method of analysis will provide the ORR Team with a complete and clear picture of areas that require review.

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- The Predeveloped Checklist method uses a list of all available information related to the activity and are provided by the ORR Team Leader to the ORR Team. The ORR Team is then to decide which of the items is needed for the activity. A composite checklist for all systems or individual checklists for each system is then generated.

  After the checklist has been developed, each checklist item will be assigned to an ORR Team member utilizing the forms from Appendix I.

7.5.2 Responsibility Assignments

The ORR Team members are responsible for the documentation of each checklist item.

7.6 <u>ORR Team Selection, Training and Qualification</u>

The ORR Team Leader and members will have the following qualifications:

	Team Leader	Team Members
Experience/Training in Performance-Based Review Techniques	1 Week per year and 1 Day w/in past 6 mos (Lead Auditor and ORR Training)	1 Day training within past 6 months (ORR Training)
Participation in previous compliance Assessments within last two years	2	0 (Preference given to someone who has participated in a compliance assessment)
ORR Participation within last two years (can include previous compliance assessments above)	1	0 (Preference given to someone who has observed or participated in an ORR)
Technical Experience	OP Judgement	ORR Team Leader Judgement
System/Process Knowledge	OP Judgement	ORR Team Leader Judgement
Letter of Designation	Recommend: SIA Division Manager Approve: OP Concur: Individual Administrative Manager	Recommend: Team Leader Approve: SIA Division Manager Concur: Individual Administrative Manager
Independence	Approved: SIA Division Manager	Approved: ORR Team Leader

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7.6.1 Team members shall be individually chosen by the ORR Team Leader to ensure that their collective backgrounds will include the capability of evaluating all aspects required by the ORR based on the specified breadth and depth.

7.6.2 The ORR Team may consist of plant personnel or external experts who have been assigned at the request of the ORR Team Leader. The size and expertise of the team will depend upon a number of factors including the complexity of the activity being reviewed, schedule requirements, and the breadth and depth of the review.

7.6.3 ORR Team members shall be selected from any of the following divisions of FERMCO: Remediation Support Operations, Environmental Programs, Environmental Safety and Health, Regulatory Programs, Engineering, Quality Assurance, and Systems Integration and Assessment divisions.

7.6.4 Qualifications of Team members should not be based solely on technical expertise, but should also include skills in assessing, analyzing, and communicating. An individual's knowledge of the particular systems, processes, operating procedures invoked, safety documentation, as well as knowledge of the ORR process will be considered.

7.6.5 In no case shall ORR Team members review their own work or work for which they are directly responsible.

7.6.6 Each Team member must be verified by the ORR Team Leader as qualified to participate in the ORR. The verification will indicate that training requirements specified in the ORR Implementation Plan have been met.

7.6.7 Training requirements may indicate that the ORR Team members visit the activity and/or review appropriate facilities. Activity specific information may be gained through a combination of required reading, assessed training and qualification program attendance, tours, and presentations. Training will be determined by the ORR Team Leader and will be included in the ORR Implementation Plan.

7.6.8 ORR Training consists of SM-0005 familiarization, MORT techniques for checklist development, interview techniques, walkdown techniques, and compliance assessment techniques.

7.7 <u>ORR Implementation Plan Approval</u>

7.7.1 The ORR Team Leader approves the ORR Implementation Plan and transmits a copy to the OP, Performing Organization, and the DOE-FN for information.

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7.8 Procedure

7.8.1 All the ORR Prerequisites (Section 7.2) are complete.

7.8.2 The ORR Implementation Plan (Section 7.3) is approved.

7.8.3 The ORR Team Leader and the ORR Team conduct a pre-ORR meeting with the Performing Organization to review the ORR Schedule; the ORR Team organization and team members; the ORR Methodology; closeout requirements for findings; and details of the ORR Implementation Plan.

7.8.4 The ORR Team Leader commences the ORR in accordance with the ORR Implementation Plan.

7.8.5 The Performing Organization provides documented evidence to the ORR Team as required to complete the ORR Criteria.

7.8.6 The ORR Team is required to conduct a broad range of tasks including (but not limited to): "as-built" drawings and other applicable procedures and documents; compiling supporting documentation; providing a determination that the activity complies with applicable environmental requirements and federal and state laws and regulations; executing ORR criteria/performance objectives as assigned by the ORR Team Leader; verifying that all documentation of safety, quality, or environment issues are in place; and concurring with the determination of operational readiness and the conclusions presented in the ORR report in the team members area of assessment. These tasks may be completed through the review and evaluation of presented information and documentation, conducting interviews, and touring the area to evaluate the state of readiness.

7.8.7 The ORR Team concurs with the determination of operational readiness and the conclusions reached in the team members area of assessment.

7.8.8 The ORR Team identifies all prestart findings and observations and completes the "FERMCO Open Action Item" forms (Appendix G).

7.8.9 The ORR Team Leader issues completed FERMCO ORR Open Item forms to the Performing Organization that identifies deficiencies and whether the deficiency is a finding or an observation.

7.8.10 The Performing Organization reviews and completes the Open Item forms, identifying the action plan and schedule for closing each finding, and returns the completed forms to the ORR Team Leader.

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7.8.11 The ORR Team Leader will establish routine status meetings. The frequency of the meeting will depend on the intensity of the activity and the need of the ORR Team and Performing Organization to have discussions.

7.8.12 The ORR Team Leader conducts a post-ORR meeting with the Performing Organization to discuss all findings from the ORR and status of the Open Item forms.

7.8.13 The ORR Team Leader issues the Final Report in accordance with Section 7.10 and transmits to the OP for concurrence and DOE for review and comment.

7.8.14 The ORR Team Leader resolves the DOE comments on the Final Report.

7.8.15 The OP prepares a Readiness to Proceed Memorandum and sends to DOE.

7.8.16 DOE conducts the DOE ORR.

7.8.17 The ORR Team Leader ensures closure of all FERMCO and DOE ORR prestart items per 7.9 before startup/restart authorization is obtained.

7.8.18 The OP receives written start/restart authorization from the DOE and documents to the Performing Organization approval to start activity.

7.8.19 The Performing Organization starts activity.

7.8.20 The ORR Team Leader completes the Closeout Report per Step 7.11 and submits to the DOE.

7.9 <u>Finding Documentation and Closeout</u>

7.9.1 It is imperative that the ORR Team Leader clearly specifies what is required for closure and that the Performing Organization clearly understands the closure requirements.

7.9.2 Auditable documentation must exist to support each ORR criteria's readiness (e.g., audit report, surveillance report, letter, training sheet, test results).

7.9.3 Completion of the work and the preparation of the documentation which demonstrates completion of the finding action is the responsibility of the Performing Organization. The ORR Team Leader closes the finding.

7.9.4 Closure of findings shall be documented by completing the form in Appendix G.

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7.9.5 In general the closure package will include the following information:

- Documentation of the original evaluation of the checklist items and the evidence supporting the evaluation;
- Identification of prestart findings or observations;
- The corrective action plan for each open finding and the date of completion for each corrective action; and
- Documentation supporting the closure.

7.10 Final Report

7.10.1 The ORR Team Leader shall hold a closeout meeting with the Performing Organization to discuss the Final Report. During the meeting, the Team Leader shall discuss the expected action plan development, submittal, and approval requirements, as well as the mechanism by which the finding will be officially closed and documented.

7.10.2 The Final Report documents the results of the ORR and includes the following elements:

- A recommendation as to whether startup or restart can proceed safely.
- A statement as to whether any identified nonconformances or schedules for gaining compliance with applicable DOE Orders, Secretary of Energy Notices, as defined in the Standards/Requirements Identification Documents (S/RIDs) have been justified in writing, have been formally approved, and in the opinion of the ORR Team, maintain adequate protection of the public and worker health and safety, equipment, or the environment.
- Prestart findings, definition of closure for each finding, schedule for closeout of findings, and request for authorization to start activity are contingent upon closeout of prestart findings.

7.11 Closeout Report

7.11.1 The ORR Closeout Report is an outgrowth of the Final Report. The Closeout Report shall include the ORR evaluation, all findings closed, observations, and a lessons learned section.

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7.11.2 A Lessons Learned section shall discuss ways to improve both the activity being reviewed and the ORR process. Lessons Learned provide information concerning problems encountered by the review team, inadequacies concerning the review, design and implementation, expertise, or any other relevant factors or information that may be utilized by future review teams.

7.11.3 The ORR process may also identify Lessons Learned which are applicable to similar facilities at FEMP or at other DOE sites. Lessons Learned in areas such as operations, procedures, design, or documentation may be identified. The ORR Team should include these Lessons Learned in the report as well. The Performing Organization is responsible for promulgation of these Lessons Learned in accordance with established procedures for Lessons Learned.

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8.0 OPERATIONAL READINESS ASSESSMENT PROCEDURE

8.1 General

8.1.1 When an activity has been identified as requiring an ORA (Section 6.0), the activity shall not start up until the ORA process has been completed and the approval given by the Approval Authority. The major difference between an ORR and a ORA is the format of the checklist and the depth of the readiness analysis. This includes but is not limited to evaluation of the minimum core requirements identified in DOE 5480.31.

8.1.2 The ORA will be conducted using an ORA Implementation Plan. By using the graded approach, the requirements may be a simple checklist or a broad based assessment. In either case, the plan will be formal, approved, and executed by the ORA Team Leader. The results of the ORA will be auditable and retained by the Performing Organization with a record that any findings during the ORA were resolved.

8.1.3 Phased execution of the ORA process may be considered if the ORA involves a number of different processes, phases of a process such as cold startup and hot operation, or systems that must be brought on line at different times. Each phase must be certified ready to start before the next phase can begin.

8.1.4 Preparations for the non-routine startup or restart of an activity shall be disciplined and documented, and shall provide an adequate basis for the ORA.

8.1.5 Due to the many variations encountered in activities and their associated risk, the depth of one ORA may be different than another ORA depending upon the hazard and risk associated with the activity. Focus will be based on the activity's technical scope and the breadth and the depth of ORA that is needed to demonstrate a satisfactory state of readiness for a specific activity to proceed. This is called the graded approach.

8.1.6 Auditable and meaningful documentation must exist to support each ORA criteria's readiness (e.g., audit report, surveillance report, letter, training sheet, test results).

8.1.7 The focus of the ORA shall be the readiness of all hardware, personnel, procedures, and compliance with the applicable requirements.

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8.1.8 An effective ORA will provide assurance that these objectives are accomplished and documented. The verification that these objectives are accomplished is by document verification or by performance-based evaluations, which include field observations, interviews, observation of training evolutions, integrated system checkouts of cold run demonstrations, and walkdown of procedures.

8.1.9 The Administrator of the ORR shall be copied on all documentation concerning the ORA.

8.2 Prerequisites

8.2.1 The Performing Organization has determined that the activity requires an ORA and the activity is documented in the Startup Notification Report.

8.2.2 DOE-FN has been notified via the Startup Notification Report that the activity will require an ORA.

8.2.3 The Performing Organization has defined and bound the activity, identified the anticipated activity preparation schedule, identified startup responsibilities, and documented these to the ORA Team Leader.

8.2.4 The Performing Organization and the ORA Team Leader have identified budget requirements and the ORA schedule.

8.2.5 The ORA Team Leader has identified and approved the ORA Team members and their qualifications.

8.2.6 The Performing Organization notifies the ORA Team Leader that activity readiness has been achieved.

8.3 ORA Implementation Plan

8.3.1 The ORA Team prepares the ORA Implementation Plan using a graded approach appropriate for the activity in accordance with Section 8.3.2 through 8.3.5.

8.3.2 An ORA Implementation Plan shall include the following:

8.3.2.1 A description which bounds the proposed activity, proposed schedule for startup/restart, and organizational responsibilities for readiness preparation tasks.

8.3.2.2 ORA Criteria and measurements to determine readiness (i.e., checklist).

8.3.2.3 Reporting requirements.

8.3.2.4 ORA Team Leader, ORA Team Members, and their qualifications.

8.3.2.5 ORA Team training and qualification requirements.

8.3.2.6 ORA Schedule.

8.3.3 The ORA Checklist shall be attached as part of the ORA Implementation Plan.

8.3.4 The ORA Team Leader approves the ORA Implementation Plan and submits a copy to the Approval Authority for review.

8.3.5 The Approval Authority for the activity reviews the ORA Implementation Plan for comments.

8.4 Graded Approach

8.4.1 With respect to planning an ORA, a graded approach is utilized to determine the level of depth. The combination of technical scope, breadth and depth forms the envelope within which the ORA is conducted.

8.4.2 The supporting principle governing the use of the graded approach must be that knowledgeable personnel analyze the factors surrounding the activity, determine the breadth and depth of the review needed, and then document this determination.

8.4.3 The graded approach is also utilized to determine the type of analysis to be done. This may result in an assessment that may be as short and simple as a determination of the specific reason for the shutdown and that the corrective actions have been satisfactorily completed; or may require a more comprehensive assessment.

8.5 ORA Criteria Checklist Development

8.5.1 The ORA Team Leader shall review Appendix F, "Operational Readiness Assessment Checklist" and use the graded approach outlined in Section 8.4 to develop a final checklist. NOTE: Appendix F is an example and may require extensive redevelopment for a specific project.

8.5.2 The ORA Team Leader shall assign Team members that are responsible for each criteria item and include these assignments in the checklist.

8.6 Team Selection, Training and Qualification 5692

The ORA Team consists of, as a minimum, the ORA Team Leader. The Performing Organization selects and approves the ORA Team Leader. Additional Team members are selected by the Team Leader who is also responsible for conducting preliminary actions which include Team training and familiarization with the proposed activity in accordance with the following requirements.

8.6.1 The ORA Team members will be individually chosen by the ORA Team Leader to ensure that their collective backgrounds will include the capability of evaluating all aspects required by the FEMP Plan of Action. The size and expertise of the team will depend upon a number of factors including the complexity of the activity being reviewed, schedule requirements, the scope, and depth of the review.

8.6.2 The ORA Team members may be selected from Remediation Support Operations, Environmental Programs, Environmental Safety and Health, Regulatory Programs, Engineering, Quality Assurance, Construction and System Integration and Assessment divisions associated with the activity, but not directly responsible for the activity. An individual's knowledge of the particular systems, processes, safety documentation, as well as knowledge of the ORA process should be considered.

8.6.3 Qualifications of ORA Team members should not be based solely on technical expertise, but should also include skills in assessing, analyzing, and communicating.

8.6.4 In no case shall ORA Team members review their own work or work for which they are directly responsible.

8.6.5 Each ORA Team member must be certified by the ORA Team Leader as qualified to participate in the ORA. This qualification would normally follow after training requirements specified in the ORA Implementation Plan have been met.

8.6.6 Training of ORA Team members may include the activity specific items needed to fully acquaint team members with the technical details of the activity to be assessed. The training will be determined by the ORA Team Leader and will be included in the ORA Implementation Plan. Activity specific information may be gained through a combination of required reading, tours, and presentations. Training requirements will have the graded approach applied depending on the hazard category that has been determined for the activity.

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8.7.0 Procedure

8.7.1 All ORA prerequisites (Section 8.2) are complete.

8.7.2 The ORA Implementation Plan (Section 8.3) is approved.

8.7.3 The ORA Team Leader conducts a Pre-ORA meeting with the Point of Contact and Performing Organization to review: the ORA Schedule; the ORA Team organization and team members; the ORA Methodology; close out procedures for findings; and details of the ORA Implementation Plan.

8.7.4 The Point of Contact provides the required documentation to the ORA Team Leader.

8.7.5 The ORA Team Leader commences the ORA in accordance with the ORA Implementation Plan.

8.7.6 The ORA Team may conduct a broad range of tasks, including, but not limited to reviewing drawings and other applicable procedures and documents , compiling supporting documentation, providing a determination that the activity complies with state laws and regulations, executing ORA criteria/performance objectives as assigned by the ORA Team leader, and verifying that all documentation is in place. These tasks may be completed through the review and evaluation of information and documentation, conducting interviews and touring the area to evaluate the state of readiness.

8.7.7 The ORA Team identifies all prestart findings and observations and documents all actions. The FERMCO Open Action Item Form (Appendix G) used in the ORR process is an example.

8.7.8 ORA Team Leader reviews and issues prestart findings to the Performing Organization for completion.

8.7.9 The Performing Organization reviews the findings and takes action.

8.7.10 The ORA Team Leader conducts a post-ORA meeting with the Performing Organization to discuss all findings from the ORA and the status of the Open Items. The ORR Administrator shall be invited to this meeting.

8.7.11 The ORA Team Leader prepares a Final Report. This report documents the results of the ORA and provides justification for the Team's recommendation to proceed.

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8.7.12 The ORA Final Report shall be submitted to the Approval Authority (see Appendix A) and used as a basis to grant approval to start the activity.

NOTE: If DOE-FN has identified that a DOE-FN ORA will be performed, Steps 8.7.13 through 8.7.15 must be completed.

8.7.13 The OP sends notification to the DOE-FN of FERMCO's readiness to proceed.

8.7.14 The DOE-FN conducts their ORA.

8.7.15 The ORA Team Leader resolves all DOE-FN ORA comments.

8.7.16 The ORA Team Leader ensures closure of all FERMCO and/or DOE-FN ORA prestart items.

8.7.17 The Approval Authority issues formal notification to Performing Organization to start the activity.

8.7.18 The Performing Organization starts activity.

8.7.19 The ORA Team Leader transfers all ORA files to the Performing Organization.

8.8 Finding Documentation and Closeout

8.8.1 For all ORA activities, startup/restart will not occur until all prestart items have been officially closed and reviewed.

8.8.2 The ORA Team Leader closes FERMCO ORA prestart findings and ensures closure of DOE-FN ORA findings after the Performing Organization provides sufficient closure documentation.

8.8.3 In general, the closure package will include the following information.

- Identification of original finding.
- Corrective action taken.
- How the corrective action was verified.
- Documentation of the closure.

8.9 Final Report

8.9.1 The Final Report documents the results of the ORA and includes the following elements:

- A recommendation as to whether startup or restart can proceed safely.

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- A statement as to whether any identified nonconformances or schedules for gaining compliance with applicable DOE Orders, Secretary of Energy Notices, as defined in the Standards/Requirements Identification Documents (S/RIDs) have been justified in writing, have been formally approved, and in the opinion of the ORA Team, maintain adequate protection of the public and worker health and safety, equipment, or the environment.

- Prestart findings, definition of closure for each finding, schedule for closeout of findings, and request for authorization to start activity are contingent upon closeout of prestart findings.

8.9.2 The Final Report must contain a section concerning lessons learned. Lessons learned should be used to improve the ORA process. Lessons learned provide information concerning problems encountered by the review team, adequacies or inadequacies concerning the review, design and implementation, expertise, or any other relevant factors or information that may be utilized by future review teams.

8.9.3 The ORA process may also identify lessons learned which are applicable to similar facilities. Lessons learned in areas such as operations, procedures, design, or documentation may be identified. The ORA Team should include these lessons learned in the report as well. The Performing Organization is responsible for promulgation of the lessons learned in accordance with established procedures for lessons learned.

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9.0 ROUTINE RESTART PROCEDURE

9.1 Requirements for Authorizing a Routine Restart

9.1.1 The activity does not meet any of the requirements outlined for an ORR or ORA defined in Section 6.0 Methodology Determination.

9.1.2 The Performing Organization has identified the activity as a routine restart in the Startup Notification Report.

9.1.3 Approved procedures and/or checklists for the activity have been published which ensure a prestart review be performed to ensure the activity is ready to start safely.

9.1.4 Operators and supervisors conducting the activity are qualified and trained to conduct the evolution.

9.1.5 No oversight or reviewing agency or department has issued a stop work order.

9.2 Examples of Routine Restart Activities

Though certainly not all inclusive, the following provide example activities that are considered routine restart. This list is not intended to be prescriptive.

9.2.1 A normal restart of an activity or process as the result of dictated interruption. This includes such evolutions as cleaning filters, taking inventories, refilling batch processes, or sampling.

9.2.2 A normal restart of an activity as the result of a normal personnel or schedule dictated interruption. This includes such evolutions as lunch breaks, shift changes, startup after a night time, weekend or holiday shutdown.

9.2.3 A normal restart of a facility or process as the result of a shutdown due to directions from the FERMCO supervisor resulting from problems requiring investigation. This includes items such as quality problems, unknown or unusual occurrences or situations.

9.2.4 A construction decontamination and demolition activity that is governed by work plans, or procedures, or safety and or work plans that are developed from procedural requirements.

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10.0 FEMP PLAN OF ACTION AND STARTUP NOTIFICATION REPORT

10.1 Purpose

10.1.1 The purpose of the FEMP Plan of Action is to establish the breadth and prerequisites of the ORR, the composition of the team performing the review, and the designated startup or restart authority.

The FEMP Plan of Action is provided to cover all planned DOE and FERMCO ORRs at the FEMP. This rationale is justified as follows. First, the FEMP uses a single prime contractor ERMC with a single mission to demobilize and decontaminate the DOE's Fernald, Ohio facility. Second, the FEMP has only a very few ORRs planned during the tenure of the contract and one Plan of Action is adequate for all FEMP ORRs. The FEMP Plan of Action provides a straight forward approach that meets the requirements of 5480.31 while ensuring the safety of the activity and providing the DOE with adequate information to evaluate the FEMPs approach to ORRs.

10.2 General

10.2.1 The provisions of this plan apply to all nuclear facilities at the FEMP as defined by specific reference to the Startup Notification Report. The FERMCO Safety Analysis Department, which is independent of the Performing Organization, determines an activity's hazard category. The scope of the activity and hazard category are documented in the Startup Notification Report. Approval of the FEMP Plan of Action constitutes approval of the designated readiness determinations and startup approval authorities that are identified in the Startup Notification Report.

10.2.2 The Startup Notification Report identifies all FY 1994 scheduled activities. At this time, no activity with a Hazard Category 1 is scheduled. If an activity with a Hazard Category 1 is planned in the future, a separate Plan of Action specifically addressing that activity will be prepared for approval.

10.2.3 It is intended that the FEMP Plan of Action be a joint FERMCO and DOE-FN document. While not specifically identified, many of the requirements of the plan will be duplicated for the DOE and FERMCO. The FEMP Plan of Action will identify those requirements as appropriate. The FERMCO Office of the President, DOE-FN Manager, and EM-424 are the approvals needed on the FEMP Plan of Action.

10.2.4 The format and content of the FEMP Plan of Action will include as a minimum:

- Title Page
- Signature/Approval Page
- Table of Contents
- ORR Breadth
- ORR Team Composition
- Prerequisites

In addition, the Startup Notification Report will be attached to the Plan of Action to provide additional information that is needed.

10.3. Operational Readiness Review Breadth

10.3.1 The breadth of the ORR shall be documented in the Plan of Action. The FEMP Plan of Action shall include all of the core requirements identified by DOE 5480.31.

10.3.2 During the development of the ORR Implementation Plan, the ORR Team will address as a minimum the core requirements identified in Appendix E. For each review, the ORR Team will use the graded approach to determine the depth (i.e., level of analysis, documentation, and/or actions necessary to evaluate the core requirements). The depth of the review will be documented in each activity's ORR Implementation Plan.

10.3.3 The ORR Team may expand upon the breadth of the review and will document the changes in the ORR Implementation Plan. The ORR Implementation Plan will be transmitted to the DOE-FN for their information.

10.4 Prerequisites

10.4.1 The following general prerequisites to starting an ORR must be included in the FEMP Plan of Action.

10.4.1.1 The Plan of Action has been approved by the Startup/Restart authority. Transmittal of the plan to DOE-FN is considered DOE-FN approval.

10.4.1.2 Line Management has certified that they are ready to proceed.

10.4.1.3 Implementing procedures for use in initial starts and restart activities are complete in accordance with DOE 5480.31.

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10.4.1.4 The ORR Implementation Plan is approved and includes the depth, hazard category, Startup Notification Report, schedule, and identification of ORR Team.

10.5 Team Composition

10.5.1 The FEMP Plan of Action shall identify the ORR Team Leader and address the ORR Team composition and experience requirements. The FERMCO ORR Team shall consist of experienced and trained individuals. Team members will be approved by the ORR Team Leader and selected from the following divisions as a minimum:

- Remediation Support Operations,
- Environmental Programs,
- Environmental Safety & Health,
- Quality Assurance,
- Engineering,
- Construction,
- Regulatory Programs, and
- System Integration and Assessment.

10.6 Initial Start/Restart Notification and Schedule

10.6.1 The Startup Notification Report shall be prepared and included as an attachment to the Plan of Action.

10.6.2 The Startup Notification Report documents planned activities for at least the following 12 months and includes:

10.6.2.1 A description of the activity to be started.

10.6.2.2 Identifies the hazard category.

10.6.2.3 Indicates whether an ORR or ORA determination has been made.

10.6.2.4 Determines the startup approval authority.

10.6.2.5 Identifies the points of contact in the various organizations.

10.6.3 The Startup Notification Report will receive semiannual updates at a minimum.

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11.0 RECORDS AND DOCUMENTS

11.1 Records will be maintained to provide documentation of the action taken and information relevant to the ORR. As a minimum, the following ORR records and documents will be maintained by the ORR Administrator.

11.1.1 Approved activity hazard category determination and Safety Analysis Report.

11.1.2 Qualifications and Training status for ORR Team Members.

11.1.3 Approved ORR Implementation Plan with comments and resolution.

11.1.4 Documentation for the evaluation of each checklist item.

11.1.5 Action Item Forms demonstrating closure of prestart finding.

11.1.6 Readiness to Operate Memorandum, Readiness to Proceed Memorandum, and the Startup Approval letters.

11.2 The following ORA records and documents will be maintained by the Approval Authority:

11.2.1 Approved activity hazard category determination and reference document.

11.2.2 Qualifications and Training status for ORA Team members.

11.2.3 ORA Implementation Plan.

11.2.4 Documentation of the evaluation of each checklist item.

11.2.5 Action plan for closure of prestart findings.

11.2.6 Readiness to Operate Memorandum, Readiness to Proceed Memorandum and Startup Notification Letters.

11.3 Documents and records shall be maintained in accordance with FERMCO procedures for quality records in accordance with FERMCO SSOP-0609, "Records Management."

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12.0 REFERENCES AND DRIVERS

12.1 References

12.1.1 SSOP-0609, "Records Management," dated

12.1.2 DOE-STD-3006-93, "Planning and Conduct of Operational Readiness Reviews" dated DRAFT

12.1.3 DOE-STD-1027-92, "Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports," dated 12/92

12.1.4 DOE-76-454 (SSDC-4), "MORT User's Manual"

12.1.5 DOE Order 4700.1, Rev. 1 "Project Management Systems," dated 6/2/92

12.2 External Drivers

12.2.1 DOE Order 5480.31, "Startup and Restart of Nuclear Facilities," 9/15/93

12.2.2 DOE Order 5480.1B, "Environmental, Safety, and Health Program for Department of Energy Operations," dated 5/10/93

12.2.3 DOE Order 5480.19, "Conduct of Operations Requirements for DOE Facilities," dated 5/18/92

12.2.4 DOE Order 5480.23, "Nuclear Safety Analysis Reports" dated 4/10/92

12.2.5 DOE Order 5480.5, "Safety of Nuclear Facilities," 9/23/86

12.2.6 DOE Order 5481.1B, "Safety Analysis and Review System" dated 5/19/87

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APPENDIX A

ORR APPROVAL AUTHORITY AND PROCESS SELECTION FLOWSHEET WITH PROPOSED AUTHORITIES

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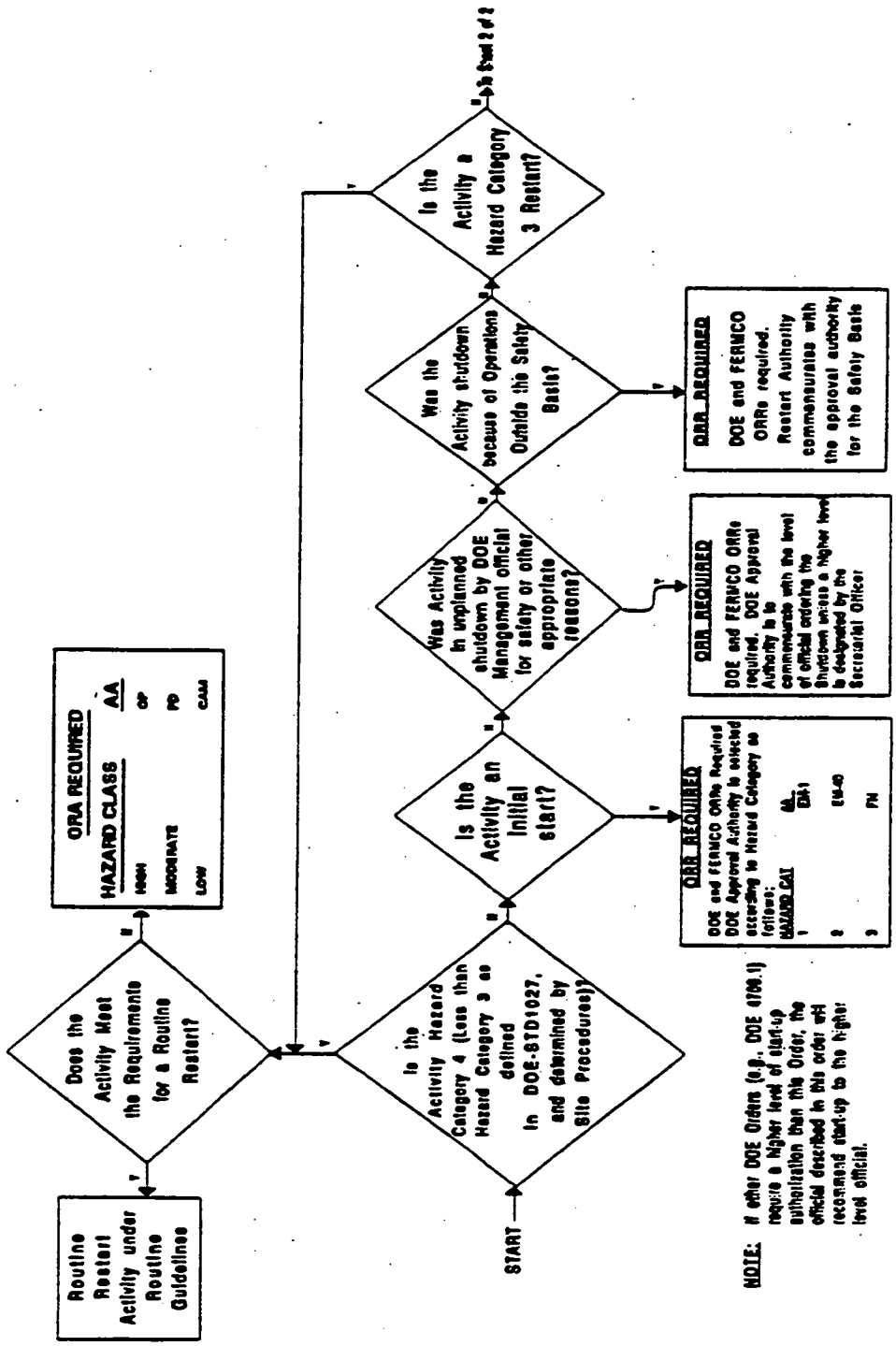
APPENDIX A
Sheet 1 of 2

ORR APPROVAL AUTHORITY AND PROCESS SELECTION FLOWSHEET WITH PROPOSED AUTHORITIES



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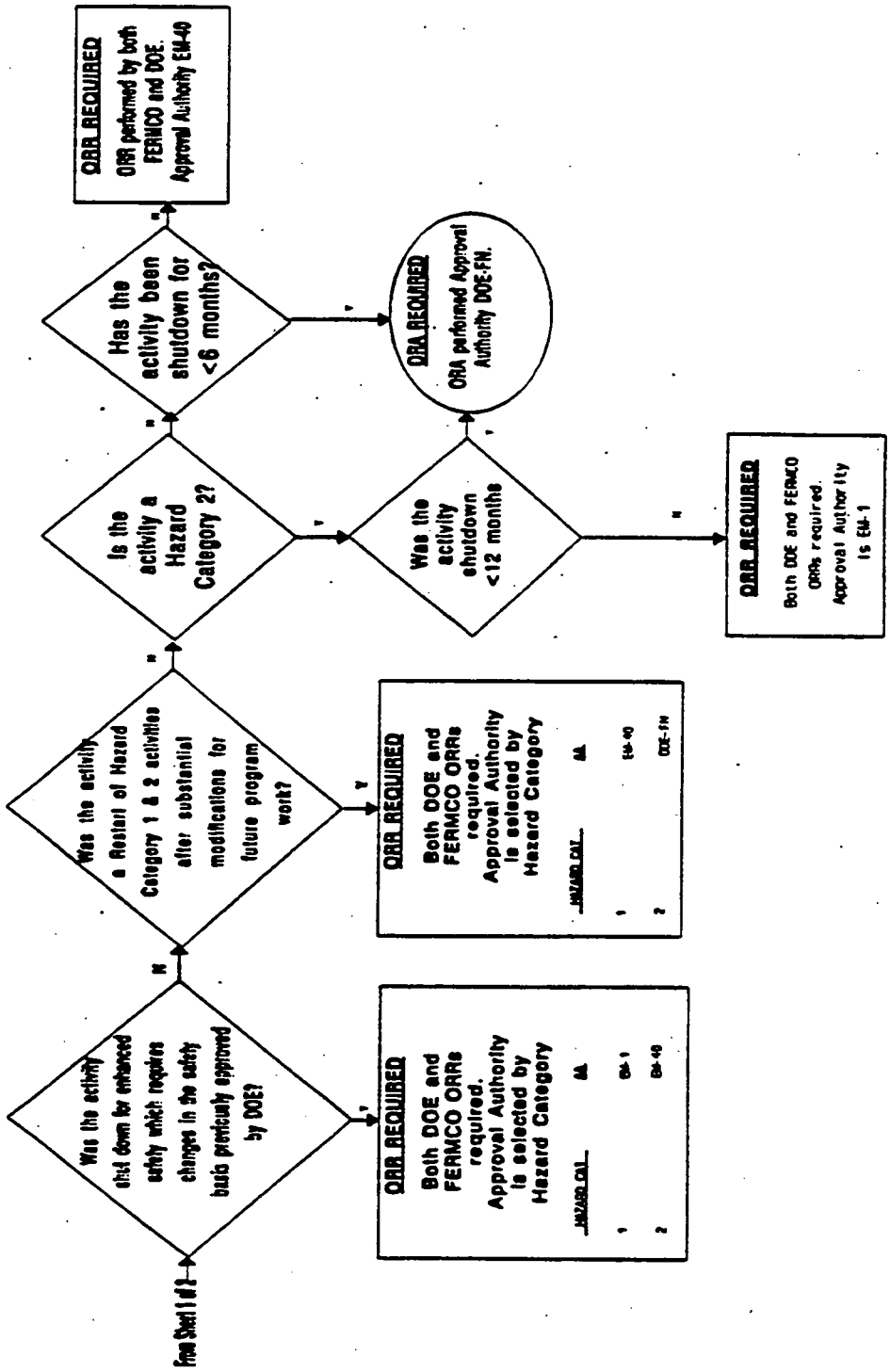
ORR APPROVAL AUTHORITY AND PROCESS SELECTION FLOWSHEET WITH PROPOSED AUTHORITIES

APPENDIX A
Sheet 2 of 2



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APPENDIX B

FERMCO METHODOLOGY PROCESS FLOWSHEET

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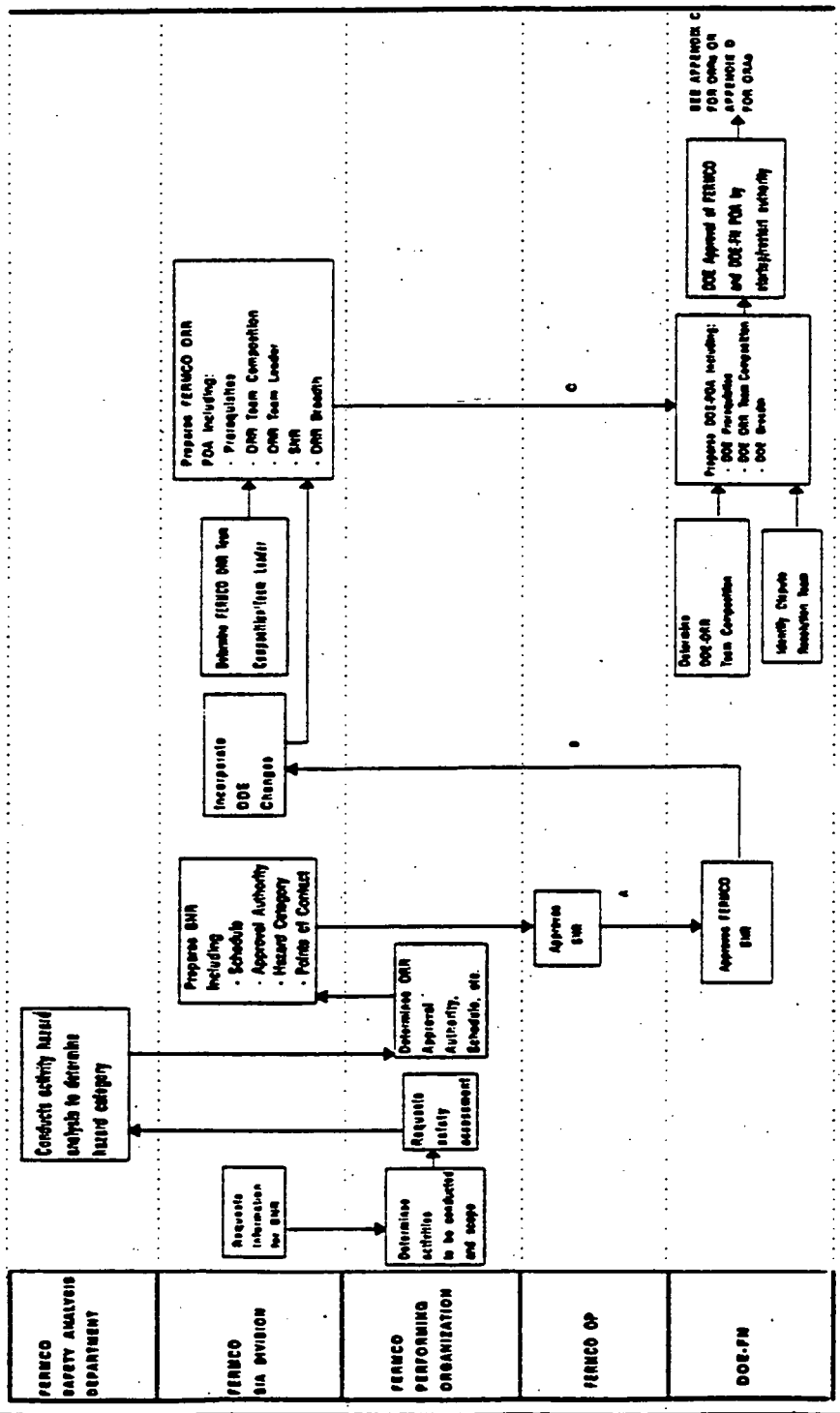
Appendix B

FERMCO METHODOLOGY PROCESS FLOWSHEET



NOTE: Reference points that correlate to DOE interface are noted with a letter.

These reference points correspond to actions planned in the DOE ORR Manual.

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APPENDIX C

FERMCO ORR PROCESS FLOWSHEET

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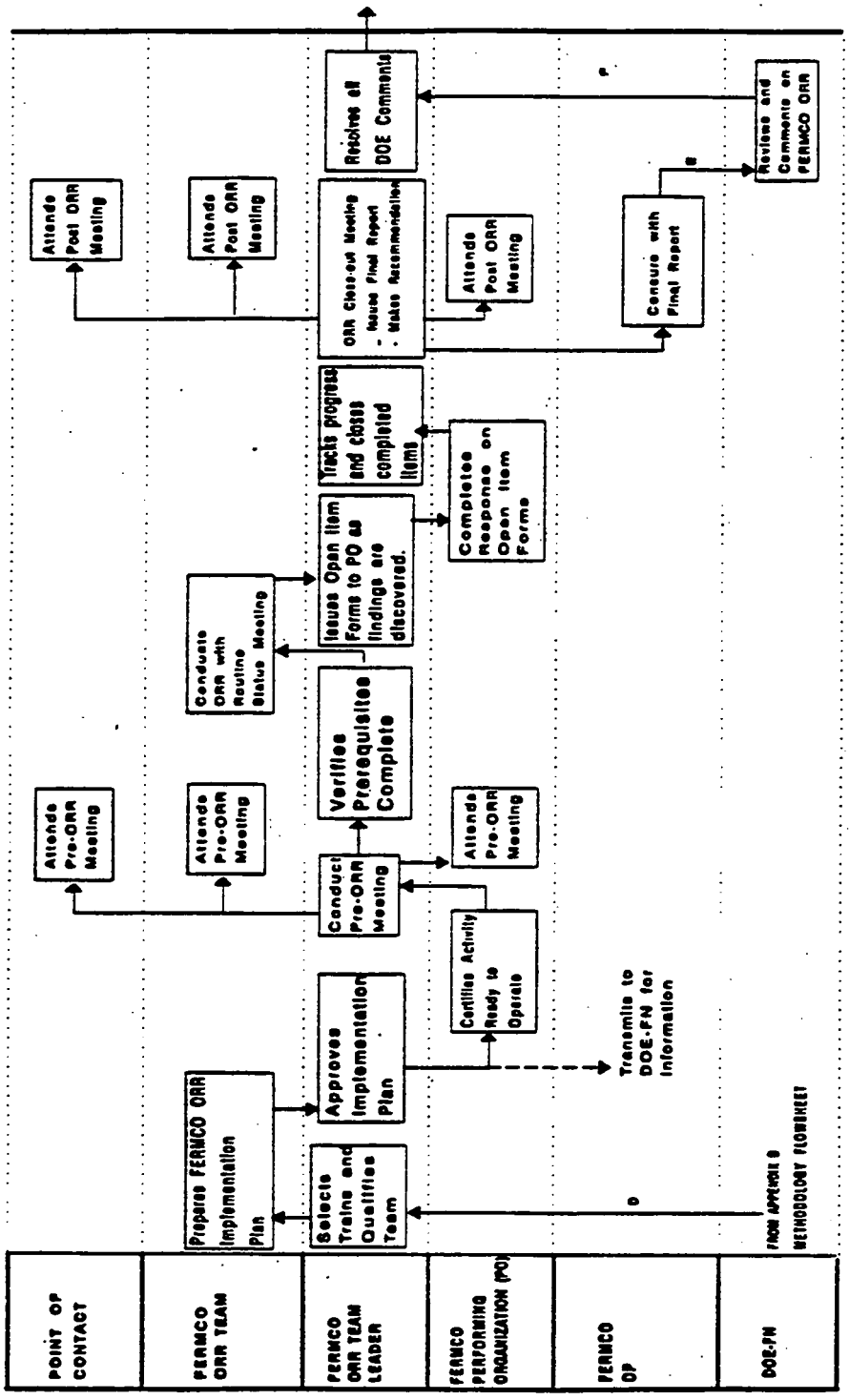
Appendix C
Page 1 of 2

FERMCO ORR PROCESS FLOWSHEET



NOTE: Reference points that correlate to DOE interfaces are noted with a letter. These reference points correspond to actions planned in the DOE ORR Manual.

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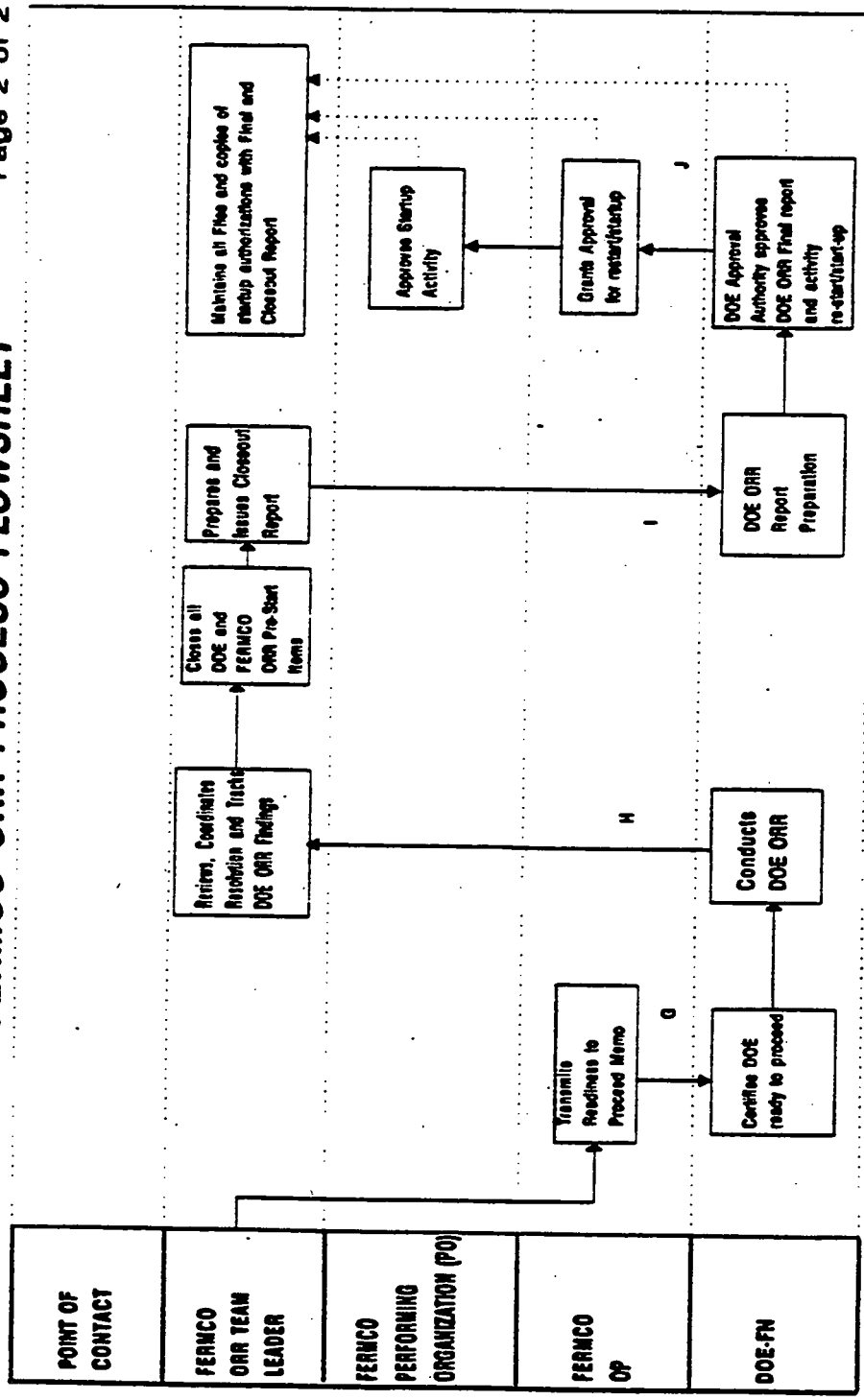
Appendix C
Page 2 of 2

FERMCO ORR PROCESS FLOWSHEET



NOTE: Reference Points that correlate to DOE interface are noted with a letter.
These reference points correspond to actions planned in the DOE ORR Manual.

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APPENDIX D

FERMCO ORA PROCESS FLOWSHEET

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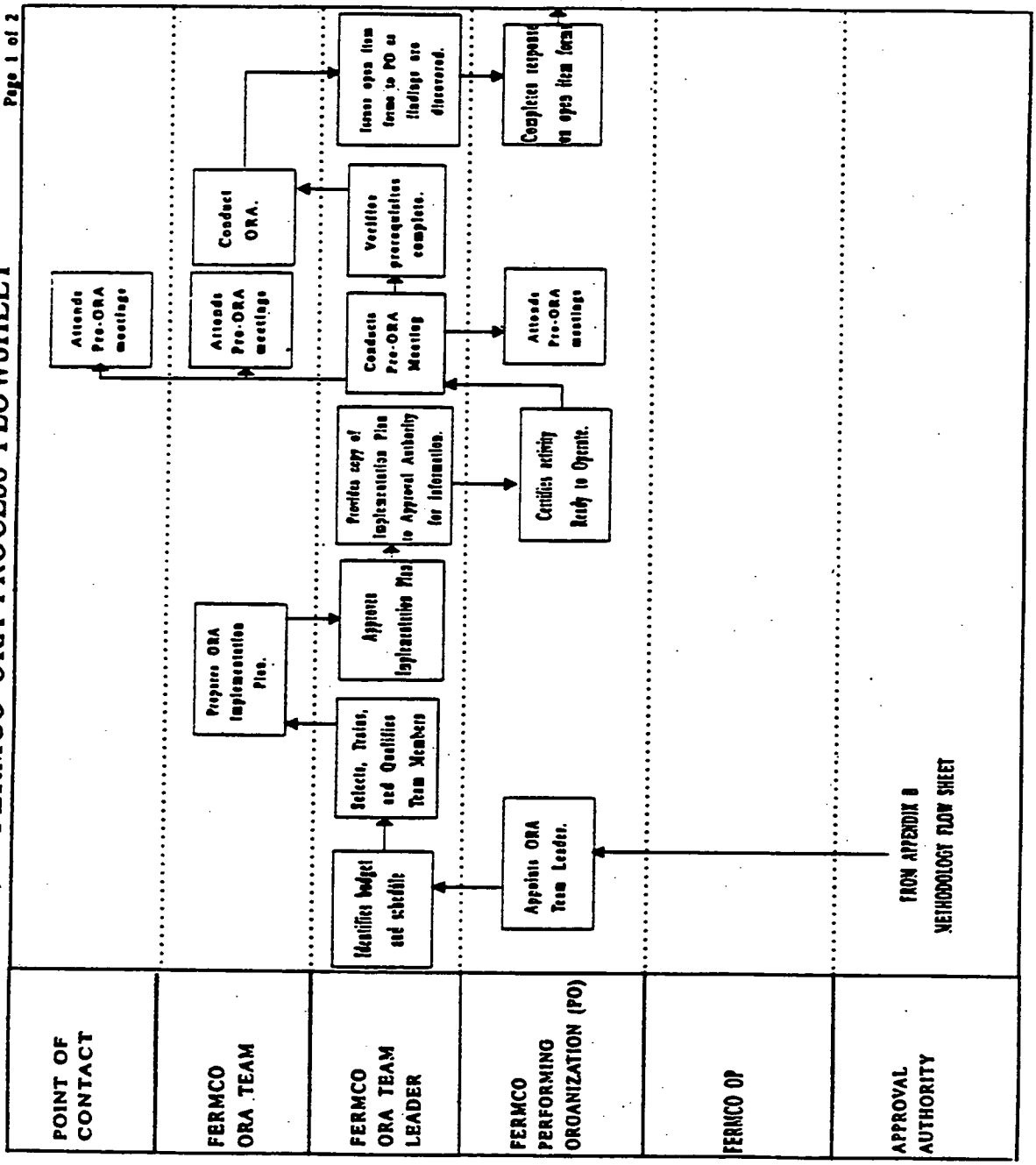
Page 1 of 2

FERMCO ORA PROCESS FLOWSHEET



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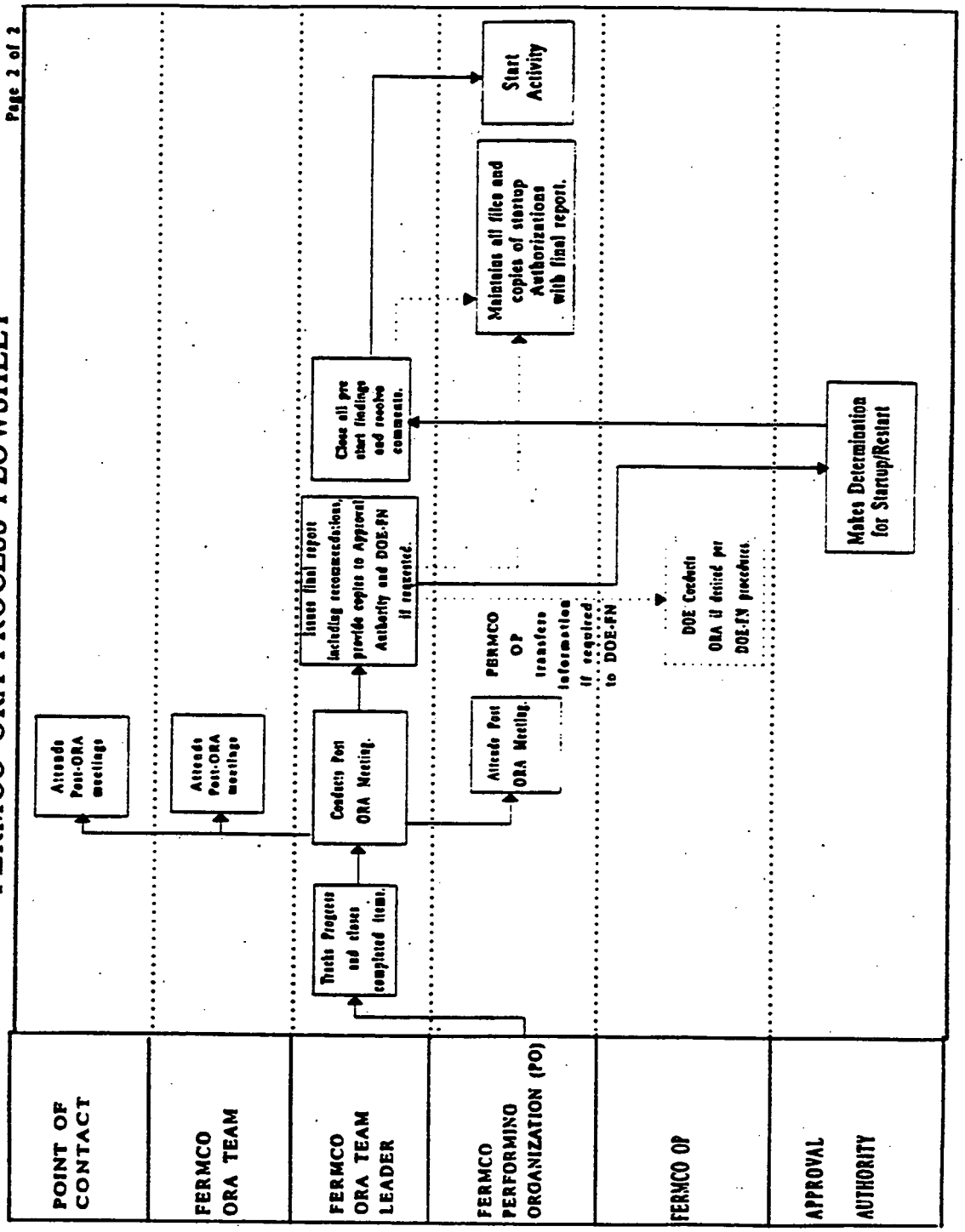
APPENDIX D
Page 2 of 2

FERMCO ORA PROCESS FLOWSHEET



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APPENDIX E

MINIMUM ORR CORE REQUIREMENTS

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APPENDIX E

MINIMUM ORR CORE REQUIREMENTS

NOTE: The following requirements are the "Contractor's Core Requirements" taken from DOE 5480.31. An evaluation of these requirements comprise the minimum requirements for a FERMCO ORR. Listed below each core requirement are general consideration that were identified in draft DOE-STD-3006-93. Detailed requirements are identified in applicable DOE orders promulgated by the FERMCO S/RIDS. The core requirements should also be considered for an ORA. The ORA team leader along with the performing organization will expand these requirements as necessary.

1. There are adequate and correct procedures and safety limits for operating the process systems and utility systems.

   - Response to Design Basis Accidents

2. Training and qualification programs for operations and operations support personnel have been established, documented, and implemented (the training and qualification program encompasses the range of duties and activities required to be performed.)

   - Industrial Hygiene
   - Occupational Safety
   - Fire Protection and Life Safety
   - Transportation Safety
   - Environmental Protection
   - Training and Qualification
   - Maintenance

3. Level of knowledge of operations and operations support personnel is adequate based on reviews of examinations and examination results, and selected interviews of operating and operations support personnel.

   - Personnel Selection
   - Training and Certification
   - Knowledge and Competence
   - Recertification
   - Oral/Written Boards

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4. Facility safety documentation is in place that describes the "safety envelope" of the facility. The safety documentation should characterize the hazards/risks associated with the facility and should identify mitigating measures (systems, procedures, administrative controls, etc.) that protect workers and the public from those hazards/risks. Safety systems and systems essential to worker and public safety are defined and a system to maintain control over the design and modification of facilities and safety-related utility systems is established.

- Facility Safety Review and Safety Analysis
- Radiation Safety
- Criticality Safety
- Adverse Weather Protection
- Chemical Process Safety
- Process Hazard Reviews

5. A program is in place to confirm and periodically reconfirm the condition and operability of safety systems, including safety related process systems and safety related utility systems. This includes examinations of records of tests and calibration of safety system and other instruments which monitor limiting conditions of operation or that satisfy Technical Safety Requirements. All systems are currently operable and in a satisfactory condition.

- Maintenance Program Structure and Management
- Maintenance Equipment, Facilities, and Technology
- Work Identification, Planning, and Scheduling
- Maintenance Procedures
- Maintenance Information
- Maintenance Quality Assurance
- Preventive Maintenance and Evaluation Programs
- Calibration Programs
- Facility Performance Measurement and Evaluation

6. A process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

7. A systematic review of the facility's conformance to applicable DOE Orders has been performed, any nonconformances have been identified, and schedules for gaining compliance have been justified in writing and formally approved.

- DOE Orders
- Codes and Standards
- Environmental Reviews
- Statutory Requirements
- Corporate Policies and Procedures

8. Management programs are established, sufficient numbers of qualified personnel are provided, and adequate facilities and equipment are available to ensure operational support services (e.g., training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety and engineering) are adequate for operations.

   - Industrial Hygiene
   - Radiation Safety
   - Nuclear Safety
   - Criticality Safety
   - Occupational Safety
   - Fire Protection and Life Safety
   - Transportation Safety
   - Environmental Protection
   - Operations Quality Assurance
   - Quality Assurance Program Implementation
   - Emergency Preparedness
   - Laboratory Analysis
   - Safeguards
   - Security
   - Transportation
   - Engineering
   - Technical Support of Operations
   - Research and Development Support
   - Waste Management
   - Utilities
   - Materials Control and Accountability
   - Scheduling
   - Quality Control

9. A routine and emergency operations drill program, including program records, has been established and implemented.

   - Emergency Preparedness

10. An adequate startup or restart test program has been developed that includes adequate plans for graded operations testing to simultaneously confirm operability of equipment, the viability of procedures, and the training of operators;

    - Environmental Qualification
    - Analysis of Startup of Facility Operation and Programmatic Aspects

11. Functions, assignments, responsibilities, and reporting relationships are clearly defined, understood, and effectively implemented with line management responsible for control of safety.

    - Process Facility and Site Interfaces

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12. The implementation status for DOE 5480.19 CONDUCT OF OPERATIONS REQUIREMENTS FOR DOE FACILITIES, is adequate for operations.

- Operations Structure and Management
- Operations Procedures
- Operations Information
- Operating Practices
- Control Systems and Equipment
- Operations Materials and Supplies
- Experimental Operations
- Internal and External Communications
- Permits
- Organizational, Responsibilities and Authority

13. There are sufficient numbers of qualified personnel to support safe operations.

- Staffing Levels

14. A program is established to promote a sitewide culture in which personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high priority commitment to comply with these requirements.

- Adherence to Proper Practice

15. The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, and accident analysis included in the safety basis.

- Maintenance Outage Program
- Safety Systems and Equipment
- Configuration Control
- Technical Control and Data

16. Modifications to the facility have been reviewed for potential impacts on procedures and training and qualifications. Procedures have been revised to reflect these modifications and training has been performed to these revised procedures.

- Program Definition and Goal Realization

17. The technical and management qualifications of contractor personnel responsible for facility operations are adequate.

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APPENDIX F

OPERATIONAL READINESS ASSESSMENT CHECKLIST

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APPENDIX F

OPERATIONAL READINESS ASSESSMENT CHECKLIST

NOTE: The checklist in this attachment is an example and may be used as the basis for an ORA checklist. This list is optional and should not be construed as limiting or restricting the scope of the ORA. A grading factor may also be applied to ORAs with lower approval authority.

HARDWARE

1. Conformance of the design with applicable codes (e.g. fire, electrical, toxic chemical, etc.)

2. Design reviews complete and documented in accordance with PMP-325 and DOE 4700.1. Any nonconformances have been identified and scheduled for gaining compliance have been formally approved.

3. Required nuclear safety evaluations completed and reviewed.

4. Necessary safety analyses and environmental assessments and impact statements completed and approved.

5. Installed vessels, piping, instrumentation, and other facility hardware are compatible with process parameters (flow rates, pressure, temperature, chemicals). Storage tanks and pressure systems tested.

6. Latest drawings approved and distributed.

7. Equipment configuration agrees with as-built drawings, or exceptions noted on latest drawings.

8. Acceptance review of plant modifications complete.

9. Essential equipment items identified (safety system and design features for safety equipment on the MMICS and field tagging complete), calibrated, and preventative maintenance complete and on-line.

10. Backup equipment essential to process on hand.

11. Plant Protection Systems installed, checked out, and on-line.

12. Safety related instrumentation identified, calibrated, and preventative maintenance complete.

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OPERATIONAL READINESS ASSESSMENT CHECKLIST (Cont.)

HARDWARE (cont.)

13. Material handling equipment installed.

14. Sampling equipment installed.

15. Quality Control inspection equipment ready.

16. Offices ready.

17. Analytical laboratory services ready, equipment operable, computer and data reporting operable, analysis chemicals available.

18. No outstanding work requests or change orders.

19. Construction interfaces resolved.

20. Explosion potentials identified and resolved.

21. Fire protection equipment functional and operational.

22. Safety showers and eye-wash fountains are operable, properly maintained, tested, or taken out of order.

23. Safety signs and barriers in place.

24. Appropriate protective clothing and respiratory protection equipment on hand and stored in a sanitary area. Airline Breathing Air Stations (if installed) properly installed and operational.

25. Decontamination equipment available.

26. Primary filter media checked; HEPA filters DOE certified; in-place DOP testing of HEPA filters (if present) completed.

27. Liquid or solid waste system on-line.

28. Atmospheric protection system on-line; associated instruments calibrated.

29. Stack or process effluent monitor calibrated and on-line.

30. Process control warning system on-line.

OPERATIONAL READINESS ASSESSMENT CHECKLIST (Cont.)

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HARDWARE (cont.)

31. Tracking system for equipment/instrument malfunctions operable.

32. Local exhaust ventilation and process makeup air equipment functional and operational.

33. Essential chemical stocks adequate and Material Safety Data Sheets available in the work area for those chemicals.

34. All applicable utilities on-line.

35. Emergency power equipment operable.

36. Tag-outs and lock-outs current.

37. Scales calibrated.

38. Tanks and piping have proper hazard warning identification.

39. Noise levels measured and appropriate precautions taken.

40. Configuration of process equipment, emission control equipment, sampling equipment or other equipment, agrees with the terms and conditions or limiting conditions for operation of applicable permits or safety requirements.

41. Pre-operational functional tests complete.

42. Human Factor considerations tested as required.

43. Review and acceptance by the Project Manager completed.

44. Waste storage containers available and in place.

45. Communication equipment is available.

PERSONNEL

1. Operating personnel indoctrinated to:

    a. Manufacturing Specifications (MS), Operational Safety Requirements (OSR), and Standard Operating Procedures (SOP) and changes.

    b. Importance of correct entries in logs.

OPERATIONAL READINESS ASSESSMENT CHECKLIST (Cont.) 5692

PERSONNEL (cont.)

c. Emergency responses to process abnormalities.

d. Hazards of materials associated with operation (MSDS) reviewed.

e. Emergency notification lists (back shifts).

f. Operational irregularity reporting procedure.

g. Importance of operational constraints.

h. Terms and conditions or limits and conditions of applicable air and water permits or safety requirements.

i. Technical support available.

j. Conduct of Operations

2. Facility, process and safety training complete (current) and level of knowledge adequate and documented for:

   a. Supervisors/foremen

   b. Operators (includes motor vehicle operators, transportation laborers, traffic personnel, and heavy equipment operators)

   c. ERM and IH technicians

   d. QA/Waste Certification

   e. Emergency Response Team

   f. Maintenance craft

   g. Technical engineers

3. Emergency personnel identified and trained.

4. All shifts are fully staffed.

5. Appropriately medically certified, trained, and fit tested personnel (if respiratory protection is required for this operation).

6. A program is established to promote a sitewide culture in which personnel exhibit an awareness of public and worker safety , health, and environmental protection requirements and, through their actions, demonstrate a high priority commitment to comply with these requirements.

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OPERATIONAL READINESS ASSESSMENT CHECKLIST (Cont.)

7. The technical and management qualifications of contractor personnel responsible for facility operations are adequate.

ADMINISTRATIVE

1. Procedures necessary for operation have been identified, prepared, and approved. Master list of Maintenance Standards and Standard Operating Procedures including revision.

2. Risk Assessment updated for operations phase.

3. Safety Analysis Report complete and approved.

4. Operational Safety Requirements (OSR) document complete and approved.

5. Operational constraints, terms and conditions or limiting conditions, if any, identified and visible in Standard Operating Procedures or other documents.

6. Document change procedure in place.

7. Lessons learned input evaluated for the activity.

8. Workability and completeness of all SOPs verified in plant.

9. Maintenance Standards, Standard Operating Procedures, and current forms distributed and available to operating crews.

10. Emergency plan prepared and approved.

11. Evacuation plan prepared.

12. ALARA analysis of anticipated personnel exposure complete.

13. Conduct of Operations program complete.

14. Quality Assurance Plan complete and approved.

15. All expendable equipment parts (seals, bearings, sensors, etc.) have been set up as stores items to minimize downtime and hazards.

16. Housekeeping evaluation of area.

17. Configuration Management safety systems and design features for safety systems identified and established to prevent unauthorized modification.

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OPERATIONAL READINESS ASSESSMENT CHECKLIST (Cont.)

ADMINISTRATIVE (cont.)

18. All necessary federal and state permits (Air/Water PTI/PTO, NESHAP, etc.) are in-place.

19. Relevant Training programs have approved lesson plans and documentation.

20. Notification of regulatory agencies for startup or initiation has been completed as required by the applicable PTI/PTO/permit.

21. Functions, assignments, responsibilities and reporting relationships are clearly defined, understood, and effectively implemented with line management responsible for control of safety.

22. Activity/program environment has been evaluated for weather or adverse conditions impact and appropriate procedural guidance provided to mitigate.

23. Human Factors applications have been evaluated and incorporation into procedures, administrative policies and tested as required.

24. All readiness review criteria open items are complete or have documentation to provide tracking of item to be completed.

25. Review and acceptance by the project manager completed.

26. Maintenance has two (2) copies of all Operator Manuals, Repair Parts Manuals, Manufacturer's Bulletins, etc., for all new equipment, system, or process changes or new installations.

27. Repair parts needed to provide for safety or promote continuity of operations been identified and if necessary been established as FEMP store items.

28. Facility "Pre-Fire Plan" is complete.

29. Health & Safety Plan is complete and approved.

30. All Waste Material has been characterized per SSOP-0002, "Material Evaluation Form" procedure.

31. Satellite accumulation area established for temporary accumulation of hazardous waste.

32. Storage planning.

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OPERATIONAL READINESS ASSESSMENT CHECKLIST (Cont.)

ADMINISTRATIVE (cont.)

33. Formal notification has been given to DOE.

34. Shift turnover and pass down log are adequate.

35. A process to identify , evaluate, and resolve deficiencies and recommendations made by oversight groups, audit organizations, etc. has been established.

36. A routine and emergency operations drill program including records has been established and implemented.

37. The pre-operations test program includes plans for graded operational testing to confirm the operability of equipment, the viability of procedures and training of operators.

38. The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures and accident analysis included in the safety basis.

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APPENDIX G

FERMCO OPEN ACTION ITEM FORM

(TYPICAL FOR ORRs. MAY BE USED FOR ORAs IF DESIRED) 5692

FERMCO OPEN ACTION ITEM FORM			
COMPLETED BY ORR TEAM			
ORR #:	ACTIVITY:		
PO CONTACT:	MS#:	PHONE:	FAX:
OPEN ACTION NUMBER:			
READINESS CRITERIA:			
FINDING:			
CLOSURE REQUIREMENTS:			
COMPLETED BY PERFORMING ORGANIZATION			
CORRECTIVE ACTION DESCRIPTION:			
SCHEDULE AND MILESTONES:			
CORRECTIVE ACTION PLAN/SCHEDULE REVIEWED AND ACCEPTED BY: Performing Organization: _____ Date: _____ ORR Team Leader: _____ Date: _____			
CLOSURE			
ACTION TAKEN TO VERIFY CLOSURE:			
DOCUMENTATION SUPPORTING CLOSURE:			
FERMCO ORR TEAM LEADER CLOSURE SIGNATURE:	DATE:		

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INSTRUCTIONS FOR COMPLETING FERMCO OPEN ACTION ITEM

ORR Team Member Completes Items 1 through 7

1. ORR Number - Identification number or ORR Title from Startup Notification Report.

2. Activity - Exact title as shown on the ORR schedule

3. PO Contact - The Performing Organization's responsible person, mail stop, phone number and fax.

4. Open Action Number - Specific number issued by the Administrator of the Operational Readiness Program.

5. Readiness Criteria - List the specific readiness criteria from the checklist data.

6. Finding - List the specific finding noting the specific inadequacy that causes the readiness criteria not to be satisfied.

7. Closure Requirements - List the specific closure requirements necessary to close the item including the required documentation.

Performing Organization completes Items 8 through 11

8. Corrective Action Description - Specific planned corrective action by the Performing Organization to correct the finding.

9. Schedule and Milestones - Scheduled milestones and dates for completion of the planned actions estimated by the Performing Organization.

10. Corrective Action Plan/Schedule Reviewed and Accepted By:

    - Signature of the Performing Organization to indicate approval and commitment to the closure plans and schedules.

    - Signature of the Team Leader Accepting Plan and Schedule.

11. Document the Closure Action.

ORR Team Member Completes Items 12 and 13

12. When the item is to be closed, the ORR Team Contact lists the closure document identification numbers and/or attaches a copy to the Open Item Action List and forwards the package to the ORR Team Leader for closure.

13. ORR Team Leader signs and approves item closure.

APPENDIX H

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ORR/ORA DOCUMENT SUMMARY

5692

TITLE: FERMCO Operational Readiness Manual

APPLICABILITY: ORR and ORA

PURPOSE: Pre-plans situation requiring starts and restarts of nuclear facilities

DRIVER: Not specifically required by DOE 5480.31

PREPARER: Developed by FERMCO

REVIEWER: FERMCO Manual approved by FERMCO Management.

DISTRIBUTION: FERMCO Site Distribution

SCHEDULE: Draft Complete 10/29/93
Final document to be published 11/30/93

CONTENT:

- Procedures for starts and restarts:
  ORR's and Operational Readiness Assessments
- May be used as a generic plan of action

FORMAT: Open

5692

TITLE: Startup Notification Report

APPLICABILITY: ORR and ORA

PURPOSE:

- Keep DOE aware of startup and restart activities and to provide information for DOE ORR planning.
- Provide for DOE approval of choice of Readiness Assessment or ORR for a start/restart activity

DRIVER: Not specifically required by DOE 5480.31
Required by the DOE ORR Standard

PREPARER: Developed by FERMCO

REVIEWER: Submitted by FERMCO to the DOE-FN and then to the Approval Authority for approval of the decisions.

DISTRIBUTION: FERMCO OP and Administrator of the Operational Readiness Program

SCHEDULE: Prior to performing ORRs.
Updated semiannually.

CONTENT:

- Planned starts or restarts
- Type of start/restart review:
  ORR or ORA
- Approval authority for starts/restarts requiring an ORR

FORMAT: Open

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TITLE: Operational Readiness Assessment Procedures

APPLICABILITY: ORA

PURPOSE: Simplify the restart process where risk does not warrant a full ORR

DRIVER: Required by both DOE 5480.31 and the ORR Standard

PREPARER: Developed by both FERMCO and DOE

REVIEWER: FERMCO Procedure approved by FERMCO President
DOE Procedure approved by Operations Office Manager

DISTRIBUTION: FERMCO site distribution

SCHEDULE: Prior to performing ORAs under DOE 5480.31

CONTENT:

- Procedures stating what is necessary to verify readiness when a restart does not require an ORR
- Procedures for routine restarts may not require a Readiness Assessment
- Operations Office-specific or unique Contractor/DOE sequencing arrangements for Readiness Assessments
- Readiness Assessments require Implementation Plans for their conduct

FORMAT: No specific format is required or suggested

TITLE: Operational Readiness Assessment Report 5692

APPLICABILITY: ORA

PURPOSE: Document the results of the Operational Readiness Assessment and any required corrective action.

DRIVER: Implicitly required by DOE 5480.31 and the ORR Standard.

PREPARER: Prepared by FERMCO

REVIEWER: FERMCO Report approved by FERMCO President

DISTRIBUTION: FERMCO Report submitted to the DOE-FN

SCHEDULE: Completed at the end of the ORA

CONTENT:

- Documentation of the Readiness Assessment
- Corrective action required, taken, and verified for restarts.

FORMAT: No specific format is required.

TITLE: FERMCO ORR Plan of Action 5692

APPLICABILITY: ORR

PURPOSE: Require good planning to ensure that an activity is truly ready to operate, before an ORR begins

DRIVER: Required by DOE 5480.31 and DOE ORR Standard

PREPARER: Developed by FERMCO and the DOE-FN concurrently

REVIEWER: Plan approved by FERMCO President, DOE-FN Manager, and EM-424

DISTRIBUTION: Administrator of the Operational Readiness Program, FERMCO ORR Team Leader, and DOE-FN Team Leader

SCHEDULE: Prior to initiating ORRs or ORAs

CONTENT:

- Addresses the core requirements in DOE 5480.31
- Prerequisites for the ORR
- ORR schedule
- Proposed ORR Team Leader
- Activity Information
- Information on the start/restart circumstances
- Information unique to the ORR

FORMAT: No specific format

TITLE: FERMCO ORR Implementation Plan 5692

APPLICABILITY: ORR

PURPOSE: Requires good planning to ensure that an activity is truly ready to operate, before an ORR begins

DRIVER: Required by DOE 5480.31 and DOE ORR Standard

PREPARER: Developed by FERMCO ORR Team

REVIEWER: Approved by ORR Team Leader

DISTRIBUTION: Administrator of the Operational Readiness Program, ORR Team Members, Performing Organization, and DOE-FN Team Leader

SCHEDULE: Prior to the Start of the ORR

CONTENT:

- Process by which the ORR is conducted
- Rationale for the process by which the ORR is conducted
- Selection of assessment and review areas
- Procedures for developing findings and conclusions
- Criteria to categorize prestart and poststart findings
- Information unique to the ORR

FORMAT: No specific format

5692

TITLE: FERMCO Final Report

APPLICABILITY: ORR

PURPOSE: Documents the ORR process, logic, results, and open findings

DRIVER: Required by DOE 5480.31

PREPARER: Developed by FERMCO ORR Team

REVIEWER: Reviewed and approved by FERMCO President

DISTRIBUTION: Performing Organization and DOE-FN

SCHEDULE: At the Completion of FERMCO's ORR and prior to the start of DOE-FN ORR

CONTENT:

- Description of the ORR process, logic, and results
- Prestart findings and observations
- Conclusion on whether start/restart can safely proceed
- Statement on identified nonconformances and planned means to gain conformance with requirements and approval status of those plans

FORMAT:

- Title Page
- Signature Page
- Table of contents
- Executive Summary
- Introduction
- ORR Evaluation
- Appendices

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TITLE: FERMCO Closeout Report

APPLICABILITY: ORR

PURPOSE: Document closure of all open findings and closeout of the ORR.

DRIVER: Required implicitly by DOE 5480.31 and DOE ORR Standard

PREPARER: Developed by FERMCO ORR Team

REVIEWER: Reviewed and approved by FERMCO President

DISTRIBUTION: Administrator of the Operational Readiness Program, Performing Organization, DOE-FN

SCHEDULE: Completed once all Prestart Findings are completed

CONTENT:

- Final Report Documentation
- ORR Evaluation
- All findings closed
- Lessons learned
- Observations

FORMAT:

- Title Page
- Signature Page
- Table of contents
- Executive Summary
- Introduction
- ORR Evaluation
- Appendices

TITLE: Readiness to Proceed Memorandum 5692

APPLICABILITY: ORR

PURPOSE: Requires good planning to ensure that an activity is truly ready to operate, before an ORR begins

DRIVER: Required by DOE 5480.31 and DOE ORR Standard

PREPARER: Prepared by FERMCO

REVIEWER: Reviewed by DOE for accuracy and completeness

DISTRIBUTION: Administrator of the Operational Readiness Program and DOE-FN Manager

SCHEDULE: After the FERMCO ORR is complete and when a small "manageable" list of prestart findings exists

CONTENT:

- Certification that the activity is ready to operate
- Open prestart findings and corrective action plans
- Recommended date for DOE ORR to start
- Certification of completion of Contractor ORR

FORMAT: No specific format

APPENDIX I

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ORR CHECKLIST ITEMS

(TYPICAL)

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ORR CHECKLIST ITEM
(TYPICAL)

IDENTIFICATION NO.:	TITLE OF ORR:	DATE:	REVISION:
ORR Contact:	Phone No.:	Requirements Reference:	
Requirement:			
Methodology:			
Major Elements/Acceptance Criteria:			
Evaluation:			
Complies with requirement:	Finding:	Observation:	

INSTRUCTIONS FOR COMPLETING ORR CHECKLIST ITEM

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1. **ID #** - Number of checklist item from the Implementation Plan

2. **Title** - Brief title from the Checklist

3. **Date** - Date item originally assigned

4. **Revision** - Revision of checklist item

5. **ORR Contact** - ORR Team Member responsible for evaluating the checklist item

6. **Phone** - ORR Team Member phone number

7. **Requirements Reference** - Detailed reference identifying specific item such as DOE order, procedure, etc..

8. **Requirement** - Statement that describes the subject that must be examined. This may be from orders, CFRs, or any pertinent document.

9. **Methodology** - Provide a discussion of the method to be utilized in evaluation of the checklist item. This will include reviewing documents, walkdowns, or observing personnel activities.

10. **Major Elements/Acceptance Criteria** - Identify specific elements to be observed and the acceptance criteria for the element.

11. **Evaluation** - The results of the assessment compared to the acceptance criteria. Be specific.

12. **Complies with Requirement** - Check block if all acceptance criteria is met

13. **Finding** - Check this block if all acceptance criteria not met. Write up finding sheets for each finding (Appendix G).

14. **Observations** - Check this block if any observations are noted. Compile on a separate list.

APPENDIX J

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STARTUP NOTIFICATION REPORT EXAMPLE

(TYPICAL)

ORR # Administrator Completes

DATE RECEIVED: Administrator Completes

ACTIVITY DESCRIPTION, INCLUDING TECHNICAL SCOPE

The Performing Organization (PO) completes. Includes the Activity Description and Technical Scope.

PERFORMING ORGANIZATION AND CONTACT	HAZARD CATEGORY AND REFERENCE	INITIAL START/ RESTART	TYPE OF REVIEW	APPROVAL AUTHORITY	TEAM LEADER	ACTIVITY SCHEDULE
PO completes and includes Project Manager or Engineer responsible.	Safety Analysis Completes and includes the referenced document.	PO completes. Needed to determine type of review.	PO complete Identified through Appendix A	PO completes Identified through Appendix A	OP and SIA Manager Complete	PO completes. Date when activity certified ready to operate

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APPENDIX K

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ACRONYMS

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ACRONYMS

CAM	Control Account Manager
DOE	Department of Energy
DOE-FN	DOE-Fernald
DOE-HQ	DOE-Headquarters
FEMP	Fernald Environmental Management Project
FERMCO	Fernald Environmental Restoration Management Corporation
HC	Hazard Class
ISRC	Independent Safety Review Committee
MORT	Management Oversight Risk Tree
OP	Office of the President
ORA	Operational Readiness Assessment
ORR	Operational Readiness Review
PO	Performing Organization
POC	Point of Contact
QA	Quality Assurance
SNR	Startup Notification Report
S/RIDs	Standards/Requirements Identification Documents
SIA	Systems Integration and Assessment
TBD	To Be Determined

INFORMATION MANUAL
DOCUMENT NO. IM-6001
REVISION NO. 0

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SAFE SHUTDOWN PROGRAM PLANNING AND IMPLEMENTATION MANUAL

IM-6001

Effective Date: 12-02-93

AUTHORIZED BY: _____ 12/2/93
N. C. Kaufman, President — Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

RECORD OF ISSUE/REVISIONS

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DATE	REV. NO	DESCRIPTION AND AUTHORITY
12-02-93	0	Manual required for safe shutdown program planning and implementation, per Request No. S93-225 initiated by J. W. Ogg.

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1.0 BACKGROUND AND INTRODUCTION

In May 1991, the U.S. EPA and the U.S. Department of Energy entered into negotiations concerning a possible modification to the 1990 Consent Agreement pertaining to the Fernald Environmental Management Project (FEMP), formerly known as the Feed Materials Production Center (FMPC). Consistent with arrangements made during these negotiations, all parties involved agreed that activities performed within the scope of the Safe Shutdown Program would constitute a Removal Action consistent with Section IX of the Consent Agreement and the provisions of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This Removal Action was designated as number twelve (No. 12), termed Safe Shutdown, under the amended Consent Agreement.

Removal Action 12 represents an effort to mitigate potential sources that present a threat of release of contamination to the environment and to stabilize, isolate, and/or treat any existing contamination to prevent release or migration. Work elements are conducted and controlled through a hierarchy of site documentation. Program documentation is prepared to fulfill the driving statutory, DOE, and corporate requirements. The primary driving requirement of Removal Action 12 is CERCLA/RCRA compliance, best management practices, and Conduct of Operations, DOE Order 5480.19, along with Radioactive Waste Management, DOE Order 5820.2A, which is the implementation document that establishes the policies and guidelines for the management, decontamination, and decommissioning of radioactively contaminated facilities.

During the negotiation process, a consensus position was achieved between the agencies and the DOE. This position established that, in lieu of a Removal Action Work Plan, the DOE would submit a compendium of existing procedures and documentation for the ongoing Safe Shutdown Program.

Consistent with the management directives, site level documentation (i.e., documentation governing the conduct of work across the site, as opposed to discrete departments) is compiled to establish the interrelationship and requirements of site organizations. On the basis of the site level documentation, individual supporting departments typically prepare specific procedures detailing the conduct of operations to fulfill a program requirement as defined in the site level documentation.

A Programmatic Readiness Review was conducted to document that the Removal Action 12 Safe Shutdown Program Planning Department is ready to proceed with gaining entry to the contaminated process equipment, the removal of hold-up material, and the remainder of the Safe Shutdown activities.

5 0 9 2

1.0 BACKGROUND AND INTRODUCTION (cont.)

Individual readiness assessments for the Safe Shutdown field activities to be performed will be conducted by a FERMCO review board if the levels are categorized to be higher than a FEMP Level 4. Readiness assessments will be conducted for the remainder of the activities. Project Check lists will be completed and maintained for each activity. The recommendations from completed assessments will be presented to the CRU3 Director, who is authorized to approve each activity start. A level of risk has not yet been established through the Safe Shutdown Program for the following areas:

Plant 1 Safe Geometry Digestion System
Plant 2/3 UNH Stabilization
Plant 4 DHF Material
Plant 8 Caustic Material
Pilot Plant Thorium Nitrate Material

The remainder of the activities have been categorized as FEMP Level 4.

NOTE: The tanks and vessels containing Uranyl Nitrate Hydrate (UNH) in Plants 1 and 2/3 are assumed to be taken care of under other authorities. If not, they will be addressed as stated above.

A flow diagram shown in Figure 1 identifies the process followed in determining a readiness assessment or readiness review requirement.

2.0 SCOPE

The Safe Shutdown Program Removal Action 12 was established to provide planning, engineering, and program control for the proper disposition of all uranium product and in-process residue materials, excess supplies, chemicals, and associated process equipment. The program will assure the proper characterization, emptying, deenergization, and isolation of all existing previously operated, production-related equipment with consideration for DOE, U.S. EPA, and Ohio EPA requirements and regulations. It is described in the Safe Shutdown schedules and ADS 48-B2.

In the conceptual design of the Safe Shutdown Program, it was recognized that a preliminary assessment was needed to identify the physical state in which previous process equipment and materials were left, since no systematic approach was taken when production ceased. From the preliminary assessment a database was developed to identify each piece of equipment by a unique file number. Cross-referenced to the file number are applicable maintenance (MMICs) numbers and/or property bar code numbers. The database also contains a description of the hold-up material, its location, and the RCRA determination of the material and/or equipment. A material evaluation is verified prior to the issuance of a task order to remove hold-up material. Appropriate storage containers for the material will be determined after evaluation, satisfying nuclear safety, material compatibility, and regulatory requirements.

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2.0 SCOPE (cont.)

One of the major objectives of the Safe Shutdown Program involves the transfer of materials from existing previously operated production-related equipment to appropriate containers. The proper disposition of uranium material products and recoverable residues also will be conducted as an integral part of the Safe Shutdown Program. After confirmation of characterization, these materials will be transferred to appropriate containers and either stored at approved locations awaiting final disposition under CRU3 or disposed of consistent with criteria and requirements of Removal Action #9, Removal of Waste Inventories. All applicable energy sources related to a given piece of equipment will be physically isolated to render that piece of equipment non-operational. The equipment also will be physically isolated from piping and duct work. With the transfer of material to storage containers, the potential for an incident or release to the environment is significantly reduced. Inspections of the storage containers and storage areas will be performed per all currently applicable procedures and documents. Gross decontamination of the equipment will then be performed according to established DOE orders and any currently applicable FEMP policies and procedures. After the completion of these activities and submission of a removal action, a close-out report will be submitted to the U.S. EPA/OEPA for review.

The Safe Shutdown Program does not involve the operation of the plants.

3.0 PROGRAMMATIC APPROVALS

The global permissive documents (Safety Assessment, Risk Assessment Report, Risk Management Plan, Health and Safety Plan, and NEPA Requirements) will be used programmatically to manage field activities. Notification to regulatory agencies for permitting, agreements, and commitments will be managed by the CRU3 Safe Shutdown Department. An addendum to existing permissive documents and/or separate Safety Assessment, Risk Assessment, and NEPA documents, will be prepared to address those areas that are not currently covered under existing permissive documents.

The status of the permissive documents is as follows:

3.1 Safety Assessment

Safety Assessment, 92-1058, "Remove Excess Materials from Process Buildings," covers the removal of excess combustible materials (i.e., waste paper, cardboard boxes, and wood pallets), process supervisory and personnel support equipment (i.e., filing cabinets, desks, stools, and benches), process support equipment (i.e., tools, portable instruments, and process equipment in situ but not installed), process supplies (i.e., parts/materials staged to support production), and process area trash (i.e., floor sweepings, production dross). This Safety Assessment was approved by Regulatory Programs on November 3, 1992.

3.0 **PROGRAMMATIC APPROVALS** (cont.)

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Safety Assessment 92-1060 (5/4/93) covers activities in Plants 1 (with exception of the Safe Geometry Digestion System), 4, 5, 6, 7, 8, 9, and the Pilot Plant (with the exception of Plant 2/3 and Building 13) for industrial cleaning, gaining entry to contaminated process equipment, transfer of holdup materials to storage containers, sampling and characterizing the contained material, and movement of drummed materials to approved onsite storage locations. This Safety Assessment was approved by the ISRC on May 12, 1993.

The Safe Shutdown activities addressed in Safety Assessment 92-1060, Safe Shutdown Removal Action 12: Removal of Holdup Materials and Industrial Cleaning, are categorized as low hazard, not requiring a Safety Analysis Report (SAR). The individual activities and removals do not involve enough radioactive material to exceed the threshold of low hazard under procedure SPA-01-013, Guidelines for the Preparation of Safety Assessments, written to comply with DOE 5480.1B, Safety Analysis and Review System, which was the governing document when the assessment was written. The quantities also do not exceed the threshold quantities for Category 3 as given in DOE-STD-1027, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports, guidance for the current governing document, DOE Order 5480.23, Nuclear Safety Analysis Reports.

Addenda or separate Safety Assessments will be done on those areas not yet completed prior to initiation of any physical work activities involving removal of hold-up material.

3.2 Risk Assessment Report/Risk Management Plan

Risk Assessment Report number RAR-92-0019-C-0, was approved by the CRU3 Division Director on May 13, 1993. This document identifies and establishes controls and mitigators associated to the risk involved with performing the Safe Shutdown field activities. The Risk Management Plan number RMP-92-0019-C-0, which is a summation of the Risk Assessment, was approved by the CRU3 Division Director on June 7, 1993.

Addenda or separate Risk Assessments will be done on those areas not yet completed prior to initiation of any physical work activities involving removal of hold-up material.

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3.0 **PROGRAMMATIC APPROVALS** (cont.)

3.3 Health and Safety Plan

The Health and Safety Plan considers the chemical, physical, biological, radiological, and safety hazards that are possible during Safe Shutdown activities. It describes required training, medical surveillance, personal protective equipment, decontamination, required documentation, and emergency and contingency plans. This Health and Safety Plan was approved by Environmental Safety and Health Departments on September 29, 1992. A hazard analysis will be performed prior to initiation of any physical work.

3.4 NEPA

A limited National Environmental Policy Act (NEPA), Categorical Exclusion (CX) document No. 427, covers those activities that will be performed during calendar year 1993. The proposed action will occur at various locations in the process area, which covers 136 acres of the FEMP site. This CX applies to Plants 1, 4, 7, 8, 9, and related equipment, including 15 outside dust collectors and 11 hazardous waste management units (HWMU). This CX was approved by DOE-FN on May 10, 1993. Additional approvals will be sought to cover those buildings and structures that are not listed in this CX.

4.0 **ORGANIZATION**

The organization chart for the primary organizations performing the Safe Shutdown work is shown on Figure 2. Figures 3 and 4 show the process of developing and approving the permissive programmatic documents, a process that is complete except for the approval of the Readiness Review. Figures 5 and 6 show the detailed process for the work and a description is provided below.

The CRU3 Division Director has the overall responsibility for the Safe Shutdown Program. The review/approval process for the Safe Shutdown Implementation Plan Work Package, as well as the Project Checklist within the work package, clearly define authority, responsibility, accountability and interfaces with support groups for the specified field activities.

Task Specific Job Briefings include the scope of the work to be performed and lessons learned. Individual responsibilities, authority and accountability to complete the assigned task are clearly defined in the Implementation Plan Package. The Implementation Plan Package is completed by a first-line supervisor. The completed package is then submitted for approval to the appropriate manager(s) within RSO. A CRU3 Safe Shutdown Program Planning Department manager is the final signature required prior to initiation of a specific task. Changes to the work package shall be approved by the appropriate review/approval process before proceeding with the specific field activity. The primary responsibilities of the major groups are:

4.0 **ORGANIZATION** (cont.)

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CRU3 - Safe Shutdown Program Planning Department

Overall Planning/Scheduling/Budget
Database Development
Overall Permissive Documents
  Safety Assessment
  RAR/RMP
  Health & Safety Plan
  NEPA Documentation
  RR

Attachment A - Task Order Work Sheet M
Issued to identify hold-up material. Authorized by CRU3/SSPPD.

Attachment B - and B2 Task Order Work Sheet T
Issued to remove hold-up material. Authorized by CRU3/SSPPD.

Attachment C - and C2 Task Order Work Sheet EQ
Issued to remove equipment. Authorized by CRU3/SSPPD.

Attachment D - Work Request/Order
Issued to disconnect utilities. Authorized by CRU3/SSPPD.

RSO - Safe Shutdown Implementation

Detailed Work Packages
Systems Engineering

Attachment E - Task Order Implementation Plan
Authorizing document to proceed with a specific task after compiling applicable documents. Approval signatures required from RSO/SSI, CRU3/SSPPD, RSO Facilities Waste Operations, and RSO Operations Manager.

Attachment F - Task Description
Task description of specific activity to be performed.

Attachment G - Applicable Procedures
Check Sheet for procedures applicable to a specific task to be performed.

Attachment H - Walk Through for Task/Project Overview-Task Specific Training
Form used to identify specific task and employees who are to perform a given task.

4.0 **ORGANIZATION** (cont.)

RSO - Safe Shutdown Implementation (cont.)

Attachment I - Hazard Analysis Forms
Form which identifies specific Health and Safety hazards relative to a specific task. Approval signatures from RSO Implementation Manager, Safety Engineering and Fire Services, Industrial Hygiene, Radiological Safety Engineer, and Fire Protection Engineer are required.

Attachment J - Project Checklist
This checklist is completed on each specific task. Ensuring that all necessary documents, equipment, and materials are in place. Approval by RSO Safe Shutdown Implementation Manager is required.

Attachment K - Task Specific Job Briefing
Identifies the objectives of what is expected to be completed on a specific task. Approvals by the RSO/SSI Manager, subject matter expert, and RSO training are required.

Attachment L - Supervisors Daily Log
Identifies personnel assigned to a specific task on a given shift and the activities accomplished on that shift.

Attachment M - Radiological Work Permit
A permit that states radiation dose rate. States maximum working time in area per week and minimum P.P.E. requirements to work in designated area.

Attachment N - Work Permit
Identifies hazards in working area and states minimum P.P.E. requirements to work in area.

Attachment O - FEMP Work Request/Order
Identifies equipment, by MMICS number, to be repaired, nature of repair, and person requesting repair.

Attachment P - Expanded Lockout and Tagout Authorization in conjunction with SSOP-0719 Lock and Tag Procedure.

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5.0 IMPLEMENTATION

5.1 Process

Task orders and work orders are generated from the CRU3 Safe Shutdown database. These task and work orders are created based on areas that have been approved through a global Safety Assessment, Risk Assessment, Health and Safety Plan, and other permissive documents that are required before any physical work can be performed. After a task order and/or work order has been verified as being completed and signed off, it is returned to CRU3/SSDPD to allow for updating of the database. Completed work orders will be transmitted to drafting for updating of historical drawings to current status of equipment and/or structures as part of configuration management.

The content of the CRU3 Safe Shutdown Safety Assessment, Risk Assessment, and Health and Safety Plan that is approved will be transmitted to the field activities through established RSO Safe Shutdown implementation plans. Controls and mitigators are implemented through the detailed planning developed from the hazard analysis for each task order implementation plan. The readiness assessment will be reviewed to ensure that controls and mitigators are being addressed.

A task order will be prepared giving programmatic direction as to what field activities are to be performed. These task orders and work orders will be prepared based upon the permissives that are applicable to a particular field activity.

Task orders generated by the CRU3 Safe Shutdown Department contain the equipment status and materials hold-up description and disposition. The equipment location and specific components that are to be cleaned are listed as well as the material characterization and estimated quantity. The material disposition includes verifying the holdup and compliance determinations and transferring to properly marked drums.

RSO Safe Shutdown Implementation will complete a task order implementation plan and a project check list. This plan will include, but not be limited to, applicable procedures, an approved hazard assessment, the appropriate site work permits, and signatures of the individuals with the required training, authority, responsibility and who will be accountable to perform a task specific field activity.

The Hazard Assessment forms, identified in Appendix A of the Health and Safety Plan, include hazard identifications, monitoring requirements, frequency, and Action levels. Also included are personnel responsible, protective equipment, emergency and safety equipment requirements, and an emergency contingency plan. This document forms the basis for issuance of the site work permit and radiological work permits.

5.0 **IMPLEMENTATION** (cont.)

Lessons learned are reviewed during monthly safety meetings as part of the Remediation Support Operations Lessons Learned Program, document number D10-00-002.

Existing plant protection systems will be used until all energy source isolations are complete within a given structure and all hold-up material is removed as detailed in job specific task orders. Existing safety equipment is on the MMICS database and field tagging is complete. Calibration of this equipment is a part of the Preventive Maintenance Program. It is a requirement that any new equipment must be added to the MMICS system prior to its use.

Quality Assurance will be responsible for performing surveillance and audits of the Safe Shutdown Program. Audits will be scheduled at least once a year. Program surveillances will be scheduled at least semi-annually. Additional audits and surveillances will be scheduled at the discretion of Quality Assurance or as requested by the CRU3/RSO Division Director. Quality Control will be responsible for performing inspections as required by the Safe Shutdown Program field activities. These functions will be performed as specified in RM-0012, Quality Assurance Program description document.

5.2 Procedures

The Safe Shutdown Program, Removal Action No. 12, is managed and controlled through site procedures and documents. FERMCO has adopted and will implement all procedures and documents relative to performing Safe Shutdown activities. Only controlled procedures will be used. The following list of procedures is divided into three categories: (1) Programmatic, (2) Core, and (3) Task specific. Individuals assigned to the Safe Shutdown Program will be trained to core requirements. Task specific training will be conducted as required for conditions not covered by core training. Individual responsibilities are clearly indicated in each Task Order Implementation Plan Work Package and in applicable procedures that control field activities.

Task Specific Job Briefings, which are approved by Training, are developed for each Task Order Implementation Plan. It should be recognized that revisions to existing policies and procedures to respond to evolving program needs or unique site conditions are an integral part of a successful program. Annual update submittals to the DOE, U.S. EPA, and OEPA are required.

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5.0 **IMPLEMENTATION** (cont.)

- **Programmatic Procedures:**

  - DOE/EH-0256T, Radiological Control Manual
  - SP-P-35067, ALARA Review and Evaluation
  - SR-2117, Nuclear Criticality Safety Requirements
  - SSOP-0095, Criticality Safety Analysis and Approval Process
  - SOP 1-C-608, Storage of Radioactive Material
  - SSOP-0103, FEMP Site Document System
  - PO-D-007, Document Periodic Review Program
  - ES&H-1-1000, Comprehensive Environmental Occupational Safety and Health Program
  - RM-0006, Industrial Safety
  - RM-2086, Chemical Hazard Communication Program
  - RM-FMPC-0002, Centralized Training Program Manual
  - RM-0007, FEMP Respiratory Protection Requirements Manual
  - IM-7006, Incident Building Evacuation Manual
  - RM-0012, Quality Assurance Program Description
  - SSOP-0036, Quality Assurance Project Plans
  - SSOP-0716, Control of Processes
  - SSOP-0082, Quality Improvement
  - SSOP-0023, Deviation and Corrective Action Reporting
  - SSOP-0100, Readiness Review Process
  - FMPC-2214, Environmental Restoration and Waste Management Site Specific Plan
  - Shutdown/Facility Acceptance and Criteria Plan
  - SSOP-0067, Spill Incident Reporting and Clean-up
  - SSOP-0059, Control and Tracking of Chemical Substances
  - SSOP-0027, Control of Box Type Containers
  - PO-D-023, Shift Orders
  - U.S. Department of Energy Order 5820.2A Radioactive Waste Management
  - SSOP-0002, Completing the Material Evaluation Form
  - Amended Consent Decree
  - SOP 20-C-904, General Nuclear Safety Requirements
  - SOP 20-C-100, Moving and Storing Depleted, Normal, and Enriched Uranium Materials <20% and Thorium Metal and Materials
  - SSOP-0044, Management of Soil, Debris, and Waste from a Project
  - FMPC-0307, Control and Accountability of Nuclear Materials
  - SSOP-0061, FEMP Work Request/Order Procedure
  - FMPC-0508, Safety Analysis Documentation Program
  - PO-0712, Risk Assessment and Management (RAM) System Policy
  - SM-0001, Risk Assessment and Management (RAM) System Manual
  - SSOP-0014, Documentation of a Subject Matter Expert
  - PP-0518, National Environmental Policy Act (NEPA) Program
  - SSOP-0031, National Environmental Policy Act (NEPA) Document Process

5.0 **IMPLEMENTATION** (cont.)

- **Programmatic Procedures:** (cont.)

  - PO-D-028, Preparation and Implementation of Work Package
  - FMPC-0516, Control of Permits for Accomplishing Hazardous Work
  - SP-P-35-016, Radiation Work Permits
  - PP-FMPC-5010, Management of Low Level Waste (LLW)
  - PP-0314, Packaging, On-Site Movement and Off-Site Shipment of Material
  - SSOP-0003,Receiving, On-Site Movement and Off-Site Shipment of Nonradioactive Hazardous Material
  - FMPC-0303, Management of Government Property
  - SSOP-0034, Nuclear Materials Disposition Order Management
  - PO-D-035, Shipment of Low Level Radioactive Waste Requirements
  - SSOP-0081, Radiologically Non-Contaminated Asbestos Containing Material Waste (ACM) Disposition
  - SP-P-35-010, Unrestricted Release of Materials from FMPC
  - D10-00-002, Remediation Support Operations Lessons Learned

- **Core Training Procedures:**

  - FMPC-2112, FMPC Nuclear Criticality Safety Guide
  - RM-0005, FEMP Lot Marking and Color Coding System
  - SOP 20-C-912, Checking Scale Operation
  - SOP 20-C-917, Hydrogen Monitoring and Removing Nucfil Vent Plugs from Drums
  - SOP 20-C-910, Venting Potentially Explosive Drums
  - SOP 20-C-801, Storage of Enriched Material
  - SSOP-0060, Packaging Radioactive Material For Offsite Shipment
  - SOP 20-C-604, Control and Utilization of Contaminated Trash Dumpsters
  - PP-FMPC-0719, Energy Control (Lockout & Tagout)
  - Safe Shutdown Health and Safety Plan
  - SOP 20-C-606, Hazardous Material Spill Clean-up
  - SSOP-0035, Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers
  - SOP 20-C-700, Norclean Portable Vacuum Operation
  - SOP 20-C-014, Wet and Dry Systems Clean-out
  - SSOP-0075, Packaging Low Level Radioactive Waste (LLRW) In Drums for Offsite Shipment
  - SSOP-0078, Packaging Low Level Radioactive Waste (LLRW) into ISO Containers for Offsite Shipment
  - SSOP-0079, Packaging Low Level Radioactive Waste (LLRW) in Metal Boxes for Offsite Shipment
  - Task Specific Health & Safety Plan for Decontamination of Various Areas of Existing Fixed or Removal Contamination, June 5, 1991

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5.0 **IMPLEMENTATION** (cont.)

- **Core Training Procedures:** (cont.)

  - SOP 20-C-709, Baghouse Type Dust Collector Filter Removal/Replacement
  - SOP 20-C-916, Cleaning Sump Systems
  - SSOP-0008, Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area
  - SOP 20-C-602, Inspection & Operation of Nilfisk Portable Vacuum
  - SOP 20-C-603, Removal & Replacement of Nilfisk Portable Vacuum Unit Filters & Dust Bag
  - SOP 20-C-711, Hako Minuteman Portable Vacuum Cleaner Operation
  - SPR 5-13, Permit Required Confined Space Program
  - SOP 20-C-015, Operating the Kelly Decontamination System

- **Task Specific Procedures:**

  - SOP 20-C-011, Physical Inventory of Nuclear Materials
  - SSOP-0039, Handling Containers of Unidentified Material
  - SOP 20-C-625, Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment
  - SOP 1-C-101, Sampling Residual and Waste Materials
  - SOP 20-C-805, Sampling Drummed Waste for Hazard Identification
  - SOP 20-C-918, Preparation for and Movement of Unvented Drums
  - SOP 2-C-923, Trash Baler Operation
  - SSOP-0069, Freon Management
  - SOP 20-C-500, Inspecting RCRA Waste Load/Unload and Staging Areas
  - SOP 20-C-701, Operation of Spencer & Hoffman Portable Dust Collectors
  - SOP 2-C-601, Refinery Sump
  - SOP 8-C-116, Filtering Refinery Thickener Underflow
  - SOP 8-C-115, Filtration of Uranium Bearing Slops
  - SOP 8-C-605, EIMCO Filter Operation
  - SOP 20-C-612, Industrial Cleaning
  - SOP 20-610, Bird Carcass and Dropping Removal
  - SOP 20-C-600, Overpacking Defective Containers
  - SOP 43-C-413, Handling Waste Materials with the Industrial Vacuum Loader Truck (Supersucker)
  - SSOP-0077, Building Emergency Procedure
  - PO-S-06-001, Movement of Hazardous Waste
  - SSOP-0028, Controlling Portable Ventilation Devices and Vacuum Cleaners

5.0 **IMPLEMENTATION** (cont.)

5.3 Training and Staffing

Support personnel will be qualified by their respective manager(s), for Safe Shutdown field activities. Qualified workers, which include supervisors, must meet all core training, as well as site specific training requirements as listed in the Safe Shutdown document. In addition, task specific training, briefings and a walk through for the task to be performed will be conducted prior to the start of the field activities. The Safe Shutdown Implementation Manager will be responsible for certifying that the Supervisor-in-Charge is qualified to perform an assigned task by signing the Project Checklist included in the work packages assembled for a specific task. The Supervisor-in-Charge will determine what personnel are capable of performing the identified task. The Supervisor-in-Charge will sign the Safe Shutdown Planning "Walk Through" for Task/Project Overview, Task Specific Training document.

The minimum number of operating personnel required to safely complete each Safe Shutdown activity will be maintained as stated per applicable procedure. The Safe Shutdown Program is dependent on the completion of other projects and the availability of space for storage of drummed waste that either must be moved from a building or is generated as part of the field activities. To meet the Safe Shutdown schedules more individuals may be required for a task with a more critical schedule, while fewer personnel may be necessary for a task with a less critical schedule. To ensure the safety of the personnel and protect against material release, the minimum safe crew size determined by the Remediation Support Operations Supervisor will always be maintained.

5.0 **IMPLEMENTATION** (cont.)

The classification and home department of the personnel required to perform Safe Shutdown field activities are:

TITLE	DEPARTMENT
Supervisor	Remediation Support Operations
Estimator	Remediation Support Operations
Electrician	Remediation Support Operations
Pipefitter	Remediation Support Operations
Millwright	Remediation Support Operations
Welder	Remediation Support Operations
Chemical Operator	Remediation Support Operations
Industrial Cleaner	Remediation Support Operations
Manager	Remediation Support Operations
Engineer	Remediation Support Operations
Facility Owner	Remediation Support Operations
Motor Vehicle Operator	Remediation Support Operations
Radiation Safety Engineer	Radiological Safety
Radiation Technician	Radiological Safety
Health Physicist	Radiological Engineering
Fire Protection Engineer	Fire Protection Engineering
Industrial Hygienist	Industrial Hygiene & Safety
Industrial Hygiene Technician	Industrial Hygiene & Safety
Information Records Specialist	Materials Control & Accountability
Manager	CERCLA/RCRA 3
Engineer	CERCLA/RCRA 3
Auditor	Quality Assurance
Inspector	Quality Control
Instructor	Training

Organizations responsible in assisting the Safe Shutdown Program attend Management Control meetings to allow for personnel assignments and schedule adjustments as necessary.

SAFE SHUTDOWN PROGRAM READINESS REVIEW

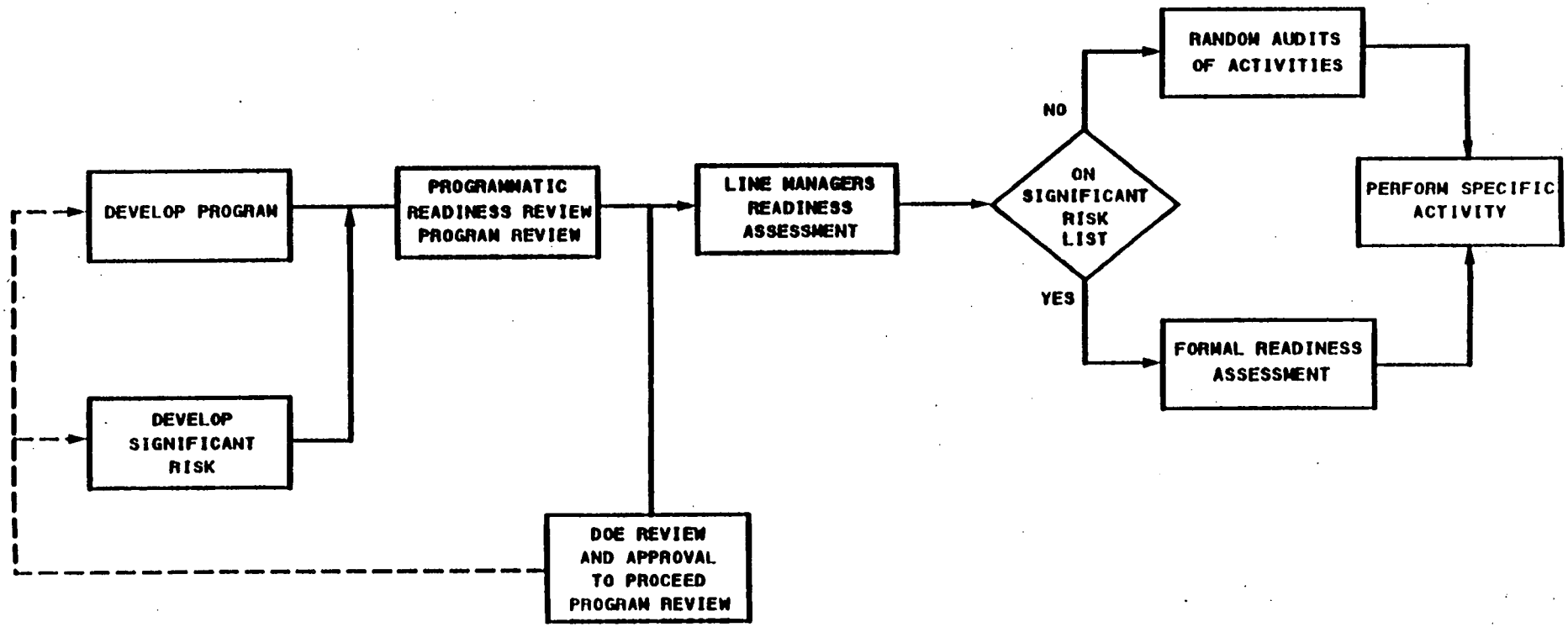

FIGURE 1

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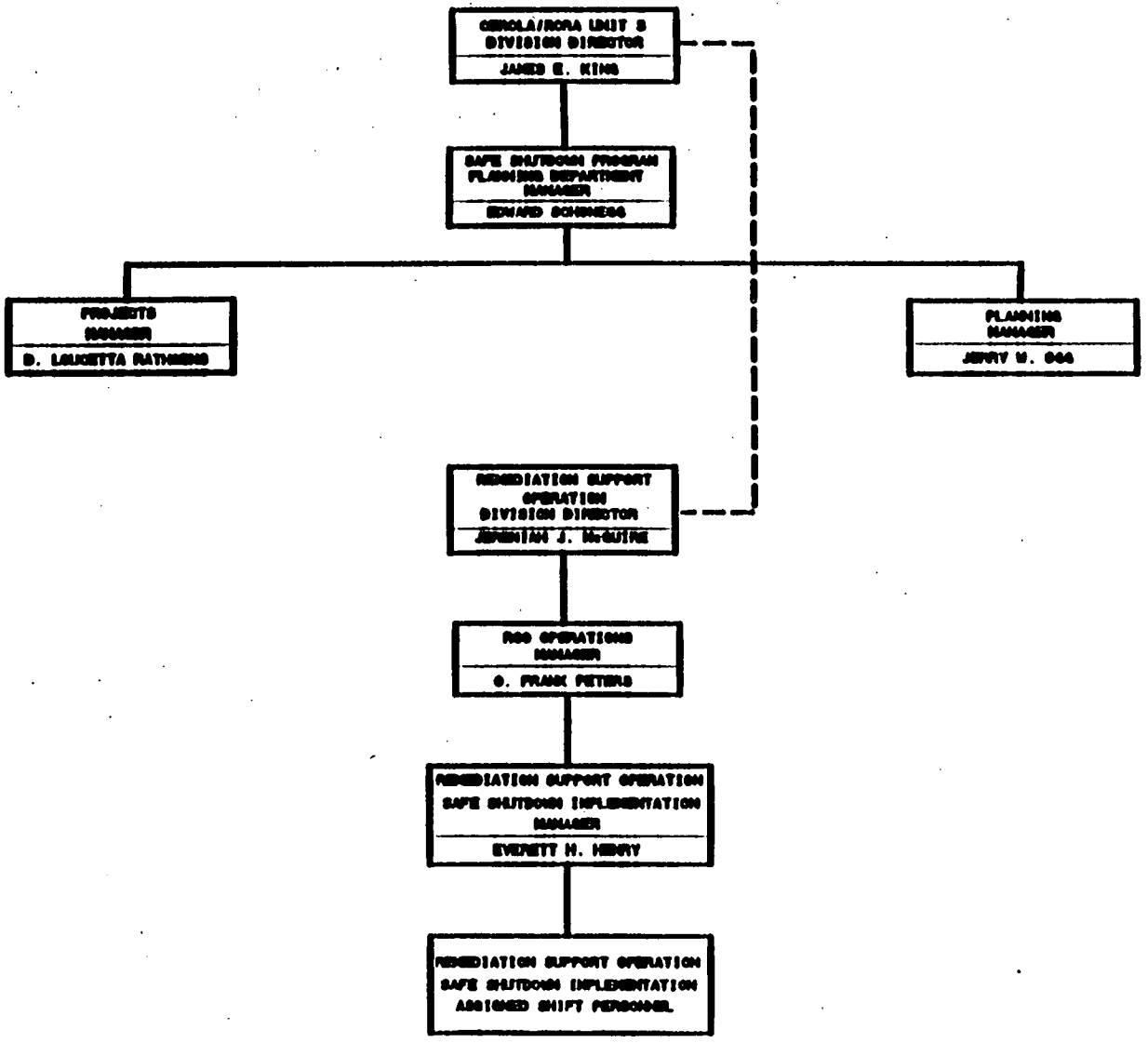
ORGANIZATIONAL STRUCTURE



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RE 2

PROGRAMMATIC FLOW DIAGRAM

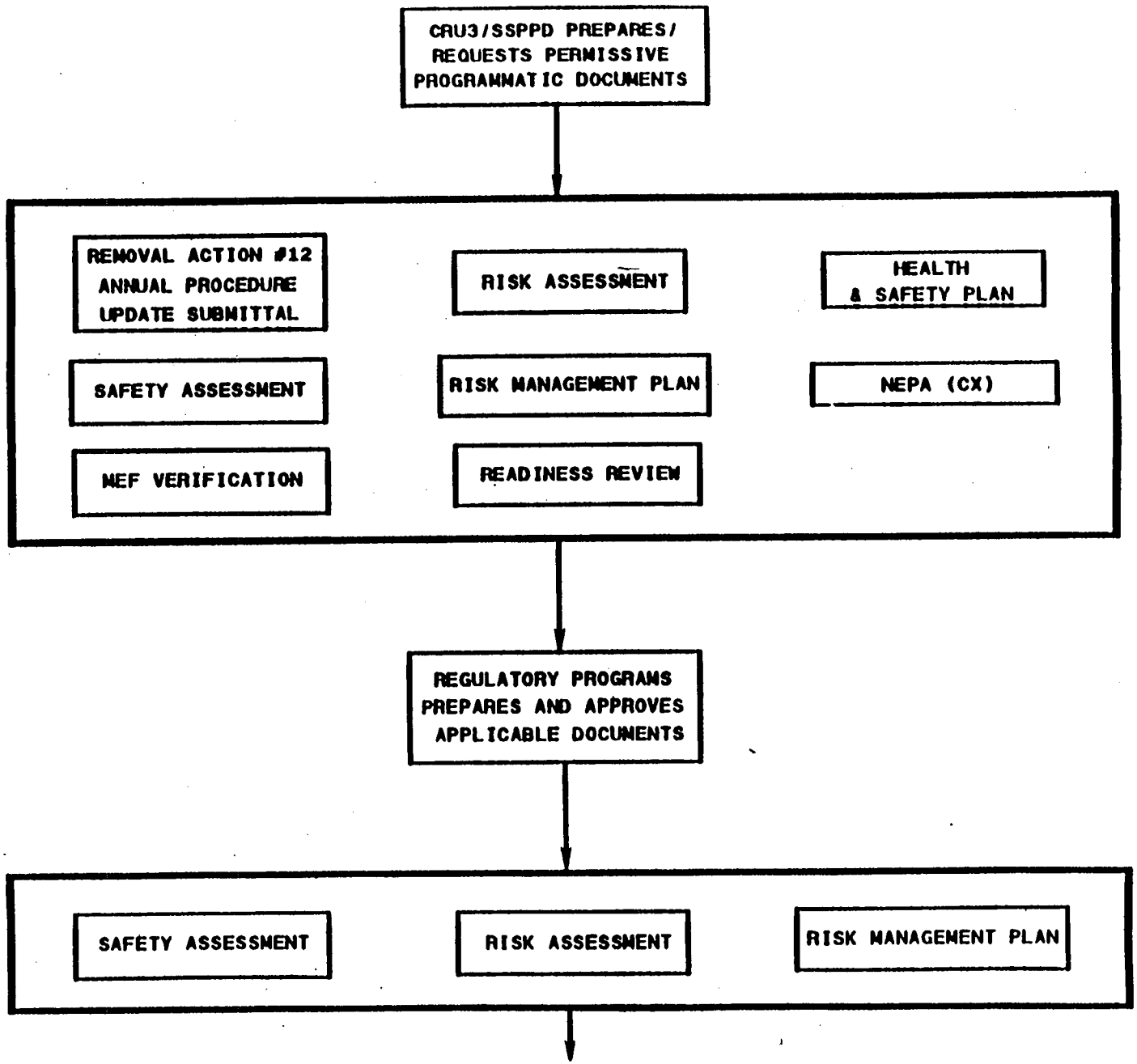

FIGURE 3

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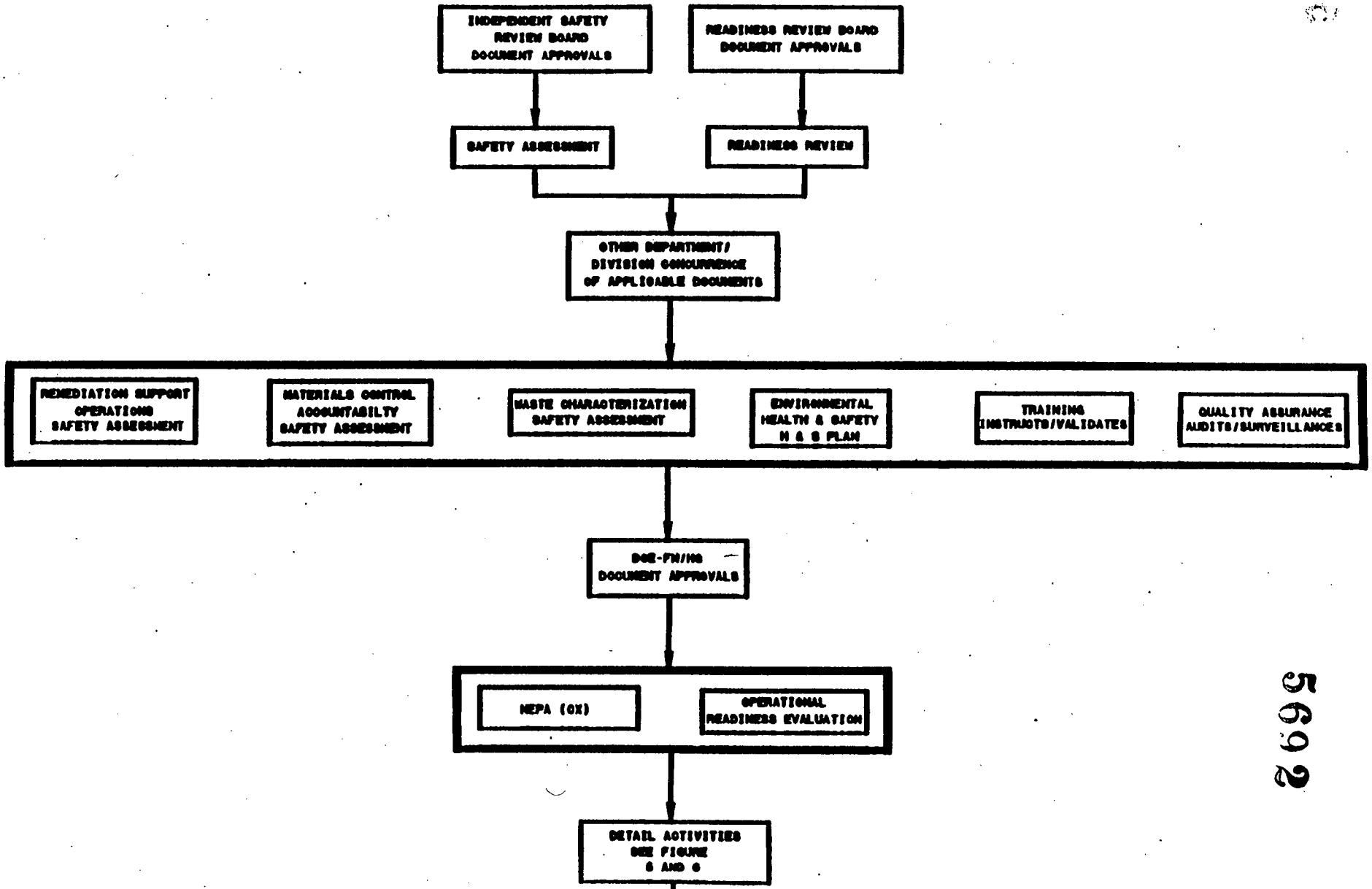
PROGRAMMATIC FLOW DIAGRAM



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DETAIL FLOW DIAGRAM

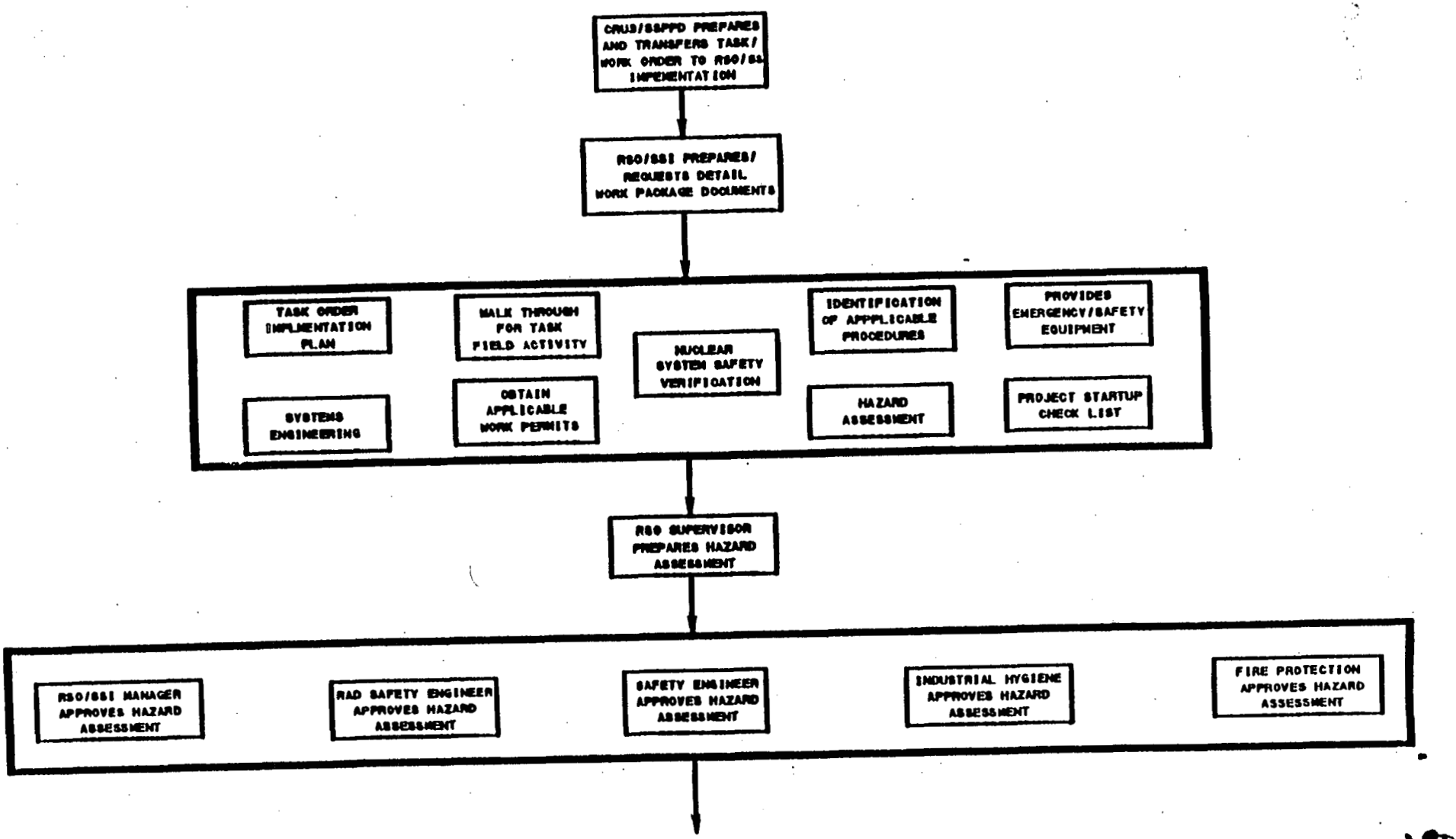

FIGURE 5

DETAIL FLOW DIAGRAM

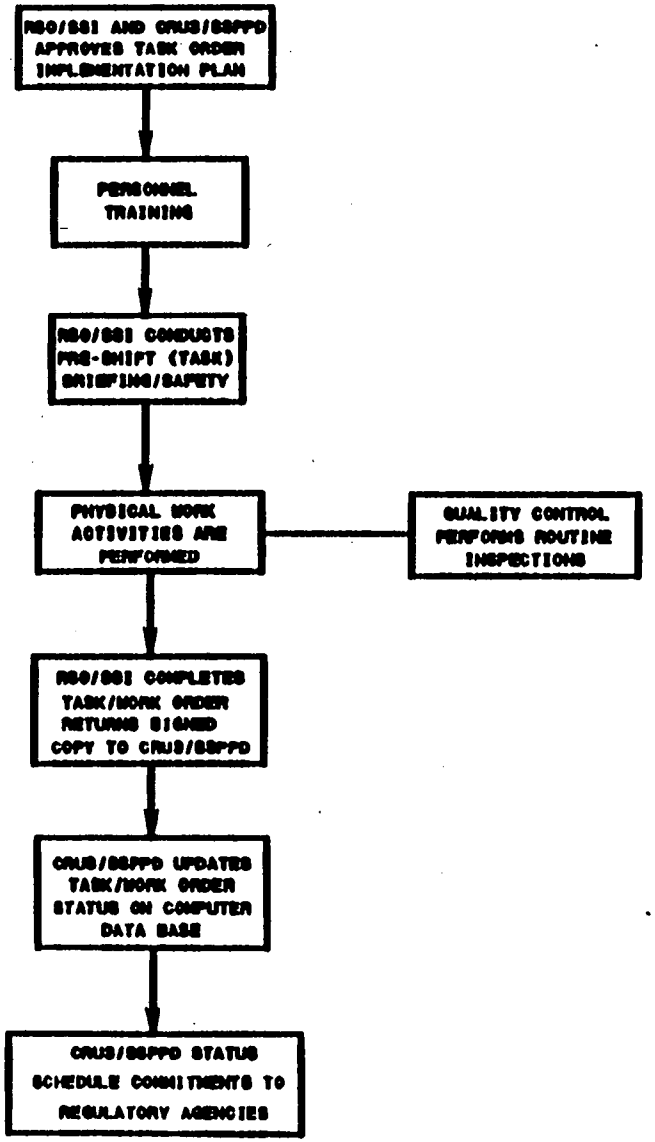

FIG 6

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ATTACHMENT A
TYPICAL EXAMPLE

SAFE SHUTDOWN PROGRAM

Date:	**FEMP TASK ORDER WORK SHEET**	M
Duration/ Days:	MMICS Number: Barcode Number:	Task Order Work Sheet Number
Charge No:		

Equipment Name: Accounting Control Number:

Manufacturer:	Model/Serial No:	Discription Code:	Acq. Date:

Building	Floor	Rm-Area	MMICS Location Description:	Location Description:	Loc. Seam	Loc. Dir.

TASK TITLE:
IDENTIFICATION OF HOLD-UP MATERIALS IN File No.

TASK DESCRIPTION: Identify if any hold-up materials are present and isolate equipment, if empty for

EQUIPMENT STATUS

UTILITIES DISCONNECT: WORK REQUEST NO: REQUESTED COMPLETION DATE:
STATUS AS OF: ACTUAL COMPLETION DATE:

RCRA DETERMINATION OF EQUIPMENT:

AIR PERMIT INFORMATION: OEPA: PTO EXPIRATION DATE: CONTROL EQUIPMENT:
COMMENTS:

PRELIMINARY RAD DATA: DATE OF SURVEY ALPHA REMOVABLE:
BETA/GAMMA REMOVABLE: BETA/GAMMA REMOVABLE PLUS FIXED:

MATERIAL HOLD-UP DESCRIPTION

DOES EQUIPMENT CONTAIN HOLD-UP MATERIALS?
IF SO, COMPLETE THE FOLLOWING:

DESCRIPTION OF HOLD-UP:

ESTIMATED QUANTITY OF HOLD-UP:

LOT NUMBER OF HOLD-UP MATERIALS:

IDENTIFICATION OF ANY HOLD-UP MATERIALS

Identify if any hold-up materials are present in equipment.
Complete Material Hold-up Description Section.
Return to Safe Shutdown Department. Attn: Lucy Rathgens; MS 5Z-9

EQUIPMENT DISPOSITION

If equipment is empty, isolate process lines and place equipment in a safe configuration.

Release Section

CRU3/Safe Shutdown Planning: _____ Signature _____ Date

COMPLETION SECTION

RSO/IMPLEMENTATIONS: _____ Signature _____ Date

ATTACHMENT E
TYPICAL EXAMPLE

SAFE SHUTDOWN PROGRAM

Date:			FEMP TASK ORDER WORK SHEET			T
Duration/ Days:			MMICS Number:	Barcode Number:		Task Order Work Sheet Number
Charge No:						
Equipment Name:			Accounting Control Number:			
Manufacturer:			Model/Serial No:		Discription Code:	Acq. Date:
Building	Floor	Rm-Area	MMICS Location Description:	Location Description:	Loc. Beam	Loc. Dir.

TASK TITLE:
REMOVAL OF HOLD-UP MATERIALS FROM File No.

TASK DESCRIPTION: Remove hold-up materials from equipment on Attachment and isolate process lines per Work Procedures-Safe Shutdown Tasks.

EQUIPMENT STATUS

UTILITIES DISCONNECT: WORK REQUEST NO: REQUESTED COMPLETION DATE:
STATUS AS OF: ACTUAL COMPLETION DATE:

RCRA DETERMINATION OF EQUIPMENT:

AIR PERMIT INFORMATION: OEPA: PTO EXPIRATION DATE: CONTROL EQUIPMENT:
COMMENTS:

PRELIMINARY RAD DATA: DATE OF SURVEY ALPHA REMOVABLE:
BETA/GAMMA REMOVABLE: BETA/GAMMA REMOVABLE PLUS FIXED:

MATERIAL HOLD-UP DESCRIPTION

DESCRIPTION OF HOLD-UP:
ESTIMATED QUANTITY OF HOLD-UP:
LOT NUMBER OF HOLD-UP MATERIALS:

COMPLIANCE DATA ON SIMILAR MATERIAL: SEE MEF VERIFICATION FORM SS
MATERIAL DETERMINATION: EVALUATOR:
IF, HAZARDOUS WASTE; HAZARD CODES: DATE:

MATERIAL HOLD-UP DISPOSITION

Verify hold-up and compliance determination regarding hold-up.
Remove hold-up from equipment and place in properly marked drums.
Place drums in approved storage area.

EQUIPMENT DISPOSITION

After removal of hold-up materials, isolate process lines and place in a safe configuration.

Release Section

CRU3/Safe Shutdown Planning: _____ Signature _____ Date

COMPLETION SECTION

RSO/IMPLEMENTATIONS: _____ Signature _____ Date

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ATTACHMENT B2
TYPICAL EXAMPLE

ATTACHMENT TO TASK ORDER REQUEST T

REMOVAL OF HOLD-UP MATERIALS

SAFE SHUTDOWN PROGRAM

EQUIPMENT LOCATION:				
MMICS NUMBER BARCODE #	EQUIPMENT DESCRIPTION MANUFACTURER/ACQ. DATE HUMU OR SUMU?	LOCATION OF SUBASSEMBLY	UTILITIES DISCONNECT FIELD VERIFICATION	HOLD-UP REMOVAL DATE
			Work Req. #	
	Beam:	Dir:	If completed, Compl. Date:	

ATTACHMENT C
TYPICAL EXAMPLE

SAFE SHUTDOWN PROGRAM

Date:	FEMP TASK ORDER WORK SHEET	EQ
Duration/ Days:	MMICS Number: Barcode Number:	Task Order Work Sheet Number
Charge No:		

Equipment Name:
New Equipment

TASK TITLE:
REMOVAL OF NEW EQUIPMENT FROM FEMP.

TASK DESCRIPTION: Remove equipment on Attachment.

EQUIPMENT STATUS

See Attachment.

EQUIPMENT DISPOSITION

1. Verify that any pumps or motor liquid lubricating units are capped and/or plugged before moving. (Note: Do Not Drain.)

2. Conduct radiological surveys of equipment and decontaminate, if necessary. Attach copies of radiological surveys to this Task Order.

3. Remove equipment from current location.

4. Transport equipment to designated location off-site. Complete "Final Location" section on Task Order Attachment for each piece of equipment.

5. Upon completion of task, return Task Order, all Attachments and Surveys to Safe Shutdown Department, Attn: Jerry Ogg, MS 52-9.

Release Section

CRU3/Safe Shutdown Planning: _____ Signature _____ Date

COMPLETION SECTION

RSO/IMPLEMENTATIONS: _____ Signature _____ Date

ATTACHMENT C2
TYPICAL EXAMPLE

ATTACHMENT TO TASK ORDER REQUEST

REMOVAL OF EQUIPMENT

SAFE SHUTDOWN PROGRAM

MMICS NUMBER BARCODE #	a. EQUIPMENT DESCRIPTION b. MANUFACTURER c. ACQUISITION DATE d. MMMU OR SMMU	PRESENT LOCATION OF EQUIPMENT	a. CONTROL NUMBER b. SG3 ID. NO. c. PTO# d. PTO EXPIRATION DATE	PRELIMINARY RAD DATA a. DATE b. ALPHA/REMOVAB. c. BETA/GAMMA REMOVABLE d. BETA/GAMMA REMOV. + FIX.	FINAL LOCATION
	a. b. c. d.	Building: Present Location: Beam: Dim:	a. b. c. d.	a. b. c. d.	TRANSFERRED LOCATION: DATE TRANSFERRED:

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ATTACHMENT D
TYPICAL EXAMPLE

SAFE SHUTDOWN PROGRAM

W. O. Number:	FMPC WORK REQUEST/ ORDER ORIGINATOR'S SECTION	Work Request Number

(M) Type of Job	Requested Comp. Date: Mon Day Yr	Equipment Number

Equipment Name: TYPICAL EXAMPLE

QA LEVEL:

Building	Floor	Rm-Area		SAFETY SYSTEM OR DESIGN FEATURE FOR SAFETY:	YES	
					NO	

JOB TITLE: UTILITY DISCONNECT FROM TYPICAL EXAMPLE

JOB DESCRIPTION: Disconnect utilities according to attached sheet per Maintenance Work Instructions for Safe Shutdown Program tasks.

NAME:	INITIALS:	DATE:	PHONE:	SIGNATURE:	INITIALS:	DATE:		
ORIGINATOR (REQ)				SAFE SHUTDOWN PROJECT MANAGER (APV)			COST CENTER	OBJ CL

PLANNING SECTION

JOB ELEMENTS	Craft Code	No.	Est	Actual
1				
2				
3				
4				
6				
7				
8				
9				
10				

OVERHEAD:	LABOR:	MATERIAL:	TAX:	TOTAL:					
ESTIMATED COSTS					PLANNER'S INIT	SHOP	TYPE EST	TOTALS	

RETESTS:

RELEASE SECTION

FACILITY OWNER: (PRE-APPROVAL)	Signature	Date	QA:	Signature	Date
FIRE AND SAFETY:	Signature	Date	ENGINEERING:	Signature	Date
NUCLEAR SAFETY:	Signature	Date	RESP. FIRST LINE SUPERVISOR:	Signature	Date
HEALTH PHYSICS:	Signature	Date	FACILITY OWNER: FINAL RELEASE:	Signature	Date
INDUSTRIAL HYGIENE:	Signature	Date	DAVIS-BACON DETERMINATION: YES NO NUMBER:		
ENVIRONMENTAL COMPLIANCE:	Signature	Date	PROJECT AUTHORIZATION: NUMBER:		

COMPLETION SECTION

FIRST LINE SUPERVISOR:	Signature	Date	FACILITY OWNER:	Signature	Date	DATE CLOSED

ATTACHMENT E
TYPICAL EXAMPLE

TASK ORDER - IMPLEMENTATION PLAN
SAFE SHUTDOWN IMPLEMENTATION

#_____

Date Prepared _____
Date Released _____
Scheduled Start Date _____
Scheduled Finish Date_____

Scope of Work

___ Remove excess materials to approved storage locations.
___ Gain entry to process equipment and remove holdup materials.
___ Decontaminate control zones.
___ High level cleaning.
___ General decontamination of process area and equipment.

Charge Time To: _____ Charge Supplies & Equipment To: MSS-05

Task Location:

_____

Task Description:

_____

_____

Description of Hold Up Materials:

- Assigned Lot No. _____ • RCRA/Non-RCRA _____
- Packaging Requirements: _____

Prepared By: _____
R3D Safe Shutdown Implementation

Approved By:

Facilities & Waste Oper. Date:	Safe Shutdown Implementation Manager, Date:	R3D Operations Manager Date:

Task Order Implementation Plan No. _____ meets the Scope of Work as assigned in Task Order No. _____ .

_____
CRUS Safe Shutdown Program - Planning Department, Date:

COMPLETION SECTION

Work Completed:

Date: _____ _____
Field Activity Supervisor

ATTACHMENT F
TYPICAL EXAMPLE

SAFE SHUTDOWN IMPLEMENTATION

TASK DESCRIPTION

Task Order #_____

Task Description:

OPERATIONS RESPONSIBILITIES	COMMENTS, CONCERNS AND ISSUES MUST BE INITIALED AND DATED

Task Order #_____ Cont.

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OPERATIONS RESPONSIBILITIES	COMMENTS, CONCERNS AND ISSUES MUST BE INITIALED AND DATED

ATTACHMENT F
TYPICAL EXAMPLE

Task Order #_____ Cont.

OPERATIONS RESPONSIBILITIES	COMMENTS, CONCERNS AND ISSUES MUST BE INITIALED AND DATED

ATTACHMENT G
TYPICAL EXAMPLE

SAFE SHUTDOWN IMPLEMENTATION

#	Task Description	
	APPLICABLE SOPs	
___	FMPC-2112,	FMPC Nuclear Criticality Safety Guide
___	RM-0005,	FEMP Lot Marking and Color Coding System
___	SOP 20-C-912,	Checking Scale Operation
___	SOP 20-C-917,	Hydrogen Monitoring and Removing Nucfil Vent Plugs from Drums
___	SOP 20-C-910,	Venting Potentially Explosive Drums
___	SOP 20-C-801,	Storage of Enriched Material
___	SSOP-0060,	Packaging Radioactive Material For Offsite Shipment
___	SOP 20-C-604,	Control and Utilization of Contaminated Trash Dumpsters
___	PP-FMPC-0719,	Energy Control (Lockout & Tagout)
___	SOP 20-C-606,	Hazardous Material Spill Clean-up
___	SSOP-0035,	Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers
___	SOP 20-C-700,	Norclean Portable Vacuum Operation
___	SOP 20-C-014,	Wet and Dry Systems Clean-out
___	SSOP-0075,	Packaging Low Level Radioactive Waste (LLRW) In Drums for Offsite Shipment
___	SSOP-0078,	Packaging Low Level Radioactive Waste (LLRW) into ISO Containers for Offsite Shipment
___	SSOP-0079,	Packaging Low Level Radioactive Waste (LLRW) in Metal Boxes for Offsite Shipment
___	SOP 20-C-015,	Operating the Kelly Decontamination System
___	SOP 20-C-709,	Baghouse Type Dust Collector Filter Removal/Replacement
___	SOP 20-C-916,	Cleaning Sump Systems

ATTACHMENT G
TYPICAL EXAMPLE

___	SSOP-0008,	Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area
___	SOP 20-C-602,	Inspection & Operation of Nilfisk Portable Vacuum
___	SOP 20-C-603,	Removal & Replacement of Nilfisk Portable Vacuum Unit Filters & Dust Bag
___	SOP 20-C-711,	Hako Minuteman Portable Vacuum Cleaner Operation
___	SOP 20-C-011,	Physical Inventory of Nuclear Materials
___	SSOP-0039,	Handling containers of Unidentified Material
___	SOP 20-C-625,	Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment
___	SOP 1-C-101,	Sampling Residual and Waste Materials
___	SOP 20-C-805,	Sampling Drummed Waste for Hazard Identification
___	SOP 20-C-918,	Preparation for and Movement of Unvented Drums
___	SOP 2-C-923,	Trash Baler Operation
___	SSOP-0069,	Freon Management
___	SOP 20-C-500,	Inspecting RCRA Waste Load/Unload and Staging Areas
___	SOP 20-C-701,	Operation of Spencer & Hoffman Portable Dust Collectors
___	SOP 2-C-601,	Refinery Sump
___	SOP 8-C-116,	Filtering Refinery Thickener Underflow
___	SOP 8-C-115,	Filtration of Uranium Bearing Slops
___	SOP 8-C-605,	EIMCO Filter Operation
___	SOP 20-C-612,	Industrial Cleaning
___	SOP 20-610,	Bird Carcass and Dropping Removal
___	SOP 20-C-600,	Overpacking Defective Containers
___	SOP 43-C-413,	Handling Waste Materials with the Industrial Vacuum Loader Truck (Supersucker)
___	SSOP-0077,	Building Emergency Procedure

ATTACHMENT G
TYPICAL EXAMPLE

___	PO-S-06-001,	Movement of Hazardous Waste
___	SSOP-0028,	Controlling Portable Ventilation Devices and Vacuum Cleaners
___	SPR 5-13,	Permit Required Confined Space Program

ATTACHMENT H
TYPICAL EXAMPLE

SAFE SHUTDOWN PLANNING
"WALK THROUGH" FOR TASK/PROJECT OVERVIEW
TASK SPECIFIC TRAINING

Task Order Number:_____ **Date:**_____

Task Description:

Details stressed:

*The employees have been advised of the **Hazards, Tasks** and **Health and Safety** concerns associated with this task order. Their signature signifies acceptance for performing in accordance with applicable Procedure, Task Order and the Safe Shutdown Hazard Analysis Form.*

Instructor/Supervisor :_____ **Badge #:**_____

Employees' Name / Badge #:

_____ _____

_____ _____

_____ _____

_____ _____

The personnel that have signed above, have demonstrated an understanding of the task to be performed and are proficient in performing the task outlined in this Task Order Implementation Plan, therefore they are qualified to perform this task assigned.

_____ Supervisor, Safe Shutdown Implementation

ATTACHMENT I
TYPICAL EXAMPLE

SAFE SHUTDOWN HEALTH AND SAFETY HAZARD ANALYSIS FORM

1.0 TASK NAME: _____

Proposed Start Date: _____

Estimated Completion Time: _____

Hazard Analysis Form Prepared By: _____

Date: _____

2.0 APPROVALS:
(For completed Hazard Analysis Form)

Printed Name:	Signature:	Date:
RSO Safe Shutdown Implementation Manager		
Safety Engineering and Fire Services		
Industrial Hygiene		
Radiological Safety Engineer		
Fire Protection Engineer		

3.0 TASK INFORMATION

Task Name: _____

Task Scope of Work:

_____

_____

_____

_____

_____

_____

_____

_____

Task Location:

_____

_____

_____

Task Activities:

_____

_____

_____

_____

4.0 REQUIRED PERMITS

	N/A	YES	OPERATIONS/LOCATIONS WHERE REQUIRED
Confined Space			
Welding/Cutting			
Hazardous Work			
Radiological			
Other:			

5.0 HAZARD IDENTIFICATION:

___ Chemical
___ Radiological
___ Fire/Explosion
___ Heat/Cold Stress
___ Electrical
___ Machinery/Mechanical Equipment
___ Confined Space
___ Cutting and Welding
___ Noise
___ Other - Describe below:

___ Trips, Slips, Falls
___ Trenching/Shoring
___ Heavy Equipment/Vehicular Traffic
___ Overhead Hazards
___ Unstable/Uneven Terrain
___ Underground Hazards
___ Lockouts
___ Elevated Work Platforms
___ Asbestos

5.1 Chemical Hazards

Chemical Hazards (list all chemicals, materials and compounds - present, generated or necessary for task completion). For each chemical or substance listed below, additional information is to be compiled on the Chemical Inventory Worksheet and the Chemical Hazard Worksheet, attached to this form.

Substance Name	Manufacturer	MSDS On File

Radiological Hazards:

Substance	Radiation Type

6.0 PROPOSED HEALTH AND SAFETY TEAM

Position	*Person*	*Telephone Number*	*Radio*	*Pager*
Industrial Hygienist				
Safety Engineer				
Radiation Safety Engineer				
Industrial Hygienist Technician				
Radiation Technician				
Fire Protection Engineer				

7.0 MONITORING

Instrument	Monitoring Frequency
7.1 CHEMICAL	
PID (Hnu,OVM) w/____ ev Lamp	
FID (OVA)	
Combustible Gas (CGI)	
Oxygen	
H_2S	
Dust	
Colorimetric Detector Tubes	
Other:	
7.2 PHYSICAL	
Noise	
Heat Stress	
Cold Stress	
7.3 RADIOLOGICAL	
Alpha probe	
Beta/Gamma probe	
External Radiation	
Radon & Working Level Monitor	

7.4 PERSONAL MONITORING

7.4.1 Chemical

____ Passive Dosimeter ____ Personal Air Sampling ____ Other _____

Description/Other:

7.4.2 Radiation

____ TLD ____ Pocket Dosimeter ____ Other _____

7.5 BIOLOGICAL MONITORING/MEDICAL SURVEILLANCE

____ This project requires medical surveillance or biological monitoring procedures beyond the provisions of the routine medical surveillance program (see description below).

Description:

ATTACHMENT I
TYPICAL EXAMPLE

8.0 ACTION LEVELS

The following action levels are for the materials classified as characterized materials. Where materials are classified as uncharacterized, use the action levels listed in the HSP.

Instrument	*Contaminant*	*Action Level*	*Specific Action*

ATTACHMENT I
TYPICAL EXAMPLE

9.0 PERSONAL PROTECTIVE EQUIPMENT

9.1 LEVELS OF PROTECTION/PROTECTIVE CLOTHING

Task	*Level*	*Suit*	*Outer Gloves*	*Inner Gloves*	*Boot Covers*	*Safety Shoes*	*Hard Hat*	*Safety Glasses*	*Hearing Protection*	*Other*
	B									
	C									
	D									
	B									
	C									
	D									
	B									
	C									
	D									
	B									
	C									
	D									
	B									
	C									
	D									

9.2 **Respiratory Protection (to be used or available at work area):**

Level B

___ Pressure demand airline with escape provisions
___ Pressure demand SCBA

Level C

___ Full face air purifying respirator

Respirator Cartridge Type: _____

10.0 DECONTAMINATION

10.1 PERSONNEL

Personnel and equipment leaving the Exclusion Zone shall proceed through the following decontamination stations and procedures:

Station	Procedure
LEVEL B	
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.
9.	9.
10.	10.
11.	11.
12.	12.
LEVEL C	
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.

Station	Procedure
LEVEL D	
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.

10.2 EQUIPMENT

EQUIPMENT DECONTAMINATION

Station	Procedure

The following decontamination equipment is required:

11.0 EMERGENCY/SAFETY EQUIPMENT

Equipment	Quantity	Existing in Work Area	Need to be Provided
Eye Wash			
Shower (Emergency)			
Fire Extinguisher			
2-Way Radio's			
Telephone			
First Aid Kit			
Spill Control Kit			
Flammable Storage Area			
Other: (Specify)			

12.0 EMERGENCY/CONTINGENCY PLANS

WORK AREA	RALLY POINT	TORNADO SHELTER

ATTACHMENT J
TYPICAL EXAMPLE

SAFE SHUTDOWN IMPLEMENTATION PROJECT CHECKLIST

(PO-D-012)

Task Order Implementation Plan No:_____ Date:_____

Supervisor in charge of Field Operations:_____

Task Description:

_____

_____

Expected Start Date: Expected Completion Date:

ITEM	DESCRIPTION	COMPLETED				COMMENTS
		YES		NOT REQUIRED		
		DATE	INITIALS	DATE	INITIALS	
1.0	Safety & Regulatory Issues					
	• Safety Assessment	5/17/93				92-1060 R.A. #12
	• Risk Management Plan	6/7/93				RMP 92-0019-C-0
	• Health & Safety Plan	9/29/92				R.A. #12
	• NEPA Catex	5/10/93				CX #427. R.A. #12
	• ORR					
	• Notify Req. & Tech. Programs (MSGUs)					
	• Notify Waste Comm. & Field Imp. (MSGUs)					
	• NSOA/CSA					
	•					
	•					
2.0	Task Order from Safe Shutdown Prog./Planning					
3.0	Preparation of Safe Shutdown Imp. Plan					
	• Identify, characterize and quantify holdup material and where material is located in the system.					
	• Verify the Maintenance Work Orders to disconnect utilities corresponds with the system being worked.					
	• Define the system being worked. Process lines, vents and ducts are included from source to termination point.					
	• Define where process lines are physically separated from the source.					
	• Identify capacitance (stored) energy, electrical, mechanical and/or fluid is released or controlled.					
	• Identify specific points of entry to system.					
	• Identify use of secondary containment at each point where the system is opened.					
	• Identify where glove bags installed at pipe, vent or duct break points.					
	• Identify final storage location for containerized waste.					
	• Identify maintenance work instructions in describing utility disconnects or process line isolations.					

ATTACHMENT J
TYPICAL EXAMPLE

ITEM	DESCRIPTION	COMPLETED				COMMENTS
		YES		NOT REQUIRED		
		DATE	INITIALS	DATE	INITIALS	
	• Identify use of tags to identify potential residuals in disconnected process lines.					
	• Identify where enclosures installed as applicable to prevent spread of contamination.					
	• Identify where monitoring for gases and other potential hazards, air contamination.					
	• Identify boundaries for work area & laydown area.					
	•					
	•					
4.0	Implementation Plan Process					
	• MSS Review					
	• Applicable SOPs					
	• MSDS Sheets					
	• Completed Maintenance Work Order for utility disconnects					
	• Maintenance Work Order for task support					
	• [illegible]					
	• Hazard Assessment/Work Permits					
	• Task Specific Job Briefing					
	• Approval Signatures					
	• Scheduled and released for work					
5.0	Supervisor-In-Charge: Pre-task Review					
	• Field verify utilities disconnected					
	• Walk system down and review against the Implementation Plan					
	• Determine resource availability					
	• Determine special equipment availability					
	• Establish tentative start date					
	• Identify work team					
	• Verify work team has been trained to applicable SOPs					
	• Notify facility owner					
	•					
6.0	Supervisor-In-Charge: Requirements prior to start of field activities					
	• Work boundaries, control zones, laydown areas established					
	• Supplies and equipment in place					
	• Pre-task radiological surveys in place					
	• Perform pre-use inspections of equipment					
	• Verify applicable PMs are current					
	• Notify support groups of start date					
	• Maintenance					
	• Safety Engineer					
	• Industrial Hygiene					

ATTACHMENT J
TYPICAL EXAMPLE

ITEM	DESCRIPTION	COMPLETED				COMMENTS
		YES		NOT REQUIRED		
		DATE	INITIALS	DATE	INITIALS	
	• Rad. Techs					
	• MC&A					
	• Site Media Sampling					
	• Heavy Equipment Operators					
	•					
	• Verify electrical and/or mechanical energy is released and/or controlled					
	• Secondary containment in place					
	• Conduct Task Specific Training					
	• Finalize work permits					
	• Monitoring equipment in place					
	•					

Based upon this final review of the state of readiness, including site preparation, supplies, equipment and personnel, the supervisor may proceed with the work as described in the Task Order Implementation Plan _____ Work Package.

work evolution shall not deviate from the approved plan. Significant findings as the work progresses will be noted in the Supervisor's Daily Log and reported to the Safe Shutdown Implementation Manager. Changes to the Work Package will be incorporated after the appropriate review/approval process.

_____
RSO Safe Shutdown Implementation Manager

ITEM	DESCRIPTION	COMPLETED				COMMENTS
		YES		NOT REQUIRED		
		DATE	INITIALS	DATE	INITIALS	
7.0	Supervisor-In-Charge: During work evolution, conduct daily pre-shift meetings with work team to discuss safety issues, work assignments and work status. Document in daily log sheets.					
8.0	Supervisor-In-Charge: Post task requirements					
	• Verify containerized waste removed from job site					
	• System has been closed to atmosphere to contain radiological contamination					
	• Abandoned process lines are identified to possible residual contamination					
	• Abandoned utilities are identified					
	• Abandoned vent lines and duct work identified					
	• Obtain post task radiological surveys. Re-clean if necessary.					
	• Remove supplies, equipment and store					
	• Remove work zones and barriers					
	•					327

ATTACHMENT K
TYPICAL EXAMPLE

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

REMEDIAL SUPPORT OPERATIONS

SAFE SHUTDOWN IMPLEMENTATION

TASK SPECIFIC JOB BRIEFING

TASK TITLE _____

TASK ORDER NUMBER _____

COMPUTER FILE NAME _____

COMPLETION DATE _____

APPROVAL SIGNATURES

APPROVED	SIGNATURE	
SAFE SHUTDOWN IMPLEMENTATION	TITLE	DATE
APPROVED	SIGNATURE	
SUBJECT MATTER EXPERT	TITLE	DATE
APPROVED	SIGNATURE	
RSO TRAINING SUPPORT	TITLE	DATE

TASK ORDER #: _____

OBJECTIVES

ATTACHMENT L
TYPICAL EXAMPLE

SAFE SHUTDOWN IMPLEMENTATION

SUPERVISOR'S DAILY LOG

DATE _____

PROJECT #_____ TITLE _____

PERSONNEL ASSIGNED (Including support personnel; IH, Rad Tech, etc.)

NAME	BADGE NO.	NAME	BADGE NO.
1.		7.	
2.		8.	
3.		9.	
4.		10.	
5.		11.	
6.		12.	

PRE-SHIFT BRIEFING/SAFETY TOPIC:

_____

_____

_____

ACTIVITIES:

_____

_____

_____

_____

_____

Continued on other side . . .

SUPERVISOR'S SIGNATURE _____ BADGE NO. _____

ATTACHMENT L
TYPICAL EXAMPLE

REVIEWER'S SIGNATURE _____ BADGE NO. _____

Page of

ACTIVITIES - CONTINUED FROM OTHER SIDE:

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ATTACHMENT M
TYPICAL EXAMPLE

FEMP
RADIOLOGICAL WORK PERMIT
This permit is only valid when attached to a FERMCO WORK PERMIT.

(1) WORK PERMIT NUMBER:	PAGE: 1 OF

PART I - RADIOLOGICAL CONTROL REQUIREMENTS

AY'S DATE:	(2) TIME:	(4) ESTIMATED COMPLETION DATE:	
(5) BUILDING/PLANT:	(6) LEVEL:	(7) COORDINATES:	(8) PLANT JOB NUMBER:
(9) SUPERVISOR IN CHARGE:		(10) PHONE EXT./RADIO:	(11) ESTIMATED JOB MAN-HOURS:

(12) STAY TIME:	(13) STAY TIME BASIS (Determined by Radiological Engineering):		
	SKIN	LIMITING DOSE RATE	mrem/hr.
	WHOLE BODY	IF AIRBORNE	%DAC
	EXTREMITY	SURVEY I.D. NUMBER	
HOURS/WEEK	AIRBORNE		

NOTICE *Post most recent survey data at the work site.* *NOTICE*

(14) COVERAGE REQUIREMENTS	(15) AIR MONITORING REQUIREMENTS	(16) CONTAMINATION CONTROL
INTERMITTENT COVERAGE	CONTINUOUS AIR MONITOR (Type:)	HEPA VENTILATION: #
CONTINUOUS COVERAGE	BREATHING ZONE AIR SAMPLER (PAS)	HEPA VACUUM: #
NOTIFY RC EACH SHIFT WHEN RWP IS USED	GENERAL AREA AIR SAMPLING	AREA ISOLATION
OTHER:	OTHER:	CONTAINMENT DEVICE
OTHER:	OTHER:	OTHER:

(17) COMPLETE AN ALARA ASSESSMENT AS PER SP-P-35-067, ALARA REVIEW AND EVALUATION.	(18) PRE-JOB BRIEF REQUIRED?
Is an ALARA Review Required? ☐ YES ☐ NO (If YES, THEN attach form)	☐ YES ☐ NO

(19) DOSIMETRY		(20) REQUIRED TRAINING	
Special Bioassay *(See Comments)*	Job Specific TLD	Rad Worker I	Respirator Training
Direct Reading Dosimeter	Extremity Dosimetry	Rad Worker II	Other: *(Specify Below)*

(21) COMMENTS:

(22) WORK PERMIT PPE REQUIREMENTS ATTACHED:
☐ YES ☐ NO

APPROVALS *Signee verifies FERMCO Work Permit, PPE Requirements, Health & Safety Plan, or other additional documentation have been reviewed and approves of the requirements of the RWP.*

(23) RCT SUPERVISOR:	DATE:	(24) RADIOLOGICAL ENGINEERING:	DATE:
(25) RADIOLOGICAL COMPLIANCE:	DATE:	(26) REQUESTOR (CONCURRENCE):	DATE:

(27) RCT SIGNATURE:	RCT OFFICE LOCATION:	DATE ISSUED:	TIME ISSUED:
RCT PRINTED NAME:	RCT PHONE:		

PART II - BRIEFING GUIDANCE SHEET *(APPLICABLE ONLY IF BRIEFING IS REQUIRED)*

SCOPE OF WORK TO BE PERFORMED	RADIOLOGICAL CONTROL HOLD POINTS
RADIOLOGICAL CONDITIONS OF THE WORKPLACE	COMMUNICATION AND COORDINATION WITH OTHER GROUPS
PROCEDURAL AND RWP REQUIREMENTS	PROVISIONS FOR HOUSEKEEPING AND FINAL CLEANUP
SPECIAL AND RADIOLOGICAL CONTROL REQUIREMENTS	EMERGENCY RESPONSE PROVISIONS
...OLOGICALLY LIMITING CONDITIONS (...on and/or contamination levels that may void the RWP)	PROVISIONS FOR HOUSEKEEPING AND FINAL CLEANUP
...UNICATIONS AND COORDINATION WITH OTHER GROUPS	EMERGENCY RESPONSE PROVISIONS

NO.	DISTRIBUTION OF
1.	JOB SITE
2.	RCT SUPERVISOR
3.	DOSIMETRY MANAGER

FS-F-1372 (REV. 10/7/93)

☐ RWP CONTINUED ON NEXT PAGE

ATTACHMENT M
TYPICAL EXAMPLE

FEMP 5692

RADIOLOGICAL WORK PERMIT

This permit is only valid when attached to a FERMCO WORK PERMIT.

(1) WORK PERMIT NUMBER:

PAGE:

PART III - WORKER VERIFICATION

Signature verifies worker has read, understood, and will comply with the requirements of this RWP.

NAME			BADGE NUMBER	BRIEFED PER PART II?	RESPIRATOR FIT TEST CURRENT?	FOR ... WORKER TRAINING
PRINTED	SIGNATURE	DATE				
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ I

NO.	DISTRIBUTION OF
1.	JOB SITE
2.	RCT SUPERVISOR
3.	DOSIMETRY MANAGER

FS-F-1372-1 (REV. 10/7/93)

☐ RWP CONTINUED ON NEXT PAG

ATTACHMENT N
TYPICAL EXAMPLE

5692

FERMCO
WORK PERMIT

WORK PERMIT NUMBER:

SECTION A - BACKGROUND INFORMATION (Completed by Supervisor-in-Charge)

MMC NUMBER | JOB START DATE | ESTIMATED COMPLETION DATE

CONSTRUCTION WORK ORDER NUMBER: | COMPANY | EXACT LOCATION:

EXACT DESCRIPTION OF WORK:

SUPERVISOR-IN-CHARGE NAME | BADGE NUMBER | PHONE/RADIO NUMBER

PROJECT ENGINEER/CONSTRUCTION COORDINATOR | BADGE NUMBER | PHONE/RADIO NUMBER

SECTION B - TYPES OF PERMITS REQUIRED (Completed by Supervisor in Charge)

- ☐ OUTAGE
- ☐ PENETRATION
- ☐ ASBESTOS (posted)
- ☐ CHEM/HAZ MATERIAL (posted)
- ☐ CONFINED SPACE (posted)
- ☐ OPEN FLAME/WELDING (posted)
- ☐ HAZARDOUS WORK (posted)
- ☐ RADIOLOGICAL (posted)

SECTION C - GENERAL PRECAUTIONS (Completed by Supervisor-in-Charge)

PRELIMINARY	REQ'D.	DNA	AREA ISOLATION	REQ'D.	DNA
1. Check for utilities	☐	☐	20. Area Barricades	☐	☐
2. Health & Safety Plan	☐	☐	21. Signs (PPE)	☐	☐
3. Work Plan	☐	☐	22. Signs (Warning)	☐	☐
4. Working surface safe for load (especially roof work)	☐	☐	23.	☐	☐
5.	☐	☐	24.	☐	☐
ENERGY CONTROL (Lock & Tag)			**OTHER CONTROLS**		
6. Electrical	☐	☐	25. Exhaust Ventilation	☐	☐
7. Chemical	☐	☐	26. Supplied Air Ventilation	☐	☐
8. Mechanical	☐	☐	27. GFCI	☐	☐
9. Other (Steam, etc.)	☐	☐	28. Screen/Shield	☐	☐
10. Specific Equipment Plan Required	☐	☐	29. Non-Sparking Tools	☐	☐
11.	☐	☐	30. Intrinsically Safe Equipment	☐	☐
ACCIDENT PREVENTION			31.	☐	☐
12. Fire Extinguisher	☐	☐	**EGRESS/FALL PROTECTION**		
13. Safety Shower Operable & Less than 100 ft. Away	☐	☐	32. Ladder	☐	☐
14. Eye Wash Operable & Less than 100 ft. Away	☐	☐	33. Scaffolds/Railings	☐	☐
15. Protection	☐	☐	34. High Lift Platform	☐	☐
16. Communications	☐	☐	35. Safety Belt	☐	☐
17. Magnetic Survey for Buried Utilities/Objects	☐	☐	36. Safety Harness	☐	☐
18.	☐	☐	37. Safety Line	☐	☐
19.	☐	☐	38. Tripod/Retrieval System	☐	☐

SUPERVISOR-IN-CHARGE SIGNATURE | BADGE NUMBER | DATE

WORK TASK REVIEWED, APPROVAL TO PERFORM WORK

FACILITY OWNER'S SIGNATURE | BADGE NUMBER | DATE

NO.	DISTRIBUTION OF COPIES
1	Post at Job (OS&H Copy)
2	Supervisor in Charge
3	OS&H Field Copy

IN CASE OF EMERGENCY: CALL "CONTROL" BY RADIO, PHONE 6611, OR USE NEAREST FIRE ALARM BOX.

PERMIT TERMINATION (WORK COMPLETED/JOB CONDITIONS HAVE CHANGED)

SUPERVISOR-IN-CHARGE SIGNATURE | DATE

FS-F-2020 (REV 9/20/93)

Return Copy 1 to OS&H (MS #31)

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FERMCO
WORK PERMIT PPE REQUIREMENTS

WORK PERMIT NUMBER	Page: 2 of ___

HEAD PROTECTION ☐ None	☐ Surgeon's Cap ☐ Anti-C Hood ☐ Goggles	☐ Face Shield ☐ Welding Goggles ☐ Hard Hat	☐ Safety Glasses ☐ Other _____ ☐ Other _____
GLOVES ☐ None	☐ Cotton ☐ Nitrile ☐ Vinyl Liner	☐ Leather Palm ☐ Vitron ☐ Rubber	☐ Neoprene ☐ Other _____ ☐ Other _____
PROTECTIVE CLOTHING ☐ Double set PPE* ☐ None *Requires IH Concurrence*	☐ Production Coveralls ☐ Smock ☐ Paper Coveralls ☐ Tyvek Coveralls ☐ Cloth Coveralls	☐ Saranex Coveralls ☐ Taped Openings ☐ Acid Splash Suit ☐ Fire Retardant ☐ Rubber Shoecovers	☐ Disposable Shoecovers ☐ Safety Shoes ☐ Other _____ ☐ Other _____ ☐ Other _____
RESPIRATOR ☐ None	☐ Half Mask APR ☐ Full Face APR ☐ Powered APR ☐ Continuous Flow Airline	☐ Belt Mounted Half Mask APR ☐ Air Line Half Mask ☐ Air Line w /Escape ☐ Pressure Demand Airline	☐ Air Line w /Dual Flow ☐ Hooded Airline ☐ SCBA ☐ Other _____
CARTRIDGE ☐ None	☐ HEPA ☐ HF Canister ☐ Ammonia	☐ Organic/HEPA Comb. ☐ Organic Vapor ☐ Acid Gas	☐ Mercury ☐ Ammonia/HEPA ☐ Other _____
OTHER ☐ None	☐ Ear Plugs ☐ Ear Muffs	☐ Cool Vest ☐ Other _____	☐ Other _____ ☐ Other _____

Special Safety Instructions:	RESPONSIBLE DEPARTMENT	
	Item No.	(IH, RC, and/or F&S)

NO.	DISTRIBUTION OF COPIES
1.	POST AT JOB
2.	RADIOLOGICAL CONTROL
3.	OS&H

RADIOLOGICAL CONTROL SIGNATURE:	DATE:
OS&H SIGNATURE:	DATE:

FS-F-2039-1 (10/8/93)

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ATTACHMENT
TYPICAL EXAMPL

FEMP WORK REQUEST/ORDER

ORIGINATOR'S SECTION

W.O. NO.:

A M C | REQUESTED COMP. DATE: | MONTH | DAY | YEAR

EQUIPMENT NUMBER

WORK REQUEST NUMBER: 31500

JOB NAME:

QA LEVEL: 1 2 3

BUILDING | FLOOR | RM-AREA | PRIORITY 1 2 3

PERSONNEL SAFETY ITEM? YES NO

ECP REQUIRED? YES NO

SAFETY SYSTEM OR DESIGN FEATURE FOR SAFETY: YES NO

PERMIT REQUIRED? YES NO

DATES ALLOWED BY PERMIT: FROM: TO:

JOB TITLE:

JOB DESCRIPTION:

NAME: | INITIALS: | DATE: | PHONE: | SIGNATURE: | INITIALS: | DATE:

ORIGINATOR (REQ) | FACILITY OWNER (APV) | COST CENTER | GL

PLANNING SECTION

	JOB ELEMENTS	CRAFT CODE	NO.	MAN HOURS EST	MAN HOURS ACTUA
1					
2					
3					
6					
7					
8					

OVERHEAD: | LABOR: | MATERIAL: | TAX: | TOTAL:

ESTIMATED COSTS | PLANNER'S INITIALS | SHOP | TYPE EST | TOTALS

RETESTS:

RELEASE SECTION

FACILITY OWNER: (PRE-APPROVAL) — SIGNATURE — DATE

QA: — SIGNATURE — DATE

SAFETY ENGINEERING AND FIRE SERVICES: — SIGNATURE — DATE

ENGINEERING: — SIGNATURE — DATE

NUCLEAR, FIRE AND SYSTEM SAFETY: — SIGNATURE — DATE

RESPONSIBLE FIRST LINE SUPERVISOR: — SIGNATURE — DATE

RADIOLOGICAL SAFETY: — SIGNATURE — DATE

FACILITY OWNER: (FINAL RELEASE) — BEGIN WORK — SIGNATURE — DATE

INDUSTRIAL HYGIENE: — SIGNATURE — DATE

DAVIS-BACON DETERMINATION: YES NO — APPLICABLE — NUMBER

ENVIRONMENTAL COMPLIANCE: — SIGNATURE — DATE

PROJECT AUTHORIZATION — NUMBER

COMPLETION SECTION

RESPONSIBLE FIRST LINE SUPERVISOR: — SIGNATURE — DATE

FACILITY OWNER: — SIGNATURE — DATE

DATE CLOSED: — MONTH — DAY — YEAR

FS-F-2532 (REV. 11/13/91)

5692

SAFE SHUTDOWN
HAZARDOUS ENERGY AND MATERIAL CONTROL
EXPANDED LOCKOUT AND TAGOUT USE AUTHORIZATION

Safe Shutdown will require measures to protect personnel, protect equipment or systems from damage, and protect the environment from insult due to unexpected release of hazardous energy and/or materials.

Hazardous Energy Control is controlled by FERMCO SSOP 0719 (Energy Control)(Rev 0)(4/30/93) and will be used and complied with in conducting all Safe Shutdown Elements. Hazardous energy includes electrical, mechanical, hydraulic, pneumatic, chemical, radiation, and thermal energies, as well as various forms of potential (stored) energy, such as in springs, compressed gases, or suspended objects.

This attachment grants authority to use the procedural process of SSOP 0719 (Rev 0) to isolate or contain hazardous materials to protect personnel, equipment or systems, and/or environment. Procedural compliance in accordance with SSOP 0719 will be observed in preparing, installing, verifying, checking safe conditions, notifying, and removing locks and tags.

The use of this authorization will be specified in the work order as "SSOP 0719(Rev 0) and Att. 1".

This authorization is cancelled upon issuance of SSOP 0719 (Rev 1) or as directed by separate correspondence

Authorized by:

_____/_____

Attachment #1 to SSOP 0719
Safe Shutdown

REQUIREMENTS MANUAL

CONTROL NO: NON-CONTROLLED COPY

RM-0005

Issue Date: 04-27-94

Revision No. 5

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FEMP

LOT MARKING

AND

COLOR CODING SYSTEM

AUTHORIZED BY: _____ 4/15/94

J. A. Rasile, Executive Vice President — Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. BOX 398704
CINCINNATI, OHIO 45239-8704

RECORD OF ISSUE/REVISIONS

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DATE	REV. NO	DESCRIPTION AND AUTHORITY
08-23-91	0	Original issue of RM-0005 supersedes Internal Special FMPC-2178, Dated 7/1/89.
12-27-91	1	Incorporation of T91-004, T91-005, T91-006, and T91-031 per Request No. S92-034, S92-035, S92-036, and S92-037, initiated by D. Dunaway.
06-05-92	2	Minor revision to RM-0005 updating source or origin codes in Chapter 4, per Request No. S92-076, initiated by D. Dunaway.
05-05-93	3	Minor revision adding additional information to sections 1, 3, and 4 per Request No. S93-050, initiated by D. Dunaway. This document supersedes RM-0005, dated 06/05/92, Rev. 2.
08-23-93	4	Minor revision reflecting additions and corrections per request No. S93-124, initiated by D. Dunaway. This document supersedes RM-0005, dated 05/05/93, Rev. 3.
04-27-94	5	Minor revision incorporating SDCs per Request No. S94-012, initiated by D. Dunaway. This document supersedes RM-0005, dated 08-23-93, Rev. 4.

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1	1.5	5	04-27-94
1	1.6	1	12-27-91
1	1.7 through 1.21	0	08-23-91
2	2.1	0	08-23-91
2	2.2	4	08-23-93
2	2.3	0	08-23-91
3	3.1	0	08-23-91
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INTRODUCTION

The Fernald Environmental Management Project (FEMP) Lot Marking and Color Coding System has been in use at the FEMP to provide a means for the control and accountability of nuclear materials. Although the FEMP is no longer a production facility, there is still a large amount of nuclear material stored at the FEMP that requires the same degree of control and accountability. The same system used for the identification of nuclear materials is now being applied to hazardous waste, i.e., Resource Conservation and Recovery Act (RCRA) and Toxic Substance Control Act (TSCA) waste and low-level radioactive waste in Fernald Environmental Management Corporation (FERMCO) remediation activities. Control and accountability is required to satisfy Department of Energy (DOE) and Environmental Protection Agency (EPA) concerns. FERMCO is in the process of identifying all packaged materials on-site according to the Lot Marking and Color Coding System. This procedure is intended to provide the information necessary to identify any container of waste material.

* * * * * *

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CHAPTER 1 Lot Marking System

The FEMP lot mark will consist of five basic elements as follows:

	Element	Thorium	Enriched, Depleted, and Normal Uranium
1.0	Production Order Number (P. O.)/Materials Disposition Order (MDO) Number	None	4 digits
2.0	Origin or Source Code	3 digits	3 digits
3.0	Class or Enrichment Code combined with	1 digit	1 digit
4.0	Material Description Code	3 digits	3 digits
5.0	Lot or Sequence Number	4 digits	4 digits
	Total Digits	11 digits	15 digits

Elements 1.0, 2.0, 3.0, and 5.0 are alphanumeric (contain numbers or letters or both).

Element 4.0 is numbers only.

Elements 3.0 and 4.0 will be combined into a four-character material type code.

Elements 2.0, 3.0 and 5.0 will be separated from their predecessors by hyphens or dashes.

A detailed description of the composition of each element follows:

1.0 Production Order Number (P.O.)/Materials Disposition Order Number (MDO)

This designation was assigned by the Production Scheduling Section to identify certain key production activities. It usually consisted of one letter followed by three digits, e.g., A500. In the lot marking system, it is always used in identification of enriched, depleted and normal materials. Waste packaged specifically for shipment to NTS may be marked with the PO Number N003 for uranium and N004 for thorium.

CHAPTER 1 Lot Marking System (cont.)

When enriched uranium materials of irregular percent U^{235} content, for which no Production Order is applicable, are received or generated, special designations are assigned as outlined in the following paragraphs:

1.1 "S", followed by three digits indicating the shipper's percent U^{235} to two decimal places, is used to identify receipts of unusual U^{235} levels.

1.2 "S", followed by three digits, indicates the on-site producing plant's best estimate of the highest isotopic processed over a particular campaign. It is used to identify residue materials generated from the processing of materials of irregular U^{235} levels in FEMP operations. Materials containing up to 9.99 percent U^{235} will be coded as S plus the 3 digit isotopic value. Materials containing 10.00 to 19.99 percent U^{235} will be coded with only the isotopic value (4 digits).

1.3 "W", followed by three digits, indicates the on-site generating plant's best estimate of the highest isotopic associated with nonrecoverable contaminated waste material.

1.4 "X", followed by three digits, as indicated in the summary below, designating a range of percent U^{235}, will be used to identify certain residues produced from the mixing of materials of regular production but differing U^{235} levels (all numbers are inclusive):

1.4.1 X948 for 0.148 to 0.193 & 0.207 to 0.709

1.4.2 X110, X111, X118 & X119 for 0.710 to 0.712

1.4.3 X008 for 0.713 to 0.756

1.4.4 X884 for 0.757 to 0.853

1.4.5 X500 for 0.867 to 0.940

1.4.6 X888 for 0.954 to 1.243

1.4.7 X767 for 1.257 to 1.593

1.4.8 X911 for 1.607 to 2.093

1.5 "P", followed by three digits, indicates the on-site producing plant's estimate of the highest isotopic associated with uranium products or residues containing trace quantities of plutonium requiring special handling.

1.6 "R", followed by three digits, indicate the on-site producing plant's estimate of the highest isotopic associated with uranium products or residues containing RCRA mixed hazardous materials requiring special handling.

2.0 Origin or Source Code

This is a three-digit code with a block of 100 numbers assigned to each plant, as indicated in the following table. The plants are divided into sub-areas with subordinate blocks of numbers assigned to each.

FEMP Origin or Source Code

000-099	Reserved for future needs	500-599	Plant 5
		600-699	Plant 6
100-199	Plant 1	700-799	Miscellaneous facilities
200-299	Plants 2 & 3		
300-399	Pilot Plant	800-899	Plant 8
400-499	Plant 4	900-999	Plant 9

2.1 For example, Plant 5 is assigned 500-599 and the Reduction Area in Plant 5 is assigned 510 to 529. Within the area, each operation or piece of equipment which may generate a material for coding is assigned a source number. In the Plant 5 Metal Reduction Area, the Rockwell furnaces are assigned 516 and the breakout area dust collectors 520. The intention is to provide a flexible system which can be used to identify a particular item of equipment as a source, if this is desirable, or to allow coding by general area or by plant if this is all that is required.

2.2 A complete list describing all FEMP Source or Origin codes currently assigned will be found in Chapter 4.

2.3 Offsite origin codes used in processing receipts from other nuclear facilities are alphabetically designated using the three-letter Reporting Identification Symbol (RIS) of the shipper. See discussion on special handling of external receipts on page 1.11.

3.0 Class or Enrichment Code

This code consists of one digit or letter designating the general class or enrichment into which the material falls. Those categories currently most important in our operations have been assigned a number or letter as indicated.

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Class or Enrichment Codes - Alphabetic

Code	Category	Detail	%U^{235}	Additive or Alloy Level
A	Normal	Alloy		Alloy
B	Enriched	Alloy	Various	Alloy
C	Enriched		2.10	Other[1]
D	Depleted			Standard
E				
F				
G	Normal			Alloy 601
H	Enriched		0.947	Alloy 601
J				
K	Environmental Projects			
L	Enriched		0.947	Other[1]
M	Enriched		1.25	Alloy 601
N	Normal	Waste	0.710 to 0.712	None
P	Depleted	Waste	<0.710	None
Q				
R				
T	Thorium			None
U				
V	Enriched	Waste	>0.712	None
W				
X	Enriched		Other[1]	Other[1]
Y				
Z				

NOTE: Letters I, O, and S will not be used.

[1] Not specified. Refer to P.O. for U^{235} or additive level.

R

Class or Enrichment Codes - Numeric

Code	Category	Detail	$\%U^{235}$	Additive or Alloy Level
1	Normal		0.710 to 0.712	Std
2	Enriched	Recycle Tails	Various	None
3	Enriched		1.10	Std
4	Enriched		1.25	Std
5	Enriched		0.947	Std
6				
7	Enriched	Sweetener	Various	None
8	Enriched		0.86	Std
9	Enriched		2.10	Alloy 601
0	Enriched		Other[1]	Std

[1] Not specified. Refer to P.O. for U^{235} or additive level.

The use of this code in combination with the Material Description Code makes it possible to assign the same material description code to similar materials regardless of their class, enrichment or special nature.

For ready reference, a table of class codes arranged by material categories, $\%U^{235}$ and additive or alloy levels is also included below.

Class Codes by Material Categories

Category	Detail	$\%U^{235}$	Additive or Alloy Level				
			None	Std	601[2]	Other[2,3]	Alloy[4]
Depleted				D			
Depleted	Waste	<0.710	P				
Normal	Waste	0.710 to 0.712	N				
Enriched	Waste	>0.712	V				
Enriched		0.86		8			
Enriched		0.947		5	H	L	
Enriched		1.10		3			
Enriched		1.250		4	M		
Enriched		2.10			9	C	
Enriched	Alloy	Other[1]		0		X	B
Enriched	Recycle Tails	Various	2				
Enriched	Sweetener	Various	7				
Thorium			T				

1 Not specified. Refer to P.O. for U^{235} or additive level.

2 Properly applied to only material which has actually achieved this additive level; not appropriate for UO_3, UF_4, or derbies.

3 Any additive level other than "Standard" or Alloy 601; refer to P.O. or I.P.O. (Interplant Production Order) for details.

4 Materials, ordinarily from offsite, containing a concentration of alloying materials usually far above additive (ppm) levels.

4.0 Material Description Code

This is a three digit code, subdivided into residue and product categories as follows:

Low Grade Residues	000-099
High Grade Residues	100-149
Refinery Feeds	150-199
Intermediate Products	200-299
Remelt Feeds	300-399
Casting Products	400-449
Rolling and Extrusion Products	450-499
Machining Products	500-599

The intent in setting up the material descriptions was to make them general whenever possible, with the Class and Source Codes aiding in the specific identification of the material.

A complete list of all Material Description Codes currently assigned will be found in Chapter 3.

The one-digit or letter Class or Enrichment Code and the three-digit Material Description Code are combined into a four-character Material Type Code which is the basic unit of the FEMP Lot Marking system.

4.1 The low grade residue category (000-099) is intended to include all low uranium or thorium content residues and some higher grade uranium or thorium content residues which require extensive handling and processing before use as oxidation or refinery feed. In general, the low grade residues have been arranged in order of increasing quality. In other words, the lowest uranium or thorium content and lowest quality materials are designated by lower numbers and the high quality materials by higher numbers.

4.2 High grade residues (100-149) are, in general, high uranium or thorium content residues which require some processing such as screening or oxidation. They correspond in many cases to the feed for Plant 8.

4.3 Refinery feeds (150-199) are materials which were suitable for introduction into the refinery without further processing.

4.4 The intermediate product category (200-299) includes products from the various processes involved in converting refinery feed to metal. It also includes recycle metal which requires some pretreatment such as sawing or pickling before remelting.

4.5 Remelt feeds (300-399) are materials ready for remelt without further treatment.

4.6 Casting products (400-449), rolling and extrusion products (450-499), and machining products (500-510) are the products from these operations.

5.0 Lot or Sequence Number

This is a four-digit number which is used to identify consecutive lots of specific material in sequence where more than one lot is produced per month. Where not more than one lot is produced per month, the lot sequence number indicates the consecutive month of production starting with January 1962 as lot 0001. October 1991 is lot 0358.

To identify the category of trash, the lot or sequence number should include the product month number (May 1989 = 329), preceded by a numeric code that represents the category of 003 material. These categories are:

1 - Glass
2 - Rubber Hose
3 - Plastic
4 - Metal
5 - Concrete, Ceramics, Soil
6 - Contaminated Burnables
7 - Oily Rags, Air Filters and Gaskets
8 - Floor Sweepings
9 - Other - Stencil type of trash on containers

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6.0 Additional Information

6.1 Examples of Lot Marking

The preceding sections of this discussion have been generalized to explain the intent of the system. The following examples are offered to illustrate the application of the general system structure in developing lot markings to identify specific material produced at the FEMP. Marking of material received from offsite is discussed in subsequent paragraphs.

Example 1 (Normal) H110 - 263 - 1200 - 0418

H110	Applicable to P.O. H110
263	Produced in Plant 2/3 (Refinery), Denitration System North Side Packaging
1	"Normal" Uranium
200	UO_3, Product
0418	Lot Sequence Number

Example 2 (Enriched) A500 - 965 - 5069 - 0541

A500	Applicable to P.O. A500
965	Produced in Plant 9, Sump Liquor Processing Area
5	0.947% U^{235} Enriched Uranium
069	Wet Sump Cake, Non-Oily, Non-Halide
0541	Lot Sequence Number

Example 3 (Thorium) 380 - T069 - 0126

380	Produced in Pilot Plant Sump Area
T	Thorium
069	Wet Sump Cake, Non-Oily, Non-Halide
0126	Lot Sequence (Indicates June 1972)

Example 4 (Depleted) A948 - 951 - D110 - 0329

A948	Applicable to P.O. A948
951	Produced in Plant 9, LeBlond Rapid Borer
D	Depleted Uranium
110	Non-briquettable Chips and Turnings for Oxidation
0329	Lot Sequence (Indicates May 1989)

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Example 5 (Depleted) W020 - 501 - P003 - 6329

W020	Applicable to Waste (0.20% U^{235})
501	Plant 5 Maintenance
P003	Depleted Nonrecoverable Trash - for storage or shipment for offsite burial
6	Contaminated Burnables
329	May 1989

6.2 Lot Marking of External Receipts

Lot marking of material received from offsite by FERMCO will conform in general to the format described in previous sections. There are, however, certain exceptions which should be noted:

6.2.1. The Source Code will be the three-letter Reporting Identification Symbol (RIS) as illustrated in the table below.

6.2.2. The Lot Sequence Number will be the DOE Form 741 number assigned by the shipper in all cases except:

FTA Extrusions - Use 0000

Example 6 (Depleted Receipt) H082 - FTA - D455 - 0000

H082	Applicable to P.O. H082
FTA	RMI Company, Inc. (Shipper)
D	Depleted Uranium
455	Mark 31 Extruded Tubes - Inner
0000	Indeterminate Lot Sequence Number

6.3 External Source or Origin Codes

The table below shows the external source or origin codes that have been used for lot marking material received from offsite.

SOURCE OR ORIGIN CODES FOR OFFSITE RESIDUES AND SCRAP AT THE FEMP

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
AIC	Atomics International	NA Aviation	Canoga Park, California
AGT	General Electric Company	ANP Project	Cincinnati, Ohio
ALA	Sandia Corp.	Sandia Lab.	Albuquerque, New Mexico
ALD	Sandia Corp.	Sandia	Livermore, California
ALO	Dow Chemical	Rocky Flats	Golden, Colorado
ARF	Rockwell International	Rocky Flats	Golden, Colorado
ARM	IIT Research Inst.		Chicago, Illinois
ASA	Dow Chemical Company	Rocky Flats	Golden, Colorado
ATA	Mason & Hanger	Silas Mason	Burlington, Iowa
AUA	Los Alamos Nat. Lab.		Los Alamos, New Mexico
AVA	Monsanto	Mound	Miamisburg, Ohio
AVB	EG&G	Mound	Miamisburg, Ohio
AWA	Mason & Hanger	Pantex	Amarillo, Texas
AXA	General Electric Company	Neutron	St. Petersburg, Florida
AYA	Mason & Hanger		San Antonio, Texas
AZA	Mason & Hanger		Fort Campbell, Kentucky
BBA	Bridgeport Brass Company	Extrusion Plant	Ashtabula, Ohio
BMI	Battelle Memorial Inst.		Columbus, Ohio
BWD	Martin Marietta	Gaseous Diff.	Oak Ridge, Tennessee
BXA	Martin Marietta	Gaseous Diff.	Portsmouth, Ohio
BYC	Martin Marietta	Gaseous Diff.	Paducah, Kentucky
BZA	Brookhaven Laboratory		Upton, New York
CAA	USAEC	Chicago Office	Chicago, Illinois

SOURCE OR ORIGIN CODES FOR OFFSITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
CAE	Atomics International	NA Aviation	Canoga Park, California
CAF	Battelle Memorial Inst.		Columbus, Ohio
CAK	Ames Laboratory	Iowa State U.	Ames, Iowa
CBH	New Brunswick Laboratory	NBL	New Brunswick, New Jersey
CBJ	New Brunswick Laboratory		Argonne, Illinois
CCP	MIT		Cambridge, Mass.
CCS	Babcock and Wilcox Company	Research Cen.	Lynchburg, Virginia
CDY	Whittaker Corporation	Nuclear Metals	West Concord, Mass.
CGE	General Electric Company	ANP Project	Cincinnati, Ohio
CKY	Union Carbide	Gaseous Diff.	Paducah, Kentucky
CWA	Fermi Laboratory		Batavia, Illinois
CYT	Union Carbide	Y-12 Plant	Oak Ridge, Tennessee
CZA	Argonne National Laboratory		Argonne, Illinois
CZC	Argonne National Laboratory		Argonne, Illinois
DCC	Nuclear Fuel Services, Inc.	Davidson Chem.	Erwin, Tennessee
DYA	Sylcor Division	Sylvania EPI	Hicksville, L.I., New York
DZA	Westinghouse Savannah River Co.	Savannah River	Aiken, South Carolina
FAA	Oak Ridge Operations	USDOE	Oak Ridge, Tennessee
FAK	Middlesex Storage Plant	USAEC	New Brunswick, New Jersey
FAL	University of Virginia		Charlottesville, Virginia
FAQ	National Lead	Albany	Albany, New York
FAV	Kerr-McGee Nuclear Products		Cushing, Oklahoma
FAX	Nuclear Fuel Services, Inc.	Davidson Chem.	Erwin, Tennessee

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SOURCE OR ORIGIN CODES FOR OFFSITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
FBA	General Electric Company	Energy Systems	Evendale, Ohio
FBB	General Electric Company	NMPO	Idaho Falls, Idaho
FBE	New Brunswick Laboratory	USAEC	New Brunswick, New Jersey
FBX	Vitro Chemical Company		Chattanooga, Tennessee
FCZ	Tennessee Nuclear Spec.		Jonesboro, Tennessee
FTA	Reactive Metals Inc.	Extrusion Plant	Ashtabula, Ohio
FUA	Reactive Metals Inc.	Extrusion Plant	Ashtabula, Ohio
FVA	National Lead of Ohio	FMPC	Cincinnati, Ohio
FVB	General Atomic	Storage Fac.	Youngsville, North Carolina
FVC	FERMCO*	FEMP**	Cincinnati, Ohio
FWA	Mallinckrodt Chemical Works		Weldon Spring, Missouri
FXA	Goodyear Atomic	Gaseous Diff.	Portsmouth, Ohio
FYA	Union Carbide	Gaseous Diff.	Paducah, Kentucky
FYC	Martin Marietta	Gaseous Diff.	Paducah, Kentucky
FZA	Union Carbide	Gaseous Diff.	Oak Ridge, Tennessee
FZB	Union Carbide	Y-12 Plant	Oak Ridge, Tennessee
FZC	Union Carbide	ORNL	Oak Ridge, Tennessee
FZE	Martin Marietta	Gaseous Diff.	Oak Ridge, Tennessee
FZF	Martin Marietta	Y-12 Plant	Oak Ridge, Tennessee
FZG	Martin Marietta	ORNL	Oak Ridge, Tennessee
GAT	Goodyear Atomic	Gaseous Diff.	Portsmouth, Ohio
GDA	General Dynamics	General Atomic	San Diego, California
HGE	General Electric Company	Hanford	Richland, Washington

* WMCO - WEMCO, January 1986 - November 1992

** FMPC changed to FEMP August 1991

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SOURCE OR ORIGIN CODES FOR OFFSITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
HRA	Rockwell Int.	Hanford	Richland, Washington
HUA	Westinghouse Hanford Co., HEDL	Hanford	Richland, Washington
HUD	Westinghouse Hanford Co., CPD	Hanford	Richland, Washington
HUE	Westinghouse Hanford Co., DRD	Hanford	Richland, Washington
HVA	Atlantic Richfield	Hanford	Richland, Washington
HWA	Isochem, Inc	Hanford	Richland, Washington
HXA	United Nuclear Corp. Inc.	Hanford	Richland, Washington
HYA	Battelle Memorial Inst., PNL	Hanford	Richland, Washington
HZA	General Electric Company	Hanford	Richland, Washington
JSA	Allied Chemical	Aerojet	Idaho Falls, Idaho
JSB	Aerojet Nuclear	Idaho Falls	Idaho Falls, Idaho
JSG	EG&G Idaho	Idaho Falls	Idaho Falls, Idaho
JWB	Idaho Nuclear Corp.	Idaho Falls	Idaho Falls, Idaho
JXI	Westinghouse Idaho Nuclear Co.	Idaho Falls	Idaho Falls, Idaho
KMG	Kerr-McGee Nuclear Products		
KZA	Knolls Atomic Power Laboratory		Schnectady, New York
LAB	University of California	Lawrence Lab.	Livermore, California
LAE	Atomics International		Canoga Park, California
LAL	Rockwell International		Canoga Park, California
LAQ	Bureau of Mines		Albany, Oregon
LAW	(Gulf) General Atomic		San Diego, California
LAZ	General Electric Company	Nuclear Energy	San Jose, California
LLB	Sandia Corp.	Livermore	Livermore, California

SOURCE OR ORIGIN CODES FOR OFFSITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
LZA	University of California	Berkeley	Berkeley, California
LZB	University of California	Livermore	Livermore, California
MAA	Worchester Polytechnic	USAEC	New York, New York
MAD	Pratt & Whitney Aircraft Div.	CANEL	Middletown, Connecticut
MAP	Aeroprojects, Inc.		West Chester, Pennsylvania
MAY	Nat. Bureau of Standards		Washington, D. C.
MBB	Reactive Metals Inc.	Extrusion Plant	Ashtabula, Ohio
MBL	Martin Marietta	Nuclear Div.	Baltimore, Maryland
MBM	MIT		Cambridge, Mass.
MBN	Nuclear Metals Inc.	Textron	West Concord, Mass.
MBP	U. of Rochester		Rochester, New York
MBR	Babcock and Wilcox Company	R&D Div.	Lynchburg, Virginia
MBT	Babcock and Wilcox Company	R&D Div.	Lynchburg, Virginia
MBU	United Nuclear Corp.	Development	White Plains, New York
MBW	Babcock and Wilcox Company		Lynchburg, Virginia
MBY	Vitro Laboratories		West Orange, New Jersey
MCW	Mallinckrodt Chemical Works	Uranium Div.	Weldon Spring, Missouri
MCY	Westinghouse Electric Co.	NES	Pittsburgh, Pennsylvania
MIO	Nuclear Metals Inc.		West Concord, Mass.
MPW	Pratt & Whitney Aircraft Div.	CANEL	Middletown, Connecticut
MSA	USAEC, NY Operations		New York, New York
NBL	New Brunswick Laboratory	USAEC	New Brunswick, New Jersey
NBX	Middlesex Storage Plant	USAEC	New Brunswick, New Jersey

SOURCE OR ORIGIN CODES FOR OFFSITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
NCF	National Carbon Co.	Union Carbide	Fostoria, Ohio
NLA	National Lead	Albany	Albany, New York
NMC	Martin Marietta	Nuclear Div.	Middle River, Maryland
NME	Nuclear Mat. & Equip. Corp.	NUMEC	Apollo, Pennsylvania
OGE	General Electric Company	NM Propulsion	Cincinnati, Ohio
ORF	EG&G	Rocky Flats	Golden, Colorado
PAB	Duquesne Light Co.	Shippingport	Shippingport, Pennsylvania
PAP	Babcock and Wilcox Company		Apollo, Pennsylvania
PZA	Westinghouse Electric Co.	Bettis APL	West Mifflin, Pennsylvania
QAA	USAEC	Headquarters	Washington, D. C.
SAF	Mason & Hanger	Silas Mason	Fort Campbell, Kentucky
SBN	Mason & Hanger	Silas Mason	San Antonio, Texas
SBX	Monsanto	Mound	Miamisburg, Ohio
SRS	Sylcor Division	Sylvania EPI	Hicksville, L.I., New York
RBR	Brazil		
TOA	K-65, Q-11		
VAC	National Research		Cambridge, Mass.
VCC	Vitro Chemical Company		Chattanooga, Tennessee
VXB	UNC Industries (Waste)	Hanford	Richland, Washington
WCP	Combustion Engineering, Inc.	Naval Reactors	Windsor, Connecticut
WEB	Westinghouse Power Div.	Bettis APL	Pittsburgh, Pennsylvania
XHP	General Atomic	Storage Fac.	Youngsville, North Carolina
YAK	Department of the Navy	NFEC	Alexandria, Virginia

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SOURCE OR ORIGIN CODES FOR OFFSITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
YAM	Coast Guard Academy		New London, Connecticut
YAQ	National Electric Coil		Louisville, Kentucky
YDE	Nuclear Fuel Services	West Valley	West Valley, New York
YEC	Kerr-McGee	Cimarron	Crescent, Oklahoma
YEF	Smithsonian Inst.	Hist. & Tech.	Washington, D. C.
YJL	Colgate University		Hamilton, New York
YLE	Westinghouse	Waltz Mill	Madison, Pennsylvania
YPF	U. of Alabama at Auburn		Auburn, Alabama
YQK	GSA Stockpile		Washington, D. C.
YST	TNS		Jonesboro, Tennessee
YQM	Frankfork Arsenal	DOD	Philadelphia, Pennsylvania
YUD	Exxon Nuclear	Hanford	Richland, Washington
YVX	Nuclear Metals		Concord, Mass.
ZCM	Bucknell University		Lewisburg, Pennsylvania
ZCY	Carnegie-Mellon U.		Pittsburgh, Pennsylvania
ZDB	Case Western Reserve U.		Cleveland, Ohio
ZDC	Catholic University		Washington, D. C.
ZFZ	Fairleigh Dickenson U.		Teaneck, New Jersey
ZDP	University of Cincinnati		Cincinnati, Ohio
ZDS	Clarke College		Dubuque, Iowa
ZDT	Clarkson University		Potsdam, New York
ZEF	Combustion Engineering		Windsor, Connecticut
ZIB	Scientific Ecology		Oak Ridge, Tennessee

SOURCE OR ORIGIN CODES FOR OFFSITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
ZKB	Iowa State University		Ames, Iowa
ZKL	Kansas State U.		Manhattan, Kansas
ZLD	Ledoux & Co.		Teaneck, New Jersey
ZLR	Louisiana Tech. U.		Ruston, Louisiana
ZLU	University of Louisville		Louisville, Kentucky
ZMH	Manhattan College		Riverdale, Bronx, New York
ZMK	Marquette University		Milwaukee, Wisconsin
ZMR	University of Maryland		College Park, Maryland
ZND	University of Minnesota		Minneapolis, Minnesota
ZNE	3M Company		St. Paul, Minnesota
ZNG	University of Mississippi		University, Mississippi
ZNX	National Lead	Albany	Albany, New York
ZOV	Manufacturing Sciences		
ZPG	University of Nevada		Reno, Nevada
ZQC	Northeastern University		Boston, Mass.
ZQG	Northwestern University		Chicago, Illinois
ZQM	Nuclear Fuel Services, Inc.		Erwin, Tennessee
ZQN	Nuclear Mat. & Equip. Corp.	NUMEC	Apollo, Pennsylvania
ZQX	Ohio University		Athens, Ohio
ZSF	Pittsburgh University		Pittsburgh, Pennsylvania
ZSK	Princeton University		Princeton, New Jersey
ZST	Chamberlain Mfg.		Waterloo, Iowa
ZVF	Syracuse University		Syracuse, New York

SOURCE OR ORIGIN CODES FOR OFFSITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
ZVX	Texas Tech. University		Lubbock, Texas
ZWB	Toledo University		Toledo, Ohio
ZWY	Utah State University		Logan, Utah
ZXA	Vanderbilt University		Nashville, Tennessee
ZXC	U. of Virginia		Charlottesville, Virginia
ZXF	Villanova University		Villanova, Pennsylvania
ZXH	Virginia Polytechnic Inst.		Blacksburg, Virginia
ZXZ	Washington University		St. Louis, Missouri
ZYG	West Virginia Inst. of Tech.		Montgomery, West Virginia
ZYP	Westinghouse	Atomic Power	Cheswick, Pennsylvania
ZZA	University of Wisconsin		Madison, Wisconsin
ZZM	Yale University		New Haven, Connecticut

7.0 SOLVENT AND ORGANIC CHEMICALS NAMES TO BE STENCILED ON CONTAINERS

Acetone
Acetonitrile
Agitene
Benzene
n-Butyl alcohol
Carbon disulfide
Carbon tetrachloride
Chlorinated fluorocarbons
P Chlorobenzene
P Chlordane
Chloroform
m-Cresol
o-Cresol
p-Cresol
Cresols
Cresylic Acid
(Cresols plus phenols)
Cyclohexane
Cyclohexanone
P 2, 4-D
P o-Dichlorobenzene
P 1, 4-Dichlorobenzene
1, 2-Dichloroethane
1, 1-Dichloroethylene
2, 4-Dinitrotoluene
1, 4-dioxane
P Endrin
2-Ethoxyethanol
Ethyl acetate
Ethyl benzene
1, 1, 2-Trichloro-1, 2, 2-trifluoroethane
Ethyl ether
P Heptachlor (and its hydroxide)
P Hexachlorobenzene
Hexachlorobutadiene
Hexachloroethane
Isobutanol
P Lindane
Methanol
P Methoxychlor
Methyl ethyl ketone (2-Butanone)
Methyl isobutyl ketone
Methylene chloride
Nitrobenzene
2-Nitropropane
P Pentachlorophenol
Phenol
Pyridine
Tetrachloroethylene
Toluene
P Toxaphene
P 2, 4, 5-TP acid Silvex
1, 1, 1-Trichloroethane
1, 1, 2-trichloroethane
Trichloroethylene
Trichlorofluoromethane
P 2, 4, 5-Trichlorophenol
P 2, 4, 6-Trichlorophenol
Vinyl chloride
Xylene

P = Pesticide

CHAPTER 2 Color Coding System

In addition to the lot marking system described for identifying nuclear materials, color coding is applied as a secondary method of designating depleted, normal, and enriched uranium and thorium.

Three basic colors, black, red and white, are used for painting the body of containers in service at the FEMP.

Black drums are used for depleted uranium, normal uranium, unrestricted (for Nuclear Safety) enriched uranium compounds and residues, RCRA and TSCA waste and thorium.

All-red drums are used for enriched, restricted uranium (e.g., mass, geometry, or concentration).

White drums and white metal boxes are used for offsite shipment of low-level uranium waste; white drums are used for thorium waste.

Container identification markings required for long-term storage such as lot marks, weights, drum numbers, alloying chemical symbols and percent U^{235} are routinely applied by stencil over the basic paint colors as specified in Table I. "Markal" or equivalent type white or black paint sticks are used for applying temporary identification markings to residue and waste containers and to other specific materials in the production areas, including some offsite receipts and the reidentification of materials on the storage pad. Pre-printed identification labels that contain barcodes may also be used.

Color coding of black drums will be further implemented by application of a narrow stripe around the circumference above the gross, tare and net weight information on each container. The colors to be used for this stripe are as follows:

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CHAPTER 2 Color Coding System (cont.)

Material in Black Drums	% U^{235}	Stripe Color
(a) Depleted Uranium	<0.710	Green
(b) Normal Uranium	0.710 to 0.712	Yellow
(c) Enriched Uranium - Unrestricted compounds and residues	>0.712	Red
(d) Thorium		Blue
(e) RCRA and TSCA waste		None

An exception to the container body painting and stencilling requirement is permitted for enriched oxides packaged in 6" diameter by 15" high metal cans. A narrow red-tape stripe around the periphery of the can and a printed label are applied.

It will not be necessary to apply a stripe to all drums.

Containers characterized and identified as containing RCRA and TSCA waste and which have been declared to be below the economic discard limit will have their color stripe obliterated with black paint before they are placed in storage in the RCRA warehouses.
NOTE: Drums with color stripes which are already in storage need not be changed.

Red targets or red-white cards, or yellow-white or green-white cards and pressure-sensitive tape are used to color code enriched, normal and depleted uranium metal on skids, hoppers, dollies, metal pieces not in containers, or boxes and major components of process equipment such as vessels, sumps, machinery, dust collectors, etc. An explanation of their use is detailed in procedures 20-C-100, "Moving and Storing Depleted, Normal, and Enriched Uranium Materials < 20% U^{235} and Thorium Metal and Materials", and 20-C-904, "SOP-Nuclear Safety General Requirements."

Old identification markings will be obliterated with paint immediately upon emptying containers.

Offsite receipts which do not comply with FEMP color coding requirements are color coded with a band of paint around the periphery of the container - yellow for normal, red for enriched, green for depleted, and blue for thorium, as a substitute for painting the entire container. The proper color coding is applied as soon as the analytical results are received from the Laboratory.

TABLE I

FEMP Color Code Specification
for Basic Container Paints and
Identification Markings

Type of Material	Basic Container Paint Color	Identification Markings Paint Color	Stripe Paint Color
Normal uranium	Black	White	Yellow
Enriched uranium, unrestricted	Black	White	Red
Enriched uranium mass, geometry or concentration restricted	Red	White	None
Depleted uranium	Black	White	Green
Thorium	Black	White	Blue
Thorium Waste	White	Black	Blue
Uranium Waste Shipments	White	Black	None
RCRA and TSCA Waste	Black	White	None

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CHAPTER 3 MATERIAL DESCRIPTION CODES

LOW-GRADE RESIDUES

001 DISCARD PROCESS RESIDUES, TRAILER CAKES, WASTE SLURRIES, RAFFINATES, ETC.

002 SUMP CAKE - COPPER CONTAMINATED, LOW URANIUM

003 NON-RECOVERABLE TRASH - FOR STORAGE OR SHIPMENT FOR OFFSITE BURIAL, see p. 1.09

004 CONTAMINATED STEEL AFTER WASHING AND/OR CLEANING

005 CONTAMINATED ZIRCONIUM

006 CONTAMINATED LEATHER GLOVES FOR LAUNDRY

007 TRAILER CAKES, WASTE SLURRIES, RAFFINATES NOT MEETING DISCARD SPECIFICATION

008 GRIT BLAST RESIDUE

009 CONTAMINATED OIL - SOLUBLE; COOLANT

010 CONTAMINATED WATER, CONTAINING CHLORIDES

011 CONTAMINATED SOIL, ROCKS, SAND, BRICKS AND CERAMICS

012 CONTAMINATED WATER OR SUMP LIQUOR, NON-CHLORIDE

013 CONTAMINATED SOLVENT OR ORGANIC CHEMICAL - STENCIL TYPE OF CHEMICAL OR SOLVENT ON CONTAINER (SEE LIST OF SOLVENT AND CHEMICAL NAMES ON PAGE 1.21.)

014 GLASS AND SAMPLE BOTTLES

015 CONTAMINATED OIL, INSOLUBLE

016 CONTAMINATED COPPER - FOR DISCARD

017 CONTAMINATED GRAPHITE - UNCRUSHED BUT BROKEN INTO LARGE PIECES

LOW-GRADE RESIDUES (cont.)

018 CONTAMINATED ALUMINA-SODA LIME (HIGH Cl^-)

019 CONTAMINATED MAGNESIUM

020 CONTAMINATED MERCO-DRI AND HILCO CAKE

021 DRUM DECONTAMINATION RESIDUES; WET MgF_2

022 CONTAMINATED TBP AND/OR KEROSENE MIXTURES AND SLUDGES

023 OILY MgF_2

024 CONTAMINATED GRAPHITE - CRUSHED

025 CONTAMINATED METALLIC FILTER ELEMENTS

026 CONTAMINATED CARBON FILTER ELEMENTS

027 CONTAMINATED RAGS, PAPER AND POLYETHYLENE

028 CONTAMINATED ASBESTOS MATERIALS

029 DUST COLLECTOR BAGS

030 MAGNESIUM OXIDE AND MAGNESIUM ZIRCONATE FROM CRUCIBLE CLEANOUT

031 ROASTED MgF_2 (BLENDED WITH OTHER MATERIALS)

032 INCINERATOR ASHES - MATERIAL PASSING THROUGH GRATE OR SCREEN

033 INCINERATOR CINDERS - MATERIAL NOT PASSING THROUGH GRATE OR SCREEN

034 MgF_2 FOR MILLING OR DISCARD

035 MgF_2 OR CaF_2, GOOD LINER MATERIAL

036 MgF_2, -20 MESH, HIGH FREE METAL FOR PLANT 8 ROASTING (ENRICHED ONLY)

LOW-GRADE RESIDUES (cont.)

037 MgF_2, GROUND

038 MgF_2, +20 MESH, LOW U CONTENT, TO BE CRUSHED

039 SLUDGES, OILY

040 SLUDGES, FOR BLENDING AND SCREENING

041 SLUDGES, OILY, FOR OXIDATION, HIGH FREE METAL

042 SLUDGES, CLEANOUT, NON-OILY, FOR ROASTING

043 SLUDGES, SOLVENT - STENCIL TYPE OF SOLVENT ON CONTAINER (SEE LIST OF SOLVENT AND ORGANIC CHEMICAL NAMES ON PAGE 1.21.)

044 SLUDGES, SALT, SOFT, CHLORIDE (FOR PLANT 8 RECOVERY)

045 SLUDGES, SALT, SOFT, NON-CHLORIDE

046 SLUDGES, NON-OILY, FOR OXIDATION INCLUDING HIGH OR LOW FREE METAL

047 SAMPLES, NON-METALLIC, MISCELLANEOUS

048 OIL BURNER ASH

049 LEAD AND LEAD-CONTAMINATED MATERIALS

050 PCB MATERIALS, BALLAST, PCB-CONTAMINATED RAGS

051 MERCURY-CONTAMINATED MATERIALS, MERCURY BATTERIES

052 BARIUM-CONTAMINATED MATERIALS

053 NON-BURNABLE METAL WITH URANIUM CONTENT

054 HIGH LEVEL CLEANING RESIDUES

LOW-GRADE RESIDUES (cont.)

055 DEPLETED U METAL - NOT SUITABLE FOR REACTOR PRODUCT STREAMS (NOT TOP CROPS)

056 DEPLETED U INGOT CROPS (TOP CROPS) FROM PRIMARY INGOTS

057 WET CRUSHED SLAG FROM FURNACE POT BLOW-OUTS

058 CONTAMINATED CaF_2 - MgO

059 ASH FROM BURNING DUST COLLECTOR BAGS

060 FURNACE SALT, SOLIDIFIED, CHLORIDE (FOR PLANT 8 RECOVERY)

061 FURNACE SALT, SOLIDIFIED, NON-CHLORIDE

062 DUST COLLECTOR RESIDUES - HIGH FLUORIDE

063 KOH REVERSION CAKE

064 DUST COLLECTOR RESIDUES, PYROPHORIC, HIGH FLUORIDE

065 SCRAP SALTS, HIGH FLUORIDE, INCLUDING FLOOR SWEEPINGS

066 SCRAP SALTS, LOW FLUORIDE, INCLUDING FLOOR SWEEPINGS

067 WET SUMP OR FILTER CAKE, HALIDE CONTD

068 WET SUMP OR FILTER CAKE, OIL CONTD

069 WET SUMP OR FILTER CAKE, NON-OILY AND NON-HALIDE

070 ROCKWELL SPILLS

071 ROCKWELL CLEANINGS

LOW-GRADE RESIDUES (cont.)

072 U OR Th NITRATE SOLUTIONS, HIGH IMPURITY SUCH AS ZIRNLO DECOPPERING SOLUTIONS - FOR REFINERY PROCESSING

073 U OR Th CHLORIDE OR FLUORIDE SOLUTIONS, HIGH IMPURITY - SUCH AS PLANT 8 METAL DISSOLVER PRODUCT - NOT FOR REFINERY FEED

074 U OR Th SULPHATE SOLUTIONS

075 CLAD METAL FOR HNO_3 DISSOLVER

076 ZIRNLO ENDS - TO BE CLASSIFIED FOR RECOVERY

077 DRY CRUSHED SLAG FROM FURNACE POT BLOW-OUTS

078 OFF-SPEC Th OXALATE, FRENCH SOURCE

079 UNFIRED REDUCTION CHARGES PLUS MgF_2 FROM LINER CAVE-INS

080 PARTIALLY OXIDIZED METAL FOR SORTING CONTAINING METL-X

081 PARTIALLY OXIDIZED METAL FOR SORTING CONTAINING NO METL-X

082 OFF-SPEC UF_4 OR ThF_4

083 U OR Th CHLORIDE SALTS, REJECT

084 BAD REDUCTION (NO DERBY)

085 U_3O_8 - ROTEXED - OTHER THAN PLANT 8'S OWN PRODUCT

086 U308 ROTEXED - PLANT 8'S OWN PRODUCT NOT MEETING REFINERY SPECIFICATIONS FOR CONTINUOUS DIGESTION

087 ROASTED SUMP CAKE - HIGH FLUORIDE - FOR MILLING

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

LOW-GRADE RESIDUES (cont.)

088 UNROASTED BUT MILLED MgF_2 (BLENDED WITH OTHER MATERIALS)

089 U_3O_8 ROTEXED - FROM CONCRETED CHIPS - CALCIUM

090 THORIUM RESIDUES

091 MAGNESIUM URANATE

092 FILTERED SEWAGE

093 BIRD CARCASSES, DROPPINGS, AND CONTAMINATED MATERIALS

094 COPACKAGED URANIUM RESIDUES

095 COLD METAL OXIDES - NON RADIUM-BEARING

096 AUSTRALIAN RADIUM CAKE

097 RADIUM-BEARING MATERIALS - SAMPLES, K-65, INCLUDING Q-11 CONTAMINATED MATERIALS

098 MATERIAL HELD FOR HISTORICAL PURPOSES

099 CHIPPED FLOOR SEALANT AND CONTAMINATED MATERIALS

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

HIGH-GRADE RESIDUES

100 SCRAP U_3O_8 OR ThO_2, LOW FLUORIDE

101 SCRAP U_3O_8 OR ThO_2, HIGH FLUORIDE

102 SCRAP UO_2

103 INGOT CROPS (TOP CROPS) FROM PRIMARY INGOTS

104 METAL SPILLS AND EXTRUSION ENDS; METAL HIGH IN IMPURITIES AND SPILLS

105 ThO_2 PRODUCED FROM UNPURIFIED HANFORD THORIUM NITRATE VIA THORIA GEL PROCESS

106 CHIPS EMBEDDED IN CONCRETE - HIGH CALCIUM

107 CHIPS AND TURNINGS CONTAMINATED WITH NON-U MATERIALS - FOR OXIDATION

108 WET PHOSPHATE CAKE

109 SAWDUST FOR OXIDATION

110 NON-BRIQUETTABLE CHIPS AND TURNINGS FOR OXIDATION

111 BRIQUETTALE CHIPS AND TURNINGS FROM STANDARD METAL

112 BRIQUETTABLE CHIPS AND TURNINGS, HIGH IMPURITIES, FOR BRIQUETTING AND DOUBLE MELTING

113 ZIRCONIUM CLAD METAL, FROM OFFSITE, TO BE DECLAD BY ZIRNLO SYSTEM

114 ZIRNLO FEED, CLASSIFIED AND SAWED

115 WET THORIUM OXALATE CAKE

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

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HIGH-GRADE RESIDUES (cont.)

116 WET THORIUM HYDROXIDE

117 WET AMMONIUM DIURANATE CAKE

118 HOLLOW CORES WITH BROKEN DRILLS - ALL TYPES - BITS TO BE REMOVED AND CORES PICKLED PRIOR TO REMELT

119 SOLID METAL, OTHER THAN CORES, WITH EMBEDDED STEEL

120 CHEMICAL REJECT PRIMARY INGOTS

121 U_3O_8, +8 MESH - HIGH FLUORIDE

122 U_3O_8, +8 MESH - LOW FLUORIDE

123 CALCIUM URANATE

124 ZIRNLO; PARTIALLY DECLAD FUEL ELEMENTS

125 UNRECYCLED SLAG +20 MESH, BALL MILL PRODUCT

126 OXIDES MIXED WITH ZIRCONIUM BUT CLAD WITH OTHER ELEMENTS

128 CLAD URANIUM METAL; DECLAD BY MACHINING OR CHEMICAL TREATMENT

129 DIRTY PRILL, CODE 5 DERBIES, AND PLANT 1 TITAN MILL CLEAN-OUT, HIGH U CONTENT

130 PARTIALLY OXIDIZED METAL FOR DISSOLVER

131 PARTIALLY OXIDIZED METAL OXIDATION FEED

132 DUST COLLECTOR RESIDUES, LOW FLUORIDE

HIGH-GRADE RESIDUES (cont.)

133 OXIDES CLAD OR MIXED WITH ALUMINUM

134 U_3O_8 FOR REOXIDATION

135 DUST COLLECTOR RESIDUE, HIGH FLUORIDE, GREATER THAN 20% ASSAY

136 METAL TO BE OXIDIZED

137 MISCELLANEOUS MATERIAL - RECOVERY METHOD TO BE DETERMINED (NOT FOR USE BY INDIVIDUAL PLANTS)

138 OXIDES CLAD OR MIXED WITH ANY METALLIC ELEMENT OTHER THAN ALUMINUM, ZIRCONIUM OR STAINLESS STEEL

139 URANIUM ALLOYED OR CANNED WITH ELEMENTS OTHER THAN ALUMINUM, MOLYBDENUM OR ZIRCONIUM

140 OXIDES CLAD OR MIXED WITH ZIRCONIUM

141 CLAD METAL FOR ACID DISSOLUTION - NOT FOR ZIRNLO PROCESSING

142 OXIDES CLAD OR MIXED WITH STAINLESS STEEL

143 ROASTED CALCIUM-PRECIPITATED SUMP AND FILTER CAKES

144 OFFSITE SUMP AND FILTER CAKES AFTER ROASTING AT FEMP

145 ROASTED AMMONIUM-PRECIPITATED SUMP AND FILTER CAKES

146 ROASTED MAGNESIUM-PRECIPITATED SUMP AND FILTER CAKES

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REFINERY FEEDS

150 URANYL OR THORIUM NITRATE SOLUTION

151 OFF-SPEC ThO_2, FRENCH SOURCE

152 U_3O_8 ROTEXED PLANT 8 FURNACE PRODUCT

153 -8 MESH PRODUCT FROM OXIDIZING +8 METAL

154 U_3O_8 ROTEXED PLANT 8 FURNACE PRODUCT

155 U_3O_8 -8 MESH FROM ROTEXING OF OTHER THAN PLANT 8'S OWN PRODUCTS - LOW FLUORIDE

156 MILLED UO_2

157 REJECT UO_3

158 PHOSPHATE ASH

159 ROASTED, MILLED AND/OR SCREENED CALCIUM-PRECIPITATED SUMP AND FILTER CAKES

160 IMPURE URANYL OR THORIUM NITRATE - SOLID

161 URANIUM CARBIDE, UC

162 OFFSITE SUMP AND FILTER CAKES AFTER ROASTING, MILLING, AND/OR SCREENING AT FEMP

163 ROASTED, MILLED AND/OR SCREENED AMMONIUM-PRECIPITATED SUMP AND FILTER CAKES

164 ROASTED, MILLED AND/OR SCREENED MAGNESIUM-PRECIPITATED SUMP AND FILTER CAKES

165 U_3O_8 - NOT REQUIRING RE-OXIDATION

166 UO_2 (OR ThO_2) PELLETS - REFINERY FEED

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REFINERY FEEDS (cont.)

167 UO_2 (OR ThO_2) POWDER - REFINERY FEED

168 CRUSHED FURNACE SALTS AND SLUDGES NON-CHLORINE

169 ROASTED FURNACE SALTS AND SLUDGES NON-CHLORINE

170 ORE CONCENTRATE - MISCELLANEOUS

190 U_3O_8 FOR RE-OXIDATION

191 RE-OXIDIZED ENRICHED CALCINER U_3O_8 FOR SCREENING AND MILLING

192 OXIDE FOR SCREENING AND MILLING

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INTERMEDIATE PRODUCTS

200 UO_3 PRODUCT

201 UO_3 REACTOR RECYCLE TAILS

202 UO_2 OR ThO_2 PRODUCT

203 UF_6, URANIUM HEXAFLUORIDE

204 PURIFIED URANYL OR THORIUM NITRATE SOLUTION

205 ThO_2 PRODUCED FROM SOL-GEL PROCESS

206 BLENDED UF_4 OR ThF_4 CHARGE

207 PURIFIED URANYL OR THORIUM NITRATE SOLID

209 URANIUM OR THORIUM TETRACHLORIDE

210 UF_4 OR ThF_4

211 UF_4 FROM PILOT PLANT UF_6

212 UF_4 FROM HANFORD UO_3

214 U_3O_8 FROM RECYCLE UO_3 (ROR PROCESS)

215 THORIUM HYDROXIDE, DRY

216 CHARGED UF_4 POTS, WIP

218 CLEAN PRILL FOR DOUBLE MELTING

219 METAL FROM SPILLS FOR DOUBLE MELTING

220 CODE 2 DERBIES FOR DOUBLE MELTING OR SHOT CLEANING

221 SOLID METAL FOR PICKLING PRIOR TO REMELT DOES NOT REQUIRE BLENDING (<12")

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CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

INTERMEDIATE PRODUCTS (cont.)

222 SOLID METAL - INCLUDES PHYSICAL BUT NOT CHEMICAL REJECT INGOTS; TO BE SAWED OR CRUSHED AND PICKLED PRIOR TO REMELT (≥12")

223 SOLID METAL TO BE SAWED, SHEARED, OR CRUSHED, BUT NOT PICKLED PRIOR TO REMELT

224 SOLID METAL, NOT PICKLED, OTHER THAN SPILLS AND TOP CROPS, FOR DOUBLE MELT

225 SR STANDARD METAL TO BE SAWED AND PICKLED PRIOR TO REMELT

227 METAL SAMPLES FOR DOUBLE MELTING

228 SOLID METAL TO BE PICKLED

229 FIRST GENERATION TOP CROPS FROM PRODUCT INGOTS - FOR PRIMARY INGOT REMELT CHARGES

230 SAWED SECTIONS, REQUIRING PICKLING, FROM PRIMARY INGOTS CONTAINING FIRST GENERATION TOP CROPS

231 SAWED SECTIONS, REQUIRING PICKLING, FROM PRIMARY INGOTS CONTAINING NO TOP CROP METAL

232 PICKLED METAL FOR DOUBLE MELTING - OTHER THAN FIRST GENERATION TOP CROPS

233 CLASSIFIED SHAPES FOR DOUBLE MELTING

234 PHYSICAL REJECT BILLETS TO BE SAWED PRIOR TO REMELT

235 TUBULAR ELEMENTS TO BE CRUSHED

236 EXTRUSION BUTTS TO BE PICKLED

237 PARTIALLY DECLAD METAL, OTHER THAN ZIRNLO, FOR DOUBLE MELTING

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INTERMEDIATE PRODUCTS (cont.)

238 SOLID METAL FOR PICKLING AND DOUBLE MELTING, OTHER THAN FIRST GENERATION TOP CROPS

239 CHEMICAL REJECT SAWED REMELT METAL - TO BE CAUSTIC LEACHED AND PICKLED

240 DOUBLE MELT INGOTS TO BE SAWED AND PICKLED PRIOR TO REMELT

241 DOUBLE MELT INGOTS TO BE SAWED, BUT NOT PICKLED, PRIOR TO REMELT

242 CHEMICAL REJECT INGOTS (AND OTHER CHEMICAL REJECT MATERIAL) TO BE SAWED AND PICKLED, OR TO BE ROLLED, SHEARED AND PICKLED, PRIOR TO REMELT

243 CHEMICAL REJECT SOLID METAL TO BE SAWED, BUT NOT PICKLED PRIOR TO REMELT

244 CHEMICAL REJECT DOUBLE MELT INGOTS FROM DOUBLE MELTING TO BE SAWED AND PICKLED

245 CHEMICAL REJECT DOUBLE MELT SOLID METAL TO BE SAWED, BUT NOT PICKLED, PRIOR TO REMELT

246 INGOTS FROM OFFSITE TO BE REWORKED

251 CHEMICAL REJECT SOLID METAL FOR PICKLING PRIOR TO REMELT

252 BRIQUETTES HIGH IN IMPURITIES FOR DOUBLE MELTING

254 CODE 4 OR BOTTOM BURNOUT DERBIES FOR DOUBLE MELTING

260 TOP CROP FROM PRODUCT 4A FLAT BILLETS (SECOND GENERATION)

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INTERMEDIATE PRODUCTS (cont.)

261 PHYSICAL SCRAP FROM RECYCLE 4A FLAT BILLETS
(SECOND GENERATION)

262 CHEMICAL SCRAP FROM RECYCLE 4A FLAT BILLETS
(SECOND GENERATION)

263 OFFSITE 4A SCRAP RETURNS
(SECOND GENERATION)

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REMELT FEEDS

300 DERBIES, CODE 1 AND CODE 3

302 BRIQUETTES

303 CHIPS-CLEANED NON-BRIQUETTABLE-SUITABLE FOR CASTING

304 SOLID REMELT METAL - LOW IMPURITIES - DOES NOT REQUIRE BLENDING OR PICKLING - NOT FROM DOUBLE MELTS

305 PICKLED ARF REMELT METAL

306 EXPERIMENTAL SHAPES - INCLUDING CLASSIFIED SHAPES NOT TO BE CRUSHED

307 ZIRNLO PRODUCT

308 INGOT CROPS AND DUDS

310 PICKLED CROPS FROM SR METAL

311 SR STANDARD SOLID METAL - FOR REMELT

313 PICKLED CROPS FROM HW METAL

314 PICKLED PRIMARY INGOT SECTIONS CONTAINING FIRST GENERATION TOP CROPS

315 PICKLED PRIMARY INGOT SECTIONS CONTAINING NO TOP CROP METAL

316 PICKLED Ti ALLOY REMELT SCRAP - DOES NOT REQUIRE BLENDING (NOT DERIVED FROM PRIMARY INGOTS)

322 CHEMICAL REJECT SOLID REMELT METAL - DOES NOT REQUIRE PICKLING

323 REJECT ELEMENTS - OUTER

324 REJECT ELEMENTS - INNER

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

REMELT FEEDS (cont.)

325 REJECT CORES

326 REJECT BILLETS, INCLUDING SAWED BILLET SECTIONS

327 PICKLED REJECT BILLETS OR BILLET SECTIONS

330 PRIMARY INGOT SECTIONS, NOT PICKLED, CONTAINING FIRST GENERATION TOP CROPS

331 PRIMARY INGOT SECTIONS, NOT PICKLED, CONTAINING NO TOP CROP METAL

333 PICKLED CHEMICAL REJECT CROPS

334 PICKLED CHEMICAL REJECT CROPS FROM DOUBLE MELT INGOTS

335 CRUSHED TUBULAR ELEMENTS

336 PICKLED EXTRUSION BUTTS

337 DECLAD METAL, OTHER THAN ZIRNLO

340 SECTIONS FROM CHEMICAL REJECT PRIMARY INGOTS, NOT PICKLED

5692

CASTING PRODUCTS

401 SPECIAL SOLID INGOTS OR SLABS

402 SPECIAL HOLLOW INGOTS

403 SPECIAL CASTINGS, INCLUDING STATIC AND CENTRIFUGAL

404 N REACTOR INGOTS - RAW

405 N REACTOR INGOTS - DIRECT CASTINGS FOR FINISHED BILLET MACHINING

406 MARK 31 CASTINGS - RAW - INNER

407 MARK 31 CASTINGS - RAW - OUTER

408 MARK 31 CASTINGS - FINISHED - INNER

409 MARK 31 CASTINGS - FINISHED - OUTER

410 N REACTOR INGOTS - FINISHED

411 URANIUM SHOT

412 MARK 15 CASTINGS - RAW - INNER

413 MARK 15 CASTINGS - RAW - OUTER

414 MARK 15 CASTINGS - FINISHED - INNER

415 MARK 15 CASTINGS - FINISHED - OUTER

416 MARK 25 CASTINGS - RAW - INNER

417 MARK 25 CASTINGS - RAW - OUTER

418 MARK 25 CASTINGS - FINISHED - INNER

419 MARK 25 CASTINGS - FINISHED - OUTER

5692

ROLLING AND EXTRUSION PRODUCTS

450 BILLETS, ROLLING MILL

451 MARK 15 EXTRUDED TUBES - INNER

452 MARK 15 EXTRUDED TUBES - OUTER

453 N REACTOR EXTRUDED TUBES

454 N REACTOR RAW BILLETS - SAWED EXTRUSIONS

455 MARK 31 EXTRUDED TUBES - INNER

456 MARK 31 EXTRUDED TUBES - OUTER

457 SPECIAL RODS AND/OR TUBES

459 N REACTOR RAW BILLETS - UPSET FORGED

461 MARK 25 EXTRUDED TUBES - INNER

462 MARK 25 EXTRUDED TUBES - OUTER

5692

MACHINING PRODUCTS

500 MARK 31 ELEMENTS - INNER

501 MARK 31 ELEMENTS - OUTER

503 N REACTOR FINISHED BILLETS FROM EXTRUSIONS

505 N REACTOR FINISHED BILLETS FROM DIRECT CASTINGS

506 SPECIAL MACHINED SHAPES

507 MARK 15 ELEMENTS - INNER

508 MARK 15 ELEMENTS - OUTER

509 MARK 25 ELEMENTS - INNER

510 MARK 25 ELEMENTS - OUTER

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

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ENVIRONMENTAL PROJECTS

600 CLEAN OR DECONTAMINATED EQUIPMENT

601 CLEAN SOIL

602 CLEAN ROCKS

603 GLASS FROM VITRIFICATION

5692

CHAPTER 4 SOURCE OR ORIGIN CODES

PLANT 1 CODES

100 **PLANT 1 GENERAL**

101 PLANT 1 MAINTENANCE

102 MAINTENANCE SHOP (RCRA MATERIALS)

103 OIL STORAGE AREA (RCRA & TSCA)

105 PLANT 1 CONSTRUCTION WASTE

107 SOURCE UNKNOWN

110 **PLANT 1 MILLING**

111 DRUM DUMPER

112 TITAN MILL

113 DUST COLLECTOR NUMBER 64

114 DUST COLLECTOR NUMBER 76

115 THREE PHASE GALIGHER SAMPLER

116 HOPPER OR DRUM FILLING STATION

117 HOFFMAN VACUUM

119 FITZ MILL

120 **PLANT 1 STILL**

121 DRUM SIPHON

122 STILL TANK

123 WATER DRUMMING

124 RECLAIMED FLUID DRUMMING

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PLANT 1 CODES (cont.)

130 **PLANT 1 DRUM RECONDITIONING**

131 SHOT SCREEN

132 WHEELABRATOR SHOT BLAST UNIT

133 DRUM ROLLER

134 PANGBORN DUST COLLECTOR

135 DRUM PAINTING BOOTH

136 DRUM DRYER

137 DRUM BALER

140 **PLANT 1 SAMPLING**

141 SMALL SHEATHED AUGER

142 WHEELABRATOR DUST COLLECTOR

143 LARGE SHEATHED AUGER

144 PIPE SAMPLER

145 SLY DUST COLLECTOR

150 COPPER SHREDDER

151 COPPER PILE

175 PLANT 1 SOIL REMOVAL PROJECT

176 PLANT 1 SOIL TREATABILITY PROJECT

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

5692

PLANTS 2 AND 3 CODES

200 **PLANTS 2 AND 3 GENERAL**

201 PLANTS 2 AND 3 MAINTENANCE

202 MAINTENANCE SHOP (RCRA MATERIALS)

203 OIL STORAGE AREA (RCRA & TSCA)

210 **PLANT 2 DIGESTION**

211 SOUTH SIDE DIGESTORS

212 NORTH SIDE DIGESTORS

213 TURNER-HAWES DUST COLLECTOR

214 DAY-HOFFMAN DUST COLLECTOR

220 **METAL DISSOLVER**

221 OLIVER FILTER

222 METAL DISSOLVER GRATE

225 **EXTRACTION**

226 SOUTH SIDE EXTRACTION COLUMN LINE

227 NORTH SIDE EXTRACTION COLUMN LINE

228 MIXER-SETTLER

230 **SOLVENT TREATMENT**

235 **HOT RAFFINATE BUILDING**

236 FILTERS

240 TRASH BALER AND KELLY INCINERATOR (WEST AREA)

5692

PLANTS 2 AND 3 CODES (cont.)

245 **REFINERY SUMP SYSTEM**

246 DORR THICKENERS

247 FILTERS

250 **RAFFINATE EVAPORATORS**

255 **ABSORBERS**

256 PLANT COLUMN ABSORBERS

260 **DENITRATION SYSTEM**

261 SCRUBBER SYSTEM

262 SOUTH SIDE PACKAGING

263 NORTH SIDE PACKAGING

267 **SAFE GEOMETRY EVAPORATOR CALCINER**

268 **PULLMAN VACMOBILE**

270 **DRUM DIGESTION**

271 CARTRIDGE FILTER

272 PLATE AND FRAME FILTER

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

5692

PILOT PLANT CODES

300 **PILOT PLANT GENERAL**

301 PILOT PLANT MAINTENANCE

302 MAINTENANCE SHOP (RCRA MATERIALS)

303 OIL STORAGE AREA (RCRA & TSCA)

310 **GREEN SALT PRODUCTION**

311 REACTOR NUMBER 1

312 REACTOR NUMBER 2

313 DUST COLLECTORS

314 VACUUM - PORTABLE

315 AUTOCLAVE

316 COLD TRAP

320 METAL REDUCTION PILOT PLANT

321 SLY DUST COLLECTOR

322 HOFFMAN VACUUM

323 ROCKWELL FURNACES

324 BREAKOUT STATION

330 **DERBY SHOT BLASTING**

331 PANGBORN ROTO-BLAST UNIT

332 SPENCER VACUUM

333 EAST WHEELABRATOR DUST COLLECTOR

334 DUCLONE CYCLONE

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

5692

PILOT PLANT CODES (cont.)

335 **SHOT PRODUCTION UNIT**

336 SHOT TANK

340 **PILOT PLANT REMELT AND CASTING**

341 REMELT FURNACE

343 CRUCIBLE BURNOUT

345 SAWS

346 WEST WHEELABRATOR DUST COLLECTOR

347 HOFFMAN VACUUM

350 **PILOT PLANT HEAT TREATING**

351 SALT BATH

352 WATER QUENCH

353 OIL QUENCH

355 **PILOT PLANT METAL DISSOLVING**

356 HNO3 PICKLING OR DECOPPERING

357 HF OR HCl DISSOLVER

358 FILTER

359 NEUTRALIZER

360 **PILOT PLANT AUXILIARY EQUIPMENT**

361 PRECIPITATOR

362 FILTER

364 TRAY DRYER-THORIUM

PILOT PLANT CODES (cont.)

365 **PILOT PLANT OXIDIZING**

366 SETTLING TABLE

367 OXIDATION FURNACE

368 AIR FILTER

369 **S&W GLO-BAR FURNACE**

370 **PILOT PLANT MILLING**

371 JAW CRUSHERS

372 BALL MILL-THORIUM

375 **PILOT PLANT SOLVENT EXTRACTION**

376 SIX-INCH EXTRACTION COLUMN

377 BOILDOWN TANKS

378 PRODUCT TANK

379 TWO-INCH EXTRACTION COLUMN

380 **PILOT PLANT SUMP**

381 SUMP CATCH BASIN

382 PRECIPITATOR

383 UNCONTAMINATED SUMP

PLANT 4 CODES

400 **PLANT 4 GENERAL**

401 PLANT 4 MAINTENANCE

402 MAINTENANCE SHOP (RCRA MATERIALS)

403 OIL STORAGE AREA (RCRA & TSCA)

407 BANK 7

408 BANK 8

409 BANK 9

410 TANK FARM

411 PLANT 4 SAMPLING

420 **DUST COLLECTORS - GENERAL**

421 DUST COLLECTOR G4-1

422 DUST COLLECTOR G4-2

423 DUST COLLECTOR G4-15

424 DUST COLLECTOR G4-4

425 DUST COLLECTOR G4-5

426 DUST COLLECTOR G4-6

427 DUST COLLECTOR G4-7

429 DUST COLLECTOR G4-9

431 DUST COLLECTOR G4-11

432 DUST COLLECTOR G4-12

433 DUST COLLECTOR G4-13

434 DUST COLLECTOR G4-14

435 **PLANT 4 SUMP**

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PLANT 4 CODES (cont.)

440 **PACKAGING STATION - GENERAL**

441 EAST (NO. 1) PACKAGING STATION

442 WEST (NO. 2) PACKAGING STATION

443 SOUTHWEST (NO. 3) PACKAGING STATION

PLANT 5 CODES

500 **PLANT 5 GENERAL**

501 PLANT 5 MAINTENANCE

502 MAINTENANCE SHOP (RCRA MATERIALS)

503 OIL STORAGE AREA (RCRA & TSCA)

504 PLANT 5 SAMPLING

509 DRUM STORAGE PAD

510 **METAL REDUCTION AREA**

511 BLENDERS

512 BLENDING FILLING CAP AND LID AREA
DUST COLLECTORS 251, 253

513 JOLTER AREA
DUST COLLECTORS 247, 248

514 BOMB FILLING STATION

515 CAP AND LID

516 ROCKWELL FURNACES

517 COOLING TANKS

518 BREAKOUT STATIONS

519 EAST BREAKOUT AREA
DUST COLLECTORS

520 WEST BREAKOUT AREA
DUST COLLECTORS

521 DERBY QUENCH

522 SLAG CONVEYOR PIT

523 POT REAMING STATION

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PLANT 5 CODES (cont.)

530 **CASTING AREA**

531 REMELT FURNACES

532 SEPARATION BOOTH

533 REMELT
DUST COLLECTOR 260

534 CRUCIBLE BURNOUT

535 CRUCIBLE BURNOUT
DUST COLLECTOR 261

536 SLY DUST COLLECTOR 100

537 GRAPHITE LATHE

538 HILCO OIL FILTER

539 BURNOUT AND MOLD TANKS

540 GRAPHITE BREAKUP STATIONS

545 **SUMP TREATMENT AREA**

550 **SAW AREA**

551 HACK SAW

552 NORTH CIRCULAR SAW

553 EAST CIRCULAR SAW

554 WEST CIRCULAR SAW

560 **EAST SLAG PLANT**

561 CRUSHER

562 COARSE SEPARATOR

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PLANT 5 CODES (cont.)

564 BIN 4: -20 MESH MAGNESIUM FLUORIDE

565 BIN 3: +20 MESH MAGNESIUM FLUORIDE

566 BIN 5, 6, 7, 8: MAGNESIUM FLUORIDE

570 **WEST SLAG PLANT**

571 CRUSHER

572 COARSE SEPARATOR

573 FINE SEPARATOR

574 -20 MESH MAGNESIUM FLUORIDE

575 +20 MESH MAGNESIUM FLUORIDE

576 GOOD LINER SOURCE

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PLANT 6 CODES

600 **PLANT 6 GENERAL**

601 PLANT 6 MAINTENANCE

602 MAINTENANCE SHOP (RCRA MATERIALS)

603 OIL STORAGE AREA (RCRA & TSCA)

605 PLANT 6 SAMPLING

610 **ROLLING**

611 INGOT FURNACE

612 BLOOMING MILL

613 CROP SHEAR OR GAG SHEAR

614 EQUALIZER FURNACE

615 CONTINUOUS MILL

616 FLYING SHEAR

617 COOLING BEDS

618 STRAIGHTENER

619 INSPECTION - ROD AREA

620 **MACHINING**

621 BLANKING ACMES

622 CROSS TRANSFERMATIC

623 CENTERLESS GRINDERS

624 DRILLING ACMES

625 SUNDSTRAND LATHES

626 HEALD BOREMATICS

627 TURRET LATHES

PLANT 6 CODES (cont.)

631 BARDONS AND OLIVER CUTOFF LATHE

632 CNC MACHINE

640 **HEAT TREATING**

642 SALT-OIL FURNACE

643 NU SAL FURNACE

645 **BRIQUETTING**

646 CHIP CRUSHER

647 CHIP PICKLING TANKS

648 CHIP BRIQUETTING PRESS

650 **DUST COLLECTORS**

652 TURNER HAWES

655 **WATER TREATMENT AREA**

656 COLLECTION TANKS

657 PRECIPITATORS

658 FILTERS

659 HOFFMAN CLARIFIES

660 **DEGREASING AND PICKLING**

661 DERBY PICKLING

662 CORE PICKLING

663 REMELT METAL PICKLING

665 **INSPECTION**

MISCELLANEOUS FACILITIES CODES

700 **WASTE MANAGEMENT**

701 MULTIPLE SOURCES

702 MAINTENANCE SHOP (RCRA MATERIALS)

703 OIL STORAGE AREA (RCRA & TSCA)

704 PLANT 7

705 CONSTRUCTION

706 PLANTWIDE EHSI - PHASE IV STORMWATER RUNOFF

707 BIODENITRIFICATION

710 **K-65 GENERAL - AREA 34**

711 SILO #1 K-65

712 SILO #2 K-65

713 SILO #3 COLD-METAL OXIDE

714 SILO #4

715 BUILDING 64

716 BUILDING 65

717 BUILDING 65 - WEST PAD

718 BUILDING 67

719 BUILDING 68

721 CHEMICAL PITS - GENERAL

722 CHEMICAL PIT NO. 1

723 CHEMICAL PIT NO. 2

724 CHEMICAL PIT NO. 3

725 CHEMICAL PIT NO. 4

726 CHEMICAL PIT NO. 5

727 CHEMICAL PIT NO. 6

728 SURGE LAGOONS

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CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

MISCELLANEOUS FACILITIES CODES (cont.)

729 ENVIRONMENTAL MONITORING

730 **LABORATORY GENERAL - BUILDING 15**

731 OPERATIONS & ENGINEERING SERVICES

732 ANALYTICAL LABORATORY

733 ANALYTICAL LABORATORY HAZARDOUS WASTE

734 BIO-CHEMISTRY LABORATORY

735 SERVICE - BUILDING 11

736 LAUNDRY

737 HUMAN RESOURCES AND GUARD HOUSE - BUILDING 28

738 GARAGE (RCRA)

739 GARAGE OIL (RCRA)

740 ADMINISTRATION - BUILDING 14

741 GARAGE - BUILDING 31

742 DECONTAMINATION - BUILDING 69

743 STORES-RECEIVING

744 TRUCK DOCK - PLANT 1

745 **MAINTENANCE SECTION**

746 MACHINE SHOP (RCRA)

747 MACHINE SHOP OIL STORAGE (RCRA & TSCA)

748 PAINT SHOP (RCRA)

749 INSTRUMENT SHOP (RCRA)

750 ELECTRIC SHOP

751 EXPANSION PLANT - BUILDING 51

755 SAFETY AND HEALTH - BUILDING 53

MISCELLANEOUS FACILITIES CODES (cont.)

756 DOSIMETRY LABORATORY HAZARDOUS WASTE

759 BUILDING 3045 - LABORATORY MACHINE SHOP - RUST

760 DELETED

761 GENERAL SUMP

762 PLIBRICO INCINERATOR (NEAR SEWAGE PLANT)

763 OIL BURNER AT BOILER PLANT (OPERATED BY NLO PRODUCTION)

764 GRAPHITE BURNER

765 WATER TREATMENT

766 SEWAGE TREATMENT

767 BOILER PLANT

768 BOILER PLANT (RCRA)

769 BOILER PLANT OIL STORAGE (RCRA)

775 LAB MAINTENANCE SHOP (RCRA)

776 LAB OIL STORAGE AREA (RCRA & TSCA)

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PLANT 8 CODES

800 **PLANT 8 GENERAL**

801 PLANT 8 MAINTENANCE

802 MAINTENANCE SHOP (RCRA MATERIALS)

803 OIL STORAGE AREA (RCRA & TSCA)

805 DRUM WASHER

806 DRUM RECONDITIONING

810 **WET-CHEMICAL SYSTEM**

811 PRIMARY CALCINER

812 PLANT 8 MILLING

813 SUMP

814 DIGESTION

815 EIMCO FILTERS

816 PRECIPITATION

817 OLIVER FILTER

818 CALCINATION

819 LEACH TANK

820 **OXIDATION SYSTEM**

821 CRUSHER

822 ROTEX SCREENING

823 MUFFLE FURNACE

824 BOX FURNACE

825 OXIDATION FURNACE NUMBER 1

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

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PLANT 8 CODES (cont.)

826 ROTARY KILN - OLD UNIT

827 OXIDATION FURNACE NUMBER 2

828 PLANT 8 DUST COLLECTORS

830 ROTARY KILN FACILITY - NEW UNIT

836 THO2 PLANT 8

845 HYDRAULIC SEPARATOR

852 BLENDING AND SCREENING OPERATION

853 OIL DECANTATION

854 DUST COLLECTOR & FILTER BAG WASHING

855 AIR SEPARATOR

856 HAND SORTING

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PLANT 9 CODES

900 **PLANT 9 GENERAL**

901 PLANT 9 MAINTENANCE

902 MAINTENANCE SHOP (RCRA MATERIALS)

903 OIL STORAGE AREA (RCRA & TSCA)

905 MAWS PROJECT

910 **REDUCTION**

911 JOLTERS

912 F MACHINE AND CAPPING

913 ROCKWELL FURNACES - MOLTEN SALT CLEANING

914 BREAKOUT STATION

915 TURNER-HAWES, HOFFMAN VACUUM SYSTEM

916 COOLING TANK

917 SPENCER PORTABLE VACUUM

920 **CASTING**

921 NPR FURNACE

922 CINCINNATI MILLING MACHINE

924 NPR PRIMARY HOFFMAN VACUUM UNIT

925 NPR BAG HOFFMAN VACUUM UNIT

926 NPR AAF DUST COLLECTOR

927 NPR AAF DUST COLLECTOR PRIMARY SEPARATOR

933 G9-NI 1035 DUST COLLECTOR

935 **EXTRUSION SAWING**

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PLANT 9 CODES (cont.)

940 **MACHINING**

941 GISHOLT TURRET LATHE

942 J+L AUTOMATIC LATHE

945 L+S DUOMATIC LATHE

949 J+L TURRET LATHE

951 LEBLOND RAPID BORER

953 WARNER AND SWASEY LATHE

954 MONARCH ENGINE LATHE

955 **BRIQUETTING**

956 CRUSHER AND METSO WASH

957 CHIP PICKLING AND RINSING

958 CHIP CENTRIFUGING

959 MAGNETIC SEPARATOR & BRIQUETTE PRESS

960 **PICKLING**

961 REMELT PICKLING AND RINSING

962 CORE DEGREASING AND PICKLING

965 **SUMP LIQUOR PROCESSING**

966 COLLECTION TANKS

967 PRECIPITATORS

968 FILTERS

970 **HEAT TREATING**

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PLANT 9 CODES (cont.)

980 **ZIRNLO PROCESS - GENERAL**

981 HACKSAW

982 DEGREASER

983 DECOPPERING

984 DEZIRCING

985 ACID FILTRATION

986 NEUTRALIZATION

987 NITRIC ACID PICKLE

988 KOH PICKLE

CONTROL NO. _____
SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-0002
REVISION NO. 4

5692

INITIATING WASTE CHARACTERIZATION ACTIVITIES USING THE MATERIAL EVALUATION FORM (MEF)

SSOP-0002

Effective Date: 03-29-94

AUTHORIZED BY: _____ 3/22/94
J. A. Rasile, Executive Vice President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

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LIST OF ATTACHMENTS

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A	SAMPLE CHECKLIST	A-1

RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
01-11-91	0	Instructions for completing the Material Evaluation form required per Request No. P90-292, initiated by K. Nuhfer.
04-16-91	1	Revised to update form and include steps to allow for an MEF revision per Request No. P91-093, initiated by J. Ogg.
06-20-91	2	Revised to update technical content and form per Request No. P91-235, initiated by R. Henderson.
10-22-91	3	Revised to insert correct form per Request P91-390, initiated by L. Hamblin.
03-29-94	4	Revised to update to current FERMCO requirements and format per Request No. S93-037, initiated by C. S. Waugh. This supersedes and replaces WEMCO Revision 3, dated 10-22-91.

1.0 PURPOSE

The Fernald Environmental Management Project (FEMP) Waste Management System provides for appropriate control and management of waste materials from the point of generation, through required interim storage, to final disposition. The functional requirements for this waste management system are established in "driver" documents such as the state and federal hazardous waste rules and negotiated legal agreements (e.g., Stipulated Amendment to the Consent Decree and the Amended Consent Agreement). The FEMP utilizes appropriate document systems, including site and department procedures, to specify activities to satisfy these functional requirements.

All waste managed at the FEMP shall be appropriately characterized to support selection of safe, effective, and least cost management alternatives. This procedure specifies the required activities to initiate waste characterization using the Material Evaluation Form (MEF) and associated generator documentation. A completed MEF establishes a "waste profile" which identifies requirements for managing materials that match the profile. The associated generator documentation (checklists, the MEF Inventory Attachments and the MEF Verification Form) provides a means for relating specifically inventoried material to an established MEF. In order to achieve the most expeditious characterization, it is imperative that the generator contact Waste Characterization (WC) and initiate the MEF **prior to the actual generation of the waste or the start of the project--whenever possible.**

Detailed instructions for using the MEF, the MEF Inventory Attachments, and the MEF Verification Form are provided on the back of each form. They are also included as attachments to this procedure.

2.0 SCOPE

This procedure applies to all waste, containerized and bulk, that is managed by the FEMP Waste Management System. This includes waste generated at the FEMP as well as FEMP-generated waste returned from offsite sources or vendors. FEMP containerized waste management facilities include designated container storage areas as well as container staging areas. FEMP bulk waste management facilities include: tanks, bins, silos, controlled soil stockpiles, the Central Storage Facility (CSF), the Scrap Metal Pad (SMP), the Decontamination Facility Pad (DFP), the Soil and Rubble Pile Cover (SRPC) and other (future) bulk waste management facilities.

2.0 **SCOPE** (cont.)

This procedure is not applicable to site products or excess materials being sold at fair market value to be used for their intended purposes. This procedure is, however, applicable to certain recyclable materials (e.g., certain materials that must be reclaimed prior to reuse). This procedure does not apply to soils returned to their point of excavation or Investigation Derived Waste (IDW) managed at the point of generation with its parent materials. This procedure does apply, however, to excess soils and IDW that require management in the FEMP Waste Management and Inventory Systems.

3.0 **DEFINITIONS**

Checklist(s) - A document applying to a specific container of waste that is used to validate the contents of the container against the physical characterization criteria noted in a completed MEF. Checklist validation is used for high volume, continuously generated wastes such as scrap wood, scrap metal, or scrap light duty vehicles. Checklist validation is controlled by procedure 20-C-625. (Attachment A is a sample checklist.)

Controlled Holding Area - The area designated for holding uncharacterized material (excluding backlog material and material generated from a soil boring activity) for a maximum period of 89 calendar days. Wastes are placed here while awaiting characterization and proper storage.

FEMP Waste Characterization Process - The actions and procedures used to complete the MEF, associated MEF worksheets, and inventory validation documentation.

FEMP Waste Management System - The interaction of physical activities and their associated management facilities as governed by relevant procedures and other documentation that provides for the management of waste materials from the point of generation, through required interim storage, to final disposition.

Generator - A person (or persons) who either directly or indirectly produces a waste stream or supervises/manages projects which produce waste streams requiring waste characterization.

Inventory Validation Documentation - Documents which demonstrate identification and control of waste from the point of generation through characterization and eventually, to final disposition. Within the scope of this procedure, inventory validation allows for the immediate identification of the characterization of any inventoried waste. Verification Form and MEF Inventory Attachment samples are provided in Figures 3 and 4.

3.0 **DEFINITIONS** (cont.)

Material Evaluation Form (MEF) - The FEMP document which identifies unique waste streams. A completed MEF establishes a "waste profile" which identifies requirements for managing materials that match the profile.

MEF Number - A unique identifying numeric string that denotes a waste stream, and its associated waste characterization file.

MEF Verification Form and MEF Container Inventory Attachment - A two-part system of documentation by which discrete material is associated with a specific waste profile documented on an MEF. MEF Verification Form and MEF Container Inventory Attachment shall be used for all wastes generated and containerized.

MEF Worksheets - Forms used by WC personnel to document the basis for decision making which results in the completed Evaluation Section of the MEF. Guidance for completing the worksheets is found in the Waste Characterization Manual.

Re-evaluation Date - Date specified by WC upon which material must be re-evaluated based on waste stream specific factors, generation rates, and waste management practices. At a minimum, continuously generated waste streams must be re-evaluated annually or until sufficient data is collected to justify a longer period between required re-evaluations.

Requestor - Person or persons providing input for the waste characterization system.

Waste - A material that is no longer needed or suitable for its intended use and has been discarded or is intended for discard.

Waste Characterization Manual - A manual that provides an overview of the waste characterization process at the FEMP for external customers (e.g., Nevada Test Site (NTS) or auditors) and provides criteria used by FERMCO's WC activities.

4.0 **RESPONSIBILITIES**

Generator

- Ensuring that the waste stream is characterized in its present generated form. This process begins with submittal of MEF and concludes upon receipt of the completed MEF and MEF Inventory Attachment.

- Completing the requestor section of the MEF, the requestor section of the MEF Verification Form, and the MEF Inventory Attachment.

4.0 **RESPONSIBILITIES** (cont.)

Generator

- Providing the WC group with all available and relevant information regarding the material which is being evaluated and providing timely response to requests for further information.

- Requesting re-evaluation of a waste stream when the waste stream has changed in composition or when the generating process has changed.

- Arranging for transfer of material to the controlled holding area if necessary (e.g., when waste is generated and requires temporary storage prior to characterization or sampling if required.)

  NOTE: Material may be transferred to the Controlled Holding Area only when sampling and analysis has been requested or when otherwise specified. See SSOP-0008, "Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area."

- For containerized wastes, obtaining complete inventory information, (full 15 digit lot code and drum number, inventory number or container serial number) prior to initiating actions to transfer waste to site management facilities.

- Ensuring that generated wastes are managed in a safe and compliant manner either through the transfer of the waste to appropriate designated storage areas or through pre-designated management methods at the location of generation.

- Maintaining a copy of the completed MEF, MEF Verification Forms, and the MEF Inventory Attachments associated with the waste.

Waste Characterization Personnel

- Maintaining a listing of sequential MEF numbers to be used by the facility to identify waste streams and their associated characterization documentation. MEF numbers are to be provided to generators upon request. However, until the generator submits a completed MEF, the MEF remains on an inactive status with WC.

- Verifying that an MC&A Inventory exists for the material which has been represented to WC on the submitted MEF form.

- Performing necessary actions in compliance with applicable Federal and State regulations, the Waste Analysis Plan and Waste Characterization Manual in order to fully characterize materials documented in the Generator section of each MEF.

4.0 **RESPONSIBILITIES** (cont.)

Waste Characterization (WC) Personnel

- Responding to inquiries regarding the use and completion of the MEF.
- Notifying generators of requirements for re-evaluation of continuous or periodically generated waste streams.
- Maintaining a waste characterization file of the original of each MEF as a part of the FEMP Operating Record.
- Maintaining a waste characterization database which at a minimum provides a summary of information contained in the characterization files and provides a means of tracking required actions to complete waste characterizations.
- Identifying, at any time during the characterization process, unique or previously undocumented health and safety issues related to a specific waste. When identified, forward to Environmental Safety and Health (ES&H) copies of relevant information pertaining to the waste along with a Health and Safety Addendum for completion.
- Distributing copies of the completed MEF paperwork per the distribution noted on the form. This includes the generator who required a copy of the completed MEF in order to gain admittance to a warehouse.
- Maintaining a list of personnel authorized to sign part D of the evaluation section of the MEF and Section D of the Verification Request Form. Changes to this list shall be forwarded per the general distribution shown on the MEF.
- Providing assistance to generators in identifying appropriate MEFs for verification of additionally generated waste inventory. Evaluation of verification forms shall be completed within five (5) working days following their receipt by WC.

Materials Control and Accountability (MC&A)

- Maintaining the site-wide RCRA and All Materials Inventories with the corresponding inventory information for each container documented on the MEF Verification Form and associated MEF Inventory Attachments or Checklists.

4.0 **RESPONSIBILITIES** (cont.)

Materials Control and Accountability (MC&A)

- Providing generators with FEMP lot codes, container numbers and (optionally) inventory numbers for generated wastes when requested.
- Notifying Waste Characterization of discrepancies in the site-wide waste inventories which require assistance to resolve.

Environmental Safety and Health (ES&H) - Providing concurrence on non-radioactive waste classification of materials when required.

Regulatory Programs - Providing regulatory policy guidance/concurrence relative to waste classification of materials when required.

Hazardous Waste Compliance - Maintaining the official site RCRA Operating Record in accordance with all applicable federal and state regulations.

5.0 **GENERAL**

Waste Characterization (WC) maintains a list of the principle technical contacts for each CERCLA/RCRA Unit (CRU). These representatives have been designated as the primary interface between CRU activities and characterization functions within the Waste Management system. When initiating a waste characterization activity, the generators should first contact their respective CRU representative in Waste Characterization.

The generator may also contact WC either in person or at 738-9353 to obtain an MEF number of each waste stream generated or for use of the Verification Form (see the instructions on the back of each form). At this time the generator will be asked to provide a brief description of the waste, the generating organization, generator point of contact, and a cost account charge number to be used for all activities which are required to characterize the waste.

5.0 **GENERAL** (cont.)

Blank forms may be obtained from Waste Characterization. Forms may be copied for the sake of expediency; however, **the user of the form must exercise caution to insure that copies are legible and centered, and contain all required information.** This information includes the instructions on the reverse side of each page. Waste Characterization will not accept forms judged to be of insufficient quality to be placed in the site's operating record. Corrections must be made by striking out incorrect entries with a single line, then initialing and dating the correction. Do not use "liquid paper" or "white out" to make corrections.

For wastes which currently exist, all applicable forms must be submitted immediately. For wastes not yet generated, generators are required to forward applicable forms (discussed below) to Waste Characterization within 30 days of requesting the MEF number. Waste Characterization will cancel MEF numbers for which the generator submittals have not been received within this time.

Generators may contact Waste Characterization at 738-9353 if assistance is required in completing the necessary forms.

6.0 **PREREQUISITES**

None

7.0 **PROCEDURE**

7.1 INTRODUCTION

The Material Evaluation Form (MEF) is not only the document by which generators identify materials which require characterization, but also the document on which the Waste Characterization staff records the summary of those characterization efforts. The MEF does **not** reproduce or duplicate the delineation of specific waste as identified in the site inventory system; rather, it maps to a particular waste stream which is uniquely identified via the MEF number. Specific inventories of materials are assigned to a particular MEF using the MEF Verification Request Form and the Inventory Identification Attachment.

7.2 COMPLETING THE MATERIAL EVALUATION FORM (MEF)

GENERATOR

NOTE: Incomplete entries will not be accepted. "None", "Unknown", and "N/A" (Not Applicable) may be used when appropriate.

1. Obtain the correct MEF form (Figure 1) and an MEF Number from Waste Characterization. Once this procedure is finalized, only the new forms (attached) will be accepted for use--except in those cases in which the generator has as MEF characterization in process using the old forms.

2. Complete each item in the requestor section of the MEF in accordance with the directions provided in Figure 1, Sheet 3 of 3. The directions are also found on the reverse side of each page of the requestor section of the MEF.

3. If there is not sufficient space on the form, prepare an attachment sheet noting the MEF number at the top of sheet.

4. Upon completion of the MEF, attach all relevant information concerning the material (e.g., SOPs, analytical results, narrative describing generating process, etc.) and forward to Waste Characterization for completion.

5. Maintain a copy of the MEF in requestor's files, including the evaluation section (Figure 2) when completed by Waste Characterization.

7.3 USING THE MEF TO RE-EVALUATE A WASTE STREAM

GENERATOR

1. Determine that a revision to the MEF is required due to changes in the composition of the waste or to changes in the generating process.

2. Complete requestor section of the MEF. The MEF number is the same as the original. Indicate "revision" next to the MEF number.

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Requestor Section

page 1 of 2

A. REQUESTOR/WASTE STREAM IDENTIFICATION

1. MEF#: Original: _____ Revision: _____	2. Date Submitted:	3. Material Type and Source Code:
4. Requestor Name:	5. Phone No.:	6. Badge No./Co. Name:

B. GENERATION INFORMATION

1. Provide best descriptive name for material:	2. Does this material originate in a HWMU or SWMU? Unit Name/No.		3. Project, Activity, or Work Area generating waste (include CRU # if applicable).
4. Date of first or expected generation: ☐ estimate: ☐ actual _____	5. Generation Quantity:	6. Generation frequency:	7. Similar waste stream MEF# (or MTC/ERC):

8. Provide a detailed description of what the material is:

9. Provide a detailed description of how and where (specific origin) the waste stream is/will be generated, including any units which manage the material:

[Note: Generator must attach all supporting documentation concerning items 8 and 9.] ○ additional narrative; ○ SOP;

○ MSDS; ○ AEDO Log sample; ○ release report; ○ manufacturing specs; ○ Other: _____

FORM GEN. Revision 2.1, 8/18/93 wepkmmfgen.81

Figure 1 - Material Evaluation Form (MEF) Sheet 1 of 3

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Requestor Section

page 2 of 2

C. PHYSICAL CHARACTERISTICS

1. Describe Color/Appearance:

2. Phase:
- ☐ Liquid
- ☐ Solid debris/rubble
- ☐ Semi-solid/sludge
- ☐ Dry solid residue
- ☐ dry powder/dusty residue
- ☐ Other, specify:

3. Contains Free Liquids:
☐ yes ☐ no ☐ unknown
based on:
- ○ PFLT (results attached)
- ○ Visuals (results attached)
- ☐ Knowledge of waste

[NOTE: DO NOT SMELL THE MATERIAL]
4. Note Any Incidental Odor:

5. Layers:
- ☐ single layer
- ☐ bi-layered
- ☐ multi-layered

6. pH: specify range or "unknown"
_____
☐ estimate: ○ documentation attached

7. Flash Point: Specify range or "unknown"
_____
☐ estimate: ○ documentation attached

D. MATERIAL COMPOSITION

1. Composition:

	Min	Max:	circle
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
Total Maximum:		_____	%

maximum must equal or exceed 100 %

Basis:
- ☐ knowledge of the material
- ○ analytical data attached

2. Does the material contain any of the following?
- ☐ asbestos
- ☐ polychlorinated biphenyls (PCBs)
- ☐ infectious waste
- ☐ reactives (circle applicable items):
  - water reactive
  - explosive
  - cyanide/sulfide
  - shock sensitive
  - normally unstable
  - *exclude numerals which normally produce hydrogen gas.*
- ☐ toxicity characteristic metals (circle applicable items):
  - arsenic
  - barium
  - cadmium
  - chromium
  - lead
  - mercury
  - nickel
  - selenium
  - silver
  - thallium

(or)
- ☐ None of the above

(or)
- ☐ Unknown

Basis:
- ☐ knowledge of the material
- ○ analytical data (attached)

3. Radionuclide Contamination:
- ☐ material is not contaminated with radionuclides
- ☐ material contains incidental radionuclide contamination
- ☐ radionuclide bearing material/residue

Radionuclides of Concern if any:
- ☐ uranium
- ☐ thorium
- ☐ transuranics (TRU)

Basis:
- ☐ knowledge of the material
- ☐ RMMA generated
- ○ analytical data attached
- ☐ Other: _____

4. Identify the container or repository type(s) in which the waste is (or is expected to be) managed on-site:
- ☐ drum
- ☐ box
- ☐ Sea/Land
- ☐ soil/debris pile
- ☐ small container (5 gal. or less)
- ☐ landfill, pit, or other land-based unit
- ☐ discharge to WWTS

FORM GEN. Revision 2.2. 9/27/93

wcptormaygen.fr

Figure 1 - Material Evaluation Form (MEF) Sheet 2 of 3

Instructions to Generators for Completing the Material Evaluation Form (MEF), Requestor Section

The Waste Characterization Section is responsible for providing characterization for all wastes generated by FEMP personnel/activities. However, it is the individual generator's responsibility to ensure that his/her waste is properly characterized in its present form.

The Material Evaluation Form (MEF) is the document by which generator identify material which requires characterization and on which the Waste Characterization group summarizes the results of the characterization effort. The MEF does not delineate specific waste as identified in the site inventory system, but refers only to the characteristics of a particular waste stream (identified by MEF #). Specific inventoried material is assigned to a particular using the MEF Verification Request Form and Inventory Identification Attachment.

The following directions have been developed to assist in the completion of the generator's section of the MEF. Each block of the form must be completed for MEF to be accepted. Use of 'None' or 'N/A' is acceptable when appropriate. Checkbox items shown with a "O" require attached documentation. Upon completion of this form submit to Waste Characterization at MS # 46. {Note MEFs will not be accepted with incomplete information or lacking documentation (e.g. MSDS, release report, etc)}.

PART A: GENERATOR/WASTE STREAM IDENTIFICATION

1. MEF #: Enter number of the form as received from Waste Characterization (x8937). Check whether this submittal is original or a revision to an existing MEF as appropriate.
2. Date Submitted: Enter the date the form is submitted to Waste Characterization.
3. Lot Marking Code: Enter first the Material Type then the Source Code assigned to the waste if this information is known. Contact Materials Control and Accountability (MC&A), x6275, for assistance in determining this information. Enter "Unknown" if applicable.
4. Generator Name: provide First Name, Last Name and Middle Initial.
5-6. Badge No./Co. Name/Phone No: Self Explanatory

PART B: GENERATION INFORMATION

1. Name: Provide the best descriptive name for the material (e.g. spent acetone, dust collector residues, soil borings, purge water etc.)
2. HWMU: If the material originates from a Hazardous Waste Management Unit please provide unit name and #. If you are unsure please consult your supervisor, Waste Characterization or cognizant CRU representative for assistance.
3. Self-explanatory.
4. Self-explanatory. Always provide at least an estimate. If the waste is "backlogged" or has otherwise already been generated, provide the historical date of generation as an actual date. This information may usually be obtained from existing records or from MC&A. "Unknown" is not acceptable.
5. Generation Quantity: Enter the amount and unit of waste to be generated (i.e. 50 gal). This is generally the amount of waste in a container (or a multiple thereof). If the generation event is one-time only, enter the total amount of waste.
6. Quantity/Frequency: Enter a time period (week, year etc.) during which the amount specified in item 5 will be generated, or "one-time" as appropriate.
7. Similar waste stream: Enter MEF # or Material Type/Source Code for a similar waste stream if known. Otherwise "N/A".
8. Description: Provide a clear concise description of what the waste stream actually is (e.g., residues from dust collector servicing). Include all components of the waste stream and any relevant information concerning packaging, absorbents etc. Be as detailed as possible. *DO NOT REPEAT THE DESCRIPTION CORRESPONDING TO THE MATERIAL TYPE CODE.*
9. Description of Generation: Provide a detailed description of how the waste stream is/will be generated. Include specific process involved, history of waste etc. For commingled wastes include packaging information (e.g. bulk, packed with absorbent materials) Check and include all relevant supporting documentation (e.g. MSDS, SOP, Manufacturing Specification, Release Reports etc.).

PART C: PHYSICAL CHARACTERISTICS

1. Color/Appearance: Be as detailed as space will allow. What does the waste look like?
2. Phase: Check all that are present in the waste.
3. Free Liquids: If yes, check a "based on" criteria.
4. Odor: DO NOT SMELL THE WASTE! If the waste has a known incidental odor, then describe the odor (e.g., acrid, pungent, solvent, sweet).
5. Layers: Check appropriate box. Single layer means the waste has no distinct separation or layers (e.g., water, or oil, or semi-solid). Bi-layered means the waste is comprised of two distinct layers (e.g., water/dirt or oil/solids). Multilayered means more than two distinct layers (e.g., oil/water/semi-solid).
6. pH: If the waste contains aqueous free liquids, list the range of pH if known. If the pH is not known mark "not known" in the blank. If a pH range is entered, check the basis for the range. Documentation may consist of analytical data, MSDS, or pH paper results. For non-aqueous wastes enter N/A.
7. Flash Point: If the waste contains free liquids list the range of its flash point if known. if the flash point is not known, mark "not known" in the blank. If a flash point range is entered, check the basis for the range. Documentation may consist of analytical data or MSDS.

PART D: MATERIAL COMPOSITION

1. Composition: List all components which make up the waste stream along with the range of the approximate volume in percent or parts per million. Circle the unit (% or ppm) used for each component. Use ppm only if less than 10,000. Assume a value of 1% for any components given in ppm when calculating the "Total Maximum". If only partial knowledge of the components in the waste stream is available, list those components and provide the approximate percentage of the waste which is unknown. Provide basis for the components in this section.
2. Waste Characteristics: Check each box which applies to the waste. Circle items as appropriate. Do not document items "suspected" of being present in the waste. These should be noted in block B8.
   None of the above - Check this when no entries above apply.
   Not Known - Check this when adequate information is not available to answer the questions above.
   Basis - Check the appropriate box when specific items above are checked.
3. Radionuclide contamination: Indicate radionuclide contamination status of the material. If analytical data is available please attach to form. Contact IRS&T for information on radionuclide contamination of materials onsite. Indicate the basis for the checked item. Material Accounting information may be attached as analytical data.

FORM GEN_DIS. Revision 1.1. 8/16/93 wcpforms\gen.m1

Figure 1 - Material Evaluation Form (MEF) Sheet 3 of 3

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Evaluation Section

A. WASTE STREAM IDENTIFICATION

1. MEF #: Revision No.:	2. Date Completed:	3. Material Type / Source Code of original material: Mat. Src.
4. Evaluator:	5. Phone No.:	6. Badge No./Co. Name:

B. MATERIAL REGULATORY STATUS (check all that apply)

Regulated:	Material Specific Regulation:	Regulated:	Material Specific Regulation:
__ yes __ no	TSCA PCB Waste	__ yes __ no	High Level Radioactive Waste
__ yes __ no	Asbestos Containing-Waste Materials	__ yes __ no	Transuranic (TRU) Waste
__ yes __ no	OAC Infectious waste	__ yes __ no	AEA 11(e)(2) Byproduct Material
__ yes __ no	OAC Solid Waste (RCRA Subtitle D)	__ yes __ no	Source (or) Special Nuclear Material
__ yes __ no	RCRA Solid Waste (RCRA Subtitle C)	__ yes __ no	Low Level Radioactive Waste (LLRW).
__ yes __ no	RCRA Hazardous Waste	__ yes __ no	Non-Radioactive waste. ***

Hazardous Waste Code(s): _____

*** Concurrence. Radiological Assessment- Date: _____

Re-evaluation Date: _____

Note: Waste stream must be re-evaluated by WCS if it is generated after the re-evaluation date listed above or when the stream/generating process changes.

C. MATERIAL MANAGEMENT

1. Waste Form Criteria:	2. Container Specification:	3. Reactivity Group Code(s):
__ yes __ no Health & Safety Addendum Attached. (Note: if marked "yes" do not manage this material without information from attached H&S Addendum.)		
__ yes __ no Material contains free liquids.		
__ yes __ no LLRW meets NVO-325 Waste Acceptance Criteria (See NTS Form in material evaluation file)		

D. WASTE CHARACTERIZATION APPROVAL

Name: _____ Signature: _____

E. DISTRIBUTION

__ Generator	_____	__ Waste Reduction Program	_____
__ MC&A	_____	__ Site Media Sampling	_____
__ Facilities and Warehousing	_____	__ IS&H	
__ Sample Disposition (if sampled)	_____	__ Other _____	_____

FORM EVAL. Revision 2.3. 10/15/93 wcpformeval.fr1

Figure 2 - Material Evaluation Form (MEF) - Evaluation Section

7.3 USING THE MATERIAL EVALUATION FORM (MEF) TO RE-EVALUATE A WASTE STREAM (cont.)

3. Upon completion of the MEF attach all relevant information concerning the material (e.g., SOPs, analytical results, additional narrative describing generating process, etc.) and forward to WC for completion.

4. Maintain a copy of the MEF revision in requestor's files.

7.4 COMPLETING THE MEF VERIFICATION FORM

GENERATOR

NOTE: The MEF Verification Form is submitted whenever there is physically identifiable waste that is to be associated with a particular MEF. It may be submitted with the original MEF if the waste has already been generated, or after characterization is completed if the generator's intent is to characterize before generating. It is also submitted when additional waste is generated; or in the case of backlogged production wastes, when additional waste is identified which is believed to match an existing waste profile. **The Verification Form is always submitted with an Inventory Attachment.**

1. Obtain the MEF Verification Form from WC. (Example provided in Figure 3.)

2. Complete each item in the requestor section in accordance with the directions provided in Figure 3. These directions are also provided on the reverse side of the form.

3. Upon completion of the Verification Form, attach all relevant information concerning the material (e.g., SOPs, analytical results, additional narrative describing generating process, etc.) and forward to Waste Characterization for completion.

4. Forward the form to Waste Characterization at M.S. #46.

5. Maintain a copy of the Verification Request in requestor's file.

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Verification Form

A. WASTE STREAM IDENTIFICATION

1. Requestor:	2. Phone:	3. Serial Number:
4. Generation Event: ☐ Original Generation ☐ Additional Generation ☐ Safe Shutdown Generation ☐ Other (Describe):		5. Date Submitted: (see instruction note!)
6. Material Description:		
7. Process Description: ○ Documentation Attached		
8. Generation Location:		

B. WASTE STREAM TO VERIFY AGAINST

1. MEF#:	2. Material Description:	
3. Determination Date:	4. Determination:	5. Hazardous Waste No(s).
6. Remarks: ○ Extra page(s) attached		

Evaluation Section

C. MATERIAL STATUS

1. Evaluator:	2. Date:
3. Summary ☐ Material is characterized by MEF # _____. Inventory is revised to include the inventory shown on the associated inventory attachment.	Material Determination: ☐ RCRA Solid Waste (a.k.a Non-RCRA) ☐ RCRA Hazardous Waste Hazardous Waste No(s).

☐ This material does not match the characterization of the referenced MEF. Submit a new MEF for this material immediately.

Remarks:

Waste Characterization Approval Signature: _____ Date: _____

D. DISTRIBUTION

Requestor:	Waste Characterization Files:

FORM VER. Revision 2.1. 9/27/93

Figure 3 - Material Evaluation Form (MEF) - Verification Form (Sheet 1 of 2)

Instructions to Generators for Completing the MEF Verification Form

The Waste Characterization Section is responsible for providing characterization for all wastes generated by FEMP personnel/activities. However, it is the individual generators responsibility to ensure that his/her waste is properly characterized in its present form.

The MEF Verification Form must be used whenever there exists discrete waste material which must be associated with a specific waste profile documented on an MEF. This form is accompanied by an MEF Container Inventory Attachment when the discrete waste is containerized. Use of the MEF Verification Form streamlines the characterization process by providing a means of associating uncharacterized waste materials with an existing waste profile documented on an MEF. This eliminates the need to produce a new MEF for each and every generation event. The MEF Container Inventory Attachment then provides the means of associating specific containers (inventory) with a waste profile documented on an MEF. Data quality objectives are the same as for any characterization. The Waste Characterization group may be contacted at x8932 to determine if any appropriate MEF exists against which a waste may be verified. The information provided by the requestor on this form must show sufficient process control, and/or documentation of waste matrix and constituents to verify that the waste meets the profile specified on the referenced MEF. The Waste Characterization group may request additional visual inspections and/or sampling to confirm the match.

The completed MEF Inventory Attachments along with the parent MEF serve as the characterization documentation required to received waste into a site waste management facility (including the controlled holding area). This documentation provides the key data link for associating MC&A inventory information with waste characterization information (i.e., provides a means for identifying an MEF number for each item in inventory). The following directions have been developed to assist in the completion of the Requestor's section of this form. Please note that each block of the form must be completed in order for form to be accepted. Use of 'None' or 'N/A' is acceptable when appropriate. Do not leave any blocks in the requestor section blank. When complete attach the necessary Inventory Identification Attachments and forward to Waste Characterization at MS # 46.

PART A: WASTE STREAM IDENTIFICATION

1. **Requestor:** Provide First Name, Last Name, and Middle Initial.
2. **Phone:** Self Explanatory
3. **Serial Number:** This is a unique four digit alpha-numeric string assigned by Waste Characterization. Examples: "1001"; "SS01". When approved, the Verification Form will be identified as "MEF#-Serial#". Examples: 1978-1001; 20001-SS01. THIS BLOCK WILL BE COMPLETED BY WASTE CHARACTERIZATION!
4. **Generation Event:** Check the appropriate item:
   - Original Generation: First quantity of material generated for which MEF was originally submitted
   - Additional Generation: Additional material generated which meets the MEF profile
   - Safe Shutdown Generation: Material generated by Safe Shutdown programs
5. **Date Submitted:** Self explanatory. NOTE: for original generation materials, complete item B1 with MEF number and fill in all remaining requestor section boxes with "N/A".
6. **Material Description:** Provide a clear concise description of what the waste stream actually is (e.g., residues from dust collector servicing). Include all components of the waste stream and any relevant information concerning packaging, absorbents etc. DO NOT REPEAT THE DESCRIPTION CORRESPONDING TO THE MATERIAL TYPE CODE.
7. **Process Description:** Provide a clear and concise description of the process generating the waste. The process description and attached documentation (if included) must be of sufficient detail to provide the evaluator in the Waste Characterization Group with enough information to verify that the waste corresponds to the characterization described in the MEF. In general, attached documentation will be required. Examples include project logbooks, AEDO spill reports, Satellite Accumulation Area (SAA) container records, SOPs, analysis data etc. Waste characterization may request additional visual inspections or sampling in order to verify inventory with an existing MEF characterization.
8. **Generation Location:** Be as specific as possible.

PART B: WASTE STREAM TO VERIFY AGAINST

1. **MEF#:** Enter the Material Evaluation Form # of the waste stream against which the material is to be verified.
2. **Material Description:** Enter the material description as found on the Waste Characterization database or MEF.
3. **Determination Date:** Enter the Determination date from the WC Database or the MEF Evaluation Section.
4. **Determination:** Enter the determination from the WC Database or the MEF Evaluation Section (e.g., RCRA Hazardous, Non-RCRA (a.k.a. Non-Hazardous) etc.)
5. **Hazardous Waste No(s).** Enter the Hazardous waste No(s). if applicable.
6. **Rationale:** Indicate your reason for believing the waste described in section A is characterized by the MEF described in section B. Please provide thorough and detailed explanations (use additional sheets if required).

PARTS C & D: *TO BE COMPLETED BY WASTE CHARACTERIZATION*

FORM VER_INS. Revision 1.1. 9/27/93 wcpforms\ver.in1

Figure 3 - Material Evaluation Form (MEF) - Verification Form (Sheet 2 of 2)

7.4 COMPLETING THE MEF VERIFICATION FORM (cont.)

6. Complete the MEF evaluation form and distribute it to the generator within five (5) working days.

7.5 COMPLETING THE MEF CONTAINER INVENTORY ATTACHMENT

GENERATOR

1. Obtain the Inventory Identification Attachment from Waste Characterization. (Example provided in Figure 4.) The Inventory Identification Attachment is always submitted in conjunction with the original MEF or an MEF Verification Request Form.

2. Complete each item in Sections A and D in accordance with the directions provided in Figure 4. These directions are also provided on the reverse side of the form.

3. Attach the Inventory Identification Attachment to the MEF Verification Form and forward to Waste Characterization at M.S. 46.

4. Maintain a copy of the Inventory Identification Attachment in requestor's files.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- DOE Order 5820.2A, "Radioactive Waste Management"
- 40 CFR 61, Subpart M, "Protection of the Environment/Asbestos Regulations"
- 40 CFR 261-272, "Protection of the Environment/Solid Wastes"
- 40 CFR 761, "Protection of the Environment/Toxic Substance Control Act (TSCA)-PCB"
- Amended Consent Agreement (ACA)
- FEMP Part B Permit Application - Waste Analysis Plan

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Container Inventory Attachment

Page ____ of ____

A. GENERAL INFORMATION:

1. MEF #: Verification Serial #:	2. Date Completed:	3. Completed by:

4. Special Notes: (a) TOTAL NUMBER OF CONTAINERS EQUALS TOTAL IN LOT UNLESS INDIVIDUAL CONTAINERS SPECIFIED.

(b)

(c)

5. Key on Inventory Container Type:
DM = Drum or Over-Pack Drum; SL = Sea-Land; TK = Tank; SM = small container (≤ 5 gal);
MC = Miscellaneous Container; WB = Wood Box; WM = White Metal Box.

B. APPROVAL:

Waste Characterization Name: _____ Signature: _____

C. DISTRIBUTION

Requestor:	Facilities and Warehousing:
Materials Control and Accountability:	Waste Characterization File:

D. INVENTORY COUNT BY CONTAINER

ITEM No.	LOT CODE IDENTIFICATION:	Total Number of Containers	Type of Container	Individual Container Identifications (if required)

FORM INVATT, Revision 2.0, 05/12/93 wcplorms\mv.fr

Figure 4 - Material Evaluation Form (MEF) - Container Inventory Attachment
(Sheet 1 of 2)

Instructions to Generators for Completing the MEF Container Inventory Attachment

The Waste Characterization Section is responsible for providing characterization for all wastes generated by FEMP personnel/activities. However, it is the individual generator's responsibility to ensure that his/her waste is properly characterized in its present form.

The MEF Inventory Attachment (this form) is submitted in conjunction with the MEF Verification Form. These documents are used whenever there exists quantifiable waste material which must be associated with a particular waste stream profile documented on an MEF (see section 7.3 of SSOP-0002 for applications). When completed by both the requestor and Waste Characterization, this form serves as the documentation by which the waste is received at a site waste management unit (including the controlled holding area). It also serves as the means for inputting the status of characterization (documented on the MEF) into the site's waste inventory system.

The following directions have been developed to assist in the completion this form by generators. Attach this form to the completed MEF Verification Form and forward to Waste Characterization at MS # 46.

PART A: GENERAL INFORMATION

Upper right: Page __ of __: Complete as appropriate.

1. MEF #: Enter the MEF number from the MEF Verification Form
   Serial Number: TO BE COMPLETED BY WCS
2. Date Completed: Self-explanatory.
3. Completed by: The name of the person completing Parts "A" and "D" of this form.
4. Special Notes: Note any special identifying information. Material being received from offsite should be noted here.

PARTS B AND C: FOR USE BY WASTE CHARACTERIZATION ONLY

PART D: INVENTORY COUNT BY CONTAINER

Item No. This is a line item number. Start with "1" and number consecutively for each line completed.
Lot Code Information: Enter the 15 digit lot code obtained from MC&A (see section 4.0 of SSOP-0002). Do not enter only a material type and source code.
Total Number of Containers: Enter either the total number of containers in the lot or "1" as appropriate. The use of "1" signifies that not all containers in the lot are applicable. A "1" requires an entry in the "Individual Container Identification" column.
Type of Container: Enter the appropriate code from block A-5.
Individual Container ID: Enter the drum number, inventory number, or container serial number if the "Total Number of Containers" is 1. Otherwise enter "Note 4a" to signify that the total represents all containers in the lot.

FORM INV_INS. Revision 1.1. 9/27/93 wcpforms\inv.ml

Figure 4 - Material Evaluation Form (MEF) - Container Inventory Attachment (Sheet 2 of 2)

8.0 **APPLICABLE DOCUMENTS** (cont.)

8.1 DRIVERS (cont.)

- FEMP Sitewide CERCLA Quality Assurance Project Plan (SCQ)
- Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements (NVO-325-Rev. 1), June 1992 (Rev. 1)
- Ohio Administrative Code (OAC) 3745-20, "Asbestos Regulations"
- Ohio Administrative Code (OAC) 3745-51 to 69, "Hazardous Waste Regulations"
- Stipulated Amendment to the Consent Decree (SACD)

8.2 REFERENCES

- Waste Characterization Manual (Department Document)
- FEMP RCRA Part B Permit Application - Waste Analysis Plan
- FEMP Sitewide CERCLA Quality Assurance Project Plan (SCQ)
- SOP 20-C-625, "Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment"
- SSOP-0008, "Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area"
- Revised FMPC Waste Determination Plan, September 20, 1990

ATTACHMENT A

SAMPLE CHECKLIST

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FEMP

Reference MEF # 905

LOW-LEVEL RADIOACTIVE WASTE

MATERIALS EVALUATION AND CONTAINER INFORMATION - WOOD

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Treated: a. Material free from creosote treatment			
2. Residues: a. Free from process or waste residues			
3. Stains: a. Stains cover less than 10% of wood surface or Stain covers more than 10% of wood surface caused by green salt, black oxide, white salt, or orange oxide.			
4. Paint: a. Free from lead-based paint or Paint covers less than 10% of material			
5. Plastic/Rubber: a. Material consists of less than 20% by volumes other materials and does not contain any oil, solid residues, or entrapped liquids (e.g. plastic or rubber parts/hardware)			
6. Metal: a. Metal constitutes more than 10% by volume (If yes, then metals checklist (FS-F—3464) must also be used.)			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION

2. PACKAGING START DATE / PACKAGING FINISH DATE	3. OPERATOR(S) SIGNATURE / DATE
4. CONTAINER NUMBER	5. CONTAINER TYPE: ☐ S/L ☐ WHITE METAL BOX
6. 68 CARD NUMBER	7. LOCATION PACKAGED
8. * MEF NUMBER	9. % COMBUSTIBLE
APPROVED BY	APPROVED BY
SUPERVISOR(S) SIGNATURE/DATE	QA SIGNATURE/DATE

* When materials are packaged that do not meet the criteria established in Section I, but have an approved MEF number, the MEF number and material must be recorded.

GENERATOR TO MAKE DISTRIBUTION:		
1	Original to Facilities and Material Evaluation	MS65
2	Copy to Waste Shipping	MS63
3	Copy to Environmental Compliance	MS65
4	Copy to Materials Control and Accountability	MS28

FS-F-3465 (REV 4/7/92)

NON-CONTROLLED COPY

1.0 PURPOSE

The purpose of this document is to establish the procedure for evaluating bulk waste streams designated as low level radioactive waste (LLRW) to ensure the material is characterized as nonhazardous (per RCRA) and meets the Nevada Test Site (NTS) Waste Acceptance Criteria (WAC) prior to shipment and disposal.

2.0 APPLICABILITY

This procedure is applicable to waste streams, except wastes from a Hazardous Waste Management Unit (HWMU), being inspected or packaged for disposal as LLRW.

3.0 RESPONSIBILITIES

3.1 **Waste Generator Supervisors** shall be responsible for the following:

3.1.1 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.2 Contacting Industrial Hygiene and Radiological Control to determine the appropriate respiratory protection for the task being performed.

3.1.3 Issuing the required respiratory protection to generators.

3.1.4 Coordinating with Waste Characterization to determine disposition requirements for discrepant items.

3.1.5 Obtaining and posting a "Radiation Work Permit" (RWP) when required.

3.1.6 Reviewing applicable Material Safety Data Sheets (MSDS) with evaluators.

3.2 **Waste Generators** shall be responsible for complying with this procedure.

3.3 **Quality Control (QC)** shall be responsible for the following:

3.3.1 Ensuring that the questions in Section I are checked yes or N/A.

3.3.2 Reviewing Section II of the applicable form to verify that no prohibited materials were packaged.

3.4 **Waste Characterization (WC)** shall be responsible for the following:

3.4.1 Reviewing documentation on items that are rejected during inspection.

3.4.2 Approving rejected items for shipment as LLRW or specifying disposition requirements.

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4.0 **DEFINITIONS**

4.1 Entrapped Liquids - Collected fluids that have accumulated due to exposure to the elements.

4.2 Internal Fluids - Liquid within equipment which functioned as a working component of the unit.

4.3 Low Level Radioactive Waste - Scrap material that is contaminated with uranium but is below the limits for high level waste.

4.4 Waste Generator (Point of Generation) - Personnel belonging to the organization where waste material originates.

4.5 Waste Stream - Scrap material (plastic, rubber, paper, fiberglass, rope, wood, metal, and glass) and vehicles (including light/medium duty trucks and forklifts) that have been designated as LLRW.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

5.1.1 DOE 5820.2A, "Radioactive Waste Treatment"

5.1.2 OAC 3745-51-07, "Residues of Hazardous Waste in Empty Containers"

5.1.3 40 CFR 262.11, "Hazardous Waste Determination"

R 5.1.4 PO-D-026, "Site Services Document Program"

5.1.5 FEMP Conduct of Operations Manual

5.1.6 RM-0012, "Quality Assurance Program Description"

5.2 References

None

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 Safety glasses with side shields shall be worn unless other eye protection is specified by ES&H.

6.2 Respiratory protection issued by the supervisor shall be worn when required by ES&H.

6.3 Leather-palmed gloves shall be worn when handling rough or contaminated material.

6.4 Vacuum cleaners equipped with a HEPA filter or an ES&H approved vacuum shall be used for cleaning.

6.5 Evaluators shall have read and be familiar with MSDSs for hazardous material/chemicals that may be used or encountered.

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6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.6 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

6.7 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the step to which they apply.

8.0 PROCEDURE

NOTE: The applicable YES, NO, or N/A box shall be checked for the criteria listed in the Waste Evaluation Section (Section I) of the form being used.

8.1 Evaluating Waste Material to be Packaged

WASTE GENERATOR

NOTE 1: More than one type of form may be required, depending on the make-up of the waste.

NOTE 2: Items that are rejected during inspection shall not be packaged. The NO box shall not be checked unless all items are rejected.

8.1.1 Visually inspect and evaluate waste items to be packaged for disposal per Section I of the applicable materials evaluation and container information (ME&CI) form as follows:

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8.0 PROCEDURE (cont.)

(A) "Materials Evaluation and Container Information - Glass," Form FS-F-3715 (See Figure 1)
(B) "Materials Evaluation and Container Information - Metal," Form FS-F-3464 (See Figure 2)
(C) "Materials Evaluation and Container Information - Wood," Form FS-F-3465 (See Figure 3)

NOTE: This form and procedure shall not be used to evaluate heavy equipment.

(D) "Materials Evaluation and Container Information - Scrap Vehicles" Form FS-F-3472 (See Figure 4)
(E) "Materials Evaluation and Container Information - Plastic, Rubber, Paper, Fiberglass, Rope" Form FS-F 3580 (See Figure 5)

8.1.2 If an item or items are rejected, proceed as follows:

8.1.2.1 Set rejected items aside.

NOTE: The NO block in Section I shall be checked on the second form (or the original form) for a shipment where all items are rejected.

8.1.2.2 Fill out a separate form for rejected items, unless all items to be packaged were rejected.

8.1.2.3 Notify the supervisor of rejected (discrepant) items.

8.1.2.4 Give the form to the supervisor.

WASTE GENERATOR SUPERVISOR

8.1.2.5 Transmit the form to the Waste Characterization Section (WCS) and request assistance in determining disposition requirements for discrepant items.

WASTE CHARACTERIZATION

8.1.2.6 Review discrepant items.

8.1.2.7 In Section II of the form, document the basis for approval of item for packaging as LLRW or specify disposition requirements.

8.1.2.8 If approved for packaging, sign and date the provided space.

8.1.2.9 Transmit the form and disposition instructions to the Waste Generator Supervisor.

WASTE GENERATOR SUPERVISOR

8.1.2.10 Give the form and applicable instructions to the Waste Generator.

8.0 PROCEDURE (cont.)

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WASTE GENERATOR

8.1.2.11 Complete the inspection for items approved for packaging.

8.1.3 Record, in Section II Block 1, the origin and description of items placed in the container.

8.1.4 Complete Section II as required.

8.1.5 Review the form(s) to ensure that all information recorded is accurate and reflects the status of the packaged material.

8.1.6 Sign Block 3 of Section II

8.1.7 Give the completed forms to the supervisor.

WASTE GENERATOR SUPERVISOR

8.1.8 Sign the form to verify that the evaluation was accurate and complete.

8.1.9 Have Quality Control sign to approve the package for shipment.

8.1.10 Distribute the form(s) per Item 8.3.

8.2 Evaluating Packaged Material

WASTE GENERATOR

8.2.1 Open the container to be evaluated.

8.2.2 Visually inspect the contents of the container per the applicable form (Refer to Step 8.1.1).

8.2.2.1 If items can not be seen, shift the container contents, if possible, until all items can be evaluated.

8.2.2.2 If the items can not be rearranged to permit a visual inspection, remove items from the container as required to permit evaluation.

NOTE: Items shall not be returned to the container until disposition instructions are received for discrepant material.

8.2.2.3 If all items pass inspection, based on the criteria in Section I of the form, return removed items to the container.

8.2.3 If the contents of the container are acceptable, close the container. If not acceptable, proceed as follows:

8.2.3.1 Fill out a separate form for failed items, unless all items to be packaged fail the inspection.

8.2.3.2 Notify the supervisor of failed (discrepant) items.

8.0 PROCEDURE (cont.)

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8.2.3.3 Give the form to the supervisor.

WASTE GENERATOR SUPERVISOR

8.2.3.4 Transmit the form to the Waste Characterization Section (WCS) and request assistance in determining disposition requirements for discrepant items.

WASTE CHARACTERIZATION

8.2.3.5 Review discrepant items.

NOTE: If not approved, direct that the items be removed from the container and set aside, unless removing the item would be impracticable.

8.2.3.6 In Section II of the form, document the basis for approval of item(s) for packaging as LLRW or specify disposition requirements.

8.2.3.7 If approved for packaging, sign and date the provided space.

8.2.3.8 Transmit the form and disposition instructions to the Waste Generator Supervisor.

WASTE GENERATOR SUPERVISOR

8.2.3.9 Give the form and applicable instructions to the Waste Generator.

WASTE GENERATOR

8.2.3.10 Complete the inspection for items approved for packaging.

8.2.4 Record, in Section II Block 1, the origin and description of items placed in the container.

8.2.5 Complete Section II as required.

8.2.6 Review the form(s) to ensure that all information recorded is accurate and reflects the status of the packaged material.

8.2.7 Sign Block 3 of Section II of the form.

8.2.8 Give the completed form(s) to the supervisor.

WASTE GENERATOR SUPERVISOR

8.2.9 Perform Steps 8.1.8 thru 8.1.10

8.3 Form Distribution

WASTE GENERATOR SUPERVISOR

8.3.1 Remove and file the green copy of the form.

8.3.2 Forward the form to MC&A.

8.0 PROCEDURE (cont.)

MC&A

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8.3.3 Remove and file the yellow copy of the form.

8.3.4 Forward the form to Low-Level Waste Handling and Disposal.

LOW LEVEL WASTE HANDLING AND DISPOSAL (WASTE SHIPPING COORDINATOR)

8.3.5 Remove and file the blue copy of the form.

8.3.6 Forward the original of the form to Waste Characterization.

WASTE CHARACTERIZATION

8.3.7 File Waste Characterization copy (original).

9.0 APPLICABLE FORMS

9.1 Form No. FS-F-3715 "Materials Evaluation and container Information-Glass"

9.2 Form No. FS-F-3464, "Materials Evaluation and container Information - Metal"

9.3 Form No. FS-F-3465, "Materials Evaluation and Container Information - Wood"

9.4 Form No. FS-F-3472, "Evaluation and Container Information - Scrap Vehicle"

9.5 Form No. FS-F-3580, "Materials Evaluation and Container Information - Plastic, Rubber, Paper, Fiberglass, Rope"

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Table 1
ACUTE HAZARDOUS WASTE

Hazardous Waste Number	Chemical Abstract Number	Substance
P012	1327-53-3	Arsenic trioxide
P015	7440-41-7	Beryllium
P018	357-57-3	Brucine
P022	75-15-0	Carbon disulfide
P037	60-57-1	Dieldrin
P106	143-33-9	Sodium cyanide Na (CN)
U002	67-64-1	Acetone (I)
U003	75-05-8	Acetonitrile (I,T)
U019	71-43-2	Benzene (I,T)

(1) CAS number given for parent compound only.

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FEMP
LOW-LEVEL RADIOACTIVE WASTE

Reference MEF # 905

MATERIALS EVALUATION AND CONTAINER INFORMATION - WOOD

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Treated: Material free from creosote treatment			
2. Residues: Free from process or waste residues			
3. Stains: Stains cover less than 10% of wood surface			
4. Paint: Free from lead-based paint *or* Paint covers less than 10% of material			
5. Plastic/Rubber: Material consists of less than 20% other materials by volume and does not contain any oil, solid residues, or entrapped liquids (e.g. plastic or rubber parts/hardware)			
6. Metal: Metal constitutes less than 20% by volume (If no, then metals checklist (FS-F-3464) must also be used.)			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION *(Provide a complete description of the waste in the container, including information on source or origin if available).*

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW (NON-RCRA) BY WASTE CHARACTERIZATION

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE	PACKAGING FINISH DATE	3. VERIFIED BY*	DATE

4. CONTAINER NUMBER	5. CONTAINER TYPE: ☐ S/L ☐ White Metal Box
6. LOCATION PACKAGED	
7. *MEF NUMBER	8. INCHES FREEBOARD/HEADSPACE
APPROVED BY: SUPERVISOR(S) SIGNATURE/DATE	APPROVED BY: QC SIGNATURE/DATE

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO MAKE DISTRIBUTION:		
1	*White*	Waste Characterization
2	*Blue*	Low-Level Waste Handling and Disposal
3	*Yellow*	Materials Control and Accountability
4	*Green*	Waste Generator

FS-F-3465 (REV 11/9/93)

MATERIALS EVALUATION AND CONTAINER INFORMATION-WOOD
FS-F-3465
Figure 1

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FEMP

Reference MEF # 1539

LOW-LEVEL RADIOACTIVE WASTE

MATERIALS EVALUATION AND CONTAINER INFORMATION - PLASTIC, RUBBER, PAPER, FIBERGLASS, ROPE

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Liquids: Materials do not contain entrapped or internal liquids			
2. Residues: Free from process or waste residues			
3. Stains: Stains cover less than 10% of material surface			
4. HWMU: Material was not generated within the physical limits of a hazardous waste management unit (HWMU)			
6. Containers: Waste containers (i.e. plastic bottles) must be "empty" as defined by OAC 3745-51-07 in lieu of CFR 40 261.7			
7. Other: Material other than plastic, rubber, paper, fiberglass, rope, *wood and metal (see footnote) constitute less than 20% by volume.			

* If metal and/or wood constitutes more than 20% by volume, then Metal Checklist (FS-F-3464) and/or Wood Checklist (FS-F-3465) must also be used. When materials are packaged that do not meet the criteria established in Section I, but have an approved MEF number, the MEF number must be recorded in Section II, question 7. If YES or N/A was checked for all of the above, the material is covered by MEFs listed above and should be handled as Low-Level Radioactive non-hazardous waste. If not, contact Waste Characterization. Radioactive characterization based on generation in a radiologically controlled area and can be changed based on a radiation survey of the material.

SECTION II - CONTAINER INFORMATION

1 MATERIAL ORIGIN/DESCRIPTION *(Provide a complete description of the waste in the container, including information on source or origin if available).*

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW (NON-RCRA) BY WASTE CHARACTERIZATION

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE	PACKAGING FINISH DATE	3 VERIFIED BY:	DATE:

4 CONTAINER NUMBER

5. CONTAINER TYPE

☐ S/L ☐ WMB ☐ Other. *Specify* _____

6 LOCATION PACKAGED.

7 *MEF NUMBER

8. INCHES FREEBOARD/HEADSPACE

APPROVED BY:

SUPERVISOR(S) SIGNATURE/DATE

APPROVED BY:

QC SIGNATURE/DATE

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO MAKE DISTRIBUTION:		
1	*White*	Waste Characterization
2	*Blue*	Low-Level Waste Handling and Disposal
3	*Yellow*	Materials Control and Accountability
4	*Green*	Waste Generator

FS-F-3580 (REV. 11/9/93)

MATERIALS EVALUATION AND CONTAINER INFORMATION
- PLASTIC, RUBBER, PAPER, FIBERGLASS, ROPE
FS-F-3580
Figure 2

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FEMP
LOW-LEVEL RADIOACTIVE WASTE

Reference MEF # 1230

MATERIALS EVALUATION AND CONTAINER INFORMATION - SCRAP VEHICLE

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Free from the following fluids: a. Anti-freeze			
b. Brake fluid			
c. Gasoline			
e. Engine oil			
f. Power steering			
g. Differential fluid (rear end)			
h. Windshield Wiper Fluid			
2. Removed: a. Radios			
b. Distributor coils and amplifiers			
c. Alternators			
d. Electronic fuel injector circuit			
3. Fuel tank removed			
4. Propane tank removed			
5. Tires Deflated			
6. Tire valve stem removed			
7. Freon pumped/contained for recycling			
8. Auxiliary Hydraulic Unit removed or drained			
9. Oil filter and Gas filter removed and filter receptacles on engine sealed			
10. Batteries removed			
11. All Hoses that contain liquids have been cut and Drained			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION (Provide a complete description of the waste in the container, including information on source or origin if available):

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW (NON-RCRA) BY WASTE CHARACTERIZATION:

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE / PACKAGING FINISH DATE:	3. VERIFIED BY: / DATE:
4. CONTAINER NUMBER:	5. CONTAINER TYPE:
6. LOCATION PACKAGED:	
7. *MEF NUMBER:	8. INCHES FREEBOARD/HEADSPACE:
APPROVED BY: (SUPERVISORS SIGNATURE/DATE)	APPROVED BY: (C.C. SIGNATURE/DATE)

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO MAKE DISTRIBUTION:		
1	*White*	Waste Characterization
2	*Blue*	Low-Level Waste Handling and Disposal
3	*Yellow*	Materials Control and Accountability
4	*Green*	Waste Generator

FS-F-3472 (REV. 12/07/93)

MATERIALS EVALUATION AND CONTAINER INFORMATION-SCRAP VEHICLE
FS-F-3472
Figure 3

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Reference MEF # 1284

FEMP
LOW-LEVEL RADIOACTIVE WASTE

MATERIALS EVALUATION AND CONTAINER INFORMATION - GLASS

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Liquids: The glass waste does not contain any free liquids			
2. Residues: The glass waste if free of any process or waste residues. For all containers (e.g., glass sample jars) this means that the container must have been emptied using the practices commonly employed to remove materials from that type of container (e.g., pouring, pumping, or aspirating) and no more than 3 percent remains in the container			
3. Acute Waste: The glass was not used as a container to hold an acute hazardous waste (refer to table 1 in SOP 20-C-625) unless the container has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate. (NOTE: Available container labels may be used to verify this criteria.)			
4. Light Bulbs: The glass waste does not include any fluorescent light bulbs (broken or unbroken). (NOTE: The glass waste may include incandescent light bulbs.)			
5. AA Lamps: The glass waste does not include any atomic absorption (AA) lamps used for Toxicity Characteristic metals analyses			
6. Metal/Rubber: The glass waste contains only metal, rubber, and plastic associated with lids or tops of containers (e.g., sample jar lids)			
7. Labels: The glass waste is labelled, and the information from these labels has been summarized in Section II of this form or in an attachment, or the glass waste is not labelled			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION (*Provide a complete description of the waste in the container, including information on source or origin if available*).

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW (NON-RCRA) BY WASTE CHARACTERIZATION.

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE	PACKAGING FINISH DATE	3. VERIFIED BY:	DATE:

4. CONTAINER NUMBER	5. CONTAINER TYPE. ☐ S/L ☐ WMB ☐ Drum ☐ Other, *Specify* _____
6. LOCATION PACKAGED	
7. *MEF NUMBER	8. INCHES FREEBOARD/HEADSPACE
APPROVED BY: SUPERVISOR(S) SIGNATURE/DATE	APPROVED BY: QC SIGNATURE/DATE

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO MAKE DISTRIBUTION:		
1	*White*	Waste Characterization
2	*Blue*	Low-Level Waste Handling and Disposal
3	*Yellow*	Materials Control and Accountability
4	*Green*	Waste Generator

FS-F-3715 (REV. 11/9/93)

MATERIALS EVALUATION AND CONTAINER
INFORMATION - GLASS
FS-F-3715
Figure 4

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FEMP
LOW-LEVEL RADIOACTIVE WASTE

Reference MEF # 1088

MATERIALS EVALUATION AND CONTAINER INFORMATION - METAL

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Free from the following: a. Grease/oils			
b. Solid residues			
c. Entrapped liquids			
d. Internal fluids			
2. Material tagged as drained			
3. Paint: Material free from lead-based paint *or* Paint covers less than 10% of materials *or* Material is greater than 1/16 inch thick			
4. Electrical Equipment: a. Ballasts removed			
b. Starter caps removed			
c. Mercury switches removed			
d. Dielectric fluid removed			
5. Plastic/Rubber: Material consists of less than 20% other materials by volume and meets the criteria set in #1 (e.g. plastic, or rubber parts/hardware)			
6. Wood: Constitutes less than 20% by volume (If no, then wood checklist (FS-F-3465) must also be used.)			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION *(Provide a complete description of the waste in the container, including information on source or origin if available)*:

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW (NON-RCRA) BY WASTE CHARACTERIZATION:

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE / PACKAGING FINISH DATE:	3. VERIFIED BY: / DATE:
4. CONTAINER NUMBER:	5. CONTAINER TYPE: ☐ S/L ☐ White Metal Box
6. LOCATION PACKAGED:	
7. *MEF NUMBER:	8. INCHES FREEBOARD/HEADSPACE:
APPROVED BY: SUPERVISOR(S) SIGNATURE/DATE	APPROVED BY: QC SIGNATURE/DATE

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO MAKE DISTRIBUTION:		
1	*White*	Waste Characterization
2	*Blue*	Low-Level Waste Handling and Disposal
3	*Yellow*	Materials Control and Accountability
4	*Green*	Waste Generator

FS-F-3464 (REV. 11/9/93)

MATERIALS EVALUATION AND CONTAINER INFORMATION-METAL
FS-F-3464
Figure 5

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
06-26-92	0	Requirement for procedure Evaluating Low Level Radioactive Waste (LLRW) per Request No. P92-106, initiated by M. J. Krauss.
11-05-92	0	Reissue procedure to include the addition of plastic, rubber, paper, fiberglass and rope waste streams per Request No. P92-226, initiated by P. Philpot.
08-02-93	1	Revised to incorporate CIO C93-143 per Request P93-254 and update to conform with current Procedure Program requirements.
12-15-93	0	Reissued to update per Request P93-750 initiated by P. Philpot.
02-04-94	1	Revised document dated 12-15-93, Rev. 0, to correct typographical errors. Changed supersedes date to 11/05/92 and procedure no. in Step 5.1.4 per Request No. P94-0030, initiated by N.K. Weichold.

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1.0 **PURPOSE**

The purpose of this document is to establish the procedure for sampling waste materials contained in 5 to 10 gallon pails and 30, 55, 85 or 110 gallon drums.

2.0 **APPLICABILITY**

This procedure is applicable to taking samples of drummed waste material.

3.0 **RESPONSIBILITIES**

3.1 **Supervisors** shall be responsible for the following:

3.1.1 Contacting Industrial Hygiene and/or Radiological Safety to determine the appropriate Personal Protective Equipment (PPE) for the process being performed.

3.1.2 Issuing the required PPE to operators.

3.1.3 Ensuring that personnel are qualified per the established training requirements identified by the Department/Staff Manager.

3.1.4 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.1.5 Obtaining and posting a "Radiation Work Permit."

3.1.6 Obtaining and posting a "Hazardous Chemical Work Permit."

3.1.7 Obtaining specific drum storage location(s) from Materials Control & Accountability (MC&A).

3.1.8 Notifying MC&A prior to moving drums.

3.1.9 Notifying the Transportation representative to move the drums to a diked sampling area.

3.1.10 Notifying Radiological Control prior to moving drums in and out of Radiological Zones.

3.2 **Operators** shall be responsible for the following:

3.2.1 Complying with this Standard Operating Procedure (SOP).

3.0 **RESPONSIBILITIES** (cont.)

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3.2.2 Wearing PPE as provided by the supervisor.

3.3 **Materials Control and Accountability (MC&A)** shall be responsible for the following:

3.3.1 Assigning a representative to areas where drums are being moved.

3.3.2 Furnishing material identification data.

3.4 **Environmental Safety and Health (ES&H)** shall be responsible for the following:

3.4.1 Monitoring vehicles and drums entering and exiting Radiological Zones.

3.4.2 Issuing Radiation Work Permits.

3.4.3 Preparing Project-Specific Sampling and Analysis Plans (PSAPs).

3.4.4 Performing statistical analysis on data received from on-site and off-site laboratories.

3.5 **RSO Waste Characterization** shall be responsible for performing hazardous waste determination.

4.0 **DEFINITIONS**

4.1 Composite Sample - A sample composed of several distinct subsamples derived by combining equal portions of random samples obtained from the same waste stream.

4.2 Concentrated Waste - Materials of physical form or characteristics which require non-typical sampling techniques, or contain contaminant concentrations at such a level that sample preservation is not required for sample integrity. Examples of solid-matrix concentrated wastes include paper, trash, debris, concrete, wood, etc. Examples of liquid-matrix concentrated wastes include oils solvents, process liquids, etc.

4.3 Contact Waste - Discarded materials generated during the sampling event or sampling round.

4.4 Container Blank - A sample used to determine quality and integrity of containers used in matrix sampling. Unpreserved sample containers are submitted to the laboratory. An extract from the container is prepared and analyzed for parameters of interest. Appropriate for Analytical Support Levels (ASLs) B, C, D, and E. (SCQ)

4.5 Duplicate Sample - A sample used to evaluate precision of analytical laboratory performance and sample collection techniques; prepared by evenly distributing sampling media between two or more sets of containers. Each duplicate sample is assigned an unique identification number and sent as blind samples to the same laboratory. Appropriate for ASLs A through E and required for ASLs, C and D. (SCQ)

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4.0 DEFINITIONS (cont.)

4.6 Equipment Rinsate Samples - A sample used to determine the effectiveness of decontamination procedures; prepared at the decontamination site by collecting a portion of the final rinse of the sampling equipment. Appropriate for ASLs A through E and required for ASLs, C and D. (SCQ)

4.7 Field Blank - A sample used to determine whether the sample collection process or conditions at the site have affected sample quality; prepared by pouring organic-free deionized water (ASTM Type II) into appropriate containers for each type of analysis to be conducted. Field blanks are specified for ASLs C and D and some ASL B and E analysis. (SCQ)

4.8 Low/Medium Concentration Liquid Samples - Materials which contain contaminant concentrations at such levels that sample preservation is required for sample integrity. Examples include containerized purged groundwater, sump liquids, etc. and quality control (QC) samples.

4.9 Meniscus - The convex portion of liquid matrix samples extending above the rim of the sample container.

4.10 Preservative Blank - A sample used to determine the quality of sample preservatives. Prepared by the Sample Coordinator or Field Sampling Team in a controlled environment by pouring organic-free deionized water (ASTM Type II) into sample containers with specified preservative. Appropriate for ASLs B, C, D, and E. (SCQ)

4.11 Random Sample - A representative sample of waste material collected from a container chosen from a group of similar containers that had equal probabilities of being selected.

4.12 Sampling Event - Collection of a sample from a single location for a specific project. (SCQ)

4.13 Sampling Round - Collection of samples from one or more locations for a specific project during a specified time period for a similar purpose. (SCQ)

4.14 Split Sample - A sample used to evaluate comparability of analytical data prepared by evenly distributing sample media between two or more sets of containers. Assigned the same identification number as the original sample. The original and the split sample are each shipped to different laboratory facilities for similar analysis. Appropriate for ASLs A through E and required for ASLs C and D. (SCQ)

4.15 Trip Blank - A sample used to determine whether conditions encountered during sample container shipment and handling have affected sample quality; prepared by the sample coordinator in a controlled environment by pouring organic-free deionized water (ASTM Type II) into a 40-mL volatile organic analysis vial and sealing it with a teflon-lined septum lid. Trip blanks are required when ASL C or D samples are collected for volatile organic analysis and may be specified for ASLs B and E. (SCQ)

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5.0 APPLICABLE DOCUMENTS

5.1 Drivers

5.1.1 FEMP Site Wide CERCLA Quality Assurance Project Plan (SCQ).

5.1.2 DOE Order 5820.2A, "Radioactive Waste Management".

5.1.3 NVO-325, Rev. 1, Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements, June 1992.

5.1.4 Material Acceptance Process Manual, Envirocare Inc. of Utah.

5.1.5 Proposed Amended Consent Decree with OEPA.

5.1.6 PO-D-026, "Site Services Document Program"

5.1.7 RM-0012, "Quality Assurance Program Description"

5.1.8 FEMP Conduct of Operations Manual

5.2 References

5.2.1 EPA SW-846, Test Methods for Evaluating Solid Waste

5.2.2 RM-0005, "FEMP Lot Marking and Color Coding System"

5.2.3 SMS-93-290, Prototype Sampling and Analysis Plan for Containerized Wastes at the FEMP. (Site document number pending).

5.2.4 SOP 20-C-909, "Portable Ventilation Unit Operation"

5.2.5 SOP 20-C-912, "Checking Scale Operation"

5.2.6 SSOP-0018, "Processing Site Wide Analysis Request/Custody Record for Sample Control"

5.2.7 SSOP-0035, "Satellite Accumulation Areas and Interim Containers for Hazardous Waste"

6.0 INDUSTRIAL HEALTH & SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Portable ventilation devices shall be used per SOP 20-C-909 when collecting samples from drums containing dry materials or volatile compounds.

6.3 Operators shall wear respiratory protection provided by the supervisor.

6.4 Leather-palm gloves shall be worn when handling drums, locking rings, lids, sharp or abrasive material, or when using tools.

6.5 Safety glasses shall be worn unless a full face respirator is used.

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6.0 INDUSTRIAL HEALTH & SAFETY REQUIREMENTS (cont.)

6.6 Face shields, neoprene gloves, aprons, and chemical cover goggles shall be worn when taking samples of caustic material, acid slurries, or liquids.

6.7 Gloves shall be leaked checked by water immersion prior to use. Leaking gloves or gloves contaminated on the inside shall be discarded.

6.8 Employees shall have reviewed, and be familiar with, the information contained in the MSDS for the chemical/hazardous materials that may be used or encountered.

6.9 Specified personal protective equipment (PPE) (including booties), which are specified on Work Permits and this procedure, shall be worn before entering a sample area.

6.10 Personnel shall have access to communications devices and emergency response equipment.

6.11 Industrial Hygiene shall be contacted to measure volatile organic compounds for all drums classified as containing organic liquids. Results of monitoring along with personal protective equipment requirements shall be communicated to supervision on a "Hazardous Chemical Work Permit".

6.12 Fire and Safety Inspectors shall check for flammable vapors from all drums classified as containing organic liquids.

6.13 Flammable liquids identified by Fire and Safety shall only be sampled at the flammable liquid sampling line using explosion proof electrical equipment and non-sparking tools.

6.14 All persons will remain clear of aisle-ways while forklifts and handstackers are in use.

6.15 Personnel sampling miscellaneous material (MTC 137) shall wear an airline respirator.

6.16 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

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6.0 INDUSTRIAL HEALTH & SAFETY REQUIREMENTS (cont.)

6.17 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the Item or Step to which they apply.

7.2 Any deviation from the PSAP (See Figure 1) shall be initiated and approved through the use of a Variance Request (VR) form (See Figure 2) completed by Site Media Sampling. The original VR form is retained in the SMS project file. A copy is retained at the drum sampling line(s) through out the sampling event or sampling round. Approved deviations shall be noted in the "Sampling Log Book."

7.3 To prevent cross-contamination, only one drum per sampling line shall be opened, unless a composite sample is required.

7.4 Volatile organic compounds (VOC) and combustible materials being sampled or staged shall be segregated from other materials. See Steps 6.11 through 6.13 for identification and sampling of flammable liquids.

7.5 When samples are requested for volatile organic analysis, the samples shall be taken and the sample container and drum closed and sealed as soon as possible.

7.6 Collect ASL-specific Quality Control (QC) samples as specified in the PSAP (ASL B) or at the frequencies identified in Table 1 for ASLs C and D.

7.7 Collect samples from containers (See 1.0 PURPOSE) in the following order:

7.7.1 Volatile Organic Analysis

7.7.2 Semi-Volatile Organic Analysis

7.7.3 Metals/Inorganics

7.7.4 Radionuclides

7.8 Initial and date custody tape section prior to sealing sample container.

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8.0 PROCEDURE

8.1 Preparation for Sampling

NOTE: The supervisor shall be contacted if there are questions pertaining to the PSAP.

8.1.1 Obtain the PSAP from the supervisor.

8.1.2 Obtain the lot number for 5-gallon cans designated for storage of waste water and contact waste from MC&A.

8.1.3 At the jobsite, check that a "Radiation Work Permit" and/or "Hazardous Material Permit" are posted and current.

8.1.3.1 If permit(s) is/are not posted, notify the supervisor.

NOTE: Scales shall be checked at the start of each operating shift or before the first use each day.

8.1.4 Check the scales to be used per SOP 20-C-912.

NOTE: VOC and flammable/combustible material shall be moved to respectively designated area identified by the supervisor.

8.1.5 Using a handstacker, move skids of material into the designated sampling or staging areas.

NOTE: Two five gallon containers shall be used unless a composite sample is to be prepared and then three containers are required.

8.1.6 Prepare containers (for cleaning sampling equipment and disposal of trash) as follows:

8.1.6.1 Tare weigh the empty, clean, color-coded 5-gallon containers.

8.1.6.2 Stencil the containers with the tare weight and lot number (obtained in Step 8.2) per RM-0005.

8.1.6.3 Install plastic liners in the five gallon containers.

NOTE: The equipment to be used for sampling is identified in the PSAP.

8.1.7 Obtain sampling equipment that has a "Clean Equipment" tag attached.

8.1.7.1 If clean equipment is not available, obtain dirty equipment and clean per Item 8.5.

8.1.8 Obtain a box of clean, lidded sampling jars.

8.0 PROCEDURE (cont.)

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NOTE: The following step is applicable for sample containers used for inorganic and radiological analysis only. Sample containers for organic compound analysis must be purchased pre-cleaned.

8.1.8.1 If the box of jars was not labeled, "Clean," process the jars per Step 8.5.2 and submit container blanks for inorganic and radiological constituent analysis.

8.1.9 Tare weigh each sample jar (with lid).

8.1.10 Mark the tare weight on a piece of marking tape and place on the jar or mark on lid with an indelible marker.

8.1.11 Complete the "Sample Label" (Form 144, M-145, or M-160) to be used (See Figure 3), including the tare weight.

8.1.12 Fill out the applicable portions of a "Site Wide Analysis Request/Custody Record" (SWAR/CR) form (See Figure 4) per SSOP-0018.

8.1.13 Place an absorbent pad that is applicable for material to be sampled (water/oil) under the sample jars(s).

8.1.14 Using the Log Book Stamps, imprint the "Sampling Log Book." (See Figure 5).

8.1.15 Fill out the log book with the information required by the stamp.

8.1.16 Obtain Trip Blanks from QC laboratory or from Site Media Sampling representative.

8.1.16.1 Complete labels and affix to sample containers.

8.1.16.2 Seal with custody tape and tamper proof seal. (See Figure 6).

8.1.16.3 Place in a cooler with blue ice or refrigerator in close proximity to sampling line.

8.1.16.4 Proceed to Step 8.1.18.

8.1.17 If unable to obtain Trip Blanks per Step 8.1.16, prepare trip blank, if required by PSAP, as follows:

8.1.17.1 Obtain three (3) clean 40-mL volatile organic analysis (VOA) vials, prepreserved with 4 drops of hydrochloric acid (HCl).

8.1.17.2 Fill one 40-mL vial to overflowing with a visually apparent meniscus present above the vial rim and seal sample vial.

8.1.17.3 Visually check sample vial for air bubbles by inverting and sharply tapping against hand or thigh.

8.1.17.3.1 If air bubbles are present, unseal container and repeat Steps 8.1.17.2 and 8.1.17.3.

8.0 PROCEDURE (cont.)

8.1.17.3.2 If air bubbles are not present, label sample vial, seal with custody tape, and place in cooler or refrigerator.

8.1.17.4 Repeat Steps 8.1.17.2 through 8.1.17.3.2 for remaining sample vials.

NOTE: Field blanks must be prepared prior to initiation of sampling event and must remain exposed to atmospheric conditions throughout duration of the sampling event. Contact Site Media Sampling if conditions in proximity to sampling lines have changed to determine if additional field blanks are warranted.

8.1.18 Prepare field blanks for constituents identified in Section C of the PSAP as follows:

8.1.18.1 For volatile organic analysis, obtain a clean 4-ounce glass jar and fill with organic-free deionized water (ASTM Type II).

8.1.18.2 For semi-volatile organic analysis, obtain a clean 1-gallon (or equivalent volume) amber glass jar and fill with organic-free deionized water (ASTM Type II) to bottle neck.

8.1.18.3 For metal analysis, obtain a clean 1-liter polyethylene bottle and fill with organic-free deionized water (ASTM Type II) to bottle neck.

8.1.18.4 For radiological analysis, obtain two (2) clean 1-liter glass or polyethylene bottles and one (1) clean 120-mL glass or polyethylene jar and fill with organic-free deionized water (ASTM Type II) to bottle neck.

8.1.19 Place containers in close proximity to sampling line and leave un-capped throughout sampling event.

8.1.20 Proceed with sampling event.

8.1.21 Cap sample containers and process samples in accordance with Step 8.12 upon completion of sampling event.

8.2 SAMPLING

WARNING

Only non-sparking tools and explosion-proof equipment shall be used in the vicinity of flammable or combustible material sampling lines.

8.2.1 Remove the locking ring and drum lid from the drum to be sampled.

8.2.2 Visually inspect the waste material to be sampled to determine the physical characteristics (liquid, solid, dry, or moist).

8.0 **PROCEDURE** (cont.) 5692

NOTE: HEPA ventilation devices shall have current DOP Test Labels. DOP Test Labels must be unbroken and legible.

8.2.2.1 If the material is dry, use a HEPA filtered ventilation system and inspect and operate per SOP 20-C-602.

8.2.3 Check that the drum contents corresponds with the Material Type Code (MTC) on the drum and the PSAP.

NOTE: The supervisor shall inform Site Media Sampling of discrepancies between reported and observed material types.

8.2.3.1 If the material does not match the material type code specified in the PSAP, notify the supervisor and complete a visual inspection form.

8.2.4 If a drum contains solid and liquid phases, proceed as follows:

8.2.4.1 Measure the amount of liquid (in inches) in the drum using a COLIWASA.

8.2.4.2 Measure the amount of solid (in inches) using an Auger or Pipe Sampler.

8.2.4.3 Record the percent liquid and solid phases in the "Sampling Log Book."

NOTE 1: If the liquid or solid phase is less than five percent of the total volume of the material in the drum, the material is considered single phase and the phase that constitutes less than five percent does not require sampling.

NOTE 2: If either phase is equal to or greater than five percent of the total volume of material in the drum, the drum content is considered multi-phase. Contact supervisor and Site Media Sampling representation to determine the phase(s) to be sampled and the appropriate sampling technique.

8.2.4.4 Collect samples in accordance with Steps 8.3 and 8.4 of this procedure.

8.3 Sampling Containers with Solid Materials

8.3.1 For containers with dry loose or semi-cohesive materials use a grain or pipe sampler as follows:

8.3.1.1 Insert grain or pipe sampler diagonally at a point near the side of the container, through the center, to a point at the drum base directly opposite the entry point.

8.3.1.2 Rotate grain or pipe sampler twice until slot is facing upwards.

8.3.1.3 Withdraw grain or pipe sampler, place in a horizontal position, and ensure sampling device contains sufficient sample material.

8.3.1.3.1 If sampling device does not contain sufficient sample material, repeat Steps 8.3.1.1 through 8.3.1.3.

8.0 PROCEDURE (cont.)

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8.3.1.4 Transfer sample material from sampling device to appropriate sample containers as follows:

8.3.1.4.1 For volatile organic analysis and semi-volatile organic analysis, use a stainless steel spatula to transfer sample material from sampling device to appropriate sample containers as identified in COLUMN A of Section C of the PSAP. (See Figure 1)

8.3.1.4.1.1 Fill sample containers in a fashion to minimize potential head space within the sample jar.

8.3.1.4.1.2 Handle and store samples in accordance with Step 8.11 of this procedure.

8.3.1.4.2 For metals and radiological analyses, transfer sample materials from sampling device to a clean stainless steel pan or bowl and process as follows:

8.3.1.4.2.1 Divide sample materials into four (4) equal portions.

8.3.1.4.2.2 Mix opposite quarters into two (2) halves.

8.3.1.4.2.3 Mix halves.

8.3.1.4.2.4 Repeat Steps 8.3.1.4.2.1 through 8.3.1.4.2.3.

8.3.1.4.2.5 Transfer materials to the appropriate sample containers identified in COLUMN A of Section C of the PSAP. (See Figure 1)

8.3.1.4.2.6 Handle and store sample in accordance with Step 8.11 of this procedure.

8.3.2 For containers with moist or wet cohesive materials use a stainless steel hand auger or coring device as follows:

8.3.2.1 Insert sampling device diagonally at a point near the side of the container, through the center, to a point at the container base directly opposite the entry point.

8.3.2.2 Rotate sampling device twice.

8.3.2.3 Withdraw sampling device, place in a horizontal position, and ensure sampling device contains sufficient sample material.

8.3.2.3.1 If sampling device does not contain sufficient sample material, repeat Steps 8.3.2.1 through 8.3.2.3.

8.3.2.4 Transfer sample material from sampling device to appropriate sample containers identified in COLUMN A of Section C of the PSAP, in accordance with Steps 8.3.1.4.1 and 8.3.1.4.2 of this procedure.

8.0 PROCEDURE (cont.)

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8.3.3 For containers with non-standard materials (i.e., paper, trash, personal protective equipment, filters, pads, rags, and other miscellaneous debris) collect samples as follows:

NOTE: Sort materials within the container. Collect materials which exhibit evidence of discolorations or stains for analysis.

8.3.3.1 Use scissors, shears, utility knife or similar tool to cut materials. Transfer sample material to appropriate sample containers identified in COLUMN A of Section C of the PSAP, in accordance with Steps 8.3.1.4.1 and 8.3.1.4.2 of this procedure.

8.3.3.2 If required by the PSAP, collect a rinsate sample from sample materials that cannot be feasibly cut into small pieces in accordance with Step 8.6 of this procedure.

8.3.3.3 If the PSAP does not require sample collection for materials that cannot be feasibly cut into small pieces, visually describe container contents and document in Sampling Log Book.

8.4 Sampling Containers with Liquid Materials

8.4.1 Use a clean, glass COLIWASA for collection of liquid waste samples.

8.4.1.1 Insert inner rod of glass COLIWASA inside sheath.

8.4.1.2 Lower glass COLIWASA vertically, keeping the ground glass end of the inner rod away from the hole in the sheath bottom, at a rate so that the liquid levels inside and outside the sample tube remain even.

8.4.1.3 Push inner rod downwards to close the sampling device when the container base has been encountered.

8.4.1.4 Withdraw sampling device with one hand while decontaminating the outside surface with a clean, disposable cloth.

8.4.1.5 Pull inner rod upwards to transfer material to appropriate sample containers identified in COLUMNS B and C of Section C of the PSAP in accordance with Step 8.12 and/or 8.13 of this procedure.

NOTE: Equipment decontamination shall be performed over a 5-gallon container marked with the appropriate 15-digit FEMP Lot Marking Code (Refer to Step 8.1.7).

8.5 Equipment Decontamination

8.5.1 Sampling equipment and associated devices used for sample transfer shall be decontaminated as follows:

8.5.1.1 Rinse equipment with potable (tap) or distilled water.

8.0 PROCEDURE (cont.)

8.5.1.2 Clean equipment using a phosphate-free laboratory detergent and potable water solution and scrub brushes.

8.5.1.3 Rinse with potable (tap) or distilled water.

8.5.1.4 Rinse twice with organic-free deionized water (ASTM Type II).

8.5.1.5 Inspect decontaminated equipment for signs of visible residual contamination (adhered particles) or stains, discolorations.

8.5.1.6 Field screen sampling equipment using a portable Photo Ionization Detector (PID) and beta/gamma frisker for signs of residual contamination.

8.5.1.7 If sampling equipment still exhibits signs of visible contamination, deliver to site decontamination Facility and proceed to Step 8.5.4 or perform Step 8.5.2.

8.5.2 Decontaminate equipment that exhibits signs of visible contamination or stains/discolorations or fails field screening analysis as follows:

8.5.2.1 Rinse with potable (tap) water.

8.5.2.2 Clean equipment with a phosphate-free laboratory detergent and potable water solution and scrub brushes.

8.5.2.3 Rinse with potable (tap) water.

8.5.2.4 Rinse with 0.02 normal hydrochloric or sulfuric acid.

8.5.2.5 Rinse with potable (tap) water.

8.5.2.6 Rinse with methanol.

8.5.2.7 Triple rinse with organic-free deionized water (ASTM Type II).

8.5.3 Allow sampling equipment to air dry when feasible, or use a clean, lint-free disposable cloth to dry the sampling equipment; then store as follows:

8.5.3.1 Wrap equipment in aluminum foil with the shiny side facing outwards if the equipment will be used for VOA or SVOA sample collection.

8.5.3.2 Wrap equipment in a plastic bag if the equipment will not be used for VOA or SVOA sample collection.

8.5.4 Complete a "Clean Equipment" tag, Form FMPC-PRO-3128 (See Figure 7).

8.5.5 Attach the tag to the decontaminated equipment.

8.0 PROCEDURE (cont.)

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8.5.6 Store sampling device as follows:

8.5.6.1 Place decontaminated sampling equipment in a clean protected area.

8.5.7 Process rinsate wastewater in accordance with SOP 20-C-605.

8.5.8 Process contact wastes per SSOP-0035.

NOTE: Equipment rinsate samples should be collected on a daily basis subsequent to completion of the sampling event and MUST be collected prior to sampling materials of a differing waste stream (Material Type and Source Code).

8.6 Equipment Rinsate Blanks

8.6.1 Obtain sample containers as specified in COLUMN D of Section C of the PSAP (See Figure 1).

8.6.2 Hold sample container directly beneath the decontaminated sampling device.

8.6.3 Pour organic-free deionized water (ASTM Type II) over the decontaminated sampling equipment.

8.6.4 Collect equipment rinsate in appropriate sample container.

8.6.5 Repeat Steps 8.6.2 through 8.6.4 until all sample containers are filled.

8.6.6 Process samples in accordance with Step 8.12 of this procedure.

8.7 Duplicate Samples

8.7.1 Collect two sets of samples, when specified by PSAP, from the designated container in accordance with Steps 8.3 and/or 8.4 of this procedure.

8.7.2 Retain one (1) sample set as the "original samples" and assign a sample number as specified in the PSAP.

8.7.3 Retain the other sample set as the "duplicate sample" and assign an unique sample number as specified in the PSAP.

8.7.4 Process original and duplicate samples in accordance with Step 8.11, 8.12, or 8.13 depending on the matrix of the duplicate sample.

8.8 Split Samples

8.8.1 Collect two sets of samples, when specified by the PSAP, from the designated container in accordance with Steps 8.3 and/or 8.4 of this procedure.

8.8.2 Assign the same sample number to the "original sample" and "split samples".

8.0 **PROCEDURE** (cont.)

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8.8.3 Process original and split samples in accordance with Step 8.11, 8.12, or 8.13 depending on the matrix of the split samples.

8.9 Container Blanks

NOTE 1: Container blanks are required if pre-used sample containers are cleaned and re-used per Step 8.5.2 or if vendor-supplied analytical data are not available.

NOTE 2: Container blanks are not required if vendor-supplied analytical data (i.e., Certificate of Analysis) are provided for each batch of sample containers used during the sampling round.

8.9.1 If vendor-supplied analytical data are supplied perform the following:

8.9.1.1 Submit a copy of these data to SMS for storage in the project file.

8.9.1.2 Document vendor-supplied container numbers (provided on a bar code label attached to sample container) in the Sampling Log Book.

8.9.1.3 Proceed to Step 8.11.

8.9.2 If vendor-supplied analytical data are not available, obtain a set of "clean" (unused) sample containers for metals and radionuclides analysis as specified in the PSAP.

8.9.3 Process empty "clean" sample containers in accordance with Step 8.11 of this procedure.

8.9.4 Indicate "Container Blank" in the remarks section of the SWAR/CR.

NOTE: Preservative blanks may be required if vendor-supplied assay data are not available.

8.10 Preservative Blanks

8.10.1 If vendor-supplied assay data are provided, document the preservative manufacturer and lot number (batch identifier) for the respective preservative used in the Sampling Book.

8.10.1.1 Submit a copy of these assay data to SMS for storage in the project file.

8.10.1.2 Proceed to Step 8.11.

8.10.2 If vendor-supplied assay data are not available, obtain the following sample containers and preservatives when a preservative blank is specified in the PSAP.

8.10.2.1 For VOC analysis, collect 3-40 mL vials with Teflon-lined septum lids and add 4 drops of hydrochloric acid to each vial.

8.0 PROCEDURE (cont.)

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8.10.2.2 For metals and radiological analysis, collect one (1) one-liter polyethylene bottle and add 20 drops of nitric acid.

8.10.3 Pour organic-free deionized water (ASTM Type II) into the prepreserved sample containers identified in Steps 8.10.2.1 and 8.10.2.2.

8.10.4 Process samples in accordance with Step 8.12 of this procedure.

8.10.5 Indicate "Preservative Blank" in the remarks section of the SWAR/CR.

NOTE: Check cooler/refrigerator inner temperature with a thermometer (graded in units of 1°C) on a daily basis to ensure samples are preserved at 2-6°C. Record cooler/refrigerator temperature in field logbook.

8.11 Solid-Matrix Concentrated Waste Sample Handling and Storage

8.11.1 Handle and store solid-matrix samples and duplicate/split samples as follows:

8.11.1.1 Complete label and affix to sample container.

8.11.1.2 Seal with custody tape.

8.11.1.3 Place VOA, SVOA, and metals samples in a cooler with 'blue ice' or refrigerator in close proximity to the sampling line.

8.11.1.4 Place radiological samples in a controlled storage area in close proximity to the sampling line.

8.12 Low/Medium Concentration Liquid-Matrix Sample Handling and Storage

8.12.1 Transfer low/medium concentration liquid-matrix VOA samples and duplicates/splits from the temporary storage container (4-ounce glass jar or larger), as required, to three (3) 40-mL VOA vials in accordance with Steps 8.1.17.1 through 8.1.17.4 of this procedure.

8.12.1.1 Complete labels and affix to sample containers.

8.12.1.2 Seal with custody tape.

8.12.1.3 Place in a cooler with 'blue ice' or refrigerator in close proximity to sampling line.

8.12.2 Process low/medium concentration liquid-matrix SVOA samples and duplicates/splits as follows:

8.12.2.1 Complete labels and affix to the sample container.

8.12.2.2 Seal with custody tape.

8.12.2.3 Place in a cooler with 'blue ice' or refrigerator in close proximity to the sampling line.

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8.0 PROCEDURE (cont.)

WARNING

Goggles, nitrile gloves, and an apron vest must be worn when working with acids.

8.12.3 Process low/medium concentration liquid-matrix samples and duplicates/splits for metals and radiological analysis as follows:

8.12.3.1 Add one (1) milliliter (mL) or 20 drops of Nitric Acid (HNO_3) per 1,000 mL (1-liter) of sample using an acid ampule or dispensing bottle. Cap container and gently invert and rotate bottle to mix acid with sample material.

NOTE: For field blank and equipment rinsate samples Step 8.12.4.2 is not necessary, based on past experience.

8.12.3.2 Check pH by gently splashing the acidified sample onto an indicator strip, over a 5-gallon pail used to collect rinsate wastewater, and comparing color codes.

8.12.3.2.1 If pH is greater than 2, add one drop of nitric acid (HNO_3) and repeat Steps 8.11.4.1 and 8.11.4.2. Repeat Steps 8.11.4.2.1 and Steps 8.11.4.1 through 8.7.4.2 until a pH of less than 2 is achieved.

8.12.3.3 Complete labels and affix to sample container.

8.12.3.4 Seal with custody tape.

8.12.3.5 Place samples for metals analysis in a cooler or refrigerator in close proximity to the sampling line.

8.12.3.6 Place radiological samples in a controlled storage area in close proximity to the sampling line.

8.12.4 Complete SWAR/CR in accordance with SSOP-0018.

8.12.5 Transport samples in coolers to the FEMP Sample Processing Laboratory (SPL) with the SWAR/CR and a copy of the PSAP.

8.13 Liquid-Matrix concentrated Waste Sample Handling and Storage

8.13.1 Process liquid matrix concentrated waste samples and duplicates/splits for UOA, SUOA, and metals analyses as follows:

8.13.1.1 Complete label and affix to sample container.

8.13.1.2 Seal with custody tape.

8.13.1.3 Place samples in a cooler with 'blue ice' or refrigerator in close proximity to the sampling line.

8.0 **PROCEDURE** (cont.)

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8.13.2 Process liquid matrix concentrated waste samples and duplicates/splits for inorganic and radiological analyses as follows:

8.13.2.1 Complete label and affix to sample container.

8.13.2.2 Seal with custody tape.

8.13.2.3 Place samples in a controlled storage area in close proximity to the sampling line.

9.0 **APPLICABLE FORMS**

9.1 M-144, M-145, M-160, "Sample Label"

9.2 "Tamper Proof Seal"

9.3 FS-F-3361, "Site-Wide Analysis Request/Custody Record"

9.4 FMPC-PRO-3128, "Clean Equipment Tag"

9.5 "Variance Report"

TABLE 1
FIELD QUALITY CONTROL SAMPLES

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	ANALYTICAL SUPPORT LEVELS		
	B	C	D
INORGANICS, ORGANICS, and RADIONUCLIDES Field QC Samples			
Field blanks	A/S	1 per 20 or 1 per sampling event, whichever is more frequent	1 per 20 or 1 per sampling event, whichever is more frequent
Equipment rinsate blanks	A/S	1 per 20 or 1 per sampling event, whichever is more frequent	1 per 20 or 1 per sampling event, whichever is more frequent
Field duplicates	A/S	1 per 20 or 1 per sampling event, whichever is more frequent	1 per 20 or 1 per sampling event, whichever is more frequent
Preservative blanks	A/S	A/S	A/S
Container blanks	A/S	1 per QC lot of containers	I per QC lot of containers
Laboratory control samples	1 per analytical batch if applicable	1 per analytical batch if applicable	1 per analytical batch if applicable
Method blanks	1 per analytical batch of samples	1 per analytical batch of samples	1 per analytical batch of samples
Trip blanks (VOAs only)	A/S	1 per shipping container	1 per shipping container

Drummed Waste Material
Project-Specific Sampling and Analysis Plan

5692

Number: 1~
Date: 12-11-93
Page 1 of 5

A. Identifying Information

1) **Project Name:** 13~
2) **Plan No.:** 1~
3) **Material Description/Matrix Code(s):** 2~
4) **Number of Drums in Sub-Waste Stream:** 10~
5) **Material Type:** 3~
6) **Source Code:** 4~
7) **Material Evaluation Form #:** 5~
8) **Sampling Location for Drums:** 6~
9) **Process Knowledge:** 7~

B. Sampling Information

1) **General:** Samples taken will be contained in glass or polyethylene jars with teflon lined lids.
2) **Preservation Method:** See Analytical Requirements in Section C.
3) **Holding Times:** See Preservative and Holding Time Guidelines in Section G. Holding times and sample volume/container requirements for media-specific analyses not listed in the SCQ are provided by the FEMP laboratory facility.
4) **Sample Technique:** 8~
5) **Number of Drums to be Sampled and Analyzed:** x, see page 2.
6) **Composite Samples:** Yes (No)
7) **Visual Inspection Performed?:** Yes (No) (See attached Visual Inspection Form).
8) **Field Contact:** 14~
9) **Send Results to:**
10) **Charge No./Project Manager:** 15~
11) **Required QA/QC Samples:**

Field QC	Yes	No	Notes
Trip Blank	___	___	no volatile organic samples
Field Blank	___	___	1 per 20 samples or 1 per sampling event
Equipment Rinsate	___	___	1 per 20 samples or 1 per sampling event
Duplicate	___	___	1 per 20 samples or 1 per sampling event
Container Blank	___	X	analytical data supplied by supplier
Preserv. Blank	___	X	assay data supplied by supplier

Laboratory QC

Laboratory QC sample type and frequency requirements are provided in Appendix G of the SCQ.

Authorized Signature/Date Approved/Date

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet 1 of 5)

Drummed Waste Material
Project-Specific Sampling and Analysis Plan

5692

Number: 1~
Date: 12-11-93
Page 2 of 5

Sampling Information

Start with Sample Number 9~ for the first drum sample, then number consecutively until sampling is completed. The drum that is to be sampled in duplicate will be indicated with an asterisk (*). The duplicate samples will be given different sample numbers.

Sample Number	Sample Matrix	Inv. Number	Lot Number	Drum Number
9~				
1~				
1~				
1~				
1~				
1~				
1~				
1~				
1~				

Authorized Signature/Date Approved/Date

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet 2 of 5)

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Drummed Waste Material
Project-Specific Sampling and Analysis Plan

Number: 1-
Date: 12-11-93
Page 3 of 5

C. Analytical Requirements

In order to satisfy waste characterization requirements the following analyses may be performed:

	COLUMN A		COLUMN B	
Analysis Requested (Analysis Code) ASL = Analytical Support Level VOA = Volatile Organics Analysis SVOA = Semi-Volatile Organics Analysis U,Th = Uranium, Thorium PFLT = Paint Filter Liquids Test	**Solid Matrix Concentrated Waste Sample Container and Preservative/Unit Codes** oz. = ounce P00, P01 = No preservation, Cool 4 deg. C U00, U04, U06, U07, U19 = ppm, mg/kg, ug/L, ug/g, pCi/g U99 = present/absent TLC = Teflon Lined Closure		**Liquid Matrix Concentrated Waste Sample Container and Preservative/Unit Codes** mL, L = milliter, Liter P00 = no preservation needed U02, U06, U17, U18 = mg/L, ug/L, pCi/mL, pCi/L U35, U37 = pH units, degrees Fahrenheit TLS = Teflon Lined Septum	
Total VOAs (2411)* TCLP VOAs (2459)** ASL B	(3) x 4-oz. glass, TLC	P01/U04(total) U06(TCLP)	(1) x 250 mL glass jar, TLS	P01/U06
Total SVOAs (2470)* TCLP SVOAs (2471)** ASL B	(1) x 8-oz. amber glass, TLC	P01/U04(total) U06(TCLP)	(1) x 250 mL amber glass, TLC	P01/U06
Total Metals (2402)* TCLP Metals (2401)** ASL B	(1) x 8-oz. glass or polyethylene	P01/U04(total) U06(TCLP)	(1) x 250 mL glass, TLC	P01/U06
Flash Point (2434) pH (2435) ASL B	-----	---	(1) x 250 mL glass, TLC	P00/U37 P00/U35
Total U (2442) ASL B	(1) x 8-oz. glass or polyethylene	P00/U07(soil) U00(any other solids)	(1) x 120 mL glass or polyethylene	P00/U06
Isotopic U (2026-29) ASL B	(1) x 8-oz. glass or polyethylene	P00/U19	(1) x 250 mL glass or polyethylene	P00/U18
PFLT (2053) ASL B	(1) x 4-oz. glass or polyethylene	P00/U99	-----	---
Alpha-Beta (2005)	(1) x 4-oz. polyethylene	P00/U19	(1) x 120 mL polyethylene	P00/U17
Description of material (Color, appearance, consistency, etc.)				

Note: * - Perform analysis for liquid matrix concentrated waste samples.
** - For solid matrix samples only. Prepare sample extract, then conduct Total concentration screening analyses. If Total concentrations exceed 20 times the TCLP regulatory value, then analyze the sample extract.

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet 3 of 5)

Drummed Waste Material
Project-Specific Sampling and Analysis Plan

5692

Number: 1~
Date: 12-11-93
Page 4 of 5

C. Analytical Requirements (cont.)

	COLUMN C		COLUMN D	
Analysis Requested (Analysis Code) ASL = Analytical Support Level VOA = Volatile Organics Analysis SVOA = Semi-Volatile Organics Analysis U,Th = Uranium, Thorium PFLT = Paint Filter Liquid Test	Low to Medium Concentration Liquid Samples Container and Preservative/Unit Codes mL, L = milliter, Liter P01, P09 = Cool 4 deg. C, HCl to pH < 2. P11 = HNO, to pH < 2 P13 = HNO, tp pH < 2/cool 4 deg. C U06, U17, U18 = mg/L, ug/L, pCi/mL, pCi/L U35, U37 = pH units, degrees Fahrenheit TLS = Teflon Lined Septum TLC = Teflon Lined Closure		Quality Control Sample@ Container and Preservative/Unit Codes mL, L = milliter, Liter P01, P09 = Cool 4 deg. C, HCl to pH < 2. P11 = HNO, to pH < 2 P13 = HNO, to pH < 2/cool 4 deg. C U06, U17, U18 = ug/L, pCi/mL, pCi/L U35, U37 = pH units, degrees Fahrenheit TLS = Teflon Lined Septum TLC = Teflon Lined Closure	
Total VOAs (2411) ASL B	(3) x 40 mL glass vials, TLS	P01 + P09/U06	(3) x 40 mL glass vials, TLS	P01 + P09/U06
Total SVOAs (2470) ASL B	(1) x 1 gallon jar amber glass, TLC	P01/U06	(1) x 1 gallon jar amber glass, TLC	P01/U06
Total Metals (2402) ASL B	(1) x 1 L jar, polyethylene	P13/U06	(1) x 1 L jar, polyethylene	P13/U06
Flash Point (2434) pH (2435) ASL B	(1) x 250 mL glass, TLC	P00/U37 P00/U35	-----	---
Total U (2442) ASL B	(1) x 1 L jar, glass or polyethylene	P11/U06	(1) x 1 L jar glass or polyethylene	P11/U06
Isotopic U (2026-29) ASL B	(1) x 1 L jar, glass or polyethylene	P11/U18	(1) x 1 L jar glass or polyethylene	P11/U18
PFLT (2053) ASL B	-----	---	-----	---
Alpha-Beta (2005)	(1) x 120 mL polyethylene	P11/U17	(1) x 120 mL polyethylene	P11/U17
Description of material (Color, appearance, consistency, etc.)				

Note: @ - Container and preservation/unit code requirements for trip blanks, field blanks, and equipment rinsates only. Container and preservation/unit code reqirements for duplicate or split samples are provided in Columns A, B, or C, depending on the matrix of the waste sample.

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet 4 of 5)

D. Sub-Waste Stream Description

The sub-waste stream consists of 10~ drums in 11~ lots. The material type of "3~" and the source code of "4~" indicate that this material is 7~

E. Safety Concerns

See SOP 20-C-805, Sections 6.0 to 6.14 for Health and Safety requirements.

F. Representative Sampling Procedure

12~ drums were chosen at random, and are listed on page 2 of this form. If visual inspection indicates that the material has free liquid or is completely dry, then a P.F.L.T is not necessary. Record pertinent information in the Field Log Book for each drum sampled as specified in SOP 20-C-805, Section 7.2.13.

G. Preservative and Holding Time Guidelines

See Tables 6.1 and 6.2 of the "Prototype Sampling and Analysis Plan for Containerized Waste at the FEMP" and/or Table 6-1 "Sample Container and Preservation Requirements," of the Sitewide CERCLA Quality Assurance Project Plan (SCQ). Sample container, preservative, and holding time requirements for analytical parameters not provided in these tables have been obtained from federal or state of generation poilcies/directives, or from the FEMP or FEMP-contracted laboratory facility; and incorporated into this PSAP as permitted in Section 3.3.2 of the SCQ.

This form must be dated and signed by an authorized individual.

If this Sub-Waste Stream is sampled and analyzed according to the information on this form, the results generated will be in agreement with the sampling and analysis requirements of NVO-325 (Rev. 1), Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements; and the Fernald Environmental Management Project (FEMP) Sitewide CERCLA Quality Assurance Project Plan (SCQ).

Authorized Signature/Date Approved/Date

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet 5 of 5)

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VR No. ____

VARIANCE REQUEST

Page _ of _

Date _____

VARIANCE (Include Justification)

Variance:

Justification:

REQUESTED BY: _____ **Date:** _____

APPROVED BY: _____ **Date:** _____

Project Manager

_____

Quality Assurance

_____

SCQ Implementation

APPLICABLE DOCUMENT(S) AND SECTION NUMBER(S)

VARIANCE REQUEST
Figure 2

5692

SAMPLE ID: XXXXXXXXXX

(barcode goes here)

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
SAMPLE ID :. XXXXXXXXXX
(barcode goes here)

DATE SAMPLED TIME SAMPLED

MATERIAL NAME / SAMPLE TYPE
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
PRESERVATIVES
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER TYPE GROSS WEIGHT
XXXXXXXXXXXXXXXX

COLLECTORS INITLS TARE WEIGHT

CNT:

COC #:

SAMPLE ID: XXXXXXXXXX

(barcode goes here)

Label A

TEMP SAMPLE ID X-REF SAMPLE ID

DATE SAMPLED TIME SAMPLED

MATL NAME

SAMPLE TYPE

CONTAINER TYPE GROSS WEIGHT
XXXXXXXXXXXXXXXXX

COLLECTORS INITLS TARE WEIGHT

PRESERV:

CNT:

COC #:

Label B

SAMPLE LABELS
Figure 3

5692

FEMP
RSO - ANALYTICAL
SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD

Form Number. ____ - ____ - ____
Page ____ of ____

PROJECT:
☐ PLAN NO.: OR ☐ PROJECT NO.:
PROJECT MANAGER/ENGINEER:
FOR SAMPLE RELATED PROBLEMS, CONTACT:
ORGANIZATION:
NAME: PHONE:
SAMPLER: PHONE:
CHARGE NUMBER: LOT MARKING CODE:
SAMPLER REMARKS:
SAMPLER SIGNATURE(S):
SEND RESULTS TO:

CHECK FOR: ☐ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REQUEST

ITEM NO.	CUSTOMER NUMBER	SAMPLE POINT	MATRIX CODE	COLLECTED DATE	COLLECTED TIME	CONTAINER/ VOLUME	COMPOSITE	GRAB	NO OF CONTAINERS	ANALYTES CODE - (UNITS CODE)	REMARKS
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME	ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME

NO.	DISTRIBUTION OF COPIES
1	LABORATORY
2	REQUESTER
3	SAMPLER

FS-F-3361 (REV 3/93)

SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD
Form No. FS-F-3361
Figure 4

PROJECT Sample Plan 144

Notebook No. 5692 29

Continued From Page

BLDG 71

DATE 3-20-91 LOCATION Isotopic Room SAMPLE NUMBER R144-7

~~SAMPLE PLAN~~ 144 ~~NUMBER AND VOLUME OF SAMPLES~~ 7 Jars

~~MATERIAL~~ ~~Contaminated Burnables, Rags, Filter Cloth, Paper~~ 3-40ml vials, 2-qt, 1-8oz, 1-4oz

~~MATERIAL DESCRIPTION~~ Dark Liquid NUMBER OF PHASES TWO

MATERIAL TYPE 027 SOURCE CODE 530 ANALYSIS REQUIRED Total VOAS TCLP Metals,

DRUM SAMPLED H093-530-D027-0987 DR# 9 U-235 Alpha-Beta, Total U, PH, Flash Point

~~TIME SAMPLED~~ 1800 ~~TYPE~~ Collimator (Liquid)

SAMPLED BY F Merrill - W. Daniel

Darrell W. Kirby
3-20-91

Note: 13 inches total 9 inches of Water = 69% water

Note: Plastic Bottles, Metal Cans, Plastic, Trash, Gloves

BLDG 71

DATE 3-21-91 LOCATION Isotopic Room SAMPLE NUMBER R144-8

SAMPLE PLAN 144 ~~NUMBER AND VOLUME OF SAMPLES~~ 7 Jars

~~MATERIAL~~ ~~Contaminated Burnables, Rags, Filter Cloth, Paper~~ 5-4oz, 1-pt, 1-8oz

~~MATERIAL DESCRIPTION~~ Plastic Bottles, Metal Cans, Plastic, Trash, Gloves (Solid) NUMBER OF PHASES TWO

MATERIAL TYPE 027 SOURCE CODE 530 ANALYSIS REQUIRED Total VOAS, TCLP Metals,

DRUM SAMPLED H093-530-D027-0987 Dr. #9 Total U, U-235, Alpha-Beta

~~TIME SAMPLED~~ 0830 ~~TYPE~~ Scissors (Solid)

SAMPLED BY F Merrill

Darrell W. Kirby
3-21-91

Continued on Page

Read and Understood By

R G Rice — Signed; 3-21-91 — Date; Signed; Date

SAMPLE LOG BOOK
Figure 5

5692

If Seal is broken or package damaged check contents before signing receipt.

TAMPER PROOF SEAL
Figure 6

5692

CLEANED BY: _____

DATE: _____

Cleaned according to sop : _____

FMPC-OPR-3128 (6/22/89)

CLEAN EQUIPMENT TAG
Form No. FMPC-PRO-3128
Figure 7

RECORD OF ISSUE/REVISION

5692

ATE	REV. NO.	DESCRIPTION AND AUTHORITY
04-10-92	0	Procedure required for taking samples from drums of waste material per Request No. P92-049, initiated by J. Hey.
04-15-93	1	Revised to incorporate CIO C92-160 (P93-400), C92-161 (P93-401), C92-162 (P93-402), C93-154 (P93-403), C93-479 (P93-409), and update to conform with current procedure program requirements.
12-16-93	0	Reissued to incorporate changes per Request No. P93-1305, initiated by J. Gnoose.

REMEDIATION SUPPORT OPERATIONS PROCEDURE	GENERAL NUCLEAR SAFETY REQUIREMENTS	SOP 20-C-904 Area: As Applicable
(Signature On File) Authorization: R.L. Gardner Facilities & Waste Operations Mgr.	Supersedes: None	Issue Date: 05-18-93

NON-CONTROLLED COPY

1.0 **PURPOSE**

The purpose of this document is to establish the nuclear safety requirements for material handling and storage.

2.0 **APPLICABILITY**

2.1 This document is applicable to areas that process, handle, and store depleted, normal, and/or enriched material.

3.0 **RESPONSIBILITIES**

3.1 Area Supervisors shall be responsible for ensuring that sub-contractors, visitors, and RSO personnel comply with Nuclear Safety procedures within their area of responsibility.

3.2 Supervisors shall be responsible for the following:

3.2.1 Ensuring that operators are qualified per the established training requirements identified by the Department/Staff Manager.

3.2.2 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.2.3 Ensuring that operators wear the protective equipment, including respirators, that is specified by ES&H on applicable permits.

3.3 Operators shall be responsible for complying with this SOP.

4.0 **DEFINITIONS**

4.1 Enrichment - The percent of U235 in a quantity of uranium.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

5.1.1 PO-D-026, "Site Services Document Program"

5.1.2 FEMP Conduct of Operations Manual

5.2 References

5.2.1 SOP 20-C-100, "Moving and Storing Depleted, Normal, and Enriched Uranium Materials < 20% and Thorium Metal and Materials"

MAY 1994

5.0 **APPLICABLE DOCUMENTS** (cont.)

5.2.2 RM-0005, "FEMP Lot Marking and Color Coding Systém" 5692

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 Spacing restrictions shall be adhered to.

6.2 Containers shall be identified per RM-0005 so that the correct nuclear safety restrictions can be determined.

6.3 Containers shall be color-coded per RM-0005 to prevent mixing of enric. levels.

6.4 Storage areas shall be posted as required.

6.5 Operators shall have reviewed and be familiar with MSDSs for hazardous materials/chemicals that may be used or encountered.

6.6 Operators shall wear protective clothing specified by applicable permits and issued by the supervisor.

6.7 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiologica Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (For No. FMPC-IRS&T-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.8 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 **GENERAL**

7.1 Warnings, Cautions, and Notes precede the Step or Item to which they apply.

8.0 PROCEDURE

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NOTE: Nuclear safety spacing restrictions maintain safe operating conditions by reducing the possibility of interaction between uranium bearing materials. Violation of spacing requirements reduces the margin of safety.

8.1 Spacing Requirements

8.1.1 Spacing between a container, mass, or material stored as a safe grouping and other material shall be per Table 1.

8.1.2 Spacing between uranium bearing material stored as unlimited and other material shall be per Table 2.

8.1.3 Spacing requirements of Tables 1 and 2 shall be adhered to unless specific spacing is given in the applicable procedure.

8.1.4 Aisles shall be eight feet in width to allow room for operation of material handling equipment.

NOTE: Material identification is essential to ensure that the nuclear safety restrictions for handling and storing are being followed.

8.2 Container and Material Identification

8.2.1 Containers to be filled with uranium bearing material shall be identified as follows:

8.2.1.1 Color-coded per Item 8.3.

8.2.1.2 Marked with percent enrichment.

8.2.1.3 Marked with material codes.

8.2.1.4 Marked with tare weight.

8.2.2 Full containers shall be marked with gross and net weights.

8.2.3 Non-uranium bearing materials shall be contained in solid black cans or drums or be clearly identified.

8.2.3.1 The containers shall have a description of the material stenciled on the side.

8.2.3.2 A generic stencil "No Fissile Material" may be used as a description.

8.2.4 Empty uranium-bearing containers shall have the material code, enrichment, and weights marked out, unless otherwise specified in the applicable procedure.

8.0 **PROCEDURE** (cont.)

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NOTE: The color-coding system ensures safe transport and storage of uranium-bearing materials by reducing the possibility of intermixing enrichments.

8.3 Color Coding

8.3.1 Drum and/or can color coding shall be in accordance with Table 3.

8.3.2 All containers shall be marked per RM-0005.

8.3.3 The enrichment of uranium metal on skids shall be identified by attaching a color-coded card (Refer to Table 4) to the skid.

NOTE: Solid red drums/cans shall be handled with care.

8.4 Handling Requirements for Solid Red Containers

8.4.1 30 and/or 55 gallon solid red drums shall not be stacked.

8.4.2 5 gallon and 10 gallon red cans may be stacked 2 high when permitted by individual Manufacturing Specification.

8.4.3 Small containers shall not be stacked on top of 30 and/or 55 gallon drums.

8.4.4 Solid red drums/cans shall be used for enriched uranium material requiring special Nuclear Safety Restrictions.

8.4.5 Trash or non-uranium bearing material shall not be placed in solid red drums/cans.

8.4.6 Empty solid red drums/cans shall be stored in accordance with industrial safety limits.

8.4.7 Red containers shall not be used as safety barriers or for any purpose other than the intended use.

8.5 Equipment Identification

8.5.1 Equipment shall be marked with color-coded cards showing the enrichment of the uranium currently being processed.

8.6 Handling Material of Unknown Enrichment

8.6.1 Uranium of unknown enrichment shall be handled with the proper Nuclear Safety Restrictions (such as safe mass, concentration, geometry), for the highest possible enrichment until analyzed.

8.6.2 After analysis, the material shall be stencilled, labelled, and handled according to the requirements for the actual enrichment.

8.6.3 Any material or equipment which has come into contact with uranium shall be assumed to contain uranium.

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8.0 **PROCEDURE** (cont.)

8.7 Storing and Posting Requirement

8.7.1 Signs showing the nuclear safety limits in effect for the area shall be posted in process storage areas and general (warehouse and outdoor) storage areas.

8.7.1.1 Signs posted in storage areas shall be in plain view.

8.7.1.2 The signs shall identify the material that may be stored in the area and the limits.

8.7.2 Material with an enrichment greater than 2.1% U-235 shall be stored in areas surrounded by supported chains.

8.7.2.1 Standard signs or cards shall be hung on the chains or on the stanchions to mark the area.

8.7.2.2 The signs or cards shall be clearly marked with the maximum enrichment of the stored material.

8.7.2.3 Skid loaded containers shall be placed with markings outward.

8.7.3 Materials shall be stored in covered areas.

8.7.4 Process equipment and operator stations shall be posted with the nuclear safety limits and restrictions for the process.

8.8 Interplant Shipments

8.8.1 Shipments shall be per SOP 20-C-100.

8.9 Isotopic Changeover, Cleanup, and Inspection

8.9.1 Refer to the SOP pertaining to the appropriate plant.

9.0 **APPLICABLE FORMS**

None

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TABLE 1
SAFE GROUP SPACING

DESCRIPTION	MINIMUM ISOLATION DISTANCE
Another safe grouping	2 feet
Material stored in the unlimited category	2 feet
Process equipment	2 feet
Walls or barriers	1 foot
Non-uranium bearing material	1 foot

TABLE 2
UNLIMITED GROUP SPACING

DESCRIPTION	MINIMUM ISOLATION DISTANCE
Material stored as a safe group	2 feet
Uranium-bearing material of different enrichment stored in the unlimited category	2 feet
Non-uranium bearing material	1 foot

TABLE 3
COLOR-CODE (DRUMS/CANS[1])

ENRICHMENT	CONTAINER	STRIPE	MARKINGS
Depleted	Black	Green	White
Natural (Normal)	Black	Yellow	White
Enriched. Unrestricted	Black	Red	White
Enriched, Restricted by Mass, Volume, Concentration. etc.	Red	None	White
Waste Shipments	White	None	Black
Thorium	Black	Blue	White

[1] Six-inch diameter bare aluminum cans marked per Item 8.2.1 shall be handled one at a time and stored according to the space requirements in Item 8.1.

TABLE 4
CARD COLOR CODE

ENRICHMENT	COLOR-CODE [1]
Depleted	Green/White
Natural (Normal)	Yellow/White
Enriched	Red/White - Enrichment marked on card

[1] UF^6 cylinders and T-hoppers shall be marked with cards indicating the enrichment.

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RECORD OF ISSUE/REVISION

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
11-17-88	0	Procedure required for defining general nuclear safety requirements for the production area per Request No. P88-137, initiated by C.A. Hill.
01-13-93	1	Revised to incorporate CIO C92-025 per Request No. P92-254 and update to conform with Procedure Program requirements.
05-18-93	0	Reissued to update technical content per Request No. P92-464, initiated by C. Glassmeyer.

REMEDIATION SUPPORT OPERATIONS PROCEDURE	Hydrogen Monitoring & Removing NUC-FIL Vent Plugs from Drums	SOP 20-C-917 Area: As Applicable
(Signature on File) Authorization: Hontas Bailey, Materials Management Manager	Supersedes: None	Issue Date: 07-13-92

1.0 PURPOSE

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The purpose of this document is to provide the procedure for monitoring the atmosphere inside drums containing materials that could evolve hydrogen gas and for removing NUC-FIL 013 vent plugs.

2.0 APPLICABILITY

This procedure is applicable to drums containing material that could contain hydrogen and are stored or will be stored inside or under shelter at the FEMP.

3.0 RESPONSIBILITIES

3.1 **Supervisors** shall be responsible for the following:

3.1.1 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.2 Contacting Industrial Hygiene and/or Radiological Control to determine the appropriate respiratory protection for the process being performed.

3.1.3 Issuing operators the required respiratory protection.

3.1.4 Contacting ES&H for assistance in establishing an isolation zone around drum monitoring and handling activities.

3.1.5 Obtaining and posting a "Radiation Work Permit", a "Confined Space Entry Permit", or a contamination survey (if required prior to handling/reventing the drums).

3.1.6 Ensuring that spill cleanup and venting supplies are available at the isolation zone per SOP 20-C-606, "Hazardous Material Spill Cleanup."

3.1.7 Making the final determination to overpack a drum per SOP 20-C-600.

3.1.8 Ensuring that equipment, tools, and vehicles are approved by ES&H.

3.1.9 Contacting ES&H to determine if the drums to be monitored contain RCRA, non-RCRA, or uncharacterized materials.

3.1.10 Directing which drums are to be monitored and in what order.

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3.0 **RESPONSIBILITIES** (cont.)

3.1.11 Contacting MC&A to obtain the locations of materials requiring monitoring and movement/handling.

3.1.12 Contacting Transportation to arrange for drums to be moved.

3.1.13 Contacting ES&H for specific drum movement requirements.

3.2 **Environmental Safety & Health (ES&H)** shall be responsible for the following:

3.2.1 Selecting equipment and developing methods for monitoring hydrogen gas concentrations.

3.2.2 Approving isolation zones, equipment, and tools used in this procedure.

3.2.3 Providing the appropriate field personnel for this operation.

3.2.4 Providing determination for specific drum movement requirements and directing the supervisors in these requirements.

3.3 All **personnel** shall be responsible for complying with this SOP.

4.0 **DEFINITIONS**

4.1 Free-Vented Drum- A drum that is vented with open holes in the lid or in the side walls below the top chime.

4.2 Isolation Zone - A safety area isolated by barriers and controlled by supervision to prevent entry by unauthorized personnel.

4.3 3/4 Inch Vent Plug - NUC-FIL 013 (or equivalent) - a 3/4 inch NPT threaded pipe plug containing a carbon filter element.

4.4 2 Inch Vent Plug - NUC-FIL 016 (or equivalent) - a 2 inch NPT threaded pipe plug containing a carbon filter element.

4.5 Overpack Drum - A container into which one or more smaller containers are placed.

4.6 Lower Explosive Limit (LEL) - Lowest concentration at which hydrogen combustion is possible.

5.0 **APPLICABLE DOCUMENTS**

5.1 DRIVERS

5.1.1 RM-0012, "Quality Assurance Program Description"

5.1.2 "FEMP Conduct of Operations Manual"

5.1.3 PO-D-026, "Site Services Document Program"

5.0 APPLICABLE DOCUMENTS (cont.)

5.2 REFERENCES

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5.2.1 SOP 20-C-600, "Overpacking Drums"

5.2.2 SOP 20-C-606, "Hazardous Material Spill Cleanup"

5.2.3 SOP 20-C-630, "Receipt Inspection, Storage, and Storage Inspection of Hazardous Waste"

5.2.4 SOP 20-C-910, "Venting Potentially Explosive Drums"

5.2.5 PP-0314, "Packaging, On-site Movement and Off-site Shipment of Materials"

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 An isolation zone shall be established around the area while drums are being monitored for hydrogen or while vent plugs are being removed.

6.3 Safety glasses with side shields shall be worn under a full face shield in the isolation zone when handling/monitoring drummed material covered by this procedure.

6.4 Respiratory protection provided by the supervisor shall be worn when required by the supervisor or ES&H. Full face respirators shall be permitted in lieu of safety glasses and faceshield.

6.5 Hard hats and hearing protection shall be worn in the isolation zone.

6.6 Only personnel involved in monitoring drums for hydrogen, removing vent plugs, or moving free-vented drums shall be permitted within the isolation zone.

6.7 Leather-palm gloves shall be worn while handling/moving drums and while handling sharp or abrasive materials.

6.8 A minimum of two Metl-X fire extinguishers shall be present within the isolation zone(s) while drums are being handled or moved.

6.9 Forklift operators and the supervisor in charge of drum monitoring activities shall have communications equipment available.

6.10 Monitoring instruments and vent plug/bung removal tools shall be made of non-sparking materials which do not contain beryllium.

6.11 Tool configuration shall be such that personnel shall have no part of their bodies directly over the drum during vent plug removal.

6.12 Outer nitrile rubber gloves and chemical cover goggles shall be worn while draining water from drums.

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.) 5692

6.13 Vent plugs shall be removed from drums by hand only after it has been demonstrated the hydrogen concentration is 25 percent of the LEL or below.

6.14 Only drums that have been demonstrated to contain a hydrogen gas concentration that is 25% of the LEL or below may be moved outside an isolation zone.

6.15 Drums must be surveyed before being moved out of controlled areas.

6.16 Nylon safety nets shall conform to ANSI-A10.11 and OSHA 1926.105.

6.17 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.18 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the Step or Item to which they apply.

8.0 PROCEDURE (cont.)

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NOTE 1: The supervisor shall contact MC&A and obtain the locations of materials (Refer to Table 1) requiring reventing and movement/handling.

NOTE 2: The supervisor shall confirm availability of inside or covered storage for any drums requiring removal of vent plugs.

NOTE 3: The supervisor shall contact ES&H to determine if the drums to be monitored contain RCRA, non-RCRA, or uncharacterized materials.

NOTE 4: If ES&H confirms the presence of RCRA or uncharacterized materials, the supervisor shall ensure that the material is transferred to a hazardous waste storage unit per SOP 20-C-630.

8.1 Hydrogen Monitoring and Reventing of Non-Overpacked Drums

WARNING

Concentrations of hydrogen gas in vented drums may cause a fire or explosion.

8.1.1 Establish an Isolation Zone per SOP 20-C-910.

8.1.2 If drum covers are present, proceed as follows:

NOTE: If drums are covered by plastic, tarps, or other protection, ES&H shall monitor for hydrogen under the covering.

8.1.2.1 After hydrogen monitoring, record data one "Hydrogen Monitoring Record," Form FS-F-3569 (See Figure 1).

8.1.2.2 Remove drum coverings.

NOTE: Supervisor shall contact ES&H to determine specific drum movement requirements.

8.1.3 If the pallets of drums to be monitored are stacked, notify the supervisor.

WARNING 1

Nylon safety netting for covering single or skidded drums shall be a minimum of 8 feet by 8 feet in size.

WARNING 2

The safety net shall not touch drums on adjacent pallets.

8.1.4 Cover the drum or pallet of drums with an ES&H approved nylon safety net per supervisors instructions (See Figure 2).

8.0 PROCEDURE (cont.)

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NOTE: The nylon safety net shall be sufficiently loose to allow the lid to potentially rise 4 to 10 inches above the drums.

8.1.5 For a single drum or pallet of drums, secure the safety net per supervisor instructions.

8.1.6 For drums on railcars, secure the safety net using an approved ES&H technique.

WARNING

Only the forklift operator shall be within the isolation zone while drums are being moved.

8.1.7 As directed by supervision, use an enclosed cab forklift and move the pallet of drums to ground level or to an accessible area within the isolation zone.

WARNING 1

Personnel shall keep head and face away from top of drums when handling drums inside the isolation zone.

WARNING 2

No personnel (except the ES&H representative, supervisor, and an operator) shall be inside the isolation zone during hydrogen monitoring.

NOTE: ES&H shall perform hydrogen monitoring.

8.1.8 Notify ES&H when the pallet of drums is ready for hydrogen monitoring per Item 8.2 or 8.3.

NOTE 1: ES&H shall monitor through open vent holes or 3/4 inch vent plugs for hydrogen.

NOTE 2: At supervisor or ES&H discretion, the hydrogen concentration may be assumed to be above 25%.

8.1.9 When the hydrogen concentration has been determined to be 25% of the LEL or below, remove the safety net.

NOTE: The supervisor shall determine which drums to inspect for freestanding water based on process knowledge.

8.1.10 For non-RCRA drums, if specified by supervision, proceed as follows:

8.1.10.1 Remove the lid.

8.0 **PROCEDURE** (cont.)

8.1.10.2 Inspect for free liquids. **5692**

8.1.10.3 Drain any free liquids per SOP 20-C-910.

NOTE: The supervisor may specify the addition of Dicalite to the drum to absorb any remaining free standing water.

8.1.10.4 At the supervisors direction, add Dicalite to the drum.

8.1.10.5 Install the lid on the drum.

8.1.11 For drums containing RCRA or uncharacterized material, proceed as follows:

8.1.11.1 Install a 3/4 inch vent plug into the open vent hole.

8.1.11.2 Install a 2 inch vent plug into the large bung hole.

8.1.12 Complete a "Hydrogen Monitoring Record" sheet, Form FS-F-3569 (See Figure 1).

NOTE 1: Single or palletized drums shall be moved to inside or covered storage before the end of the shift when any vent plugs are removed.

NOTE 2: Drums in railcars shall be covered before the end of the shift when any vent plugs are removed.

8.1.13 If the drum contains nuclear material and is to be moved to another Material Balance Account (MBA), complete a "Nuclear Material Transfer- Receipt-Identification" card packet, Forms FS-F-1990, - 2220, and -2221 (See Figure 3).

NOTE 1: The Supervisor may specify hydrogen monitoring of selected drums during transport to storage and after placement into storage.

NOTE 2: The supervisor shall contact Transportation and arrange for drum transfer to storage.

NOTE 3: Transportation shall move the pallet of drums to an indoor storage or covered storage area per PP-0314.

NOTE 4: The supervisor shall notify the MC&A specialist of the location of the drum(s) if the drums were moved to a new location.

NOTE 5: The MC&A Specialist shall document drum location.

8.1.14 Notify the supervisor when monitoring is completed.

8.0 **PROCEDURE** (cont.)

NOTE: The supervisor shall forward the cards to MC&A.

8.1.15 Give the card packet and completed FS-F-3569 form to the supervisor.

8.2 Monitoring Drums with Vent Plugs

NOTE: Drum with more than 25% of the LEL shall be purged before continuing handling and/or movement activities.

8.2.1 If ES&H determines for safety concerns not to monitor the drums and considers the drums to contain a hydrogen concentration that is greater than 25% of the LEL or if the hydrogen concentration is above 25% of the LEL, proceed as follows:

WARNING

Personnel shall keep head, face and extremities away from the top of the drum while removing the vent plug.

8.2.1.1 Using a non-sparking tool remove the 3/4 inch vent plug.

NOTE 1: The supervisor shall request that an ES&H representative monitor the drum.

NOTE 2: The ES&H representative shall monitor the drum to verify that the hydrogen concentration is above 25% of the LEL.

8.2.1.2 Notify the supervisor when the 3/4 inch vent plug is removed.

8.2.1.3 If the hydrogen concentration is above 25% of the LEL, purge the drum with compressed or plant air until the hydrogen concentration is 25% of the LEL or below.

8.2.1.4 Remove the bung using a non-sparking tool.

8.2.2 If the hydrogen concentration is 25% of the LEL or below, proceed as follows:

NOTE: If the 3/4 inch plug cannot be removed by hand, a non-sparking wrench or socket shall be used.

8.2.2.1 Remove the 3/4 inch vent plug and bung.

NOTE: The supervisor shall contact ES&H and request that the drum be monitored.

NOTE: The ES&H representative shall monitor the drum to verify that the hydrogen concentration is 25% of the LEL or below.

8.2.2.2 Notify the supervisor when the 3/4 inch vent plug and bung are removed.

8.0 **PROCEDURE** (cont.)

8.2.2.3 If the hydrogen concentration is above 25% of the LEL, purge the drum with compressed or plant air until the hydrogen concentration is 25% of the LEL or below.

8.3 Monitoring Drums With Open Vent Holes

NOTE 1: The ES&H representative shall monitor the drum to verify that the hydrogen concentration is 25% of the LEL or below.

NOTE 2: A drum is found to have more than 25% of the LEL, then that drum must be purged before continuing handling and/or movement activities.

8.3.1 If the hydrogen concentration is above 25% of the LEL, purge the drum with compressed or plant air until the hydrogen concentration is 25% of the LEL or below.

8.4 Hydrogen Monitoring and Reventing of Overpacked Drums

8.4.1 Perform Steps 8.1.1 through 8.1.10 for each overpack drum.

NOTE: A drum may be overpacked several times.

8.4.2 Perform steps 8.1.4 through 8.10.2 for the inner drum(s).

8.4.3 Remove the bung caps from a new lid.

8.4.4 Install the new lid on the outermost overpack drum.

8.4.5 Perform steps 8.1.1 through 8.1.15.

9.0 **APPLICABLE FORMS**

9.1 FS-F-3569 "Hydrogen Monitoring Record"

9.2 FS-F-1990, -2220, 2221 "Nuclear Material Transfer-Receipt-Identification"

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TABLE 1
MATERIAL TYPE CODE (MTC) REQUIRING VENTING

MTC										
039[1]	040	041	042	046	055	056	070	075	076	080
081	084	098	103	104	107	109	110	111	112	113
114	118	119	120	124	125	128	129	130	131	136
137	141	153	161	218	219	220	221	222	223	224
225	227	228	229	230	231	232	233	234	235	236
237	238	239	240	241	242	243	244	245	246	251
252	254	260	261	262	263	300 and above				

(1) MTC 039 material with source codes 655-659 do not require vented drums and can be moved without restrictions.

HYDROGEN MONITORING RECORD

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ument Manufacturer:_____ Model:_____ Serial No.:_____ Calibration Date:_____

ator Name:_____ Badge No.:_____ Date:_____ Location:_____

Drum No.	Lot No.	Venting Method		Overpack		Initial Hydrogen Concentration (%LEL) (1) (2)			Time	Comment
		Hole	Plug	Yes	No	Opack 1	Opack 2	Inner		

(1) A drum may be overpacked more than once.

(2) If the drum was not overpacked, enter N/A in the "Opack" columns and enter the H concentration in the "Inner" column.

FS-F-3569

HYDROGEN MONITORING RECORD
FORM NO. FS-F-3569
Figure 1

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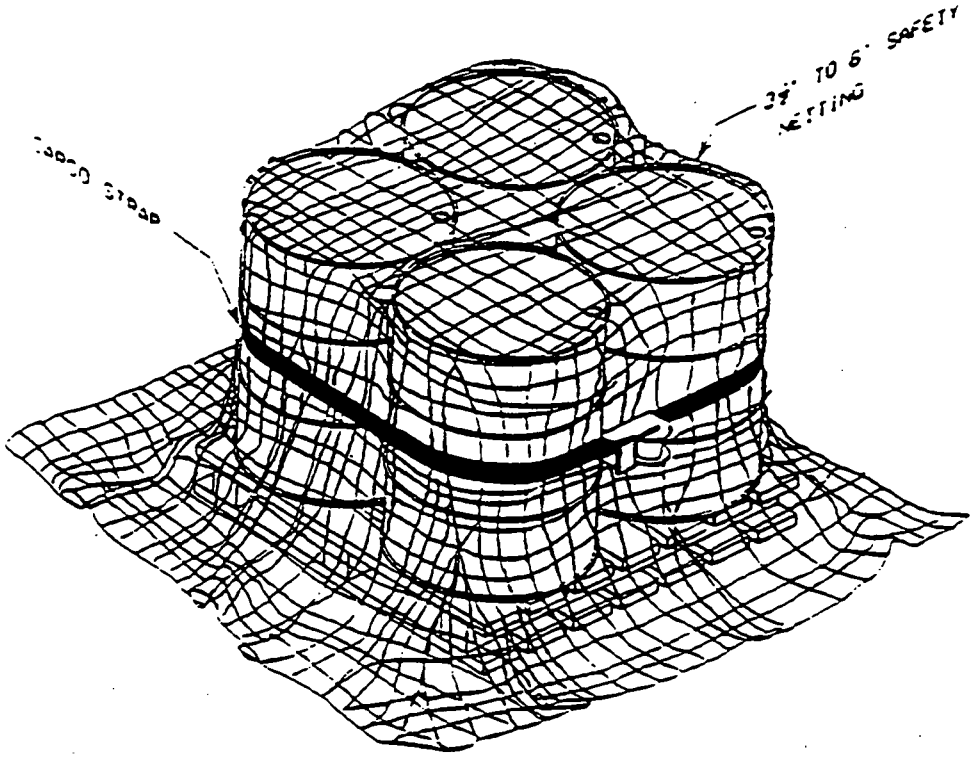

DRUM LID ARRESTING SCHEME
Figure 2

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NUCLEAR MATERIAL TRANSFER RECORD

CARD PL. NO. 581

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS BY BADGE NO.

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

P.O. NO.:	SOURCE:	MBA: (FROM)	PLANT:	NO. OF CONTAINERS OR ITEMS: NUMBER / DESCRIPTION
MATERIAL CLASS	MATERIAL TYPE	MBA: (TO)	PLANT:	GROSS WEIGHT:
LOT SEQUENCE NO.		STORAGE LOCATION:		TARE WEIGHT:
MATERIAL DESCRIPTION				
SHAPE CODE:				

SIGNATURES: (SHIPPER) (TRANSPORTATION) (RECEIVER)

FS-F-1990 (REV 3/9/92)

NUCLEAR MATERIAL RECEIPT RECORD

CARD PL. NO. 691

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS BY BADGE NO

P.O. NO.:	SOURCE	MBA: (FROM)	PLANT:	NO. OF CONTAINERS OR ITEMS: NUMBER / DESCRIPTION
MATERIAL CLASS	MATERIAL TYPE	MBA: (TO)	PLANT:	GROSS WEIGHT:
LOT SEQUENCE NO.		STORAGE LOCATION:		TARE WEIGHT
MATERIAL DESCRIPTION				
SHAPE CODE				

SIGNATURES: (SHIPPER) (TRANSPORTATION) (RECEIVER)

FS-F-2220 (REV 3/9/92)

MATERIAL IDENTIFICATION RECORD

CARD PL. NO. XX

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS BY BADGE NO

P.O. NO.:	SOURCE:	MBA: (FROM)	PLANT:	NO. OF CONTAINERS OR ITEMS: NUMBER / DESCRIPTION
MATERIAL CLASS:	MATERIAL TYPE:	MBA: (TO)	PLANT:	GROSS WEIGHT
LOT SEQUENCE NO.:		STORAGE LOCATION:		TARE WEIGHT:
MATERIAL DESCRIPTION				
SHAPE CODE:				

SIGNATURES: (SHIPPER) (TRANSPORTATION) (RECEIVER)

FS-F-2221 (REV. 3/9/92)

NUCLEAR MATERIAL TRANSFER-RECEIPT-IDENTIFICATION RECORD
FORMS FS-F-1990, 2220, AND 2221
FIGURE 3

RECORD OF ISSUE/REVISIONS

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DATE	REV. NO.	DESCRIPTION AND AUTHORITY
07-13-92	0	Requirement for procedure Hydrogen Monitoring and Removing NUC-FIL Vent Plugs from Drums per Request No. P92-154, initiated by B. L. Krupa.
08-04-92	1	Revised to update to current operations per Request No. P92-191, initiated by L. H. Hampshire.
09-11-92	2	Revised to add RCRA requirements per Request No. P92-211, initiated by L. H. Hampshire.
08-09-93	3	Revised to incorporate CIO C93-165 per Request P93-775 and update to conform with current Procedure Program requirements.

REMEDIATION SUPPORT OPERATIONS PROCEDURE	**Venting Potentially Explosive Drums**	**SOP 20-C-910** Area: As Applicable
(Signature on File) Authorization: R.L. Gardner, Facilities & Waste Operations Manager	Supersedes: 20-C-910 Dated: 03-15-92	Issue Date: 04-08-92

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1.0 **PURPOSE**

The purpose of this document is to provide the procedure for venting drums containing (or will contain) materials that could evolve hydrogen gas.

2.0 **APPLICABILITY**

This procedure is applicable to drums identified in Table 1.

3.0 **RESPONSIBILITIES**

3.1 Supervisors shall be responsible for the following:

3.1.1 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.2 Contacting Industrial Hygiene and/or Radiological Control to determine the appropriate respiratory protection for the process being performed.

3.1.3 Providing operators with the required respiratory protection.

3.1.4 Contacting ES&H for assistance in establishing an isolation zone around drum venting activities and determining if a "Radiation Work Permit" or a contamination survey is required prior to venting the drums.

3.1.5 Ensuring all required spill cleanup and venting supplies are available and in the isolation zone prior to venting.

3.1.6 Making the final determination to overpack a drum.

3.1.7 Ensuring that equipment, tools, and vehicles approved by ES&H are used.

3.1.8 Contacting Operable Unit 3 (OU3) Compliance to obtain a list of materials (MTC and SRC) that have been characterized and declared non-RCRA.

R 3.1.9 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.2 All personnel shall be responsible for complying with this SOP.

4.0 **DEFINITIONS**

4.1 Isolation Zone - A safety area isolated by barriers and controlled by supervision to prevent entry by unauthorized personnel.

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4.0 **DEFINITIONS** (cont.)

4.2 Overpack Drum - A container into which one or more smaller containers are placed.

4.3 Unsealed Drum - A drum that may or may not have a lid but does not have a locking ring.

R 5.0 **APPLICABLE DOCUMENTS**

R 5.1 Drivers

R 5.1.1 PO-D-026, "Site Services Document Program"

R 5.1.2 "FEMP Conduct of Operations Manual"

R 5.1.3 RM-0012, "Quality Assurance Program Description"

5.2 References

5.2.1 SOP 20-C-600, "Overpacking Defective Containers"

5.2.2 SOP 20-C-606, "Hazardous Material Spill Cleanup"

5.2.3 SOP 20-C-904, "General Nuclear Safety Requirements"

5.2.4 RM-0005, "FEMP Lot Marking and Color Coding System"

5.2.5 SSOP-0002, "Completing the Material Evaluation Form"

5.2.6 SSOP-0003, "Receiving, On-Site Movement, and Off-Site Shipment of Non-Radioactive Hazardous Material"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

R 6.1 Personnel shall have reviewed and be familiar with MSDSs for hazardous
R chemicals/materials that may be used or encountered.

6.2 Safety glasses with side shields and hearing protection shall be worn in the isolation zone when handling/venting filled, unvented drums of material which are sealed with a lid and locking ring.

6.3 Respiratory protection provided by the supervisor shall be worn when required by the supervisor or ES&H.

6.4 Only personnel inside an enclosed cab vehicle shall be permitted within the isolation zone during venting.

6.5 Leather-palm gloves shall be worn when handling drums and while handling sharp or abrasive materials.

6.6 Metl-X fire extinguishers shall be present while drums are being vented.

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.) **5692**

6.7 Forklift and BOBCAT operators and the supervisor in charge of venting activities shall have communications equipment available.

6.8 An isolation zone shall be established around drum venting and moving activities.

6.9 Venting tools shall be made of non-sparking AMPCO metal.

6.10 Outer protective gloves and chemical cover goggles shall be worn while draining water from drums.

6.11 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.12 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

R 7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the Step or Item to which they apply.

8.0 PROCEDURE

8.1 Venting Empty or Unsealed Drums Prior to Filling

8.1.1 Check Table 1 to ensure that materials to be contained requires a vented drum.

8.1.2 Notify the supervisor that drums require venting and inform the supervisor of the MTC and SRC of the material to be drummed.

8.0 **PROCEDURE** (cont.)

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8.1.3 Obtain drums that are color coded (Refer to RM-0005) for depleted, normal, or enriched material, depending on the material to be drummed.

8.1.4 Stencil the drum with identification markings (Refer to RM-0005).

NOTE: Material that is required to be stored inside or under shelter is listed in Table 2.

8.1.5 If material is to be stored outside, proceed as follows:

8.1.5.1 Obtain a bung type drum lid and NUC-FIL 013 vent plug from the supervisor.

8.1.5.2 Remove the bung plug from the lid.

8.1.5.3 Install the vent plug in the bung hole.

8.1.6 If the material is to be stored inside or under shelter (Refer to Table 2), proceed as follows:

NOTE: The method used to make the hole and required tools shall be specified by the supervisor.

8.1.6.1 Notify the supervisor that the drum is ready for venting.

NOTE: Vent holes shall be 1 inch (± 1/4 inch) below the top rim of the drum.

8.1.6.2 Ensure that the location selected for the vent hole does not interfere with the lid locking ring installation or with the drum markings.

8.1.6.3 Make a 1/4 inch to 1 inch hole in the side of the drum.

8.1.6.4 Make a second vent hole in the drum, 180 degrees from the first hole.

NOTE: The word VENT shall be 1-1/2 to 2 inches high and located under the bottom chime at the drum seam (drum centerline).

8.1.7 Using a stencil and white paint, mark the side of the drum with the word VENT to indicate the drum has been vented.

8.1.8 Complete a "Drum Venting Record" sheet, Form FMPC-OPR-3228 (See Figure 1).

8.1.9 Fill the drum per the SOP for the process being performed.

8.1.10 Install the lid and locking ring on the filled drum.

8.1.11 Notify the supervisor that venting is complete.

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8.0 **PROCEDURE** (cont.)

NOTE 1: The supervisor shall notify the MC&A Specialist of the location of the drum(s) if the drums were moved to a new location.

NOTE 2: The MC&A Specialist shall document drum location.

NOTE 3: Drums with side vent holes shall be moved inside or into a covered storage area.

8.1.12 Move the drum to the storage area specified by the supervisor.

WARNING

Generation of Hydrogen Gas in a sealed drum can increase to flammable or explosive concentrations that can cause fire and/or explosion.

8.2 Handling Sealed Drums Prior to Venting

NOTE: Forklift and BOBCAT Operators shall maintain radio contact with the supervisor at all times.

8.2.1 Check the communications equipment.

8.2.1.1 If communication equipment is not available or not operating, notify the supervisor.

8.2.2 Check to ensure the BOBCAT is equipped with a non-sparking punch.

NOTE: The supervisor shall supply non-sparking punches stamped on the side with AMPCO.

8.2.2.1 If not, notify the supervisor.

8.2.2.2 Install the non-sparking punch furnished by the supervisor.

8.2.3 If a containment pan is not being used, establish a spill containment area as follows:

NOTE: The supervisor shall direct establishment of the spill containment area per SOP 20-C-606 and furnish the required spill cleanup supplies.

8.2.3.1 Notify the supervisor that a spill containment area is required.

8.2.3.2 Inspect the proposed area for cracks or holes in the concrete and/or established drains, storm sewer openings, or sumps.

8.2.3.3 If penetrations of the concrete are found, notify the supervisor.

8.2.3.4 Proceed per 20-C-606.

8.0 PROCEDURE (cont.)

8.2.4 If a containment pan is being used, proceed as follows:

8.2.4.1 Obtain the pan from the supervisor.

NOTE: Pans shall be within 100 feet of the drum being vented.

8.2.4.2 Place the pan near the drum to be vented.

NOTE: The supervisor shall check Table 1 to ensure the drums may be vented and contact OU3 Compliance to obtain a list of materials (MTC and SRC) that have been characterized and declared non-RCRA.

8.2.5 Notify the supervisor that area is ready for drum venting.

8.2.6 Establish an isolation zone per Item 8.4.

NOTE 1: Only the forklift and BOBCAT drivers shall enter the exclusion zone until venting is complete.

NOTE 2: Due to a slight explosive potential of the material being moved and the isolation zone restrictions imposed, drums for venting are excluded from tie down requirements in SSOP-0003.

8.2.7 Using an enclosed cab forklift, move the drum(s) or pallet(s) of drums into the spill containment area if a containment area was established, or into the containment pan.

NOTE: Only drums containing materials listed in Table 2 and stored inside or under cover may have vent holes.

8.2.8 Using an enclosed vehicle to approach the drum, visually inspect the drums as follows:

8.2.8.1 Check for obvious damage such as rust, holes, dents, bulges, leaks, or other damage that could cause loss of drum integrity.

8.2.8.2 Check for vent holes, vent plugs, or for VENT stencilled on the side of the drum.

NOTE: The supervisor shall record the drum condition on the "Drum Venting Record" sheet and specify the handling method.

8.2.8.3 Notify the supervisor by radio of obvious damage or deformities.

8.0 **PROCEDURE** (cont.)

NOTE 1: The Supervisor shall specify where to move the drums and shall notify the MC&A specialist of the location of the drums if the drums are moved to a new location.

NOTE 2: The MC&A Specialist shall document drum location.

8.2.8.4 If the drums have a vent hole, vent plug, or VENT stencilled on the side to indicate venting, use the forklift to move the drum(s) or pallet(s) of drums into storage or to a staging area within the isolation zone for inspection and possible overpacking.

8.2.9 If the drum has not been vented and is intact, or approval has been granted for handling, vent the drum per Item 8.3 or 8.4.

WARNING

All personnel except the forklift and BOBCAT operators shall be outside the isolation zone during venting.

8.3 Venting Sealed Drums

8.3.1 Check Tables 1 to ensure the drum(s) requires venting.

NOTE 1: The supervisor shall contact Operable Unit 3 Compliance to obtain a list of materials (MTC & SRC) that have been characterized and declared non-RCRA.

NOTE 2: The supervisor shall specify the staging area to be used following venting.

8.3.2 Notify the supervisor that the drum requires venting and the MTC and SRC of the material in the drums.

8.3.3 Using the punch equipped BOBCAT, puncture the lid of the drum.

CAUTION

Vented drums shall stand undisturbed for fifteen minutes for hydrogen dissipation.

8.3.4 After a fifteen minute waiting period, use the enclosed cab forklift and move the vented drum(s) or pallet(s) of drums to the staging area specified by the supervisor.

8.0 **PROCEDURE** (cont.)

NOTE 1: Fifteen minutes after notification, the supervisor shall end the isolation zone.

NOTE 2: Personnel may approach and handle the vented drums when the isolation zone is ended.

8.3.5 Notify the supervisor by radio after the last drum has been vented.

8.3.6 Remove the lid and locking ring from the drum.

8.3.7 Check inside the drum for visible free standing water.

8.3.7.1 If water is found, notify the supervisor.

NOTE: The supervisor shall approve removal of water from the drum.

8.3.8 At the supervisors direction, drain the water from the drum per Item 8.5.

8.3.9 Perform Step 8.1.5 and 8.1.7 or 8.1.6 and 8.1.7 to vent the drum.

NOTE: If the drum will be stored inside and contains material listed in Table 2, the vented lid may be reused.

8.3.10 If the drum does not have side vents, install a lid, equipped with a vent plug, on the drum.

8.3.10.1 If the drum has side vents, install a new, intact lid on the drum.

8.3.11 Secure the lid with a lock ring.

8.3.12 Discard unused punctured lids in a box designated for contaminated scrap metal.

NOTE: The supervisor shall make the final determination to overpack a drum.

8.3.13 At the supervisors direction, overpack the drum(s) as follows:

8.3.13.1 Overpack drums per SOP 20-C-600.

8.3.13.2 Perform Steps 8.1.5 and 8.1.7 or 8.1.6 and 8.1.7 to vent the overpack drum(s).

8.0 **PROCEDURE** (cont.)

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NOTE 1: The supervisor shall notify the MC&A specialist of the location of the drum(s) if the drums were moved to a new location.

NOTE 2: The MC&A Specialist shall document drum location.

8.3.14 Using a forklift, move the vented drum(s) or vented overpack drums to a covered storage area specified by supervision.

8.3.14.1 If the drum contains nuclear material and is to be moved to another MBA, complete a "Nuclear Material Transfer-Receipt- Identification" card packet, Forms FS-F-1990, -2220, and -2221 (See Figure 2).

NOTE: The supervisor shall forward the cards to MC&A.

8.3.14.2 Turn the card packet in to the supervisor.

8.3.15 Complete Form FMPC-OPR-3228, and give the form to the supervisor.

NOTE: An isolation zone shall be established when venting sealed drums to prevent entry into the area by unauthorized personnel.

8.4 Establishing an Isolation Zone

8.4.1 Erect barricades as follows:

NOTE: Barricades shall be positioned a minimum of 100 ft. away from venting/staging activities.

8.4.1.1 Place caution tape and/or signs across all roads, walkways, and open areas leading into the isolation zone.

8.4.1.2 Place caution tape and/or signs across all entrances/exits from buildings within 100 ft. of the working area.

NOTE: Once approval is obtained, the same configuration may be set up when specified by the supervisor without completing a new form.

8.4.2 Check with the supervisor to determine if a new "Isolation Zone Approval Record" form is required.

8.4.2.1 If the form is required, diagram the barricade locations on an "Isolation Zone Approval Record", Form FMPC-OPR-3311 (See Figure 3).

NOTE: The supervisor shall contact ES&H for inspection and approval.

8.4.3 Notify the supervisor that the barricades are erected and give the supervisor the approval record form (if a form was filled out).

8.5 Draining Drums

8.5.1 Install an intact lid and locking ring on the drum.

8.0 **PROCEDURE** (cont.)

8.5.2 Using the forklift, transport the drum(s) or pallet of drums to a radiologically controlled plant sump area.

8.5.3 Remove the locking ring and lid from the drum.

8.5.4 Place the inlet line from wet/dry vacuum or portable pump in the drum.

NOTE: Non-RCRA liquids shall be processed in the site water treating system.

8.5.5 If the material has been characterized and declared non-RCRA, connect the discharge line to the sump.

NOTE: Containers of uncharacterized or RCRA liquids shall be emptied into drums.

8.5.6 If the material is uncharacterized or has been declared RCRA, prepare collection drums for each material lot code as follows:

8.5.6.1 Visually check the source drum lot code and material against the containment drum lot code and material.

8.5.6.2 If there is a different lot code or liquids of the same lot code have a different appearance, set the drum to be drained aside.

8.5.6.3 Notify the supervisor.

NOTE: Liquids having the same lot code and appearance (such as color and consistency) may be contained on the same collection drum.

8.5.6.4 Obtain clean, empty, tare weighed bung-type drums that are color-coded (Refer to RM-0005) for the type of material (depleted, normal, or enriched uranium).

NOTE: Use 010 or 012 for the MTC.

8.5.6.5 Fill out a "Material Evaluation Form," FMPC-OPR-3252, except use a new MTC, per SSOP-0002.

8.5.6.6 Stencil the collection drum(s) with the new MTC and the same lot markings as the source drum.

8.5.6.7 Place the wet/dry vacuum or portable pump discharge line in the collection drum.

WARNING

Keep hands out of drum while pumping liquid.

NOTE: The vacuum shall be started and operated in accordance with the applicable SOP for the unit being used.

8.5.7 Start the wet/dry vacuum or pump and remove as much water as possible.

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8.0 **PROCEDURE** (cont.)

NOTE: If pumping uncharacterized/RCRA material, leave the outlet hose in the collection drum.

8.5.8 When draining is completed, remove the vacuum/pump suction line from the drum being drained.

8.5.9 If the uncharacterized/RCRA material was transferred, decontaminate the vacuum or pump as follows:

8.5.9.1 Connect the vacuum/pump suction line to a process water outlet.

8.5.9.2 Open the Water Outlet Valve.

8.5.9.3 Start the vacuum/pump.

8.5.9.4 When at least three pump volumes of water have been pumped through the unit, shut off the vacuum/pump.

8.5.9.5 Disconnect the suction line from the process water outlet.

8.5.9.6 Remove the vacuum/pump outlet hose from the collection drum.

8.5.10 Install a lid and locking ring on the drum(s) of drained materials.

8.5.11 Process the uncharacterized/RCRA liquid collection drums as follows:

8.5.11.1 Obtain a NUC-FIL 013 vent plug from the supervisor.

8.5.11.2 Take a sample from the drum(s) of collected liquids for fingerprint analysis (Refer to SSOP-0002).

8.5.11.3 Install the vent plug in the bung hole.

8.5.11.4 Using a forklift, move the drum to the scale to be used for weighing the liquid.

8.5.11.5 Weigh the drum(s) per the applicable SOP for the scale being used.

8.5.11.6 Stencil the drum with the gross and net weights.

8.5.11.7 Complete and "Item Production/Certification/Identification" (65) card, Form FS-F-1945-XX (See Figure 4).

NOTE: Write the original MTC in the blank space between the PLANT TO/MBA TO boxes and the heavy bar.

8.5.11.8 Record the MTC of the source material on the 1945-XX card.

8.5.11.9 If the drums are to go to a new MBA, complete a "Nuclear Material Transfer-Receipt-Identification" card packet, Forms FS-F-1990, -2220, and -2221 (See Figure 2).

8.0 **PROCEDURE** (cont.)

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8.5.11.10 Notify the supervisor that draining is completed.

NOTE: The supervisor shall transmit the 1945-XX and, if applicable, the 1990/2220/2221 card packet to the MC&A Specialist.

8.5.11.11 Give the supervisor all documentation completed for the drums of liquid.

NOTE: Liquid from uncharacterized drums shall be moved to the Plant 1 Pad and liquid from RCRA drums to an approved RCRA Storage Facility.

8.5.11.12 Using a forklift, move the drums of liquid to Plant 1 or as specified by the supervisor.

8.5.12 Using a forklift, transport the drained drum(s) or pallet of drums to the staging area designated by the supervisor.

9.0 **APPLICABLE FORMS**

9.1 Figure 1 - FMPC-OPR-3228, "Drum Venting Record"

9.2 Figure 2 - FS-F-1990, -2220, -2221, "Nuclear Material Transfer-Receipt-Identification"

9.3 Figure 3 - FMPC-OPR-3311, "Isolation Zone Approval Record"

9.4 Figure 4 - FS-F-1945-XX, "Item Production/Certification/Identification"

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R TABLE 1
MATERIAL REQUIRING VENTING[2]

R

MDC										
039[1]	040	041	042	046	055	056	070	075	076	080
081	084	098	103	104	107	109	110	111	112	113
114	118	119	120	124	125	128	129	130	131	136
137	141	153	161	218	219	220	221	222	223	224
225	227	228	229	230	231	232	233	234	235	236
237	238	239	240	241	242	243	244	245	246	251
252	254	260	261	262	263	300 and above	-	-	-	-

(1) MTC 039 with source codes 55-659 do not require vented drums and can be moved without restrictions.

R (2) Pyrophoric material shall be transported off-site in DOT 7A Type A containers
R non-vented).

TABLE 2
SOLID METAL WASTES/PRODUCTS[1]

R

MDC										
055	056	103	104	110	111	112	118	119	120	129
130	131	136	218	219	220	221	222	223	224	225
227	228	229	230	231	232	233	234	235	236	237
238	239	240	241	242	243	244	245	246	251	252
254	260	261	262	263	300 and above	-	-	-	-	-

(1) All listed material requires storage inside or under a shelter.

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FMPC
DRUM VENTING RECORD

Plant: _____

DRUM NUMBER	LOT NUMBER	MTC/SRC	DAMAGED/DEFORMED		DRUM VENTED		DATE	OPERATOR NAME AND BADGE NUMBER	OVERPACK	
			YES	NO	YES	NO			YES	NO

REMARKS: _____

FMPC-OPR-3228 (2-12/91)

DRUM VENTING RECORD
FMPC-OPR-3228
Figure 1

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NUCLEAR MATERIAL TRANSFER RECORD

CARD PL.	CARD NO.
	68

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS. BY BADGE NO.

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

P.O. NO	SOURCE	MBA (FROM)	PLANT	NO. OF CONTAINERS OR ITEMS	
MATERIAL CLASS	MATERIAL TYPE			NUMBER	DESCRIPTION
LOT SEQUENCE NO		MBA (TO)	PLANT	GROSS WEIGHT	
MATERIAL DESCRIPTION		STORAGE LOCATION		TARE WEIGHT	
SHAPE CODE					

SIGNATURES

FS-F-1990 (REV. 3/9/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

NUCLEAR MATERIAL RECEIPT RECORD

CARD PL.	CARD NO.
	69

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS BY BADGE NO.

P.O. NO.	SOURCE	MBA (FROM)	PLANT	NO. OF CONTAINERS OR ITEMS	
MATERIAL CLASS	MATERIAL TYPE			NUMBER	DESCRIPTION
LOT SEQUENCE NO		MBA (TO)	PLANT	GROSS WEIGHT	
MATERIAL DESCRIPTION		STORAGE LOCATION		TARE WEIGHT	
SHAPE CODE					

SIGNATURES

FS-F-2220 (REV. 3/9/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

MATERIAL IDENTIFICATION RECORD

CARD PL.	CARD NO.
	XX

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS BY BADGE NO.

P.O. NO	SOURCE	MBA (FROM)	PLANT	NO. OF CONTAINERS OR ITEMS	
MATERIAL CLASS	MATERIAL TYPE			NUMBER	DESCRIPTION
LOT SEQUENCE NO		MBA (TO)	PLANT	GROSS WEIGHT	
MATERIAL DESCRIPTION		STORAGE LOCATION		TARE WEIGHT	
SHAPE CODE					

SIGNATURES

FS-F-2221 (REV. 3/9/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

NUCLEAR MATERIAL TRANSFER-RECEIPT-IDENTIFICATION RECORD
FS-F-1990, -2220, -2221
Figure 2

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FMPC
ISOLATION ZONE APPROVAL RECORD

Date: _____

Subject: _____

INSTRUCTIONS: Draw a diagram showing the location of the isolation zone.
(Show location of drum storage and venting activities, barriers, buildings, etc.)

ADDITIONAL REQUIREMENTS: *(To be completed by IRS&T as needed.)*

_____
_____
_____
_____
_____
_____

PLAN APPROVED:	IRS&T.	DATE.	EXPIRATION DATE
	SUPERVISOR	DATE.	

FMPC-OPR-3311 (2/20/91)

ISOLATION ZONE APPROVAL RECORD
FMPC-OPR-3311
Figure 3

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CARD XX **ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION**

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA
				EMPTY CONTAINER AT START				
				RUST HOLES OR DENTS				
				MATERIAL IS AS CODED			PLANT TO	MBA TO
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS				
				LIQUIDS IN CONTAINER				
PACKAGE TYPE				MINIMUM OF VOID SPACE				
PACKAGE SIZE				PACKAGE SECURED				
				DRAIN PLUG SECURED				

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-XX (REV. 3/19/92)

CARD 65 **ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION**

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA
				EMPTY CONTAINER AT START				
				RUST HOLES OR DENTS				
				MATERIAL IS AS CODED			PLANT TO	MBA TO
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS				
				LIQUIDS IN CONTAINER				
PACKAGE TYPE				MINIMUM OF VOID SPACE				
PACKAGE SIZE				PACKAGE SECURED				
				DRAIN PLUG SECURED				

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-65 (REV. 3/19/92)

CARD 66 **ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION**

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA
				EMPTY CONTAINER AT START				
				RUST HOLES OR DENTS				
				MATERIAL IS AS CODED			PLANT TO	MBA TO
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS				
				LIQUIDS IN CONTAINER				
PACKAGE TYPE				MINIMUM OF VOID SPACE				
PACKAGE SIZE				PACKAGE SECURED				
				DRAIN PLUG SECURED				

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-66 (REV. 3/19/92)

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION
FS-F-1945-XX
Figure 4

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RECORD ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
03-15-91	0	Issued per CIO C91-010 (P91-117).
05-14-91	1	Revised to incorporate requirements for venting drums of RCRA/suspect-RCRA material per Request P91-131, initiated by B. L. Krupa.
06-06-91	2	Revised to incorporate CIOs C91-018 (P91-221), C91-019 (P91-222), C91-020 (P91-223), C91-030 (P91-245), and C91-031 (P91-246).
12-18-91	3	Revised to incorporate C91-078 per Request No. P91-635.
04-08-92	0	Reissued to update technical content per Request P91-248, initiated by B. L. Krupa.
05-20-93	1	Revised to incorporate CIO C92-159 per Request No. P93-729 and C93-162 per Request P93-728 and update to conform to Procedure Program requirements.

REMEDIATION SUPPORT OPERATIONS PROCEDURE	PREPARATION FOR AND MOVEMENT OF UNVENTED DRUMS	20-C-918 5692 Area: As Applicable

(Signature On File) Authorization: G.L. Hazlewood, Waste Treatment and Storage Manager	Supersedes: 20-C-918 Dated: 02-01-94	Issue Date: 04-21-94

1.0 PURPOSE

NON-CONTROLLED COPY

The purpose of this document is to provide the procedure for safely moving and handling unvented drums containing material that could potentially contain or generate hydrogen or biologically-generated gas.

2.0 APPLICATION

This procedure is applicable to handling and moving unvented drums containing material identified by the material codes listed in Table 1, 2, and 3.

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3.0 RESPONSIBILITIES

3.1 Supervisors shall be responsible for the following:

3.1.1 Ensuring that personnel are qualified per the established training requirements identified by Division Manager.

3.1.2 Contacting Industrial Hygiene and/or Radiological Control to determine the appropriate respiratory protection and personal protective equipment for the task being performed.

3.1.3 Issuing operators the required respiratory protection and protective equipment.

3.1.4 Contacting Radiological Control and /or Industrial Hygiene for assistance in establishing an isolation zone around drum handling activities.

3.1.5 Obtaining and posting a "Radiation Work Permit", a "Chemical Hazardous Work Permit", or a contamination survey (if required prior to handling the drums).

3.1.6 Ensuring that spill cleanup and venting supplies are available at the isolation zone per SOP 20-C-606.

3.1.7 Ensuring that equipment, tools, and vehicles are approved by Radiological Control and/or Industrial Hygiene.

3.1.8 Contacting Waste Characterization to determine if the drums to be handled contain Resource Conservation and Recovery Act (RCRA), non-RCRA or uncharacterized materials.

3.1.9 Contacting Transportation to arrange for drums to be moved.

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3.0 RESPONSIBILITIES (cont.)

3.1.10 Contacting Radiological Control and/or Industrial Hygiene for specific drum movement requirements.

3.2 **Environmental Safety and Health (ES&H)** shall be responsible for the following:

3.2.1 Approving isolation zones, equipment, and tools used in this procedure.

3.2.2 Providing the appropriate field personnel for this operation.

3.2.3 Providing determination for specific drum movement requirements and directing the supervisors in these requirements.

3.3 **Operators** shall be responsible for the following:

3.3.1 Complying with this Standard Operating Procedure (SOP).

3.3.2 Wearing respiratory protection and Personal Protective Equipment (PPE) is supplied by the supervisor.

3.4 **Waste Characterization** shall determine the type of waste: RCRA, non-RCRA or uncharacterized.

4.0 DEFINITIONS

4.1 Isolation Zone - A safety area isolated by barriers and controlled by supervision to prevent entry by unauthorized personnel.

5.0 APPLICABLE DOCUMENTS

5.1 Drivers

5.1.1 PO-D-026, "Site Service Document Program"

5.1.2 RM-0012,"Quality Assurance Program Description."

5.2 References

5.2.1 SOP 20-C-606, "Hazardous Material Spill Clean-up"

5.2.2 SOP 20-C-910, "Venting Potentially Explosive Drums"

5.2.3 SOP 20-C-017, "Movement of RCRA and Hazardous Waste"

5.3 Information Sources

5.3.1 SOP 20-C-917, "Hydrogen Monitoring & Removing NUC-FIL Vent Plugs from Drums"

5.3.2 SOP 20-C-630, "Receipt Inspection, Storage, and Storage Inspection of Hazardous Waste"

6.0 INDUSTRIAL HYGIENE AND RADIOLOGICAL CONTROL REQUIREMENTS

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6.1 An isolation zone shall be established per this procedure while handling or moving unvented, unnetted drums identified and listed in Table 1, 2 and as applicable Table 3.

6.2 Safety glasses with side shields shall be worn under a full face shield in the isolation zone when handling/monitoring drummed material covered by this procedure.

6.3 Respiratory protection and/or PPE provided by the supervisor shall be worn when required by the supervisor, Radiological Control and/or Industrial Hygiene. Full face respirators shall be permitted in lieu of safety glasses and faceshield.

6.4 Hard hats and hearing protection shall be worn in the isolation zone.

6.5 Only personnel involved in the handling or moving of drums shall be permitted within the isolation zone as stated on the permit for the task being performed, along with the PPE requirements.

6.6 Leather palm gloves shall be worn while handling/moving drums and while handling sharp or abrasive edges.

6.7 A minimum of two METL-X fire extinguisher shall be present within the isolation zone(s) while Table 1, 2 and 3 drums are being handled or moved.

6.8 Forklift operators and the supervisor in charge of drum movement activities shall have communications equipment available.

6.9 Drums must be surveyed and fitted with nylon nets before being moved out of the isolation zone within the controlled areas.

6.10 Nylon safety nets shall conform to ANSI-A10.11 and OSHA 1926.105.

6.11 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.0 INDUSTRIAL HYGIENE AND RADIOLOGICAL CONTROL REQUIREMENTS (cont.)

6.12 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the Step or Item to which they apply.

7.2 The supervisor shall contact Materials Control and Accountability (MC&A) and obtain the locations and material codes (Refer to Table 1 and Table 2) of drums requiring movement/handling.

7.3 The supervisor shall contact Waste Characterization to determine if the drums to be moved contain RCRA, non-RCRA, or uncharacterized materials.

7.4 If the Waste Characterization determination confirms the presence of RCRA or uncharacterized materials, the supervisor shall ensure that the material is transferred to a hazardous waste storage unit per SOP 20-C-017.

8.0 PROCEDURE

OPERATOR

WARNING

Concentrations of hydrogen gas in unvented drums may cause a fire or explosion.

8.1 Establishing an Isolation Zone for Movement of Unvented Drums Listed in Table 1 or Table 2

NOTE: Drums containing materials identified by the material codes listed in Table 2 require venting. This procedure shall be followed while handling or moving these drums to the designated area for venting. Venting of these drums shall be conducted per SOP 20-C-910.

8.1.1 Erect barricades as follows:

NOTE: Barricades shall be positioned a minimum of 50 ft. away from venting/staging activities.

8.1.2 Place caution tape and/or signs across all roads, walkways, and open areas leading into the isolation zone.

8.1.3 Place caution tape and/or signs across all entrances/exits from buildings within 50 ft. of the working area.

8.0 PROCEDURE (cont.)

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NOTE: Once approval is obtained, the same configuration may be set up when specified by the supervisor without completing a new form.

8.1.4 Check with the supervisor to determine if a new "Isolation Zone Approval Record" form is required.

8.1.5 If the form is required, diagram the barricade locations on an "Isolation Zone Approval Record", Form FMPC-OPR-3311 (See Figure 1).

NOTE: Contact ES&H for inspection and approval.

OPERATOR

8.1.6 Notify the supervisor that the barricades are erected and give the supervisor the approval record form (if a form was completed).

SUPERVISOR

8.1.7 Contact ES&H to determine specific drum movement requirements.

OPERATOR

8.2 Installing The safety Net and Movement of Drums

NOTE: If the pallet to be moved containing the unvented drum(s) are stacked, use an enclosed cab forklift to set the pallet of drums to the ground level within the established isolation zone, and install the safety net. Only the forklift driver is permitted inside the isolation zone while unvented and unnetted drums are being moved into position for netting. This also applies if a drum grab is being used to remove a single drum from a skid.

WARNING 1

Nylon safety netting shall be a minimum of 8 feet by 8 feet in size when covering a single drum or single pallet of drums.

WARNING 2

Ensure that the safety net does not touch drums on adjacent pallets.

WARNING 3

Personnel shall keep hand and face away from top of drums when handling drums.

8.2.1 Install safety net as shown in Figure 2 per supervisor instructions.

8.2.1.1 Once the safety net has been installed, remove the Isolation Zone from the drum area.

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8.0 **PROCEDURE** (cont.)

8.2.2 If the drum contains nuclear material and is to be moved to another Material Balance Account (MBA), complete a "Nuclear Material Transfer-Receipt-Identification" card packet, Forms FS-F-1990, If the drum is LLW then complete a 68/69/XX card (See Figure 3).

8.2.3 Contact Transportation to move the pallet of drums to an indoor storage or covered storage area, or best available area as directed by Waste Storage.

8.2.4 After the pallet of drums has been moved to a new location, establish an Isolation Zone per Step 8.1.

8.2.5 Once the Isolation Zone is established, remove the safety net.

WARNING 1

Keep hands and face away from top of drums when handling to avoid injury.

WARNING 2

Only the forklift driver is permitted inside the Isolation Zone while unvented and unnetted drums are being moved into position.

8.2.6 If the pallet is to be stacked, use an enclosed cab forklift to stack the pallet of drums.

8.2.7 After drums are stacked, remove the Isolation Zone.

8.2.8 Give the card packet to the supervisor for forwarding to MC&A.

SUPERVISOR

8.2.9 Notify MC&A of the location of drum(s).

8.2.10 Request MC&A to document drum location.

OPERATOR

8.3 Drum Movement Preparation for Materials Listed in Table 3

NOTE 1: Materials listed in Table 3 have the potential to generate biological gas if they are stored in a tightly sealed drum.

NOTE 2: Drums containing materials listed in Table 3 may be moved without a safety net or venting if no bulges or deformities are observed.

8.3.1 Inspect the drum for bulges or other deformities prior to moving.

8.0 **PROCEDURE** (cont.)

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8.3.2 If a bulge or deformity is observed, or if there is any doubt whether or not the lid or drum is bulging, install a safety net as shown in Figure 2 per the supervisor instructions.

NOTE: A "popping" noise may be heard when the drum clamp ring is loosened. This is the sound of the biological gas pressure being released.

8.3.3 Loosen the drum clamp ring while the safety net is covering the drum.

8.3.4 Allow the drum to vent for at least 15 minutes.

8.3.5 Tighten the clamp ring.

8.3.6 Remove the safety net.

8.3.7 Perform steps 8.2.2 through 8.2.8 to move the drum.

9.0 **APPLICABLE FORMS**

9.1 Form No. FS-F-1990, 68/69/XX, "Nuclear Material Transfer-Receipt-Identification Card Packet"

9.2 Form No. FMPC-OPR-3311, "Isolation Zone Approval Record"

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TABLE 1

MATERIALS POTENTIALLY CONTAINING FREE REACTIVE METAL AND STORED IN UNVENTED DRUMS THAT REQUIRE THE USE OF A NYLON SAFETY NET.

MATERIAL CODE	DESCRIPTION
017	Contaminated Graphite-Uncrushed But Broken Into Large Pieces
019	Contaminated Magnesium
021	Drum Decontamination Residues: Wet MgF_2
023	Oily MgF_2
024	Contaminated Graphite-Crushed
034	MgF_2 For Milling or Discard
035	MgF_2 or CaF_2, Good Liner Material
036	MgF_2, - 20 Mesh, High Free Metal For Plant 8 Roasting (Enriched Only)
037	MgF_2, Ground
038	MgF_2 + 20 Mesh, Low U Content, To Be Crushed
057	Wet Crushed Slag From Furnace Pot Blowouts
064	Dust Collector Residues, Pyrophoric, High Fluoride
071	Rockwell Cleanings
077	Dry Crushed Slag From Furnace Pot Blowouts
079	Unfired Reduction Charges Plus Mg F_2 From Liner Cave-ins
134	U_3O_8 For Reoxidation
135	Dust Collector Residue, High Fluoride, Greater Than 20% Assay

TABLE 2
MATERIAL REQUIRING VENTING

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MDC										
039[1]	040	041	042	046	055	056	070	075	076	080
081	084	098	103	104	107	109	110	111	112	113
114	118	119	120	124	125	128	129	130	131	136
137	141	153	161	218	219	220	221	222	223	224
225	227	228	229	230	231	232	233	234	235	236
237	238	239	240	241	242	243	244	245	246	251
252	254	260	261	262	263	300 and above	-----	-----	-----	----

[1] MTC 039 with source codes 55-659 do not require vented drums and can be moved without restrictions.

TABLE 3
MATERIAL TYPES WITH A POTENTIAL FOR
BIOLOGICAL GAS PRODUCTION

MATERIAL CODE	DESCRIPTION
001	Waste Slurries
007	Waste Slurries
008	Grit Blast Residue
009	Waste Machining Coolant
010	Contaminated Water, Chlorine
012	Contaminated Water, Non-Chlorine

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FMPC
ISOLATION ZONE APPROVAL RECORD

Date: _____

Subject: _____

INSTRUCTIONS: Draw a diagram showing the location of the isolation zone.
(Show location of drum storage and venting activities, barriers, buildings, etc.)

ADDITIONAL REQUIREMENTS: *(To be completed by IRS&T as needed.)*

PLAN APPROVED:	IRS&T	DATE	EXPIRATION DATE
	SUPERVISOR	DATE	

FMPC-OPR-3311 (2/20/91)

ISOLATION ZONE APPROVAL RECORD
Figure 1

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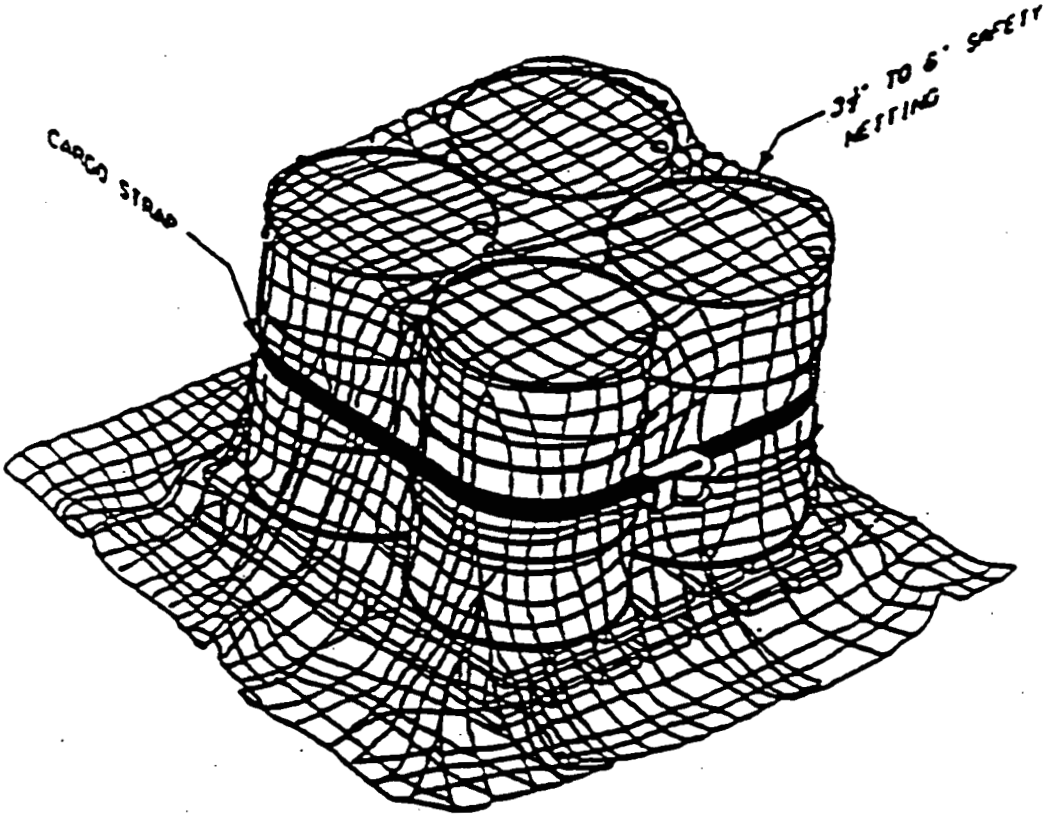

SAFETY NET APPLICATION
Figure 2

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NUCLEAR MATERIAL TRANSFER RECORD

CARD PL.	CARD NO.
	68

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS BY BADGE NO.

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

P.O. NO.: | SOURCE:
MATERIAL CLASS: | MATERIAL TYPE:
LOT SEQUENCE NO.:
MATERIAL DESCRIPTION
SHAPE CODE:

MBA: (FROM) | PLANT:
MBA: (TO) | PLANT
STORAGE LOCATION:

NO. OF CONTAINERS OR ITEMS
NUMBER | DESCRIPTION
GROSS WEIGHT:
TARE WEIGHT:

SIGNATURES

FS-F-1990 (REV. 3/8/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

NUCLEAR MATERIAL RECEIPT RECORD

CARD PL.	CARD NO.
	69

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS BY BADGE NO.

P.O. NO.: | SOURCE:
MATERIAL CLASS: | MATERIAL TYPE
LOT SEQUENCE NO.:
MATERIAL DESCRIPTION
SHAPE CODE:

MBA: (FROM) | PLANT:
MBA: (TO) | PLANT:
STORAGE LOCATION

NO. OF CONTAINERS OR ITEMS
NUMBER | DESCRIPTION
GROSS WEIGHT:
TARE WEIGHT:

SIGNATURES

FS-F-2220 (REV. 3/8/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

MATERIAL IDENTIFICATION RECORD

CARD PL.	CARD NO.
	XX

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS BY BADGE NO

P.O. NO. | SOURCE
MATERIAL CLASS. | MATERIAL TYPE
LOT SEQUENCE NO.:
MATERIAL DESCRIPTION
SHAPE CODE.

MBA: (FROM) | PLANT
MBA: (TO) | PLANT
STORAGE LOCATION

NO. OF CONTAINERS OR ITEMS
NUMBER | DESCRIPTION
GROSS WEIGHT
TARE WEIGHT:

SIGNATURES

FS-F-2221 (REV. 3/8/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

NUCLEAR MATERIAL TRANSFER-RECEIPT-IDENTIFICATION CARD PACKET
FORMS FS-F-1990, 2220, AND 2221
Figure 3

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
12-15-92	0	Procedure per Request No. P92-295, initiated by Lyle Hampshire.
02-01-94	0	Procedure reissued per Request No. P93-112, Initiated by L. Hampshire.
04-21-94	0	Procedure reissued per Request No. P94-0312, initiated by J. L. Baarlaer.

NON-CONTROLLED COPY

1.0 PURPOSE

The purpose of this document is to provide the procedure for storing radioactive material.

2.0 APPLICABILITY

This procedure shall apply to designated radioactive material storage areas in Plant 1.

3.0 RESPONSIBILITIES

3.1 **Supervisors** shall be responsible for the following:

3.1.1 Coordinating and notifying support organizations if assistance is required.

3.1.2 Specifying storage location for material in accordance with "Radiological Controls," RM-0009.

3.1.3 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.4 Distributing documentation as required per this SOP.

3.1.5 Performing required inspections of storage facilities.

3.1.6 Ensuring that AEDO is notified of any release to the environment.

3.1.7 Ensuring authorized storage configurations, aisle spacing, material segregation and other storage requirements are maintained per this SOP.

3.1.8 Contacting Industrial Hygiene or Radiological Control to determine the appropriate respiratory protection for the process being performed.

3.1.9 Issuing the required respiratory protection to operators.

3.1.10 Contacting Radiological Control to perform a survey prior to storing the radioactive material.

3.1.11 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

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3.0 RESPONSIBILITIES (cont.) 5692

3.2 **Environmental Safety and Health (ES&H)** shall be responsible for the following:

3.2.1 Performing surveillances of radioactive material storage areas according to regulatory requirements.

3.2.2 Assuring proper characterization and classification of FEMP materials streams.

3.2.3 Ensuring applicable regulation requirements are incorporated into this procedure and are being followed at the FEMP.

3.2.4 Performing surveillances of radioactive material storage area records to ensure adequacy and completeness.

3.3 **Operators** shall be responsible for complying with this SOP.

3.4 **Materials Control & Accountability** shall be responsible for the following:

3.4.1 Maintaining current radioactive material inventory.

3.4.2 Preparing, maintaining and signing inventory and identification records per this SOP.

4.0 DEFINITIONS

4.1 Material Characterization - An evaluation which provides the physical and chemical characteristics and major radiological content and concentration of the material.

4.2 FEMP Lot Marking System - A 15 digit alpha numeric coding system used to identify nuclear material to ensure separation of depleted, normal, and enriched uranium or thorium materials.

4.3 Non-Characterized Material - Radioactive material that is suspected to have constituents on the Environmental Protection Agency Hazardous Waste List.

4.4 Resource Conservation & Recovery Act (RCRA) - The Congressional Act which established safe and environmentally acceptable "cradle to grave" management practices and control of all hazardous waste.

4.5 Short Term Material - Radioactive material stored only for a maximum of six months.

4.6 Radioactive Material - Material composed of radioactive or radioactively contaminated material in excess of safe limits for unconditional release.

5.0 APPLICABLE DOCUMENTS

5.1 Drivers

5.1.1 PO-D-026, "Site Services Document Program"

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5.0 **APPLICABLE DOCUMENTS** (cont.)

5.1.2 "FEMP Conduct of Operations Manual"

5.1.3 RM-0012, "Quality Assurance Program Description"

5.2 References

5.2.1 SOP 1-C-101, "Sampling Residue and Waste Material"

5.2.2 SOP 1-C-604, "Inspection and evaluation of Containerized Low Level Radioactive Waste (LLRW)"

5.2.3 SOP 20-C-600, "Overpacking Defective Containers"

5.2.4 SOP 20-C-902, "Liquid Propane Gas (LPG) Powered Handstackers and Tuggers"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 A defined safety system is not involved.

6.2 Respiratory protection provided by the supervisor shall be worn when required.

6.3 A HEPA type filter vacuum cleaner or a vacuum system approved by IH&S shall be used during spill cleanup with a current DOP test label properly affixed to vacuum.

6.4 Leather-palm gloves shall be worn when handling drums, operating equipment and when handling rough, sharp-edged or contaminated materials.

6.5 Any release of radioactive material outside of storage container shall be reported to the supervisor immediately.

6.6 Communications devices and emergency response equipment shall be available to personnel performing this procedure.

6.7 Operators shall have reviewed and be familiar with MSDSs for hazardous materials/chemicals that may be used or encountered.

6.8 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS** (cont.) 5692

6.9 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 **GENERAL**

7.1 Warnings, Cautions, and Notes precede the Step or Item to which they apply.

7.2 Containers holding material shall be stored on the best available hard surface (with the exception of metal boxes which may be stored on gravel, if necessary).

7.3 Sea-land containers be stored above the ground on four inch by four inch support runners.

7.4 Containers that are not stored as required by Item 7.2 or 7.3 shall be inspected daily per the Proposed Amended Consent Decree (PACD) and the "Drum Management Plan."

8.0 **PROCEDURE**

8.1 Preparing Containers for Storage

NOTE: The supervisor shall notify an MC&A representative of requirement for inventory update.

8.1.1 Inform the supervisor of material for storage.

NOTE: An "NM Transfer Record/NM Receipt Record/Material Identification Record" (68/69 card) is not required for radioactive material received from offsite.

8.1.2 Upon delivery of radioactive material to the storage area, inspect container(s) and accompanying paperwork per the "Radioactive Material Pre-Storage Checklist", Form FMPC-REST-3183 (See Figure 1).

8.1.2.1 If an unacceptable item is noted, complete "Corrective Action" and "Date Corrected" section on the "Radioactive Material Pre-Storage Checklist".

8.1.3 Sign the "NM Transfer Record/NM Receipt Record/Material Identification Record" (68/69 card), Forms FS-F-1990, -2220, -2221 (See Figure 2).

8.1.4 Request the Supervisor and the Nuclear Materials Reporting Specialist to sign 68/69 card.

8.0 **PROCEDURE** (cont.)

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8.1.5 If the container was received from offsite, complete the "Nuclear Material Receiving Report," Form FMPC-ADMS-613 (Figure 3) and "Offsite Nuclear Materials Receipt Verification and Disposition Report", Form FMPC-ADMS-PRO-1131-1 (Figure 4).

NOTE: Supervisor shall forward Form FMPC-ADMS-613 to MC&A.

8.1.6 Transmit the forms to the supervisor.

8.1.7 If the inspection detected bare metal, rust, or chipped paint, use a metal brush and remove loose material before painting.

WARNING

Respiratory protection shall be worn while removing rust and/or painting/chipping.

8.1.8 Paint bare metal, chipped paint areas, or rust areas using the same color of rust inhibiting paint.

8.1.9 Request Nuclear Materials Reporting Specialist to record data for LLRM Inventory database.

8.1.10 Check to ensure a hazardous material warning label (See Figure 5) coated with polyurethane is affixed on the container.

8.1.10.1 If there is no label, notify the supervisor.

8.1.10.2 If label(s) do not have coating, apply polyurethane coating.

8.1.11 Sign the completed "Radioactive Material Pre-Storage Checklist", Form FMPC-REST-3183.

8.1.12 Obtain the other required signatures.

8.1.13 Submit signed form to the supervisor.

NOTE: The supervisor shall notify MC&A of the move and new location.

8.1.14 Notify the supervisor when a container is moved form one location to another location.

8.2 Storage

NOTE: Handstackers shall be inspected and operated per SOP 20-C-902.

8.2.1 Check that the handstacker or forklift has been inspected.

8.2.1.1 If not, perform an inspection.

8.2.2 Using a forklift or handstacker, move radioactive material containers to storage per Table 1.

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8.0 **PROCEDURE** (cont.)

8.2.3 If additional action is required and the action is not listed in Table 1, notify the supervisor.

8.3 Inspection

NOTE: The Supervisor shall designate inspection periods per the "Drum Management Plan."

8.3.1 Inspect radioactive material containers per Table 2 at least once every seven calendar days as specified by the Supervisor."

8.3.2 Complete the "Radioactive Material Container/Storage Discrepancy Record", Form FMPC-REST- 3182 (See Figure 6) during inspection by recording only the container/storage area discrepancies.

8.3.2.1 If an unacceptable condition is noted on Form FMPC-REST-3182, refer to Tables 1 and 2 for corrective action.

NOTE: The supervisor shall specify corrective action.

8.3.2.2 If other items of concern are noted during inspection, notify the supervisor.

NOTE 1: The inspector and supervisor shall sign the completed form.

NOTE 2: The supervisor shall maintain records of completed remediation.

8.3.3 When inspection is completed, submit Form FMPC-REST-3182 to the supervisor.

9.0 **APPLICABLE FORMS**

9.1 Figure 1 - FMPC-REST-3183, "Radioactive Material Container Pre-Storage Checklist"

9.2 Figure 2 - FS-F-1990, -2220, -2221, "NM Transfer/Receipt/Identification Record"

9.3 Figure 3 - FMPC-ADMS-613, "Nuclear Material Receiving Report"

9.4 Figure 4 - FMPC-ADMS-PRO-1131-1, "Offsite Nuclear Materials Receipt Verification and Disposition Report"

9.5 Figure 5 - FMPC-REST-3182, "Radioactive Material Container/Storage Discrepancy Record"

TABLE 1
STORAGE REQUIREMENTS FOR RADIOACTIVE MATERIAL

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STORAGE REQUIREMENT	APPLICABLE RADIOACTIVE MATERIAL			
	CONTAINERIZED		NON-CHARACTERIZED WASTE	NON-CONTAINERIZED FREE-RELEASE MATERIAL
	LONG TERM	SHORT TERM		
1 Stack maximum of four containers high	X	X	X	
2 Group containers per lot number	X	X	X	X
3 Maintain forklift accessibility to rows	X	X	X	X
4 Spacing must be facility dependent	X	X	X	X
5 Store drummed material on pallets	X	X	X	
6 Container markings and labels shall be visible in aisle	X	X	X	
7 Aisles shall be accessible for inspection	X	X	X	
8 May be stored on or off pad				X
9 Nuclear safety requirements apply per SOP 20-C-904	X	X	X	

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TABLE 2
RADIOACTIVE MATERIAL STORAGE INSPECTION

ITEM	INSPECTION ITEM	INSPECTION CRITERIA	CORRECTIVE ACTION REQUIRED
Container	Hole	An opening in the container including breach, gouge, puncture or leak.	Overpack per SOP 20-C-600.
Container	Dent	A crease, depression or hollow made by blow or pressure; a concave distortion which jeopardizes the integrity of the container. A dent in the top or bottom rim.	Overpack per SOP 20-C-600.
Container	Bulge	A swollen area, a convex distortion, an outward bend which jeopardizes the integrity of the container.	Overpack per SOP 20-C-600.
Container	Corrosion	A container exhibiting exterior rust which is flaking or discoloration and bulging from interior rust.	Overpack per SOP 20-C-600.
Configuration	Spacing	Aisle spacing (three feet between pallets and between rows of pallets for non-characterized material. All other material must be spaced per supervisor's direction).[1]	Move container(s).
Pallet	Boards	Per 20-C-607	Per 20-C-607.
Container	Labeling	A hazardous material label, FEMP lot marking code, and gross weight visible and legible on the container.[2]	Affix label or stencil with enamel paint the required markings in 2 inch letters.

[1]Excluding requirements for nuclear safe masses per SOP 20-C-904.

[2]Enriched material shall include labeling requirements of SOP 20-C-904.

RADIOACTIVE MATERIAL CONTAINER PRE-STORAGE CHECKLIST 5692

STORAGE AREA:_____ FMPC INVENTORY NO.:_____ DATE:____

ITEM NO.	INSPECTION ITEM	ACCEPTABLE		CORRECTIVE ACTION	DATE CORRECTED
		YES	NO		
1	Form FS-F-1945-XX card complete			Complete form per 1-C-604[1].	
2	Forms FS-F-1990, -2220, -2221, (68/69 card) complete			Notify supervisor.	
3	Shipping manifest and waste characterization complete[2]			Notify supervisor.	
4	Container free of spilled/leaked material			Notify supervisor and contain spill/leak per SOP 20-C-606	
5	Container free of damage (such as bare metal, hole, dent, bulge, corrosion)			Overpack per SOP 20-C-600.	
6	Container bolt ring secure			Secure or replace bolt ring.	
7	Material sampled/factor assay performed for radionuclides and RCRA determination			Sample per SOP 1-C-101.	
8	FEMP Lot Number complete and stencilled on container			Obtain and stencil lot number per 1-C-604[1].	

[1]SOP 1-C-604 is applicable to containerized Low Level Radioactive Waste (LLRW).

[2]Applicable to material received from offsite.

RADIOACTIVE MATERIAL CONTAINER PRE-STORAGE CHECKLIST
FMPC-REST-3183
Figure 1 (Sheet 1 of 2)

9	Gross, net, and tare weight complete and stencilled on container			Stencil weights per or 1-C-604[1].	5602
10	"POOS" marking stencilled on container, if applicable			Stencil "POOS" marking on container per 1-C-604[1].	
11	Gross weight marking correct size (2")			Correct marking per or 1-C-604[1].	
12	Container markings and labels correctly located per Figure 7[3].				
13	"Hazardous Material Warning Label" affixed to container			Affix label to container.	
14	Other labels affixed to container as applicable (Flammable)			Affix applicable labels per 1-C-604 [1].	
15	Pallet free of damage			Replace or repair pallet. Per 20-C-607.	
16	Container plastic wrapping secure, if applicable			Secure, rewrap, or container size.	

[1]SOP 1-C-604 is applicable to containerized LLRW.

[3]Box markings and labels shall be located as shown in Figure 8.

COMMENTS:_____

MC&A Signature Badge No. Date

Waste Storage & Disposition

Inspector's Signature Date

RADIOACTIVE MATERIAL PRE-STORAGE CHECKLIST
FMPC-REST-3183
Figure 1 (Sheet 2 of 2)

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NUCLEAR MATERIAL TRANSFER RECORD

CARD PL.	CARD NO.
	68

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS. BY BADGE NO.

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

P.O. NO.:	SOURCE:	MBA: (FROM)	PLANT:	NO. OF CONTAINERS OR ITEMS	
MATERIAL CLASS:	MATERIAL TYPE:			NUMBER	DESCRIPTION
LOT SEQUENCE NO.:		MBA: (TO)	PLANT:	GROSS WEIGHT:	
MATERIAL DESCRIPTION		STORAGE LOCATION:		TARE WEIGHT:	
SHAPE CODE:					

SIGNATURES:

FS-F-1990 (REV. 3/9/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

NUCLEAR MATERIAL RECEIPT RECORD

CARD PL.	CARD NO.
	69

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS. BY BADGE NO.

P.O. NO.:	SOURCE:	MBA: (FROM)	PLANT:	NO. OF CONTAINERS OR ITEMS	
MATERIAL CLASS:	MATERIAL TYPE:			NUMBER	DESCRIPTION
LOT SEQUENCE NO.:		MBA: (TO)	PLANT:	GROSS WEIGHT:	
MATERIAL DESCRIPTION		STORAGE LOCATION:		TARE WEIGHT:	
SHAPE CODE:					

SIGNATURES:

FS-F-2220 (REV. 3/9/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

MATERIAL IDENTIFICATION RECORD

CARD PL.	CARD NO.
	11 11 XX

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS. BY BADGE NO.

P.O. NO.:	SOURCE:	MBA: (FROM)	PLANT:	NO. OF CONTAINERS OR ITEMS	
MATERIAL CLASS:	MATERIAL TYPE:			NUMBER	DESCRIPTION
LOT SEQUENCE NO.:		MBA: (TO)	PLANT:	GROSS WEIGHT:	
MATERIAL DESCRIPTION		STORAGE LOCATION:		TARE WEIGHT:	
SHAPE CODE:					

SIGNATURES.

FS-F-2221 (REV. 3/9/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

NM TRANSFER RECORD/NM RECEIPT RECORD/MATERIAL IDENTIFICATION RECORD
FS-F-1990, -2220, -2221
Figure 2

5692

Westinghouse Materials Company of Ohio
P. O. BOX 398704
CINCINNATI, OHIO 45239

NUCLEAR MATERIAL RECEIVING REPORT

NUCLEAR MATERIAL RECEIVING REPORT NO.: _____

DATE UNLOADED _____ 19____ DATE RECEIVED _____ 19____

RECEIVED FROM _____

CARRIER _____ CAR NUMBER _____ SEAL NUMBER _____

FREIGHT BILL NO. _____ BILL LADING NO. _____

NUMBER OF ITEMS RECEIVED _____ TYPE OF ITEMS RECEIVED _____ GROSS WEIGHT _____

MATERIAL DESCRIPTION AS PER BILLING _____ NLT. NO. _____

CHECKED BY: _____ RECEIVED BY: _____

NOTE: The following must be completed by the person verifying receipt

CONSIGNOR'S INFORMATION			DESCRIPTION OF MATERIAL	RECEIVING SECTION INFORMATION			
LOT NUMBER	QUANTITY	WEIGHT (LBS)		GROSS (LBS)	TARE (LBS)	NET (LBS)	ELEMENT WGT

REMARKS: *(Related document numbers for additional material received)* _____

FMPC-ADMS-613 (REV 5-22-88)

RECEIVER TO MATERIALS CONTROL & ACCOUNTABILITY

NUCLEAR MATERIALS RECEIVING REPORT
FMPC-ADMS-613
Figure 3

0692

FMPC

Page _____ of _____ Pages

PRODUCTION OPERATIONS DEPARTMENT — RECEIVING GROUP (PLANT 1)

OFF-SITE NUCLEAR MATERIALS RECEIPT VERIFICATION AND DISPOSITION REPORT

Shipped From _____ Nuclear Mat'l. Rec. Report No. _____ Date Disposed _____

_____ Date Received _____ DOE 741 No. _____

Carrier _____ Shipper's Tally List Received with Shipment ☐ Yes

No. of containers on Nuclear Mat'l. Receiving Report _____ WMT No. _____ ☐ No

LINE ITEM	PRODUCTION RECEIVING DATA						
	SHIPPER'S I.D. NO.	NO. OF CONTAINERS	MATERIAL DESCRIPTION	FMPC GROSS (LBS)	FMPC TARE (LBS)	FMPC NET (LBS)	SHIPPER'S NET WT. (LBS)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

DISPOSITION

LINE ITEMS INCLUDED	FMPC LOT NO. ASSIGNED	DELIVERED TO (CONSIGNEE)

Condition Received (Remarks & Recommendations):

_____

_____

_____

_____

_____

Disposition by _____

Persons Consulted in Reference to Disposition

_____

_____

_____

NO.	DISTRIBUTION OF COPIES
1	MC&A (RECORD COPY)
2	Receiving Group - Plant 1
3	Operations Scheduling & Planning
4	Production Records - Plant 1
5	Receiving Plant

FMPC-ADMS-PRO-1131-1 (REV 0/3/88)

OFFSITE NUCLEAR MATERIALS RECEIPT VERIFICATION AND DISPOSITION REPORT
FMPC-ADMS-PRO-1131-1
Figure 4

RADIOACTIVE MATERIAL CONTAINER/STORAGE DISCREPANCY RECORD 5692

INSPECTOR'S NAME:_____ INSPECTOR'S BADGE NO.:_____

LOCATION:_____ DATE:_____ TIME:_____

FMPC LOT NUMBER	MC&A INVENTORY NUMBER	HOLE		SPACING		BROKEN PALLET BOARD		CORRECT LABELING		LOCATION NO.
		YES	NO	YES	NO	YES	NO	YES	NO	

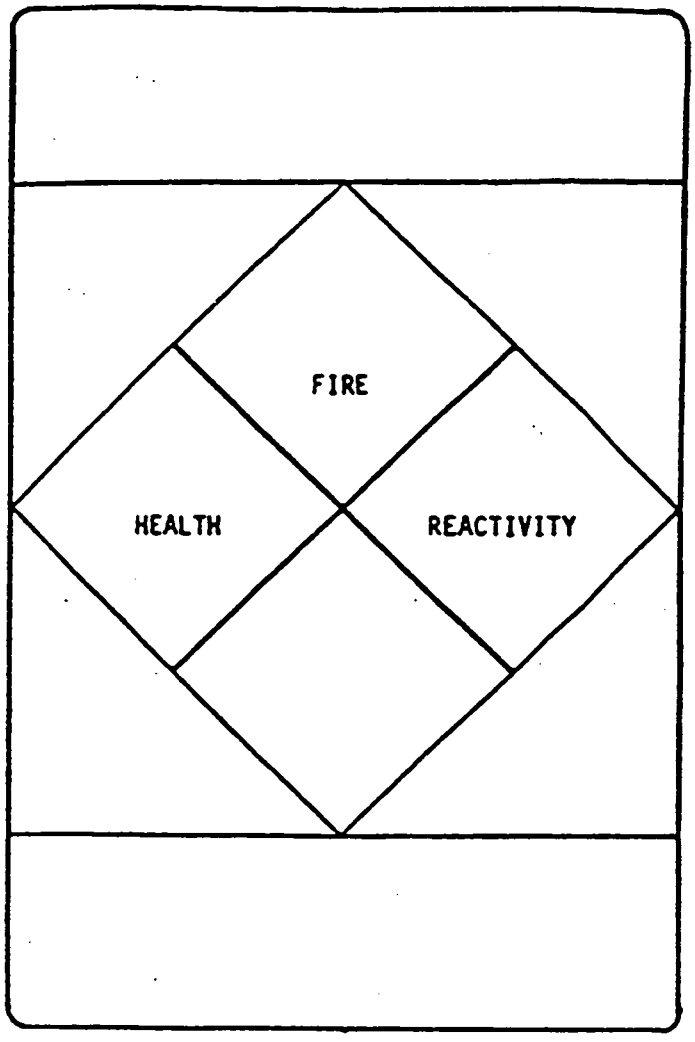
COMMENTS:_____

INSPECTOR'S SIGNATURE:_____ DATE:_____

SUPERVISOR'S SIGNATURE:_____ DATE:_____

RADIOACTIVE MATERIAL STORAGE INSPECTION
FMPC-REST-3182
Figure 5

5692



"HAZARDOUS MATERIAL WARNING LABEL"
Figure 6

5692

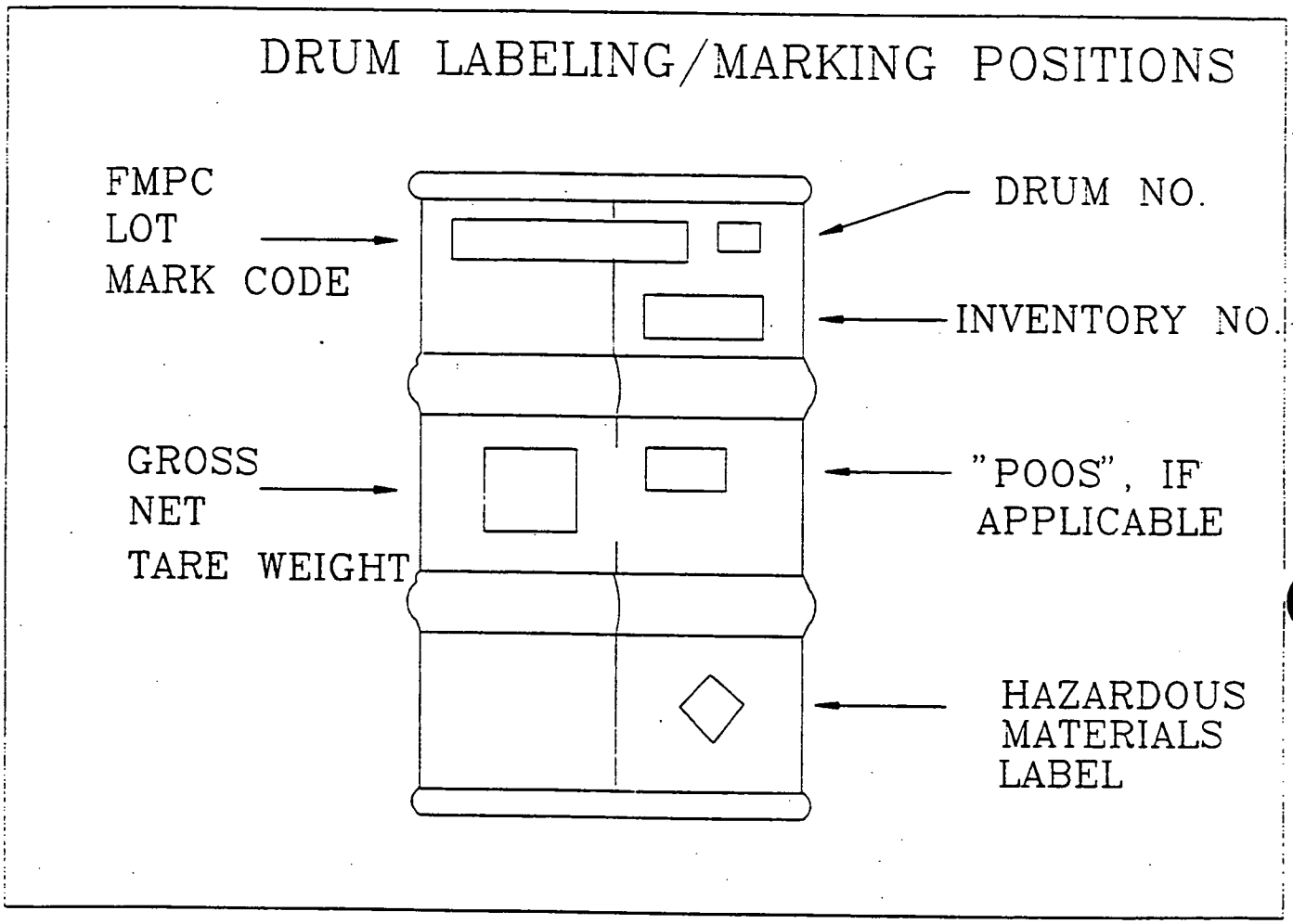


DIAGRAM OF RADIOACTIVE MATERIAL CONTAINER LABELING
Figure 7

5692

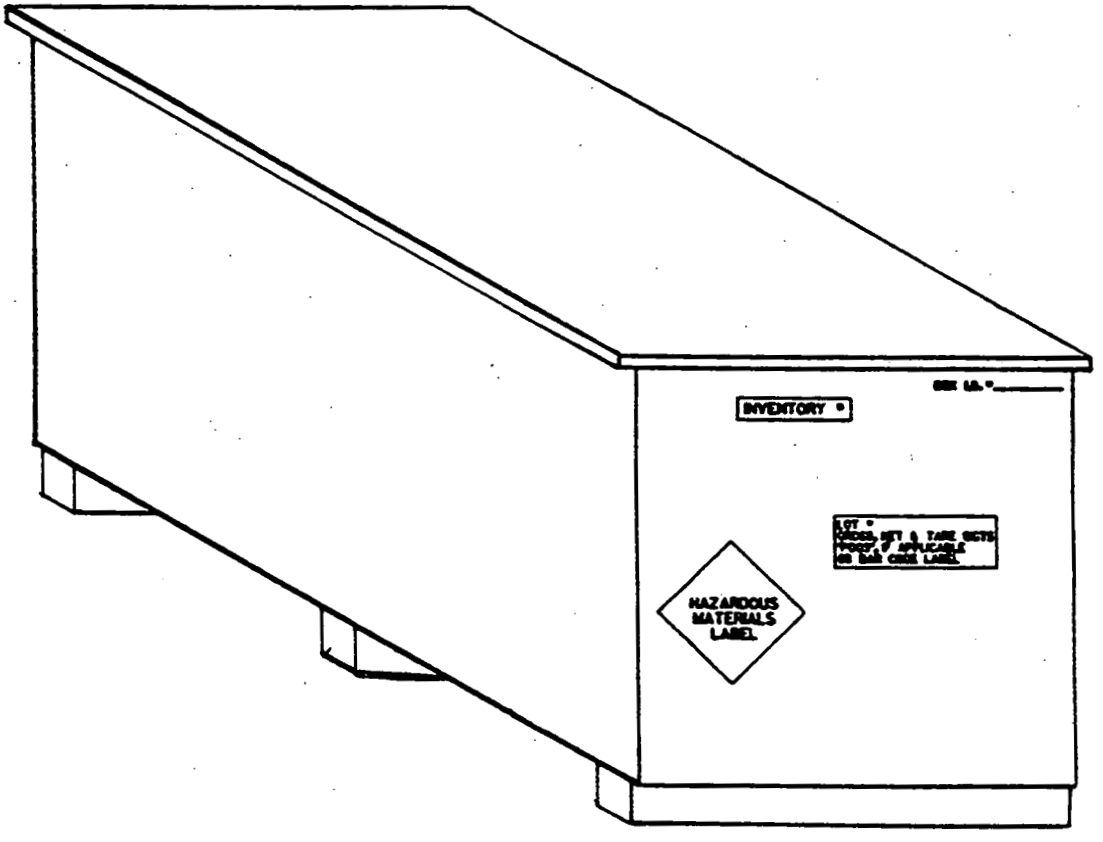


DIAGRAM OF LLRM BOX LABELING
Figure 8

RECORD OF ISSUE/REVISIONS

5692

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
08-13-90	0	Procedure required for storing radioactive material per Request No. P89-448, initiated by K. Dunbar.
12-09-92	1	Revised to incorporate CIOs C92-013 (P92-277), C92-024 (P92-131), and update to current Procedure Program requirements.
03-12-93	2	Revised to correct the 12-09-92 entry under the DESCRIPTION AND AUTHORITY HEADING of the RECORD OF ISSUE/REVISION per Request No. P93-113.
07-22-93	0	Reissued per Request No. P92-437, initiated by C. Glassmeyer.

SITE SERVICES PROCEDURE	STORAGE OF ENRICHED MATERIAL	SOP 20-C-801 5692 AREA: As Applicable
Authorization: Per CIO C89-086 R. L. Gardner, Facilities & Warehousing	Supersedes: None	Issue Date: 06-02-90

1.0 PURPOSE

The purpose of this document is to establish the procedure for storing enriched material.

NON-CONTROLLED COPY

2.0 APPLICABILITY

This procedure is applicable to the designated enriched material storage areas in Plants 2/3, 4 (excluding the Center Bay Area), 5, 6, 8, 9, and the Pilot Plant.

3.0 RESPONSIBILITIES

3.1 Supervisors shall be responsible for the following:

3.1.1 Ensuring that only trained personnel store enriched material.

3.1.2 Designating the storage area for enriched material.

3.1.3 Ensuring that storage areas are inspected on a weekly basis.

3.1.4 Completing documentation required for storage of enriched material and for forwarding the documentation to MC&A.

3.1.5 Ensuring that required safety equipment is available for operators.

3.1.6 Contacting Industrial Hygiene or Radiological Safety to determine the appropriate respiratory protection for the process being performed.

3.1.7 Providing operators with the required respiratory protection.

3.1.8 Ensuring that Radiation Detection Alarms (RDAs) are operational and that required inspections and tests have been completed.

3.2 Operators shall be responsible for complying with this SOP.

4.0 DEFINITIONS

4.1 Safe Grouping - A can or drum, or a group of cans or drums, containing material at the same enrichment and having a total mass which is less than the safe limit of that enrichment.

5.0 REFERENCES

5.1 SOP 20-C-904, "General Nuclear Safety Requirements"

5.2 PO-D-013, "Safety and Housekeeping"

5.0 REFERENCES (cont.)

5.3 SOP 20-C-606 "Hazardous Material Spill Clean-up"

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Safety glasses shall be worn unless other eye protection is specified by Safety, the supervisor, or posted signs.

6.3 Leather-palm gloves shall be worn while operating equipment, handling drums, and when handling sharp-edged or abrasive material.

6.4 Respiratory protection provided by the supervisor shall be worn.

6.5 Shielding shall be used when designated by the supervisor.

6.6 Protective equipment specified by the supervisor, Safety, or posted signs shall be worn.

6.7 Spilled material shall be cleaned up per SOP 20-C-606.

6.8 Non-essential combustible material including cleaning rags, tarps, and excess transportation straps, equipment not required for storage operations, and non-nuclear material shall not be stored in the storage area.

6.9 Process operations shall not be conducted in the storage areas.

6.10 Nuclear criticality safety limits for the stored material shall be conspicuously posted near the storage area.

6.11 Containers shall be coded, permanently marked with conflicting markings removed, securely closed, and positioned out of traffic areas.

6.12 Pyrophoric materials shall be put in a safe form prior to storage or stored in containers that prevent spontaneous ignition or dispersal.

6.13 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion or absorption shall immediately be reported to a supervisor. The supervisor shall immediately report the circumstance of possible radioactive materials intake to Radiological Safety for evaluation. The involved employees shall report to Medical Services at the end of their shift or as directed to submit a urine sample and again report at the start of their next shift to submit another urine sample.

7.0 PROCEDURE

7.1 Receiving Material for Storage

7.1.1 Check to ensure that documentation is complete.

NOTE: Material shall be accompanied by a 68, 69, and XX card packet (Forms FMPC-CONT-1990, CONT-2220, and CONT-2221) (See Figure 1).

7.1.2 Ensure that material is identified per SOP 20-C-904.

7.1.3 Notify the supervisor of material to be stored.

7.1.4 Move the material to the area designated by the supervisor.

7.2 Storing Enriched Material

7.2.1 Place the material in storage per limits listed in Tables 1 through 6 as appropriate for the type of material, and the requirements of SOP 20-C-904.

NOTE: Unless otherwise stated, the spacing restrictions of SOP 20-C-904 are applicable.

7.2.2 Record the location of the material on the "Inventory Location Worksheet".

NOTE: To be done by the operator and MC&A Specialist.

NOTE: The MC&A Specialist shall collect shipping documents.

7.2.3 After material is in place, erect shielding as directed by the supervisor.

7.2.4 Isolate and post the area per SOP 20-C-904.

7.2.5 Complete the required documentation as determined by the supervisor.

7.3 Moving Material Inside the Storage Area

7.3.1 Remove stanchions, chains, and shielding.

7.3.2 Record the location of the material on the "Inventory Location Worksheet".

NOTE: To be done by the Operator and the MC&A Specialist.

7.0 PROCEDURE (cont.)

TABLE 1
NUCLEAR SAFETY MASS AND VOLUME LIMITS
FOR ENRICHED URANIUM COMPOUNDS(1)(2)

% U235	Mass Limit (U lbs)	Volume Limit (Gal)
<1.0	Unlimited	Unlimited
1.0	9000	N/A
1.25	2000	N/A
1.8	357	37
2.0	252	30

(1) Applies to material having a U density less than 200 lbs/ft^3 and less than 10% free uranium by weight.

(2) If the enrichment is between the levels listed, the limits for the higher enrichment shall apply.

TABLE 2
MASS/UNIT AREA LIMITS
FOR 10 GALLON CANS OF UF_4 (1)(2)

Stack Limit	1.25% U235	1.8% U235	2.0% U235
One High	≤ 170 lbs U (≤ 225 lbs UF_4)	≤ 91 lbs U (≤ 120 lbs UF_4)	≤ 68 lbs U (≤ 90 lbs UF_4)
Two High	≤ 85 lbs U (< 112 lbs UF_4)	N/A N/A	≤ 34 lbs U (< 45 lbs UF4)

(1) If an enrichment is between levels listed, the limits for the higher enrichment shall apply.

(2) If the mass limit for 10 gallon cans is observed, an unlimited number of cans, stored 1 high or 2 high, is a safe group.

7.0 PROCEDURE (cont.)

TABLE 3
SAFE LIMITS FOR ENRICHED DERBIES[1][2]

% U-235	Mass (lbs)	Slab (Inches)
.95	Unlimited	Unlimited
1.25	5870	27[3]

[1]Limits are applicable to uranium metal pieces with the smallest dimension of 3.5 inches.

[2]When material is between enrichments listed, the limits for the higher enrichment are applicable.

[3]Stacked two pallets high.

TABLE 4
SAFE LIMITS FOR ENRICHED INGOTS[1]

% U-235	Dimensions[2] (inches)	Mass (lbs)	Slab (Inches)
.95	3.5	Unlimited	Unlimited
1.25	7	14300	77
1.25	8	18200	300
1.25	9	Unlimited	Unlimited

[1]When material is between enrichments listed, the limits for the higher enrichment are applicable.

[2]Smallest dimension of solid piece or wall thickness of hollow cylinder.
Wall thickness = $\frac{(OD-ID)}{2}$

7.0 PROCEDURE (cont.)

TABLE 5
SAFE DENSITY AND CONCENTRATION LIMITS FOR ENRICHED URANIUM RESIDUES (1)(2)

% U235	Maximum Safe U Density & Solution Concentration		
	lb U/ft 3	g U/l	lb U/gal
1.0	31.2	500	4.2
1.25	25	400	3.3
2.0	15.6	250	2.1

(1) Homogenous uranium solutions, compounds, and mixtures having concentrations or densities equal to or less than the values above may be handled and stored in unlimited quantities.

(2) When material is between enrichments listed, the limits for the higher enrichment are applicable.

TABLE 6
MASS LIMITS FOR URANIUM METAL(1) (U-lbs)

% U235	Smallest Dimension (in) (2)						
	< 1	≥ 1	≥ 2	≥ 3	≥ 5	≥ 7	≥ 9
.71	unlimited	unl	unl	unl	unl	unl	unl
.86	5100	n/a	n/a	n/a	unl	unl	unl
.95	2700	3050	12800	200000	unl	unl	unl
1.0	2260	2360	5400	40000	unl	unl	unl
1.1	1430	1600	3400	9100	unl	unl	unl
1.25	805	1040	2250	4350	10400	14300	unl
2.0	170	330	760	1300	2450	3600	4750

TABLE 6 CONTINUED.

7.0 PROCEDURE (cont.)

TABLE 6 (cont.)
MASS LIMITS FOR URANIUM METAL[1] (U-lbs)

[1] When material is between enrichments listed, the limits for the higher enrichment are applicable.

[2] Smallest dimension of solid piece or wall thickness of hollow cylinder.
Wall Thickness = $\frac{(OD - ID)}{2}$

7.3.3 Move the material to the area designated by the supervisor.

NOTE: The supervisor shall complete required documentation and forward the documentation to MC&A.

7.3.4 Erect shielding as directed by the supervisor.

7.3.5 Isolate and post the storage areas per SOP 20-C-904.

8.0 APPLICABLE FORMS

8.1 FMPC-CONT-1990, 2220, 2221, "Nuclear Material Transfer/Receipt/ Identification Record" (68, 69, XX card packet)

MATERIAL IDENTIFICATION RECORD

CARD PL. NO. XX

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE	DATE TRANSFERRED MO	DAY	YEAR	SHIFT	TRANS BY BADGE NO

P.O. NO.	SOURCE	MBA (FROM)	PLANT	NO OF CONTAINERS OR ITEMS	
MATERIAL CLASS	MATERIAL TYPE			NUMBER	DESCRIPTION
LOT SEQUENCE NO		MBA (TO)	PLANT	GROSS WEIGHT	
MATERIAL DESCRIPTION		STORAGE LOCATION		TARE WEIGHT	
SHAPE CODE					

SIGNATURES

FMPC-CONT-2221 (REV. 6/17/88) (SHIPPER) (TRANSPORTATION) (RECEIVER)

NUCLEAR MATERIAL TRANSFER RECORD

CARD PL. NO. 68

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS BY BADGE NO.

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

P.O. NO.:	SOURCE:	MBA: (FROM)	PLANT:	NO OF CONTAINERS OR ITEMS	
MATERIAL CLASS	MATERIAL TYPE			NUMBER	DESCRIPTION
LOT SEQUENCE NO.:		MBA. (TO)	PLANT:	GROSS WEIGHT	
MATERIAL DESCRIPTION		STORAGE LOCATION		TARE WEIGHT	
SHAPE CODE:					

SIGNATURES

FMPC-CONT-1990 (REV. 6/17/88) (SHIPPER) (TRANSPORTATION) (RECEIVER)

NUCLEAR MATERIAL RECEIPT RECORD

CARD PL. NO. 69

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE	DATE TRANSFERRED MO	DAY	YEAR	SHIFT	TRANS BY BADGE NO

P.O. NO.:	SOURCE	MBA (FROM)	PLANT.	NO OF CONTAINERS OR ITEMS	
MATERIAL CLASS	MATERIAL TYPE			NUMBER	DESCRIPTION
LOT SEQUENCE NO.		MBA (TO)	PLANT:	GROSS WEIGHT	
MATERIAL DESCRIPTION		STORAGE LOCATION		TARE WEIGHT	
SHAPE CODE					

SIGNATURES

(REV. 6/17/88) (SHIPPER) (TRANSPORTATION) (RECEIVER)

NUCLEAR MATERIAL TRANSFER/RECEIPT/IDENTIFICATION RECORD
(68, 69, XX CARD PACKET)
FMPC-CONT-1990, CONT-2220, CONT-2221
Figure 1

RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
06-02-90	0	Issued per CIO C89-086 (P90-022).
05-15-91	1	Revised to incorporate CIOs C90-114, C90-115, and C90-116, per Request Nos. P90-709, P90-710, and P90-711.
11-13-91	2	Revised to correct (editorial only) Table 6 per Request No. P91-653, initiated by N. K. Weichold.

CONTROL NO. NON-CONTROLLED COPY
SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-0060
REVISION NO. 4

5692

PACKAGING AND LOADING RADIOACTIVE MATERIAL FOR OFFSITE SHIPMENT

SSOP-0060

Effective Date: 06-18-93

AUTHORIZED BY: _____ 6/11/93
N. C. Kaufman, President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
04-10-92	0	Procedure for packaging radioactive material for offsite shipment required per Request No. S92-096, initiated by J. W. Ogg.
06-01-92	1	Major revision required to ship 4A material by rail per Request No. S92-140, initiated by J. Ogg.
10-28-92	2	Minor revision required per Request No. S92-191, initiated by J. Ogg. Site Document Change No.s SC92-023, -024,-025, and -026 were incorporated in this revision.
03-01-93	3	Minor revision required to update method for preparing metal boxes per Request No. S92-251, initiated by J. Ogg.
06-18-93	4	Minor revision completed to incorporate Site Document Changes S93-008,-009, and -010 per Request S93-068.

1.0 PURPOSE

This document provides the procedure for preparing radioactive product materials for offsite shipment from the Fernald Environmental Management Project (FEMP).

2.0 SCOPE

This procedure is applicable to FERMCO personnel who perform the packaging and loading methods for shipping uranium product materials offsite. Packaging methods include container/vehicle inspection, container/pallet identification, palletizing containers or loose material, and filling containers with uranium product material. Loading instructions are provided for transporting the material by truck or by railcar.

3.0 DEFINITIONS

Briquette - Uranium material compressed into cylindrical forms.

Container - A container that meets DOT requirements.

Exclusive Use - The sole use of conveyance by a single consignor and for which all initial, intermediate, and final loading and unloading is carried out in accordance with the direction of the consignor or consignee. Any loading or unloading must be performed by personnel having radiological training and resources appropriate for the safe handling of the consignment. Specific instructions for the maintenance of exclusive use shipment controls must be issued in writing, and included with the shipping paper information provided to the carrier by the consignor.

Generator - The person, or FERMCO organization, initiating an onsite movement or offsite shipment of material.

Gondola - An open-top railroad car.

4A Material - Uranium material designated for army use only.

Offsite - All areas outside the main perimeter security fence that are not controlled at all times by guards and security gates.

Overpack - A container into which one or more smaller containers are placed.

Package - A packaging plus its contents as presented for transportation.

Packaging - The assembly of one or more containers and any other components necessary to ensure compliance with the minimum packaging requirements of 49 CFR.

3.0 DEFINITIONS (cont.)

Loader - A piece of equipment utilized in the loading of materials.

Radioactive Material - Any material having a specific activity greater than 0.002 microcuries per gram per 49 CFR.

Resource Conservation and Recovery Act (RCRA) - The Congressional Act which established safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control and proper management of hazardous waste.

Spill Material - Uranium material that is a result of an uncontrolled casting.

Uranium Product Material - Normal, depleted, or enriched uranium which will be in one of several different physical states such as various metal forms, uranium oxide, and residues.

4.0 RESPONSIBILITIES

The generator/packager shall comply with this procedure.

The supervisor of the area or packager shall:

- Specify applicable scale check procedures and standard tare weight of packages.
- Ensure that packaging materials are available for personnel.
- Ensure that trained personnel package material.
- Determine disposition of material identified in this procedure.
- Ensure that personnel package material for shipment to meet applicable DOE, DOT, and EPA regulations.
- Contact Industrial Hygiene and Radiological Safety to determine the appropriate respiratory protection for the process being performed and the radiological surveys required for materials moving in and out of regulated areas.
- Provide personnel with the required respiratory protection.
- Ensure that the lid on an unfilled waste container is secured when no packaging is being done to prevent additions of unknown materials.
- Ensure that packages are weather-protected before, during, and after use to prevent moisture buildup.

4.0 RESPONSIBILITIES (cont.)

- Contact Radiological Safety for a radiological work permit or some other safety permits and ensure permits are obtained and signed prior to performing work.

Logistics Administration shall specify the required container and provide a placard for the gondola.

The **Motor Vehicle Operator (MVO)** shall transport packaged material to the applicable staging area and move metal boxes for weighing.

Materials Control and Accountability (MC&A) shall prepare documentation for offsite shipment of the material.

The **Radiological Safety Technician** shall issue a radiological work permit and perform contamination and radiation surveys.

Quality Control shall certify metal boxes for offsite shipment.

Transportation shall provide equipment and resources necessary for the packaging and movement of materials.

Facilities and Material Evaluation (F&ME) shall provide to the generator documentation specifying evaluation results for the material.

5.0 GENERAL

5.1 Stencilling shall be 1-1/2 inch (minimum) legible block letters using waterproof ink/paint unless otherwise specified.

5.2 Supplies required to perform the packaging and loading operation shall be obtained as instructed by the supervisor unless otherwise specified.

5.3 Onsite movement of material must comply with PP-0314.

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 Safety glasses with side shields shall be worn unless other eye protection is specified.

6.2 Respiratory protection provided by the supervisor shall be worn when required.

6.3 Leather-palm gloves shall be worn when handling containers, operating equipment, and when handling rough, sharp-edged, or contaminated material.

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.4 HEPA type filter vacuum cleaners or a vacuum system approved by ES&H with a current DOP test label properly affixed to vacuum shall be used for cleaning.

6.5 Personnel shall remain outside of metal boxes.

6.6 Personnel shall stand a minimum of 10 feet away from crane load when loading the gondola car except when inserting or removing lift fixture.

6.7 Generator/Packager shall read and sign safety permits for the task.

6.8 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion or absorption shall immediately be reported to a supervisor. The supervisor shall immediately report the circumstance or possible radioactive materials intake to Radiological Safety Section for evaluation. The involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form FMPC-ES&H-1458), and submit a urine sample. The involved employees shall also report to the Urine Sampling Station at the start of their next shift to submit a followup urine sample. Employees are responsible for complying with additional requirements as specified by the Radiological Safety Section.

Warnings and Cautions shall precede the step to which they apply. Notes follow the applicable step.

7.0 PROCEDURE

7.1 MATERIAL EVALUATION

GENERATOR/PACKAGER

1. Ensure a Material Evaluation Form (MEF), FS-F-3252 has been completed determining the material as RCRA/Non-RCRA and additional documentation from Facilities and Material Evaluation (F&ME) has been provided specifying evaluation results for the material.

   NOTE: A sample of the material for Toxic Characteristic Leaching Process (TCLP) may be required as requested by F&ME.

   a. If an MEF has not been generated, obtain a numbered MEF from F&ME and initiate a "Material Evaluation" per SSOP-0002.

CONTROL NO. NON CONTROLLED COPY

SITE REQUIREMENT
DOCUMENT NO. SR-2117
REVISION NO. 0

5692

NUCLEAR CRITICALITY SAFETY REQUIREMENTS

SR-2117

Effective Date: 06-16-93

AUTHORIZED BY: N. C. Kaufman, President — Date: 6/8/93

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
06-16-93	0	Site Requirement required to establish nuclear criticality safety standards for the FEMP site per Request No. S92-233, initiated by T. Brown. SR-2117 and SSOP-0095 replace FMPC-2117, "Topical Manual for Nuclear Criticality Safety" and FMPC-0517, "Nuclear Criticality Safety."

1.0 INTRODUCTION

This site requirement establishes required safety principles and program requirements for site remediation activities at the Fernald Environmental Management Project (FEMP) involving or affecting fissile material. These requirements are provided to ensure that the public, workers, government property, and essential activities are protected from the effects of a criticality incident.

2.0 SCOPE

The requirements provided in this document shall apply to FERMCO personnel responsible for transporting, storing, packaging, or otherwise having stewardship of fissile nuclear materials during decontamination or decommissioning activities.

This site requirement complies with DOE Order 5480.24, "Nuclear Criticality Safety".

3.0 DEFINITIONS

Credible Abnormal Event - An event that could occur outside of normal activities or the storage of fissile material (e.g., sprinklers activation during a fire).

Criticality Safety Analysis - An analysis performed before starting a new activity involving fissile materials or before an existing activity or piece of equipment involving fissile materials is changed to determine whether the entire remediation process will be subcritical under both normal and credible abnormal conditions.

Double Contingency Principle - The philosophy requiring that decontamination designs incorporate sufficient factors of safety to require at least two highly unlikely, independent, and concurrent changes in activity conditions before a criticality accident is possible.

Fissile Material - Any material containing uranium-235 or other fissile radionuclides. Other fissile radionuclides are plutonium-239, plutonium-241, and uranium-233.

Geometry Control - A method that places reliance on equipment design in which dimensions of the contained fissionable material and spacing between equipment are limited via passive engineering controls.

Line Management - Supervisors responsible for remediation, decontamination, or transportation activities.

Nuclear Safety Operational Authorization (NSOA) - A form used by Nuclear Safety to authorize nuclear criticality safety for a new activity or change in activity scheduled for completion within 90 days.

3.0 **DEFINITIONS** (cont.)

Nuclear Criticality - A self-sustaining chain reaction of fissions, i.e., the state in which the effective neutron multiplication constant of a system of fissile material equals or exceeds unity.

Nuclear Criticality Safety (NCS) - The prevention of inadvertent nuclear criticality and protection against injury or damage due to accidental criticality.

Request for Criticality Safety Approval (CSA) - A two-part form used to request and approve nuclear criticality safety for a new activity/design or change in activity/design that will not be completed within 90 days.

Safety Analysis Report (SAR) - A safety document which systematically identifies the hazards associated with a facility; describes and analyzes the measures taken to eliminate, control, or mitigate identified hazards; and evaluates potential accidents and associated risks. The Preliminary Safety Analysis Report (PSAR), Final Safety Analysis Report (FSAR), and Safety Study are all SARs.

Subject Matter Expert (SME) - An individual qualified, or previously qualified, and experienced in the applicable activity who has been documented per SSOP-0014 and is responsible for the content and update of a document.

4.0 **REQUIREMENTS**

4.1 PRINCIPLES

a. The double contingency principle shall be applied when establishing criticality safety controls. Protection shall be provided by either (a) the control of two independent process parameters (which is the preferred approach, if practical) or (b) a system of multiple (at least two) controls on a single parameter. In all cases, no single failure shall result in the potential for a criticality accident. The basis for selecting either approach shall be fully documented.

b. Geometric control shall be used as a first priority where practicable for nuclear criticality safety. Where geometry control is not feasible, the preferred order of controls is other passive engineering controls. Where administrative controls are used, these controls shall be documented in procedures.

4.0 REQUIREMENTS (cont.)

4.1 PRINCIPLES

c. Neutron reflecting materials such as concrete, water, plastics, thick metals, and oil shall be separated from fissile materials in storage and decommissioning equipment unless specifically analyzed and approved by NCS Section.

d. In establishing safe limits, full water density reflection and optimum density water moderation shall be considered.

e. When equipment is used to decontaminate materials of more than one isotopic enrichment, isotopic changeover procedures shall be followed. When materials of more than one isotopic enrichment are stored or transported, the materials shall be segregated according to enrichment.

f. Where enriched uranium solutions of more than one concentration are handled, the nuclear criticality safety of the tanks and other equipment shall be based on the maximum concentration available.

g. In locations where it is possible that multiple safe groupings of fissile material may accidentally come together, the use of full water density reflection shall be applied to the safe groupings.

h. Before transferring fissile solutions from safe geometry to unsafe geometry, two samples shall be taken and each chemically analyzed (or analyzed by other suitable measurements) to confirm that the uranium concentration or mass is within safe limits.

i. Criticality safety shall not be based solely upon offsite shipper values. FERMCO analyses must verify that the shipper values are correct.

j. Before beginning an activity with fissile materials or changing an existing activity, it shall be determined that it will be subcritical under both normal and credible abnormal conditions.

k. Criticality alarm systems (CAS) and radiation detection alarm (RDA) shall be required for areas where the mass of fissionable material exceeds 700 gms U-235, unless otherwise approved by Nuclear Criticality Safety (NCS).

l. Detailed nuclear criticality safety analyses for specific activities, storage arrangements, and the handling and transportation of fissionable materials shall be performed.

4.0 **REQUIREMENTS** (cont.)

4.1 PRINCIPLES

m. Fissionable materials shall be defined as "in process" for facilities that involve both decommissioning and storage. Fissionable material not in decontamination process shall be properly stored.

n. The requirements of DOE 5480.3, DOT regulations, and this site requirement shall be complied with regarding offsite shipment of fissionable material.

o. Storage areas for fissionable materials shall be designated and the appropriate nuclear criticality safety limits posted in the area.

4.2 PROGRAM

a. A NCS organization shall be established in the Regulatory & Technology Programs Division and maintained independent of groups performing remediation activities. The qualifications of personnel in the NCS organization shall be defined.

b. The NCS program shall be documented by specific standards, procedures, or operating instructions that define roles and responsibilities to the NCS staff, operating groups, all other groups, and contractors/subcontractors, as appropriate. Program documentation (refer to SSOP-0095 "Criticality Safety Analysis and Approval Process") shall meet all the requirements outlined in this document.

c. Emergency preparedness programs shall incorporate provisions for responding to nuclear criticality accidents. These provisions shall include:

(1) A criticality alarm system consistent with requirements specified in DOE Orders

(2) Development and maintenance of personal and fixed Nuclear Accident Dosimeters (NAD)

(3) Development and maintenance of an emergency response plan specific to nuclear criticality safety accidents

d. Personnel selection, qualification, and training programs shall be established for fissionable material activities consistent with DOE requirements.

4.0 **REQUIREMENTS** (cont.)

4.2 PROGRAM

e. A NCS committee shall be established and maintained to advise FERMCO management on NCS issues. The committee shall have a written charter.

f. NCS audits of activities shall be performed on a monthly basis. All deviations shall be documented and reported when necessary.

g. An annual self-assessment shall be made to evaluate the effectiveness of the NCS program. All deviations shall be documented and reported when necessary.

h. A review of the program shall be conducted every three years.

i. Quality Assurance (QA) plans shall be maintained by NCS. The plans shall include requirements for configuration control and self-assessments and shall delegate responsibilities for procedures, analyses, calculations, fissionable materials activities/storage, and all other parts of the NCS program.

j. NCS incidents shall be reported, documented, investigated, and tracked. Corrective actions shall be taken to ensure a similar incident does not occur. The severity of incidents shall be classified according to Table 1. Incident reports shall be input into the Occurrence Reporting System, as applicable.

k. A CSA or NSOA form shall be issued before initial startup or any subsequent change of an activity involving fissionable material.

5.0 **RESPONSIBILITIES** (Refer to Table 2 for responsibility summary.)

5.1 FERMCO President establishes site policy for the Nuclear Criticality Safety program.

5.2 Nuclear Criticality Safety Section (Regulatory & Technology Programs Division)

- Establishes and maintains a NCS Program that ensures the principles stated in this site requirement are addressed properly.
- Develops controlled site and department procedures to implement NCS program.
- Reviews and approves controlled department procedures that implement the NCS program.

TABLE 1

NUCLEAR CRITICALITY SAFETY INCIDENT LEVELS

ORS CATEGORY	INCIDENT LEVEL	DESCRIPTION
1	5	Unplanned or uncontrolled nuclear criticality
2	4	Near criticality - Loss of control to the extent that an imminent hazard existed and only random factors prevented a criticality
3	3	Violation - Loss of control to the extent that logical continuation of the activity would significantly increase the probability of a criticality
4	2	Infraction - More significant change from approved conditions or procedures, but no realistic way to cause a criticality
	1	Deviation - Minor change from approved conditions or procedures
	0	No adverse finding

* ORS - Occurrence Reporting System

TABLE 2

RESPONSIBILITIES SUMMARY
Nuclear Criticality Safety

ITEM	RTP	ESH	LINE MANAGEMENT	AEDO	EMERGENCY PLANNING	TRAINING
Establish NCS Program	LR	S	I	S	S	S
Procedures (Specific in each Dept.)	LA	LS	L	S	LS	L
Documents NCS in SARs	L	S				
Training	RA	A				LI
CSAs	LA	S	I			
NSOAs	LA	S	I			
Design of New Facilities	L	S	S			
Schedules Audits and Appraisals	L	S	S			
Investigation of NCS Incidents	S	L	S	S		
Drills	S	S			L	
Shipping	SA	SA	LI			
NADs	R	L				
RDAs	R	L				
Storage and Handling Procedures	RA	S	L			
NCS Limits Posting	RA	L	I			
Inspections	S	L	S			

TABLE KEY
- L = Lead Responsibility (responsibility may be shared)
- S = Supports the Program
- A = Approves the Program
- I = Implements the Program
- R = Requirement

5.0 **RESPONSIBILITIES** (cont.)

5.2 Nuclear Criticality Safety Section (Regulatory & Technology Programs Division)

- Documents the basis for criticality safety in FEMP Safety Analysis Report (SAR), including the information required in DOE Order 5480.24.
- Reviews, analyzes, approves, and distributes criticality safety approvals per SSOP-0095.
- Provides written Technical Safety Requirements (TSRs) to establish the limiting conditions of an activity for criticality safety.
- Provides technical assistance to all site groups involved in the design of new facilities, alterations to facilities storing/packaging uranium materials, and resolving nuclear criticality safety issues to ensure nuclear criticality safety.
- Establishes the overall requirements for the NCS training programs for all FEMP site personnel. Reviews and approves the contents of the NCS training.
- Supports remediation and transportation activities to provide safe limits and controls for operating decontamination equipment and storing and moving fissile material.
- Schedules an appraisal of the NCS program and audit of procedure conformance by independent consultants on a triennial basis.
- Provides support for the investigation of incidents involving nuclear criticality safety.
- Schedules and provides technical assistance for annual criticality drills for all shifts in facilities with RDAs.
- Advises ES&H Dosimetry on location of site nuclear accident dosimeters.
- Reviews procedures, revisions, new designs, and modifications involving fissile materials.
- Performs reviews of program implementation and informs line management of NCS technical problems and the existence of any unsafe conditions or practices.

5.0 **RESPONSIBILITIES** (cont.)

- Performs criticality safety analyses to evaluate new or modified activities, engineering designs, and support system safety analyses for packaging and shipping fissionable materials.

- Ensures that the design, placement, and testing of RDAs meet the requirements of DOE Order 5480.24 and ANSI/ANS-8.3.2.

- Interprets and supports implementation requirements of DOE Orders and mandatory ANSI/ANS standards related to NCS.

5.3 Logistic Administration Section (Transportation of the RSO Division) establishes and maintains controlled procedures for onsite and offsite movement of fissile material in accordance with applicable DOE orders, DOT regulations, and this site requirement.

5.4 The Vice-President of Regulatory & Technology Programs establishes an internal assessment system to annually evaluate the effectiveness of the FEMP Nuclear Criticality Safety Program Plan.

5.5 Line management responsible for shipping/receiving, storing, handling, or having stewardship of fissile nuclear materials:

- Assumes responsibility for all aspects of NCS in their assigned areas.

- Establishes written procedures for handling and storing fissionable materials and ensures the procedures are current and readily available in the work area.

  NOTE: These procedures shall be reviewed and approved by the NCS Section.

- Ensures NCS training is provided to personnel, as required.

- Initiates NCS Section approval per SSOP-0095 before beginning an activity where nuclear criticality safety issues are involved.

- Inspects, stores, and handles all fissile materials in accordance with standards given in this site requirement and applicable procedures.

- Ensures that Radiation Detection Alarms are operable within their responsible area and are periodically tested and calibrated by applicable safety organizations.

5.0 **RESPONSIBILITIES** (cont.)

- Immediately informs their Staff Manager and Assistant Emergency Duty Officer (AEDO) of any event that is out of the ordinary or departs from normal practice which may involve nuclear criticality safety. This includes violations of Technical Safety Requirements for nuclear criticality safety.

- Takes responsibility for actions of personnel in their area (including maintenance personnel and visitors) with regard to criticality safety practices.

- Ensures that all NCS components are pre-operationally checked and certified as acceptable for their intended purposes.

- Posts nuclear criticality safety limits and restrictions in their area of responsibility.

5.6 Radiological Dosimetry and Instrumentation

- Maintain the Radiation Detection Alarm (RDA) units.

- Develop the RDA system and the Nuclear Accident Dosimeter (NAD) systems for the site.

- Performs inspections and tests of the RDA system and NAD system.

5.7 Radiological Engineering

- Assists in development and implementation of NCS training programs of FEMP workers involved in nuclear criticality safety, including supervisors, managers, and facility owners responsible for the handling of controlled fissile material.

- Reviews controlled site and department procedures which implements the NCS program.

- Reviews Safety Analyses and Technical Safety Requirements.

- Supports the provision of assistance to site groups involved in the design of new facilities or alterations to facilities storing/packaging uranium materials.

- Supports remediation and transportation activities in the implementation of safe limits for operating decontamination equipment and storing and moving fissile material.

- Provides technical assistance for annual criticality drills for all shifts in facilities with RDAs.

5.0 RESPONSIBILITIES (cont.)

- Reviews procedures, revisions, new designs, and modifications involving radioactive and/or fissile materials. Those involving fissile material where criticality is a potential concern shall be routed to the NCS section.

- Provides support for criticality safety analyses to evaluate new or modified activities, engineering designs, and support system safety analyses for packaging and shipping fissionable materials.

5.8 Radiological Compliance

- Leads the investigation of incidents involving nuclear criticality safety.

- Performs monthly inspections of activities and storage areas involving fissile material and informs line management of the existence of any unsafe conditions or practices.

- Submits all findings of inspections to the Nuclear Criticality Safety and Radiological Engineering for categorization and further investigation.

- Maintains surveillance of implementation activities and assures compliance with NCS requirements.

- Monitors packaging and transportation of fissile material.

5.9 Maintenance Section ensures criticality safety approval has been received prior to modifying equipment used to contain fissile materials.

5.10 Subject Matter Experts ensure NCS requirements are identified in procedures.

5.11 Assistant Emergency Duty Officer (AEDO)

- Notifies Nuclear Safety and Radiological Compliance when an event is reported relating to NCS.

- Verbally notifies DOE-Oak Ridge Operations Center, FERMCO President, DOE-Site Representatives, and Public Affairs Manager of an unusual occurrence involving NCS.

5.0 **RESPONSIBILITIES** (cont.)

5.12 Engineering Division and Facility Engineering & Maintenance Department (RSO Division)

- Consults Nuclear Safety regarding NCS features during the design phase of new installations or modifications to existing facilities involving fissile material.
- Obtains Nuclear Safety review and written approval of intermediate and final designs of new/modified systems involving fissile material.
- Ensures Nuclear Safety and Radiological Engineering participate in the inspection of new or modified uranium systems prior to operation.
- Designs systems or facilities that adequately address NCS requirements.
- Ensures that NCS requirements are met when using an outside contractor to complete a design.
- Ensures that the Pre-operational Readiness Review and Test Program meet all NCS requirements.
- Adheres to NCS limits when performing analytical chemistry and when handling and storing fissile materials.
- Posts NCS limits in analytical chemistry areas where fissile materials are present per the guidance of Nuclear Safety.

5.13 Quality Assurance Division implements the Quality Assurance policies applicable to NCS.

5.14 Emergency Planning Section

- Conducts annual criticality drills for all shifts in facilities with RDAs.
- Obtains technical assistance from Nuclear Safety for annual criticality drills.

5.0 **RESPONSIBILITIES** (cont.)

5.15 Training Department

- Develops NCS training programs and provides training to all groups of FEMP workers involved in nuclear criticality safety, including supervisors, managers, and facility owners responsible for the handling of controlled fissile material.

- Consults Nuclear Safety and Radiological Engineering for content of the NCS training program.

- Informs Nuclear Safety and Radiological Engineering of any proposed changes to the NCS training program and obtains approval before changes are made to the content of the courses.

5.16 NCS Committee advises management on NCS issues.

REMEDIATION SUPPORT OPERATIONS PROCEDURE	**Movement Of RCRA And Hazardous Waste**	SOP 20-C-017 Area: As Applicable

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(Signature on File) Authorization: H. Bailey, Materials Management Manager	Supersedes: PO-S-06-001 Dated: 07-21-89	Issue Date: 09-24-93

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1.0 **PURPOSE**

The purpose of this document is to establish the procedure for the on-site transportation of mixed and hazardous wastes

2.0 **APPLICABILITY**

This procedure is applicable to personnel involved in the transport of mixed and hazardous wastes.

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3.0 **RESPONSIBILITIES**

3.1 **Supervisors** shall be responsible for the following:

3.1.1 Providing oversite and guidance to the MVO assigned to transport hazardous waste.

3.1.2 Ensuring that MVOs are qualified per the established training requirements identified by the Department/Staff manager.

3.1.3 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.1.4 Contacting ES&H to determine the required respiratory protection for the area where the material is being moved and/or stored.

3.1.5 Issuing specified respiratory equipment to operators.

3.1.6 Obtaining and posting a "Radiation Work Permit" when required.

3.2 The **Dispatcher** shall be responsible for coordinating the activities of personnel involved in accepting, transporting, and releasing the hazardous waste transferred via trailer, forktruck, or other vehicles.

3.3 **Motor Vehicle Operators (MVOs)** shall be responsible for the following:

3.3.1 Ensuring that available consignment documentation is complete.

3.3.2 Transporting consignments in a safe and efficient manner.

3.4 **Materials Control and Accountability (MC&A)** shall be responsible for preparing the forms required for transporting material.

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4.0 DEFINITIONS

4.1 Generator - A qualified person with the authority to dispose of hazardous waste.

4.2 Hazardous Waste - A waste material exhibiting characteristics of ignitibility, corrosivity, reactivity, or toxicity, is listed in 40CFR261 (RCRA), or is identified as hazardous in applicable state regulations.

4.3 Motor Vehicle Operator (MVO) - Classification of personnel that are trained and licensed for vehicle operation.

4.4 Resource Conservation and Recovery Act (RCRA) - The congressional act requiring "cradle to grave" control and proper management of all hazardous wastes.

4.5 Satellite Accumulation Area (SAA) - A waste accumulation area, controlled by the supervisor of the process that generated the waste, that is located near the generation point.

4.6 Satellite Accumulation Container (SAC) - Portable polyethylene container, orange in color, designed to hold 55 gallon drums and approved containers.

4.7 Transport - moving materials by forktruck, trailer, or other vehicle from one location to another.

5.0 APPLICABLE DOCUMENTS

5.1 Drivers

5.1.1 PO-D-026 "Site Services Document Program"

5.1.2 "FEMP Conduct of Operations Manual"

5.1.3 RM-0012, "Quality Assurance Program Description"

5.2 References

5.2.1 SOP 20-C-630, "Receipt Inspection, Storage, and Storage Inspection of Hazardous Waste"

5.2.2 SOP 20-C-606, "Hazardous Material Spill Cleanup"

5.2.3 SOP 20-C-902, "Liquid Propane Gas (LPG) Powered Handstackers and Tuggers"

5.2.4 SOP 20-C-500, "Inspecting RCRA Waste Load/Unload and Staging Areas"

5.2.5 SOP ANL-01-0053, "Managing Hazardous Waste Satellite Accumulation Areas in the Analytical Laboratories"

5.2.6 FMPC-503, "FMPC Spill Incident Reporting and Cleanup"

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5.0 **APPLICABLE DOCUMENTS** (cont.)

5.2.7 SSOP-0035, "Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 An Industrial Truck that has not been inspected per SOP 20-C-902 shall not be used.

6.2 Leather-palm gloves shall be worn while operating equipment and when handling sharp-edged or abrasive material.

6.3 Safety glasses shall be worn outside of enclosed cab vehicles and when handling sharp-edged or abrasive material.

6.4 The MVO shall remain with the vehicle while a load is being transported.

6.5 Respiratory protection issued by the supervisor shall be worn when required by ES&H.

6.6 Operators shall have reviewed and be familiar with MSDSs for hazardous chemicals/material that may be used or encountered.

6.7 Radiological Control shall be contacted prior to moving a container located inside a contamination area or labelled as radioactive material.

6.8 Drums shall be strapped down prior to transport.

6.9 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.10 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

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7.0 **GENERAL**

7.1 Warnings, Cautions, and Notes precede the Item or Step to which they apply.

NOTE: The Supervisor or Dispatcher shall notify the AEDO who will provide guidance on corrective actions per site procedure FMPC-503 and SOP 20-C-606.

7.1.1 The Transportation Supervisor or Dispatcher shall be informed of spills or other problems during transport.

7.1.2 Forklifts and handstackers shall be inspected per SOP 20-C-902 prior to the first use each day.

7.1.3 Areas where RCRA waste is being loaded or unloads shall be inspected per SOP 20-C-500.

8.0 **PROCEDURE**

8.1 Transporting Non Satellite Accumulation Area Waste to Storage Generator

GENERATOR

8.1.1 Notify the supervisor of the Hazardous Waste Storage Area that containers are ready for transport to storage.

8.1.2 Obtain the location for storage.

NOTE: Per RCRA regulations, the Generator has one day to notify Transportation of hazardous waste to be moved.

8.1.3 Inform the Transportation Dispatcher of material type, packaging, amount of material, location of material, and destination.

DISPATCHER

8.1.4 Notify the supervisor of the Hazardous Waste Storage Area of the volume of material that is being transported.

DISPATCHER/SUPERVISOR

NOTE 1: RCRA regulations allows one day for Transportation to pick up the waste container and transport the container to storage.

NOTE 2: The Dispatcher and/or supervisor shall ensure that the MVO has the required equipment.

8.1.5 Direct an MVO to the waste location.

MVO

8.1.6 Sign the "Nuclear Materials Transfer/Receipt/Identification Record" (68/69/XX Cards), Forms FS-F-1990, FS-F-2220, and FS-F-2221 (See Figure 1).

8.0 **PROCEDURE** (cont.)

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8.1.7 Transport the consignment to the specified storage area.

NOTE: At the delivery point, MC&A and the supervisor shall accept and sign the "Nuclear Materials Transfer/Receipt/Information Record" cards.

8.1.8 Give documentation to the supervisor.

8.1.9 If the material is rejected at the delivery point, proceed per Item 8.5.

NOTE: When transporting drums by forklift, one drum at a time shall be moved.

8.2 Transporting Waste from an SAA to Storage using a Forktruck or Trailer

GENERATOR

8.2.1 Notify the supervisor of the Hazardous Waste Storage Area that containers are ready for transport to storage.

8.2.2 Obtain the location for storage.

NOTE: Per RCRA regulations, one day shall be allowed for Transportation to pick up the waste container and transport the container into storage.

8.2.3 Notify the Transportation Dispatcher of material type, packaging, amount of material, location of material, and destination.

DISPATCHER

NOTE: RCRA regulations allow one day for Transportation to pick up the waste container and transport the container into storage.

8.2.4 Notify the supervisor of the Hazardous Waste Storage Area that material is being transported.

DISPATCHER/SUPERVISOR

NOTE: The Dispatcher and/or supervisor shall ensure that the MVO has the required equipment.

8.2.5 Send an MVO to the location of the waste.

8.0 **PROCEDURE** (cont.)

MVO

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NOTE: Documentation attached shall be the compatibility alpha code; hazard label; "Item Production/Certification/Identification" (W65) card packet, Form FS-F-1945-XX; "Nuclear Materials Transfer/Receipt/Identification Record" (68/69/XX card packet), Forms FS-F-1990, FS-F-2220, and FS-F-2221; Radiological Survey for surface contamination per Topical Manual FMPC-2089.

8.2.6 Check with Quality Assurance to verify that documentation is complete.

8.2.6.1 Notify the Generator if documentation is not complete.

NOTE 1: DOT approved drums and FM approved five gallon stainless steel safety cans with self closing spigots are acceptable containers (See Figures 2 and 3).

NOTE 2: Self-closing spigots shall not bind.

8.2.7 Check the condition of the container.

8.2.7.1 Notify the supervisor if the containers have rust, holes, dents, or other damage.

NOTE: Lids shall be taped to drums of liquid waste to avoid spills.

8.2.8 Check the security of the lid or closure.

8.2.8.1 Tighten loose covers.

8.2.9 Check for leakage or the presence of material on external surface of the container.

8.2.9.1 If found, notify the supervisor.

NOTE: Only containers identified by one alpha code shall be moved in each load except for containers identified by a compatible code which may be moved with other colors.

8.2.10 Check the compatibility of material.

8.2.10.1 If the inspection indicates a condition that is not acceptable, proceed per Item 8.5.

7.1 MATERIAL EVALUATION (cont.)

GENERATOR/PACKAGER

b. If the material is determined to be RCRA, notify the supervisor for disposition.

NOTE: RCRA material shall not be shipped.

c. If the material is Non-RCRA, proceed to 7.1, step 2.

2. If notified by the supervisor a sample is required, obtain a sample of the material per SOP 1-C-101.

7.2 FILLING DRUMS WITH BRIQUETTES (See Figure 1)

GENERATOR/PACKAGER

1. Obtain an empty 55-gallon drum from Transportation and inspect for damage, such as corrosion, dents, holes or other defects (refer to Tables 1, 2, and 3).

2. Obtain 10-gallon cans containing briquettes from storage.

3. Prior to filling the drum, place both containers on herculite, side by side.

4. Manually place a one-inch maximum layer of dicalite into the bottom of the drum.

5. Pour sand evenly into drum until a 3-inch layer is formed on the bottom of drum.

6. Remove lid(s) from 10-gallon can(s) and manually transfer 9 briquettes, positioned side by side, on top of the layer of sand in the drum.

   NOTE: The briquette is cylindrical, approximately 4 inches in diameter and 2 to 4 inches thick. The average weight is 6 to 8 pounds.

7. Pour sand evenly over the 9 briquettes forming a 3 inch layer over the briquettes.

7.2 FILLING DRUMS WITH BRIQUETTES (cont.)

GENERATOR/PACKAGER

8. Continue filling the drum with briquettes and sand in the sequence instructed in section 7.2, steps 5 through 6.

   NOTE: The drum will hold 5 layers of briquettes and 6 layers of sand.

9. Place lid on drum and secure the lid bolt-type lock ring/lever, as applicable.

10. Request Radiological Safety to complete radiation monitoring of the drum.

11. Stencil or label drum and lid with the identification shown in Figure 1 and proceed to Section 7.3, step 6, to prepare drum for loading.

    a. Obtain Item Number (Drum Number) from MC&A.

    b. For Drum Uranium (DU) weight, utilize data from 10-gallon can.

    c. To calculate the Total Weight, add the sand weight (360 lbs) plus DU weight plus the drum tare weight.

    d. Obtain DU activity, Direct Reading (DR)-contact, and DR-1 meter from the Radiation Safety Technician.

12. Dispose of 10-gallon cans and respirable fines as instructed by supervisor.

7.3 PREPARING FILLED DRUMS FOR LOADING

CAUTION: **PRIOR TO PERFORMING THE PACKAGING OPERATION, EACH CONTAINER SHALL BE INSPECTED BY THE GENERATOR/PACKAGER TO ENSURE THE INTEGRITY OF THE CONTAINER.**

GENERATOR/PACKAGER

1. Visually inspect the drum for damage, such as corrosion, dents, holes or other defects (refer to Tables 1, 2 and 3).

   a. If damaged, mark the lid or side of the damaged drum with a red "X".

   b. Refer to Tables 1, 2, and 3 for corrective action, as applicable.

7.3 PREPARING FILLED DRUMS FOR LOADING (cont.)

GENERATOR/PACKAGER

2. Visually inspect each drum for free-standing liquid.

   a. If liquid is present, remove liquid by either vacuuming or use a nonsparking tool, to place a hole in bottom of container for draining liquid.

   b. If the liquid is water, dispose of water through the waste water treatment system as directed by supervisor.

3. For a drum of uranium material other than 4A material, label or stencil the inventory and the lot and drum number on the drum in accordance with the FEMP Lot Marking and Color-Coding System, RM-0005 (see Figure 2).

4. For a drum of 4A material, stencil or label the center of the drum at drum seam with the name of the 4A material type, "Radioactive-LSA", Yellow II, and Flammable Solid Labels.

   NOTE: Bar-code labels may be used in place of stencilling.

5. Secure the drum lid bolt-type lock ring/lever lock, as applicable.

6. Weigh the drum (excluding drums of 4A material) as instructed by supervisor.

   NOTE: The supervisor shall specify the scale and the method of transporting the drum to the scale. A currently calibrated accountability scale shall be used.

   NOTE: Drums of 4A material shall not be weighed.

7. For drums of 4A material, ensure the weights are identified on the drum. If not, obtain the weight as directed by supervisor.

8. Transport drum to scale as instructed by supervisor.

9. Inspect the scale to be used.

   NOTE: The scale shall be inspected and operated in accordance with the SOP applicable to the area.

10. Using forklift, move the container onto the scale.

7.3 PREPARING FILLED DRUMS FOR LOADING (cont.)

GENERATOR/PACKAGER

11. Record weight of drum on "Item Production/Certification/Identification" XX Card, Form FS-F-1945-XX (see Figure 3).

12. Using forklift, remove the container from the scale and move to the loading area.

13. Record the data from the container on the "Item Production/Certification/Identification" XX Card, Form FS-F-1945-XX (Figure 1).

14. Label or stencil the container with the gross weight and net weights using 1-1/2 to 2-inch (minimum) letters in location shown in Figure 2.

    NOTE: This step is not applicable to 4A material.

15. Complete the "Item Production/Certification/Identification" Card, Form FS-F-1945-XX, by entering the required weights and transmit card to MC&A.

16. As instructed by the supervisor, overpack the container per SOP 20-C-600.

7.4 SECURING AND PALLETIZING DRUMS

GENERATOR/PACKAGER/MOTOR VEHICLE OPERATOR (MVO)

1. Using the hoist/crane and lifting fixture or equipment specified by supervisor, place the appropriate number of drums per Table 4 with bolt of lock ring facing outward on a pallet.

2. Strap or band the container(s) together and to the pallet.

3. Per the applicable department procedure, move the pallet(s) to the area designated by the supervisor for loading.

7.5 SECURING AND PALLETIZING 4A URANIUM PIECES

GENERATOR/PACKAGER

1. Obtain a pallet and place herculite material over pallet.

2. Place rubber over the herculite material on pallet.

7.5 SECURING AND PALLETIZING 4A URANIUM PIECES (cont.)

GENERATOR/PACKAGER

3. Using a lifting fixture/device, remove large pieces of spill metal from drum.

   a. If large pieces cannot be lifted, use a drum turner within a HEPA filtrated enclosure to invert drum for removal of the material.

4. Place large pieces on pallet, maintaining weight limitation per Table 5.

5. For small pieces, obtain an empty drum and ensure interior is free of water. If water is present, dispose at nearest sump.

6. Manually remove small pieces of spill metal from drum and place in empty drum or using a drum turner, transfer small pieces to another drum within a HEPA filtrated enclosure.

7. Vacuum any loose residuals from the uranium pieces on pallet and/or in the drum.

8. As applicable, remove drum containing small pieces from HEPA enclosure, secure drum lid (lever-lock ring or bolt-ring closure), and label or stencil material type on the drum.

9. On the pallet, wrap uranium pieces in rubber and/or herculite material.

10. Band wrapped material together on pallet as shown in the applicable Figure 4, 5, or 6, as applicable.

    NOTE: Spill material and duds are jagged, irregular shapes and will either be packaged in drums or banded to skids at the discretion of the supervisor.

11. Shore and band material to pallet as shown in Figure 4, 5, or 6, as applicable.

12. Stencil or label the pallet edge with the identification of "Radioactive - LSA".

7.6 PREPARING AND FILLING METAL BOXES

CAUTION: METAL BOXES SHALL ONLY BE USED FOR NONPRESSURE BUILDUP MATERIAL UNLESS BOX IS VENTED.

NOTE: DELETED

GENERATOR/PACKAGER

CAUTION: PRIOR TO PERFORMING THE PACKAGING OPERATION, EACH CONTAINER SHALL BE INSPECTED BY THE GENERATOR/PACKAGER TO ENSURE THE INTEGRITY OF THE CONTAINER.

1. Visually inspect box surfaces for rust, dents, or holes per Tables 1, 2, and 3.

   a. If box is damaged, mark side with a red "X" and complete corrective action per Tables 1, 2, and 3.

   b. If the bottom of the box has a drain plug, ensure plug is securely in place.

SUPERVISOR

2. Specify the scale and the method of transporting the box.

   NOTE: A currently calibrated accountability scale shall be used.

GENERATOR/PACKAGER

3. As instructed by supervisor, move the empty metal box to the staging area.

4. Remove banding and cardboard packing material from the metal box and place in a designated container.

5. Tare weigh each twentieth box to verify standard tare weight as follows:

   a. If scale to be used as specified by the supervisor has not been checked, inspect scale.

      NOTE: The scale shall be inspected and operated in accordance with the SOP applicable to the area.

   b. Place box on the scale and obtain tare weight.

7.6 PREPARING AND FILLING METAL BOXES (cont.)

GENERATOR/PACKAGER

6. Record the weight on a "Box Tare Weight Check", Form FMPC-PRO-2867 (see Figure 7).

7. Remove box from the scale.

8. Using a forklift, move box to a designated location for packaging.

9. Remove box lid and place in a designated location to prevent damage.

10. For materials being shipped to the Nevada Test Site (NTS), place a minimum of one bag of dicalite or absorbent material in the bottom of each box.

    CAUTION: USE EXTREME CARE WHEN HANDLING CONTAINERS TO AVOID PINCH POINTS OF THE BODY.

11. Obtain containers to be loaded in metal box.

12. Complete an "Item Production/Certification/Identification Card", Form FS-F-1945-XX, per container including the container lot number and tare weight, and transmit to MC&A.

13. Remove lid from each container and check the material amount in container.

    CAUTION: ANY ADDITION OF URANIUM MATERIAL TO A CONTAINER SHALL BE PERFORMED INSIDE A HEPA FILTRATED ENCLOSURE.

    a. If additional material can be added to the container, complete the following steps.

        1) Perform one of the following actions, as directed by supervisor.

            a) Load containers into metal box (use applicable substep a, b, or c in section 7.6, step 18) and move box into HEPA filtrated enclosure.

                NOTE: Box gross weight shall not exceed 8,000 pounds.

            b) Move container(s) into HEPA filtrated enclosure.

7.6 PREPARING AND FILLING METAL BOXES (cont.)

GENERATOR/PACKAGER

2) Obtain an additional drum containing uranium material.

3) Using a drum turner within the enclosure, invert drum and fill void space in top portion of each container.

4) If necessary, manually remove small pieces of uranium metal from inverted drum and place inside containers.

5) When inverted drum is empty, remove from enclosure.

6) Check top portion of container(s) for remaining void spaces.

   a) If void spaces are present, repeat substeps 1 through 5) until spaces are filled.

   b) When void spaces are not present, replace lid on container(s) and secure.

7) Remove box or container from enclosure.

   a) For a loaded metal box, proceed to step 19.

   b) To load full container(s) into metal box, proceed to step 14.

b. If the container is full, secure lid and proceed to step 14.

14. Ensure that the hoist/crane to be used has been inspected per applicable SOP for the area.

15. Place lifting device over container.

16. Attach the lifting device specified by the supervisor on each side of the container.

17. Position container over the top of the box.

<u>NOTE</u>: Box gross weight shall not exceed 8,000 pounds.

7.6 PREPARING AND FILLING METAL BOXES (cont.)

GENERATOR/PACKAGER

18. Lower container into box and remove the lifting device.

    a. If 30-gallon drums are being loaded, lower eight drums into box.

    b. If 55-gallon drums are being loaded, lower six drums in box.

    c. If 10-gallon cans are being loaded, proceed as follows:

        1) Lower 24 cans in the metal box as shown in Figure 8.

            NOTE: The bottom layer will consist of 15 ten-gallon cans in a configuration of three rows of five containers each.

            CAUTION: **A MINIMUM OF TWO PERSONNEL SHALL MOVE PLYWOOD USING PROPER LIFTING TECHNIQUES.**

        2) Place one sheet of 1/2-inch plywood with 2" X 4" lumber shoring material facing upward on top of first layer of containers.

            NOTE: The top layer will consist of nine containers in a configuration of three rows of three containers each. The nine will be spaced one container width from each end of the metal box.

        3) On top row, place one sheet of 1/2 inch plywood with 2" X 4" lumber shoring material facing downward between the cans and the inside edge of the box to prevent shifting as shown in Figure 8.

19. When box is full, place lid on box and notify supervisor box is loaded.

7.6 PREPARING AND FILLING METAL BOXES (cont.)

SUPERVISOR

20. For solid uranium metal packaged in metal boxes, check each end of box exterior to ensure NucFil vent filters (016) with 2" pipe threads have been installed.

    a. If filters have been installed, proceed to step 22.

    b. If filters have not been installed, instruct generator/packager to install filters.

21. Specify the scale to be used.

    NOTE: A currently calibrated accountability scale shall be used.

22. If not already completed, perform scale check according to the applicable SOP in the area of the packaging operation and notify MVO to move box to the scale.

    NOTE: The scale shall be inspected and operated in accordance with the applicable scale procedure for the area of the packaging operation.

MVO

23. Using an 8,000-lb industrial forktruck, move the box on to the scale.

GENERATOR/PACKAGER

24. Weigh the box, including box pins and other hardware, to ensure gross weight does not exceed 8000 lbs for a metal box.

MVO

25. Remove the box from the scale.

GENERATOR/PACKAGER

26. Record the tabulated gross and tare weights, and contents on the FS-F-1945-XX card.

27. Label or stencil on the box the shipment log number, box identification, and tare, net, and gross weights (see Figure 9).

7.6 PREPARING AND FILLING METAL BOXES (cont.)

GENERATOR/PACKAGER

28. Label or stencil "Radioactive - LSA" on the box as shown in Figure 9.

29. Using white paint, paint over wherever "DOT 7A Type A" appears on the container.

    NOTE: The metal box shall be used as a strong tight container transported in exclusive use vehicle service.

30. Notify supervisor that package is ready for inspection.

SUPERVISOR

31. Notify QC the box is ready for certification.

QUALITY CONTROL

32. Inspect the box per the applicable department procedure for certification.

    a. If the box is not certified, complete a DCAR per SSOP-0023.

    b. Tag the box for correction, and notify the generator/packager.

GENERATOR/PACKAGER

33. Using fabric strapping, secure lid on the box for interplant shipment.

34. Notify the supervisor that boxes are ready to be moved to the staging area.

MVO

35. Using an 8,000-lb industrial forktruck, move box to the staging area.

7.7 SECURING METAL BOX CONTAINER LID (See Figure 10)

NOTE: DELETED

GENERATOR/PACKAGER

1. Remove the lid edge protector from the container.

2. Position the container lid on edge with the bottom facing out and leaning against the container.

   NOTE: The lid shall be leaning at an angle so that the lid will not fall.

3. Install a neoprene sponge rubber gasket on the lid sealing surface if applicable.

4. Place the lid into position on top of the container.

5. Secure the lid as follows:

   a. Install bolts as shown in Figure 10.

   b. If "L" clips are required, using the tool provided, install "L" clips in sequence on corners, sides, front, and back of the container (see Figure 10).

      NOTE: Four clips shall be in place on each of the two sides of the container, plus three clips in front and three in back, for a total of 14 clips.

      NOTE: The clips are the primary container closing/locking devices.

   c. Using a wide-edged blunt chisel, bend the bottom edge of the clip locking strap inward until the strap is secured.

GENERATOR/PACKAGER

6. Install the lid edge protector on the container.

7. Using 3/8 X 16 hex bolts, washers, and hex-head elastic stop nuts, secure the edge protector on the container.

   NOTE: The hex bolts are used to hold the edge protector in place and not for lid security.

RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
06-16-93	0	Site Requirement required to establish nuclear criticality safety standards for the FEMP site per Request No. S92-233, initiated by T. Brown. SR-2117 and SSOP-0095 replace FMPC-2117, "Topical Manual for Nuclear Criticality Safety" and FMPC-0517, "Nuclear Criticality Safety."

7.9 LOADING PALLETS IN A GONDOLA (See Figure 11) (cont.)

GENERATOR/PACKAGER

3. Carefully remove outer packaging from the liner.

4. Place the liner in the gondola as directed by supervisor.

5. Unroll the liner to the opposite end of the gondola.

6. Walk down the center aisle of the single layer of liner and pick up the hem as marked and place over the side of the gondola. Repeat for the other side of the gondola noting that the liner side marked "toward the loader" is the liner section to be placed over the side where the material loading activity is to be performed.

7. Place the liner end flaps over the ends of the gondola.

   NOTE: There should be a 6 inch minimum overhang over the corners.

8. Check liner for a uniform fit in the gondola and adjust as needed.

9. Lay one plywood sheet, a minimum of 1/4-inch thick, on top of liner.

10. Place 2-inch by 4-inch piece of lumber against inside bottom edge of gondola car.

11. Place one 2-foot by 8-foot plywood piece on each end of car resting on its edge per Figure 12.

12. Using an overhead crane with pallet fork-lifting device or other lifting device, place pallet in gondola as follows:

    a. Lift pallet of material and move over the gondola.

    b. Slowly lower and position pallet in the gondola per Table 6, as applicable.

13. Ensure loading of pallet does not drag down the sides of the liner into the gondola.

14. Insert shoring between pallets per Table 6 or band entire load to prevent shifting during transport. The end row material may have to be loaded individually.

15. When loading is complete, fold the liner end flaps into the car.

1.0 INTRODUCTION

This site requirement establishes required safety principles and program requirements for site remediation activities at the Fernald Environmental Management Project (FEMP) involving or affecting fissile material. These requirements are provided to ensure that the public, workers, government property, and essential activities are protected from the effects of a criticality incident.

2.0 SCOPE

The requirements provided in this document shall apply to FERMCO personnel responsible for transporting, storing, packaging, or otherwise having stewardship of fissile nuclear materials during decontamination or decommissioning activities.

This site requirement complies with DOE Order 5480.24, "Nuclear Criticality Safety".

3.0 DEFINITIONS

Credible Abnormal Event - An event that could occur outside of normal activities or the storage of fissile material (e.g., sprinklers activation during a fire).

Criticality Safety Analysis - An analysis performed before starting a new activity involving fissile materials or before an existing activity or piece of equipment involving fissile materials is changed to determine whether the entire remediation process will be subcritical under both normal and credible abnormal conditions.

Double Contingency Principle - The philosophy requiring that decontamination designs incorporate sufficient factors of safety to require at least two highly unlikely, independent, and concurrent changes in activity conditions before a criticality accident is possible.

Fissile Material - Any material containing uranium-235 or other fissile radionuclides. Other fissile radionuclides are plutonium-239, plutonium-241, and uranium-233.

Geometry Control - A method that places reliance on equipment design in which dimensions of the contained fissionable material and spacing between equipment are limited via passive engineering controls.

Line Management - Supervisors responsible for remediation, decontamination, or transportation activities.

Nuclear Safety Operational Authorization (NSOA) - A form used by Nuclear Safety to authorize nuclear criticality safety for a new activity or change in activity scheduled for completion within 90 days.

7.9 LOADING PALLETS IN A GONDOLA (See Figure 11) (cont.)

GENERATOR/PACKAGER

28. Tie the 8 intermittent ropes (placed temporarily over the end of the car; no bungee sections; no mating rope at the opposite side) through the receiver hole in the hem, loop, rethread through the receiver hole, pull snug, and tie the rope back to itself.

29. Tie each of the final end ropes (two on each end) to the most convenient of the four crossing ropes near each end of the gondola.

30. Ensure the sections of bungees attached to the 15 continuous cross ropes are not pulled to their limit.

31. Manually install metal tarp supports in each hole located on the sides of the gondola car.

    CAUTION: DO NOT ALLOW TARP TO BE WITHIN TWO INCHES OF SAFETY APPLIANCES (LADDER/BRAKE WHEEL).

32. Cover top of gondola with a tarp if partially or fully loaded.

    NOTE: The gondola shall remain covered at all times except when loading pallets.

33. Using nylon rope, feed rope through weld metal eyelets at each corner of gondola car to tie tarp down.

34. Affix placards, provided by Traffic, on both sides and ends of gondola exterior.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- DOE 1540.1, "Materials Transport and Traffic Control Management"
- DOE 5632.2A, "Physical Protection of Special Nuclear Material and Vital Equipment"
- 10 CFR Part 71, "Packaging of Radioactive Material for Transport and Transportation of Radioactive Material Under Certain Conditions"

4.0 **REQUIREMENTS** (cont.)

4.1 PRINCIPLES

c. Neutron reflecting materials such as concrete, water, plastics, thick metals, and oil shall be separated from fissile materials in storage and decommissioning equipment unless specifically analyzed and approved by NCS Section.

d. In establishing safe limits, full water density reflection and optimum density water moderation shall be considered.

e. When equipment is used to decontaminate materials of more than one isotopic enrichment, isotopic changeover procedures shall be followed. When materials of more than one isotopic enrichment are stored or transported, the materials shall be segregated according to enrichment.

f. Where enriched uranium solutions of more than one concentration are handled, the nuclear criticality safety of the tanks and other equipment shall be based on the maximum concentration available.

g. In locations where it is possible that multiple safe groupings of fissile material may accidentally come together, the use of full water density reflection shall be applied to the safe groupings.

h. Before transferring fissile solutions from safe geometry to unsafe geometry, two samples shall be taken and each chemically analyzed (or analyzed by other suitable measurements) to confirm that the uranium concentration or mass is within safe limits.

i. Criticality safety shall not be based solely upon offsite shipper values. FERMCO analyses must verify that the shipper values are correct.

j. Before beginning an activity with fissile materials or changing an existing activity, it shall be determined that it will be subcritical under both normal and credible abnormal conditions.

k. Criticality alarm systems (CAS) and radiation detection alarm (RDA) shall be required for areas where the mass of fissionable material exceeds 700 gms U-235, unless otherwise approved by Nuclear Criticality Safety (NCS).

l. Detailed nuclear criticality safety analyses for specific activities, storage arrangements, and the handling and transportation of fissionable materials shall be performed.

TABLE 1
CORROSION INSPECTION TYPES

CATEGORY	CHARACTERISTIC	COULD CAUSE LOSS OF DRUM INTEGRITY		CORRECTIVE ACTION
		YES	NO	
1	Severe corrosion with deep pitting and/or metal flaking	X		As directed by supervision **NOTE**: Disposition shall be within 24 hours.
2	Corrosion with shallow pitting and/or mild metal flaking		X	As directed by supervision
3	Surface rust with no pitting and mild paint flaking which exposes bare metal		X	Remove rust and flake paint and paint as scheduled by supervisor

4.0 **REQUIREMENTS** (cont.)

4.2 PROGRAM

e. A NCS committee shall be established and maintained to advise FERMCO management on NCS issues. The committee shall have a written charter.

f. NCS audits of activities shall be performed on a monthly basis. All deviations shall be documented and reported when necessary.

g. An annual self-assessment shall be made to evaluate the effectiveness of the NCS program. All deviations shall be documented and reported when necessary.

h. A review of the program shall be conducted every three years.

i. Quality Assurance (QA) plans shall be maintained by NCS. The plans shall include requirements for configuration control and self-assessments and shall delegate responsibilities for procedures, analyses, calculations, fissionable materials activities/storage, and all other parts of the NCS program.

j. NCS incidents shall be reported, documented, investigated, and tracked. Corrective actions shall be taken to ensure a similar incident does not occur. The severity of incidents shall be classified according to Table 1. Incident reports shall be input into the Occurrence Reporting System, as applicable.

k. A CSA or NSOA form shall be issued before initial startup or any subsequent change of an activity involving fissionable material.

5.0 **RESPONSIBILITIES** (Refer to Table 2 for responsibility summary.)

5.1 FERMCO President establishes site policy for the Nuclear Criticality Safety program.

5.2 Nuclear Criticality Safety Section (Regulatory & Technology Programs Division)

- Establishes and maintains a NCS Program that ensures the principles stated in this site requirement are addressed properly.
- Develops controlled site and department procedures to implement NCS program.
- Reviews and approves controlled department procedures that implement the NCS program.

TABLE 3
DENT/BULGE TYPES

TYPE	CHARACTERISTIC	CORRECTIVE ACTION
1	Dents and/or bulges affect container to degree of potential or actual release	Overpack or transfer to new container.
2	Dents and/or bulges not affecting container integrity	Continue to monitor.

TABLE 4
CRITERIA FOR PALLETIZING DRUMS

MATERIAL TYPE	DRUM SIZE	WEIGHT LIMITATION PER PALLET
4A Material Top Crops	30-gallon	8,000 pounds gross weight, including skid weight
4A Material Briquettes	55-gallon	8,000 pounds gross weight, including skid weight
4A Material 228 ARF	30-gallon	8,000 pounds gross weight, including skid weight
Uranium Material other than 4A	30 or 55-gallon	8,000 pounds gross weight, including skid weight

TABLE 2

RESPONSIBILITIES SUMMARY
Nuclear Criticality Safety

ITEM	RTP	ESH	LINE MANAGEMENT	AEDO	EMERGENCY PLANNING	TRAINING
Establish NCS Program	LR	S	I	S	S	S
Procedures (Specific in each Dept.)	LA	LS	L	S	LS	L
Documents NCS in SARs	L	S				
Training	RA	A				LI
CSAs	LA	S	I			
NSOAs	LA	S	I			
Design of New Facilities	L	S	S			
Schedules Audits and Appraisals	L	S	S			
Investigation of NCS Incidents	S	L	S	S		
Drills	S	S			L	
Shipping	SA	SA	LI			
NADs	R	L				
RDAs	R	L				
Storage and Handling Procedures	RA	S	L			
NCS Limits Posting	RA	L	I			
Inspections	S	L	S			

TABLE KEY
- L = Lead Responsibility (responsibility may be shared)
- S = Supports the Program
- A = Approves the Program
- I = Implements the Program
- R = Requirement

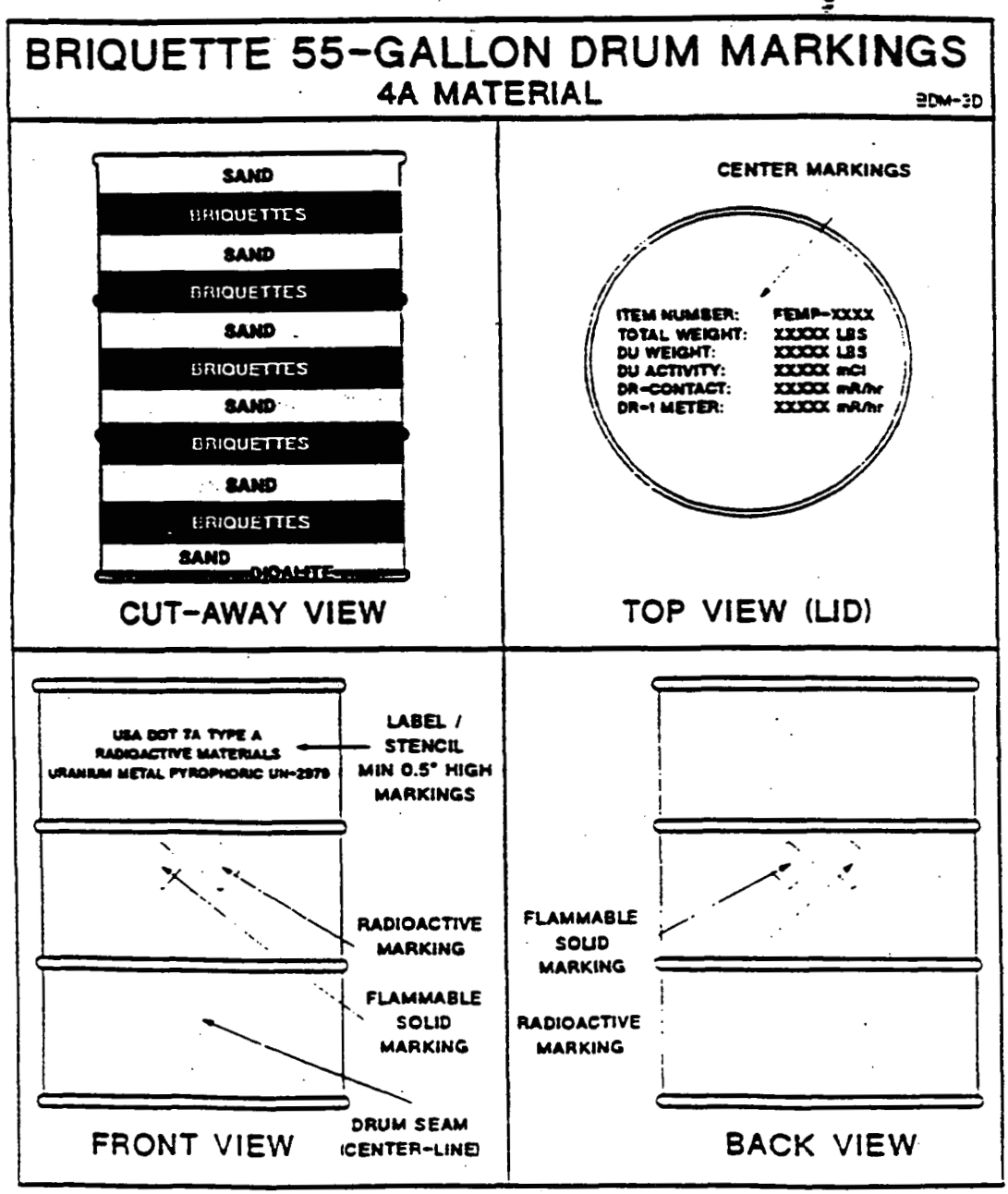

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Figure 1 - Example of Briquette Drum Markings and Cut Away View

5.0 **RESPONSIBILITIES** (cont.)

- Performs criticality safety analyses to evaluate new or modified activities, engineering designs, and support system safety analyses for packaging and shipping fissionable materials.

- Ensures that the design, placement, and testing of RDAs meet the requirements of DOE Order 5480.24 and ANSI/ANS-8.3.2.

- Interprets and supports implementation requirements of DOE Orders and mandatory ANSI/ANS standards related to NCS.

5.3 Logistic Administration Section (Transportation of the RSO Division) establishes and maintains controlled procedures for onsite and offsite movement of fissile material in accordance with applicable DOE orders, DOT regulations, and this site requirement.

5.4 The Vice-President of Regulatory & Technology Programs establishes an internal assessment system to annually evaluate the effectiveness of the FEMP Nuclear Criticality Safety Program Plan.

5.5 Line management responsible for shipping/receiving, storing, handling, or having stewardship of fissile nuclear materials:

- Assumes responsibility for all aspects of NCS in their assigned areas.

- Establishes written procedures for handling and storing fissionable materials and ensures the procedures are current and readily available in the work area.

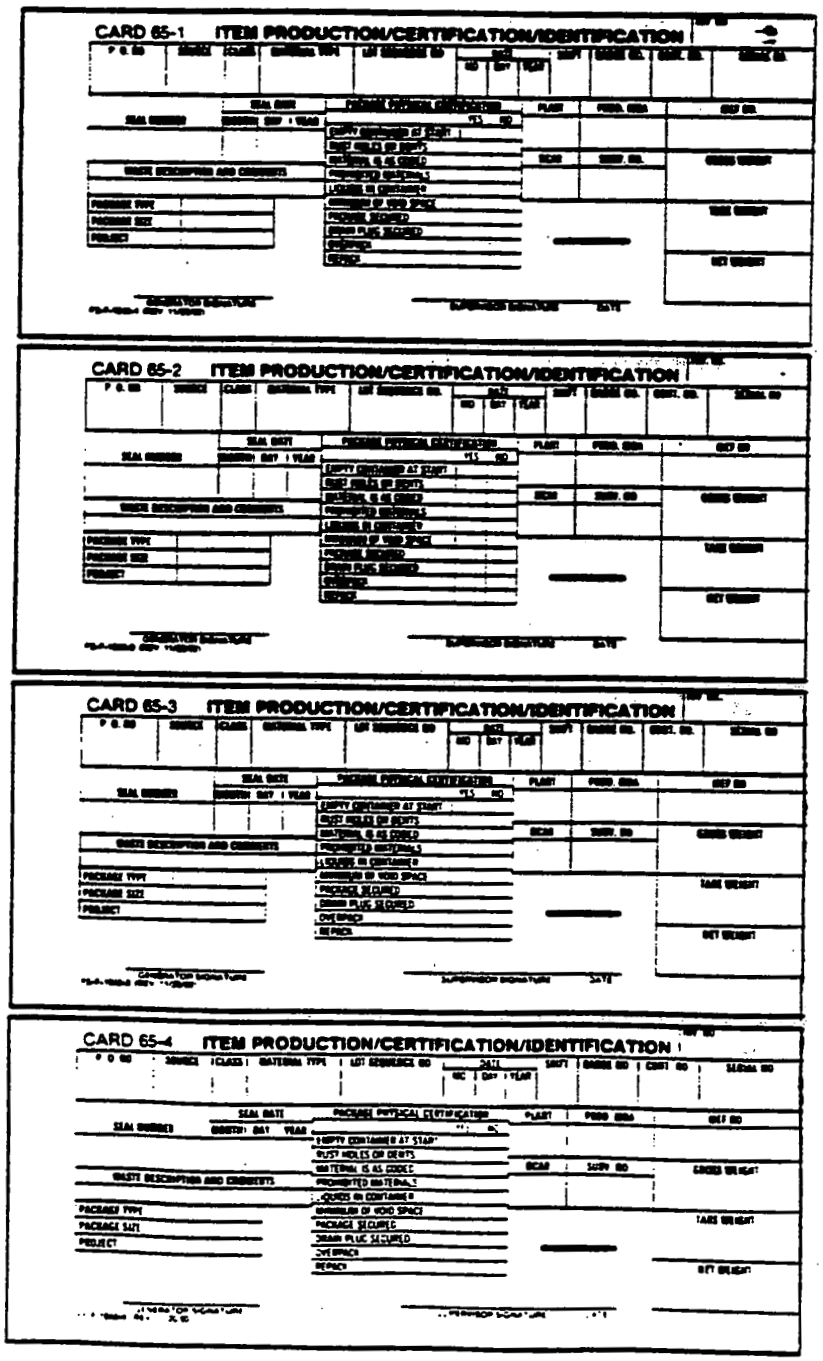
  NOTE: These procedures shall be reviewed and approved by the NCS Section.

- Ensures NCS training is provided to personnel, as required.

- Initiates NCS Section approval per SSOP-0095 before beginning an activity where nuclear criticality safety issues are involved.

- Inspects, stores, and handles all fissile materials in accordance with standards given in this site requirement and applicable procedures.

- Ensures that Radiation Detection Alarms are operable within their responsible area and are periodically tested and calibrated by applicable safety organizations.



634 Figure 3 - Item Production/Certification/Identification

5.0 **RESPONSIBILITIES** (cont.)

- Reviews procedures, revisions, new designs, and modifications involving radioactive and/or fissile materials. Those involving fissile material where criticality is a potential concern shall be routed to the NCS section.

- Provides support for criticality safety analyses to evaluate new or modified activities, engineering designs, and support system safety analyses for packaging and shipping fissionable materials.

5.8 Radiological Compliance

- Leads the investigation of incidents involving nuclear criticality safety.

- Performs monthly inspections of activities and storage areas involving fissile material and informs line management of the existence of any unsafe conditions or practices.

- Submits all findings of inspections to the Nuclear Criticality Safety and Radiological Engineering for categorization and further investigation.

- Maintains surveillance of implementation activities and assures compliance with NCS requirements.

- Monitors packaging and transportation of fissile material.

5.9 Maintenance Section ensures criticality safety approval has been received prior to modifying equipment used to contain fissile materials.

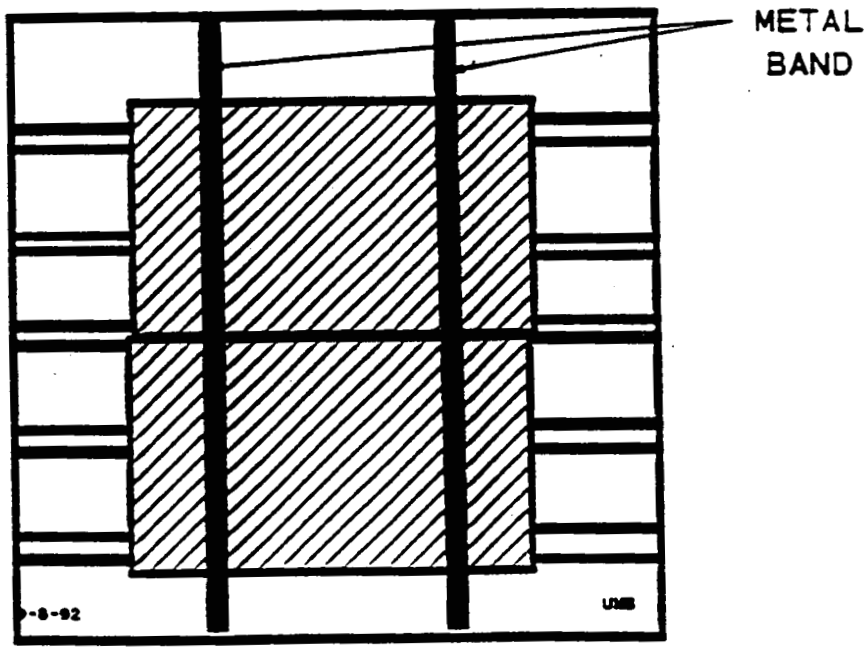
5.10 Subject Matter Experts ensure NCS requirements are identified in procedures.

5.11 Assistant Emergency Duty Officer (AEDO)

- Notifies Nuclear Safety and Radiological Compliance when an event is reported relating to NCS.

- Verbally notifies DOE-Oak Ridge Operations Center, FERMCO President, DOE-Site Representatives, and Public Affairs Manager of an unusual occurrence involving NCS.

URANIUM METAL FLAT BILLETS



METAL SHALL BE WRAPPED IN RUBBER AND HERCULITE

METAL SHALL BE BANDED TOGETHER AND THEN TO THE PALLET

MAXIMUM GROSS WEIGHT 8000 POUNDS

636 Figure 5 - Diagram of Uranium Metal Billet Arrangement on Pallet

5.0 RESPONSIBILITIES (cont.)

5.15 Training Department

- Develops NCS training programs and provides training to all groups of FEMP workers involved in nuclear criticality safety, including supervisors, managers, and facility owners responsible for the handling of controlled fissile material.

- Consults Nuclear Safety and Radiological Engineering for content of the NCS training program.

- Informs Nuclear Safety and Radiological Engineering of any proposed changes to the NCS training program and obtains approval before changes are made to the content of the courses.

5.16 NCS Committee advises management on NCS issues.

FEMP
BOX TARE WEIGHT CHECK

BOX NUMBER	DATE	TARE WEIGHT (LBS.)	BADGE NUMBER

FS-F-2867 (REV. 4/30/93)

Figure 7 - Box Tare Weight Check Form, FMPC-PRO-2867

REMEDIATION SUPPORT OPERATIONS PROCEDURE	Movement Of RCRA And Hazardous Waste	SOP 20-C-017 Area: As Applicable
(Signature on File) Authorization: H. Bailey, Materials Management Manager	Supersedes: PO-S-06-001 Dated: 07-21-89	Issue Date: 09-24-93

5692

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1.0 **PURPOSE**

The purpose of this document is to establish the procedure for the on-site transportation of mixed and hazardous wastes

2.0 **APPLICABILITY**

This procedure is applicable to personnel involved in the transport of mixed and hazardous wastes.

MAY 1994

3.0 **RESPONSIBILITIES**

3.1 **Supervisors** shall be responsible for the following:

3.1.1 Providing oversite and guidance to the MVO assigned to transport hazardous waste.

3.1.2 Ensuring that MVOs are qualified per the established training requirements identified by the Department/Staff manager.

3.1.3 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.1.4 Contacting ES&H to determine the required respiratory protection for the area where the material is being moved and/or stored.

3.1.5 Issuing specified respiratory equipment to operators.

3.1.6 Obtaining and posting a "Radiation Work Permit" when required.

3.2 The **Dispatcher** shall be responsible for coordinating the activities of personnel involved in accepting, transporting, and releasing the hazardous waste transferred via trailer, forktruck, or other vehicles.

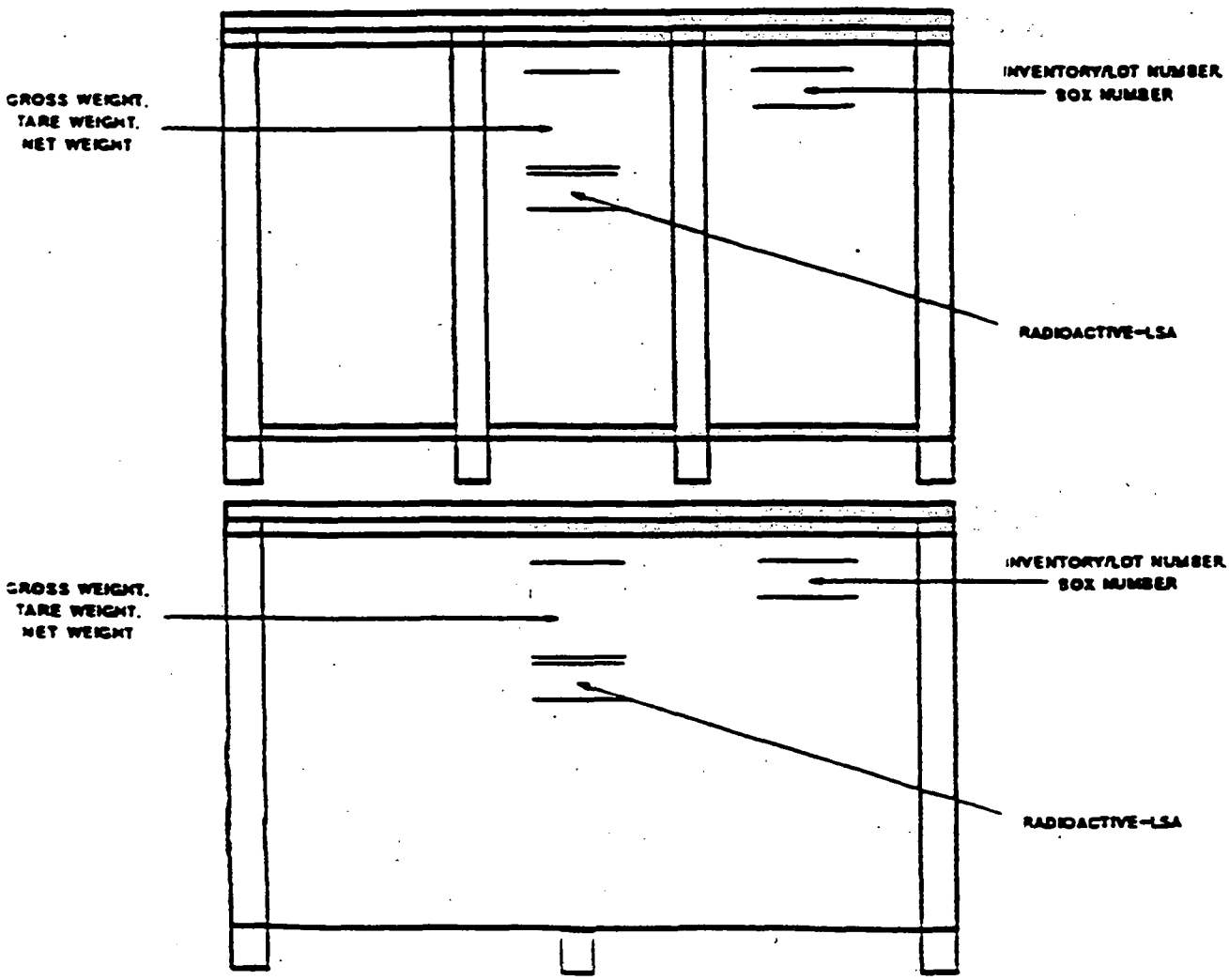
3.3 **Motor Vehicle Operators (MVOs)** shall be responsible for the following:

3.3.1 Ensuring that available consignment documentation is complete.

3.3.2 Transporting consignments in a safe and efficient manner.

3.4 **Materials Control and Accountability (MC&A)** shall be responsible for preparing the forms required for transporting material.

TYPICAL METAL BOX MARKINGS FOR OFFSITE SHIPMENT



VIEW FROM SIDE

ALL MARKINGS SHALL BE A MINIMUM OF 1.5" TALL UNLESS OTHERWISE SPECIFIED.

Figure 9 - Diagram of Metal Box Identification

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5.0 **APPLICABLE DOCUMENTS** (cont.)

5.2.7 SSOP-0035, "Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 An Industrial Truck that has not been inspected per SOP 20-C-902 shall not be used.

6.2 Leather-palm gloves shall be worn while operating equipment and when handling sharp-edged or abrasive material.

6.3 Safety glasses shall be worn outside of enclosed cab vehicles and when handling sharp-edged or abrasive material.

6.4 The MVO shall remain with the vehicle while a load is being transported.

6.5 Respiratory protection issued by the supervisor shall be worn when required by ES&H.

6.6 Operators shall have reviewed and be familiar with MSDSs for hazardous chemicals/material that may be used or encountered.

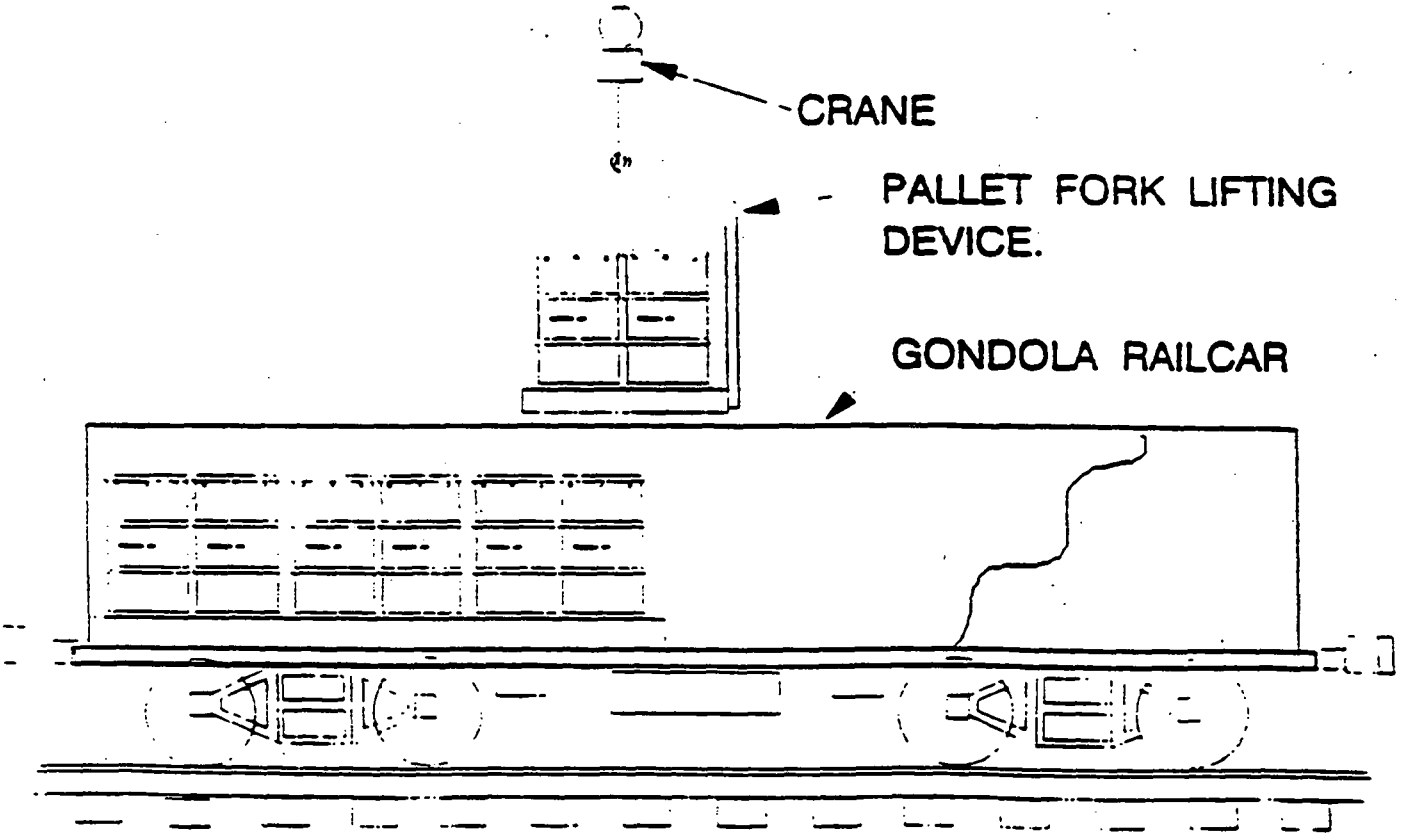
6.7 Radiological Control shall be contacted prior to moving a container located inside a contamination area or labelled as radioactive material.

6.8 Drums shall be strapped down prior to transport.

6.9 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.10 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

LOADING GONDOLA CARS



642 Figure 11 - Diagram of Loading Pallets in Gondola

8.0 **PROCEDURE** (cont.)

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8.1.7 Transport the consignment to the specified storage area.

NOTE: At the delivery point, MC&A and the supervisor shall accept and sign the "Nuclear Materials Transfer/Receipt/Information Record" cards.

8.1.8 Give documentation to the supervisor.

8.1.9 If the material is rejected at the delivery point, proceed per Item 8.5.

NOTE: When transporting drums by forklift, one drum at a time shall be moved.

8.2 Transporting Waste from an SAA to Storage using a Forktruck or Trailer

GENERATOR

8.2.1 Notify the supervisor of the Hazardous Waste Storage Area that containers are ready for transport to storage.

8.2.2 Obtain the location for storage.

NOTE: Per RCRA regulations, one day shall be allowed for Transportation to pick up the waste container and transport the container into storage.

8.2.3 Notify the Transportation Dispatcher of material type, packaging, amount of material, location of material, and destination.

DISPATCHER

NOTE: RCRA regulations allow one day for Transportation to pick up the waste container and transport the container into storage.

8.2.4 Notify the supervisor of the Hazardous Waste Storage Area that material is being transported.

DISPATCHER/SUPERVISOR

NOTE: The Dispatcher and/or supervisor shall ensure that the MVO has the required equipment.

8.2.5 Send an MVO to the location of the waste.

8.0 **PROCEDURE** (cont.)

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CAUTION

The sac is made of plastic and may be damaged in handling or may slide on smooth surfaces.

NOTE: Containers and/or SACs shall be strapped down.

8.2.11 Check that the load is secure.

8.2.11.1 Tighten the load if loose.

8.2.12 If the load is acceptable, sign the "Nuclear Materials Transfer/Receipt/Identification Record" (68/69/XX Cards), Forms FS-F-1990, FS-F-2220, and FS-F-2221.

8.2.13 Transport the consignment to the specified storage area.

NOTE: At the delivery point, MC&A and the supervisor shall accept the material and sign the "Nuclear Materials Transfer/Receipt/Identification Record" cards Forms FS-F-1990, FS-F-2220, and FS-F-2221.

8.2.14 Give the documentation to the supervisor.

8.2.15 If the material is rejected at the delivery point, proceed per Item 8.5.

8.3 Other Vehicle Transport Process

GENERATOR

8.3.1 Perform Steps 8.2.1 thru 8.2.3.

8.3.2 Notify the Dispatcher of special vehicle requirements (such as pickup truck or flatbed).

DISPATCHER

8.3.3 Notify the supervisor of the Hazardous Waste Storage Area that material is being transported.

NOTE: RCRA regulations specify one day for Transportation to pick up the waste container and transport the container to storage.

DISPATCHER/SUPERVISOR

8.3.4 Send an MVO and the required vehicle type to the waste location.

8.0 PROCEDURE (cont.)

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MVO

8.3.5 Perform Steps 8.2.6 thru 8.2.15.

NOTE: The Generator may have a requirement to move containers of hazardous waste other than to a storage building. The waste may be moved within an SAA; within a building to storage material for shipment; for physical inventory; between or within buildings to obtain scale weight; remove material from non-accumulation areas such as fields; or for any other purpose requiring an MVO and vehicle to move hazardous waste.

8.4 Miscellaneous Movements

GENERATOR

NOTE: MVOs assigned to the Generator or Waste Management may move material as directed by the Generator or Waste Management without notifying the Dispatcher.

8.4.1 If required, notify the Transportation Dispatcher of location of waste containers, material type, packaging, amount to be moved, and destination.

DISPATCHER/SUPERVISOR

8.4.2 If an MVO is not assigned to the Generator, send an MVO to the location of the waste to be moved.

MVO

8.4.3 Inspect the containers of waste as follows:

NOTE: Self-closing spigots shall not bind and the bungs shall be sealed with pipe tape.

8.4.4 Check the container for rust, dents, holes, leaks, and other damage.

8.4.4.1 Notify the supervisor if damage is found.

NOTE: DOT approved drums and FM approved five gallon stainless steel cans are acceptable containers (See Figures 1 and 2).

8.4.5 Check that containers are approved for the type waste.

NOTE: Lids shall be taped to drums to avoid spills.

8.4.6 Check that lids or closures are secure.

8.4.6.1 Tighten loose covers.

8.4.7 Check the external surface of the container for hazardous material.

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8.0 **PROCEDURE** (cont.)

8.4.7.1 Notify the supervisor if a container surface is contaminated.

NOTE: All containers shall be strapped down.

8.4.8 Check that the load is secure on the trailer or vehicle.

8.4.8.1 Secure loose containers.

8.4.9 Check the compatibility of the material.

NOTE: Only containers identified by an alpha code shall be allowed per vehicle except for containers identified by a compatibility code which may be transported with other color codes.

8.4.10 If inspection reveals an unacceptable condition, the MVO shall proceed per Item 8.5.

8.4.11 Move the material to the location designated by Generator.

8.5 Rejection of Consignment Process

MVO

8.5.1 Notify the Dispatcher or Transportation Supervisor of any questionable condition of the consignment.

MVO/DISPATCHER

NOTE: The Transportation Supervisor shall evaluate the consignment and communicate concerns to the Generator and direct the MVO to perform additional tasks as required.

8.5.2 Request the assistance of the Transportation Supervisor to evaluate the consignment.

GENERATOR

NOTE 1: Concerns which are confirmed to be noncompliances along with corrective actions shall be documented.

NOTE 2: When all confirmed deficiencies have been corrected, transport action shall be initiated.

8.5.3 Complete a "Hazardous Waste Disposal Record," Form FMPC-PRO-3064 per SOP SSOP-0035 or ANL-01-0053.

9.0 **APPLICABLE FORMS**

9.1 FS-F-1990, 2220, 2221, "Nuclear Materials Transfer/Receipt/Identification Record"

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NUCLEAR MATERIAL TRANSFER RECORD

CARD PL.	CARD NO.
	68

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS. BY BADGE NO.

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

P.O. NO.: | SOURCE:
MATERIAL CLASS: | MATERIAL TYPE:
LOT SEQUENCE NO.:
MATERIAL DESCRIPTION
SHAPE CODE:

MBA: (FROM) | PLANT:
MBA: (TO) | PLANT:
STORAGE LOCATION:

NO. OF CONTAINERS OR ITEMS: NUMBER | DESCRIPTION
GROSS WEIGHT:
TARE WEIGHT:

SIGNATURES:

FS-F-1990 (REV. 3/9/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

NUCLEAR MATERIAL RECEIPT RECORD

CARD PL.	CARD NO.
	69

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS BY BADGE NO.

P.O. NO.: | SOURCE:
MATERIAL CLASS: | MATERIAL TYPE:
LOT SEQUENCE NO.:
MATERIAL DESCRIPTION
SHAPE CODE:

MBA: (FROM) | PLANT:
MBA: (TO) | PLANT:
STORAGE LOCATION:

NO. OF CONTAINERS OR ITEMS: NUMBER | DESCRIPTION
GROSS WEIGHT:
TARE WEIGHT

SIGNATURES.

FS-F-2220 (REV. 3/9/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

MATERIAL IDENTIFICATION RECORD

CARD PL.	CARD NO.
	XX

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS. BY BADGE NO.

P.O. NO.: | SOURCE:
MATERIAL CLASS: | MATERIAL TYPE:
LOT SEQUENCE NO.:
MATERIAL DESCRIPTION
SHAPE CODE:

MBA: (FROM) | PLANT:
MBA: (TO) | PLANT:
STORAGE LOCATION:

NO. OF CONTAINERS OR ITEMS: NUMBER | DESCRIPTION
GROSS WEIGHT:
TARE WEIGHT:

SIGNATURES.

FS-F-2221 (REV. 3/9/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

NUCLEAR MATERIALS TRANSFER/RECEIPT/IDENTIFICATION RECORD
FS-F-1990, 2220, 2221
Figure 1

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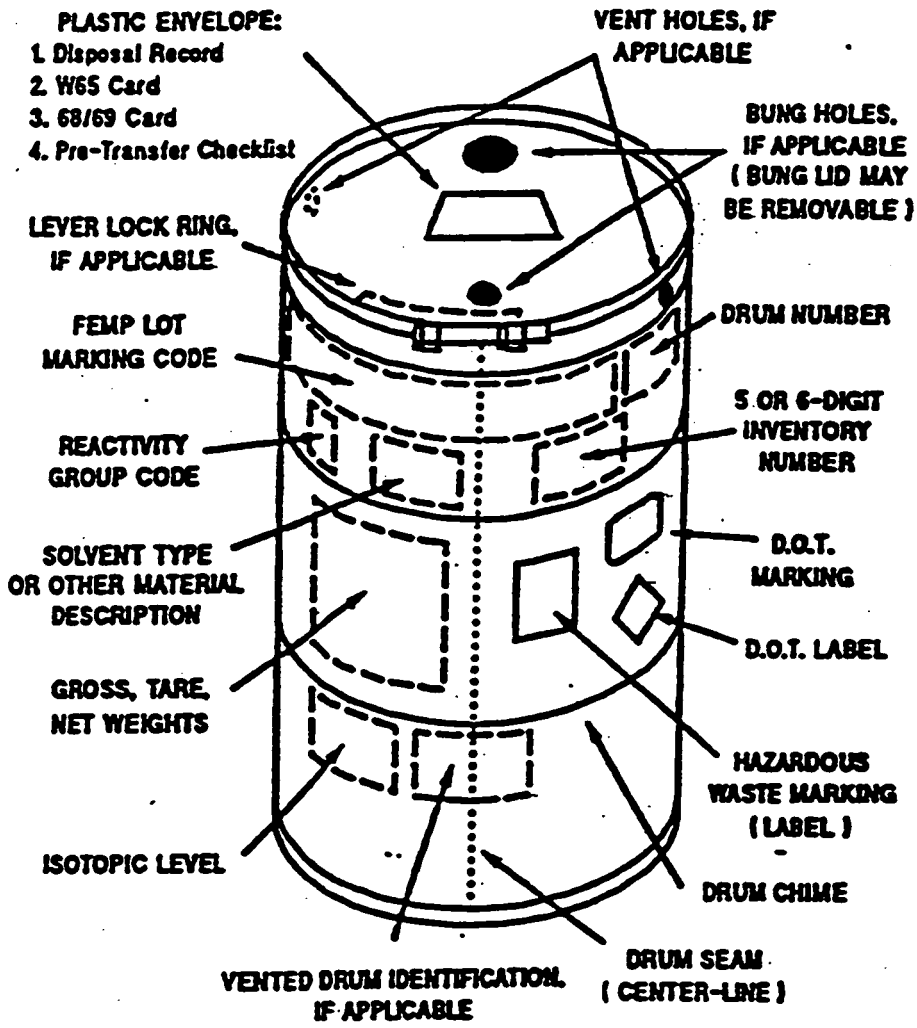
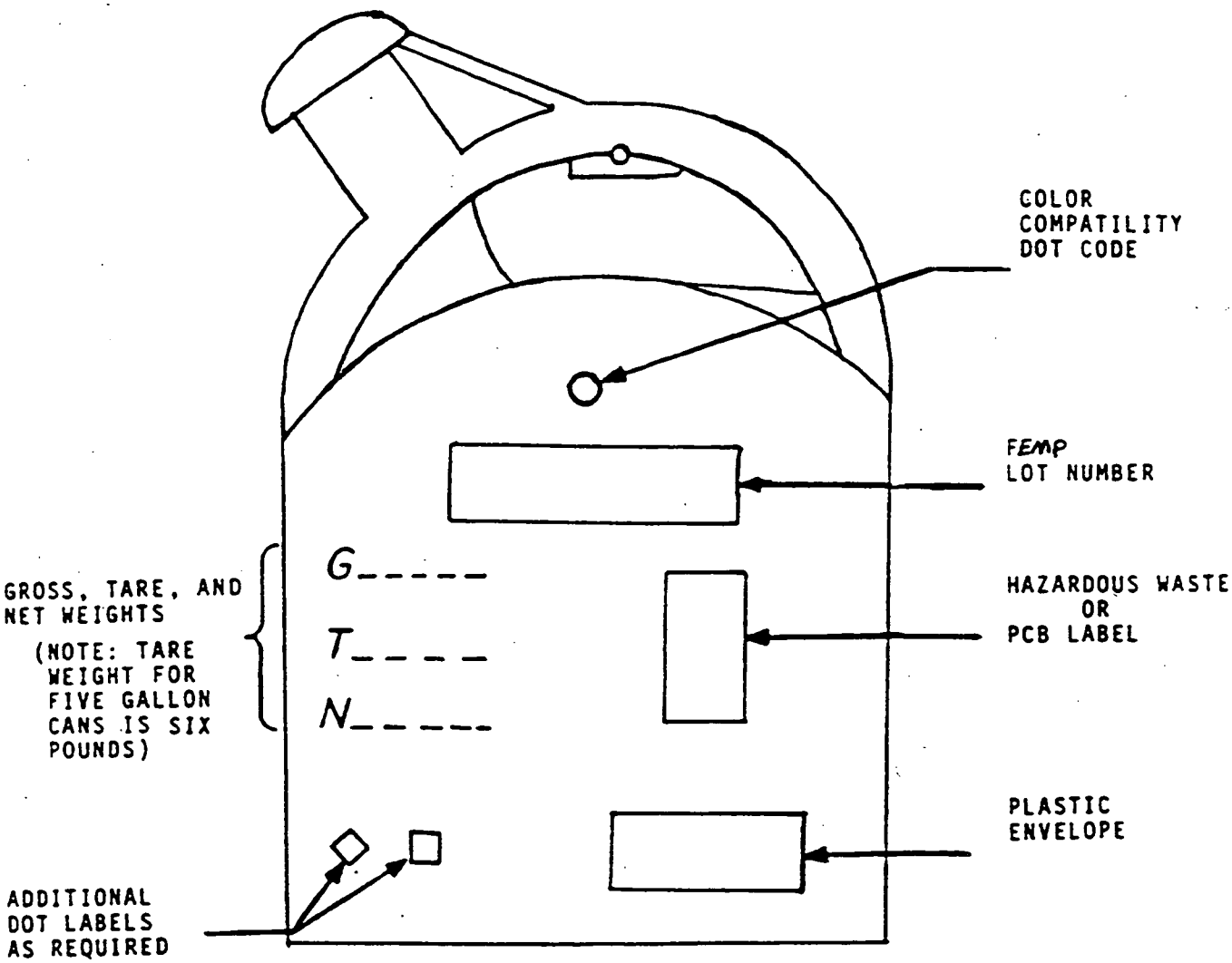
OPEN HEAD OR BUNG DRUM



NOTE: A lever lock ring may be used at the SAA.

RCRA WASTE DRUM LABELING
Figure 2

5692



NOTE: Container shall be marked with the appropriate color code (enriched, normal, depleted) per the FMPC Lot Marking and Color Coding System and SOP AnL-01-0053.

FM APPROVED STAINLESS STEEL SAFETY CAN
RCRA WASTE LABELING
Figure 3

RECORD OF ISSUE/REVISIONS

5692

'TE	REV. NO.	DESCRIPTION AND AUTHORITY
09-24-93	0	Procedure for transporting hazardous waste required per Request No. P93-132, initiated by M. Hundley. Supersedes PO-S-06-001.

CONTRON NO. NON-CONTROLLED COPY

SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-0044
REVISION NO. 1

5692

MANAGEMENT OF EXCESS SOIL, DEBRIS, AND WASTE FROM A PROJECT

SSOP-0044

Effective Date: 01-31-94

AUTHORIZED BY: J. Thiesing, Executive Vice President — Date: 2-3-94

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

PREFACE

This revision of SSOP-0044 (Site Standard Operating Procedure) incorporates the Fernald Environmental Management Project (FEMP) site-wide management concepts and implementation strategy for managing soil and debris established in Removal Action 17 (RA 17) Work Plan that was approved by both the Ohio Environmental Protection Agency (OEPA) and United States Environmental Protection Agency (U.S. EPA). The new management concept streamlines the process of dealing with materials and wastes from pre-Record of Decision (ROD) removal sources by standardizing and simplifying characterization steps while still being protective of human health, safety and the environment. These management procedures parallel those on other Superfund sites being remediated under the guidance of the U.S. EPA or by firms under contract to the U.S. EPA.

The initiating activity for delineating the appropriate soil and debris or waste controls will be a contaminant assessment. The assessment of contaminants in the affected soil and debris or waste will include a review of existing characterization data or sampling and analysis results, historical records, and process knowledge. NO SAMPLING IS REQUIRED AT THIS STAGE OF PLANNING. The assessment results will be used to determine the management options according to the RA 17 work plan and this procedure.

These new concepts (new with respect to previous FEMP Waste Handling Procedures), as applied to the planning of removal action projects, begin with the proposition that soil and debris that are to be managed as a result of removal actions are <u>not</u> automatically classified as hazardous for management purposes. The required level of control and mechanisms for managing soil and debris are dependent upon such factors as material, its regulatory status, and the risks associated with managing the material. A practical approach for storage or disposition of these materials is needed if an aggressive, yet prudent, approach to FEMP cleanup is implemented. This new revision of SSOP-0044 was developed to recognize the environmental cleanup mission of the FEMP versus the site's previous mission as an operating facility. To do this, the new SSOP-0044 properly separates the management of soil, debris, and wastes subject to regulation under RCRA Subtitle C hazardous waste requirements from the relatively larger volume of non-RCRA contaminated excess soil, debris, and wastes that must be managed under Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) removal actions. Proper separation is a cost-effective means to minimize the volume of excess soil, debris, and wastes subject to increased regulation and higher costs associated with hazardous waste storage, treatment, and disposal requirements.

Other procedures and documentation exist including Occupational Safety and Health Administration (OSHA) and As Low As Reasonably Achievable (ALARA) concepts from DOE orders and guidelines that must be considered when planning a project. This procedure specifically addresses planning for the disposition of soil, debris, and waste.

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
12-14-93	0	Procedure for controlling and minimizing waste produced by construction and/or maintenance project, required per Request No. P91-028, initiated by S. Lund.
01-31-94	1	Major revision to reflect changes implementing RA17 W.P. concepts, responsibilities and procedure, per Request No. S93-299, initiated by T. Weese.

1.0 PURPOSE

This procedure provides criteria for identifying and categorizing disposition options for excess soil, debris, and waste materials from a project. The procedure provides instructions for planning the appropriate management and disposition of these materials from the planning stages of the project up to project implementation (field work) into the appropriate Fernald Environmental Management Project (FEMP) material management system.

2.0 SCOPE

This procedure is directly applicable to excess soil, debris, and waste generated from the following interim activities and projects at the FEMP:

- Removal Actions and any interim activities when use of the procedure is referenced in the work plan
- Construction projects and new facilities
- RCRA closures
- Large scale and non-routine maintenance projects
- Emergency response actions after the Emergency has been mitigated
- The Operable Unit 3 (OU3) Interim Record of Decision (IROD)

This procedure is not applicable to post-Record of Decision (post-ROD) activities.

Approved U.S. EPA and Ohio EPA work plans may have precedence over some requirements provided herein.

This procedure does not apply to RI, FS, Treatability and Geotechnical studies, Investigative Activities or Sampling and Analysis activities. These activities will be managed as Investigation-Derived Wastes as per U.S. EPA guidance (Figure 1).

In general, this procedure will not apply to routinely or continuously generated waste streams during routine maintenance.

3.0 DEFINITIONS

3.1 Material Types

Bulk Materials - Materials to be managed in bulk form. They include solid materials in tanks/bins, surface impoundments, piles, storage pads, containment buildings, or other bulk material management facilities. Also includes bulk materials collected or transported in bulk material containers such as roll-off boxes or other bulk waste collection/transportation equipment. Bulk materials do not include materials managed in the onsite containerized material inventories.

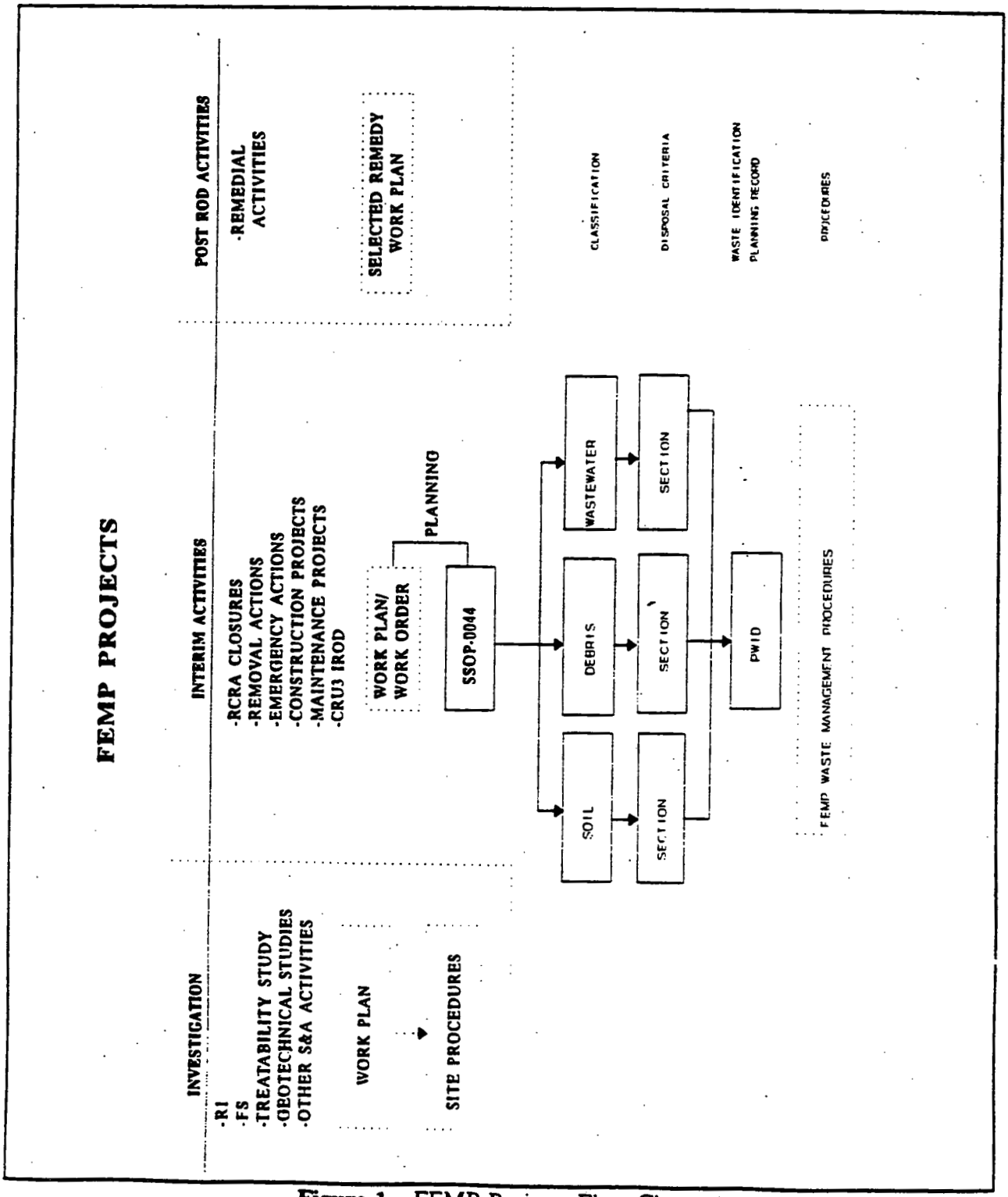


Figure 1 - FEMP Projects Flow Chart

3.0 DEFINITIONS (cont.)

Non-contaminated Construction Waste - Construction waste materials from construction activities that, if handled appropriately, can be surveyed and released out of the project boundaries or offsite as a non-radioactive waste. Examples include, but are not limited to, packaging from new material or excess building material from a new construction site such as drywall, piping, insulation, etc.

Containerized Materials - Materials intended for management in containerized form. Includes materials managed in drums, wood boxes, white metal boxes, and ISO (Sea/Land-type) containers. Containerized materials includes all materials managed in the onsite containerized material inventories.

Continuously or Routinely Generated Waste Materials - Waste streams generated such as from activities such as oil changes, light bulb ballasts replacements, or from FEMP facilities such as Plant 8 and General Sump, Advanced Waste Water Treatment (AWWT) facility, etc.

Debris - Solid materials that exceed a 60 mm (2.5 inch) particle size and are manufactured objects, plant or animal matter, or natural geologic material except for the following: process residuals (e.g., unmilled magnesium fluoride [MgF_2]) and residues from the treatment of waste, wastewater, sludges, or air emission residues; intact containers of hazardous waste that are not ruptured and retain at least 75% of their original volume; and certain hazardous waste for which EPA has promulgated specific treatment standards under 40 CFR Part 268, Subpart D. Debris is defined in 40 CFR 268.2(g).

Excess Soil - Soil generated from a project that can not be returned to an excavation utilized within the project boundaries or has not been identified in the work scope to be utilized for a specific use.

Hazardous Debris - Debris, as defined above, that contains listed hazardous wastes (either on the debris surface, or in its interstices, such as pore structure), or debris that exhibits a characteristic of hazardous waste.

Hazardous Waste - Waste that is specifically listed as a hazardous waste or exhibits one or more of the hazardous waste characteristics (i.e., ignitability, corrosivity, reactivity, or toxicity) as defined in Chapter 3745-51 of the Ohio Administrative Code (OAC) and 40 CFR 261.

In situ soil - Soil in its original or natural position (i.e., prior to any excavations or disturbance).

Mixed Waste - Waste containing both radioactive and hazardous components as defined by the Atomic Energy Act and RCRA, respectively.

3.0 DEFINITIONS (cont.)

Radioactive Waste - Solid, liquid, or gaseous material that contains radionuclides regulated under the Atomic Energy Act of 1954, as amended, and of negligible value considering costs of recovery. Surface contaminated materials with radiation limits above DOE Order 5400.5 limits are considered radioactive waste. Surface contaminated materials include metals and other non-porous matrices where the radioactive contamination is limited to the surface of the material and where all surfaces of the material that could have been contaminated can be monitored. Volume contaminated materials that have added radioactivity from DOE activities are also considered radioactive waste. Volume contaminated materials include materials with porous matrices and other materials for which the radioactive contamination is not necessarily limited to the surface or materials where all surfaces that could have been contaminated can not be monitored.

Recoverable Metals - Metals that are radiologically and/or chemically contaminated and can be processed for unrestricted release or controlled reuse. Generally, this category includes all metal that does not have the Refuse Metal characteristics.

Refuse Metal - Metal that is radiologically and/or chemically contaminated or suspected of radioactive contamination and is either excessively oxidized or else separation of the metal from other materials is not cost effective. Evaluation of the cost effectiveness requires a comparison of the cost of managing the material as a refuse considering the regulatory status of the material as a mixed waste or low level radioactive waste.

Regulated Asbestos Containing Material (RACM) - Material that contains greater than one percent asbestos and is either friable or has a high probability of becoming friable by the forces expected to act on it during demolition or renovation operations.

Regulated Polychlorinated Biphenyls (PCBs) - Those PCBs and PCB items that are subject to the disposal requirements of 40 CFR 761 Subpart D. PCBs and PCB items become subject to disposal requirements under subpart D when they have been determined to no longer serve their intended purpose and are to be disposed of. Unregulated items such as intact, non-leaking small capacitors and drained and triple rinsed PCB contaminated equipment are not subject to Subpart D disposal requirements and, therefore, are not included in this definition.

Soil - Unconsolidated earth material composing the surficial geologic strata, consisting of clay, silt, or gravel size particles (sizes as classified by the U.S. Soil Conservation Service). Soil may also include roots, grasses, weeds, or leaves, and a mixture of unconsolidated earth material with other liquids, sludges or solids that are inseparable by simple mechanical processes.

3.0 DEFINITIONS (cont.)

Waste - Materials that have been discarded by virtue of being abandoned, recycled, or considered inherently waste. This includes materials that are accumulated, stored, or treated before or in lieu of being disposed, burned or incinerated. Waste materials may be composed of solids, liquids, or containerized gases. (OAC 3745-51-02 and 40 CFR 261.2)

Wastewaters - Aqueous wastes intended for management in the FEMP wastewater treatment facility. Wastewaters are wastes that contain less than 1 percent (1%) by weight total organic carbon (TOC) and less than 1% by weight total suspended solids (TSS). Wastewaters must meet the acceptance criteria for management in the onsite wastewater treatment system.

3.2 Terminology/Definitions

Area of Contamination (AOC) - An AOC may be established if it is estimated prior to the start of excavations or once excavations are complete for a project, that large quantities of excess soils remain that are known (through known spills or sampling and analysis data) to contain hazardous waste and it would prove inappropriate and not feasible (due to the large quantity of soil) to eventually store this excess soil in an improved storage structure.

Design-Engineering-Construction (DEC) Team - A project team led by the Project Engineer (PE) and consisting of individuals matrixed to represent several divisions within FERMCO, including but not limited to, Environmental Safety and Health, Construction, Engineering, Remedial Support Operations (which must include Waste Programs Management department representative), Public Affairs, Regulatory Programs, Recycling Programs, Quality Assurance, and the Architect/Engineer (also a subcontractor, if applicable).

NOTE: The PE leads the DEC Team during planning/design phase and again during project closeout phase while the Construction division representative will typically lead DEC Team during project implementation phase (field work) of the project to provide effective project interface and continuity.

Interim Record of Decision (IROD) - CRU3 proposed work plan for interim remedial actions for Operable Unit 3 (OU3) prior to obtaining the final OU3 ROD from the US EPA.

Project Boundaries - The physical areas in which all project activities take place as defined in the project drawings and specifications and/or work plan. This may include specified laydown areas and other staging areas.

3.0 DEFINITIONS (cont.)

Radiological Storage Administrative Levels - Established levels of radioactivity concentrations, (in pCi/g) used to determine storage requirements. The activity concentrations of 100 pCi/g for total Uranium, 5 pCi/g activity concentration for total Radium, and 50 piC/g activity concentration for total Thorium are the levels that have been accepted by the US EPA as part of the approval of the Removal Action 17 Work Plan. These activity concentrations are applicable for both soil and debris.

NOTE: These are not final cleanup standards, only management levels that will be used to determine interim storage disposition at the FEMP.

Record of Decision (ROD) - Final remedial decision that will establish cleanup standards and treatability methods to use.

Removal Action (RA) 17 Work Plan - This RA is identified in the Amended Consent Agreement between the US DOE and the US EPA (September 1991) for the improved storage of soil and debris generated at the FEMP. The approved RA work plan (Rev. No. 2) provides a sitewide management concept and implementation strategy for improved storage of excess soil and debris by implementing controls on existing and future soil and debris piles both prior to completed construction (Phase 1) and then upon completed construction (Phase 2) of three improved storage facilities and containment of the soil and rubble pile north of 3rd Street.

Resource Conservation and Recovery Act (RCRA) - The congressional act that established safe and environmentally acceptable management practices for specific hazardous wastes. RCRA requires strict "Cradle to Grave" control, documentation, and proper management of hazardous wastes.

RCRA Closures - The act of securing a Hazardous Waste Management Unit (HWMU) pursuant to the requirements in Chapter 3745-55 of the OAC and 40 CFR 264.

3.3 Management/Storage Facilities

Central Storage Facility (CSF) - One of the containment Tension Support Structures (TSS) in the scope of RA 17 that will store contaminated soil and nonrecoverable debris. Materials will be segregated within this facility based on type of contaminant (e.g., inorganic hazardous waste, organic hazardous waste, PCB, asbestos, petroleum, radioactive).

Commercial/Industrial Landfill - Disposition option for noncontaminated, nonhazardous debris (i.e., debris that is only regulated as solid or residual solid waste).

3.0 DEFINITIONS (cont.)

Decontamination Facility Pad (DFP) - One of the containment TSS to be utilized for staging contaminated scrap metal/debris prior to decontamination at the FEMP Decontamination & Decommissioning (D&D) Facilities.

Nevada Test Site (NTS) - One of the disposition options for storing low level waste that is included in the FEMP Application to Ship Waste to the NTS.

Permitted Storage Facility - EPA-approved storage facility (either onsite or offsite) that is permitted to store regulated waste (i.e., hazardous waste, asbestos, or PCBs).

Scrap Metal Pad (SMP) Structure - One of the containment TSS utilized for storing contaminated scrap metal until the material is ready for decontamination, recycling, treatment, or packaging for final disposal.

Scrap Wood Pile (SWP) - Designated pile(s) at the FEMP used for centralized packaging of radiologically contaminated wood that meet the waste acceptance criteria for shipment to NTS.

Trash Bailer - Centralized packaging and volume reduction facility for radiologically contaminated trash.

NOTE: Future engineered interim storage facilities (similar to the CSF) currently being proposed may be used as they become available.

3.4 Documents and Forms

Containerized Waste Checklist - A document for a specific container of waste that is used to validate the contents of the container against the physical characterization criteria noted in the completed MEF. Contents are validated by visual inspection and results noted on the checklist.

Material Evaluation Form (MEF) - The document that identifies unique waste streams for management at the FEMP. A completed MEF establishes a "waste profile" that identifies requirements for managing materials that match the profile. SSOP-0002 describes the use of the MEF for waste characterization.

Project Waste Identification and Disposition (PWID) Form (Attachment B) - The form utilized for planning and disposition of excess soil, debris, and waste from a project.

3.0 DEFINITIONS (cont.)

Project-specific Sampling and Analysis Plan (PSAP) - The plan used for collecting samples for purposes of waste characterization.

Request for Sampling and Analysis (RSA) Form - The form used to request sampling and analysis in support of waste characterization. This form identifies the materials to be sampled, the sampling objectives, the parameters for analysis, the associated analytical support level (ASL), and the sampling approach to be utilized.

4.0 RESPONSIBILITIES

4.1 Project Engineer

- Coordinates with the Waste Management Department of RSO managers to ensure that a RSO Waste Management Lead (RSO WML) Representative, Waste Characterization (WC) Representative and Quality Control (QC) Representative are matrixed to the project DEC team.

- Coordinates with Construction Division Manager to ensure a Construction Management Team Representative (CMTR) is matrixed to the project during the planning/design phases of the project.

- Completes the PWID form by identifying and categorizing the types of excess soil, debris, and waste materials anticipated from the project.

- Ensures that the contaminant assessment and disposition options have been objectively selected for the excess soil, debris, and waste material anticipated from the project in accordance with RA 17 work plan management concepts and most recent regulatory guidance.

- Coordinates with the Environmental Safety & Health (ES&H) representative matrixed to the project DEC team to identify any contamination concerns.
- Coordinates with the project DEC Team to ensure that any possible waste avoidance is accomplished throughout all phases of the project.

- Coordinates with the RSO WML and the CMTR to ensure that all excess materials and wastes are properly stored and/or dispositioned in accordance with the PWID, related site procedures and requirements, packaging procedures (if applicable), and regulatory guidelines at the completion of field activities in order to incorporate this information into the project closeout and final reporting documentation.

4.0 RESPONSIBILITIES (cont.)

- Provides concurrence along with the WC representative on the Request for Sampling and Analysis Form, that may be required to complete waste characterization.

- Consults with WC representative to ensure that soil designated as excess debris, and waste material that may remain after the project field activities, will be properly characterized through MEF verification forms, and sampling and analysis (if applicable), to ensure the appropriate interim storage or final disposition location will be chosen.

- Ensures that a Quality Assurance (QA) representative has been matrixed to the project DEC team in the planning stages of the project.

- Initiates a new MEF for waste streams not previously listed on an MEF at the FEMP.

4.2 RSO Waste Management Lead (RSO WML)

- Provides technical consultation and assistance to the Project Engineer (PE) in the completion of the PWID form for categorizing waste and estimating waste quantities.

- Coordinates with CMTR and PE to plan and facilitate the proper storage and disposition of all expected excess soil, debris and waste materials according to the information as listed on the PWID and or project-specific work plan.

- Identifies the type of waste containers required (notifies MC&A) for the disposition location selected by the DEC Team for all waste materials generated from the project, both offsite and onsite.

- Notifies PE if, as a result of field activities, a new waste stream category has been discovered that was not previously anticipated or identified in the PWID form.

- Provides necessary assistance to the PE for updating the PWID form following any changes to the anticipated wastes, actual waste generated, or changes in disposition options previously selected.

4.0 RESPONSIBILITIES (cont.)

4.3 Waste Characterization (WC) Representative

- Performs a contaminant assessment of the project areas and wastes anticipated based on the compilation of any process knowledge (PK) and/or any previous or project-specific sampling and analysis data/results that may be available in the specific project area or for the waste categories identified in the PWID.
- Identifies the presence of any RCRA contaminants in the project area through MEF verification process.
- Assists in the completion of the PWID form.
- Verifies that the MEFs are consistent with the waste categories identified in the PWID.

4.4 Construction Management Team Representative (CMTR)

- Assists in the completion of the PWID form.
- Contacts RSO WML and PE if either an unidentified or a new waste stream (not identified on the PWID form) has been discovered as a result of field activities.

5.0 GENERAL

None

6.0 PREREQUISITES

- In order to confirm knowledge of soil, debris, and waste categorization and disposition options, read Attachment A before continuing with Section 7.0 (Procedure).

7.0 PROCEDURE

7.1 CONDUCTING THE SITE WALKDOWN

PE, ES&H representative, RCT, CMTR, RSO WML and WC representative

1. Conduct project site walkdown.

RCT

a. Perform radiological field survey of project area.

WC

b. Visually inspect project area to assess any noticeable signs of contamination.

PE, RSO WML, CMTR and ES&H representative

c. Observe site accessibility and boundaries, surrounding physical characteristics and note special safety concerns/hazards.

7.2 ESTIMATING QUANTITIES OF EXCESS SOIL, DEBRIS, AND WASTE MATERIALS

NOTE: It is important that the PE, CMTR, RSO WML and others within the DEC Team utilize prudent measures during design and planning stages to **minimize or eliminate** potential excess soil as a result of the project (i.e., compaction, topsoil reuse, balance cut and fill, etc.). Minimization of the generation of soil wastes can be obtained by returning the excavated soil to its source where applicable (see Figure 3, Soil Management Plan Flow Diagram). Refer to Attachment A, Section 1.1 of this procedure to clarify categorization and Attachment A, Section 2.1 for clarifying disposition options.

NOTE: Construction contracts and/or work plans will include instructions to subcontractors/field work forces to uncrate packaging used for shipping in clean areas and limit the tools and equipment brought into controlled areas to minimize waste generation. These waste types shall not be estimated as part of the total waste streams identified on the PWID.

7.2 ESTIMATING QUANTITIES OF EXCESS SOIL, DEBRIS, AND WASTE MATERIALS (cont.)

PE

1. Forward a copy of initial radiological survey reports and RCRA field screening data obtained from the project site walkdown to WC representative.

2. Complete the PWID form (Attachment B) by coordinating with the CMTR and RSO WML to estimate quantities of excess soil, construction debris, and other wastes to be generated as a result of project activities.

3. Consult the FEMP Build-Over policy to define the "Temporary" versus "Permanent" nature of any structures erected as defined in project scope. See Section 3.3 of the RA 17 Work Plan for implications with regard to soils management.

WC representative

4. Review any process knowledge (PK) and existing sampling analysis results pertaining to the area and identify any existing MEFs that correspond to the waste categories identified on the PWID form.

   a. If an MEF is currently on file for <u>all</u> the anticipated debris, waste materials, and excess soils as a result of the project, the WC representative completes the MEF verification forms for each stream identified on the PWID form and the PWID shall be considered complete.

   b. If there is no existing MEF for a waste type identified on the PWID form, a contaminant assessment must be performed for those waste types. The steps taken to perform the contaminant assessments is outlined in Section 7.3.2 for **soils** and Section 7.5.2 for **debris** and **waste**.

PE

5. Sign and obtain other approval signatures on the PWID form.

7.2 ESTIMATING QUANTITIES OF EXCESS SOIL, DEBRIS, AND WASTE MATERIALS (cont.)

6. Proceed to Section 7.4 for soils and/or Section 7.6 for debris and waste materials to establish disposition options.

NOTE: At this stage of planning, the PE, RSO WML, WC representative, QA Representative, and CMTR shall develop a waste container matrix that identifies the waste container (if applicable) and sequencing for the removal of the waste streams (if possible) to be utilized for anticipated excess soil, debris, and waste materials generated as a result of the project activities.

(See example of Waste Container Matrix (Figure 2) on the following page)

FOR THE REMAINDER OF THIS PROCEDURE, REFER TO SECTIONS 7.3, 7.4, FOR SOILS AND SECTIONS 7.5, 7.6 FOR DEBRIS AND WASTE MATERIALS

7.3 PLANNING SOIL MANAGEMENT AND DISPOSITION PLANNING OF EXCESS SOIL

[SEE FIGURE 3, SOIL MANAGEMENT PLAN FLOW DIAGRAM - PHASES I AND II]

7.3.1 For all anticipated soil categories that are already identified under existing MEFs, the Project Engineer, WC representative, and RSO WML can determine the disposition options.

1. Proceed to Section 7.4 for interim soil disposition options (refer to Attachment A, Section 2.1 - Excess Soil Disposition Options).

7.3.2 Perform a contaminant assessment for all anticipated soil categories that do not have existing MEFs. The following steps must be taken in order to perform a contaminant assessment.

PE

1. Provide any relevant information regarding the soil being evaluated, complete the requestor section of the new MEF, and submit to WC representative.

"TYPICAL" WASTE CONTAINER MATRIX

TASK	WASTE STREAM	TYPE	CONTAINERS							
			ISO Containers	White Boxes	ISO CONT Construction Debris	Barrels (55 Gal.)	Rubble White Box	RCRA Material
Safeguards Material	PWID							
	Temp Shed's							
	Electrical Dolly's							
	Water Hose							
	Clothing FERMCO							
	HEPA Units							
	HEPA Vacuums							
	Construction Tools & Equipment							
ASBESTOS REMOVAL	Wood framing				X			
	Poly				X			
	Piping Insulation		X					
	Floor tile		X					
	Floor tile adhesive		X					
	Equipment Insulation		X					
	Water Filters		X					
GROSS DECON								
	Waste water(TO TEMP HOLDING TANK)							
	Lead Chips							X
	Dirt						X	
Construction Debris								
	Sanitation Containers			X				
	PPE	Gloves				X		
	PPE	Tyvex				X		
	PPE	Respirator Cartridges				X		

Figure 2 - Example of Waste Container Matrix

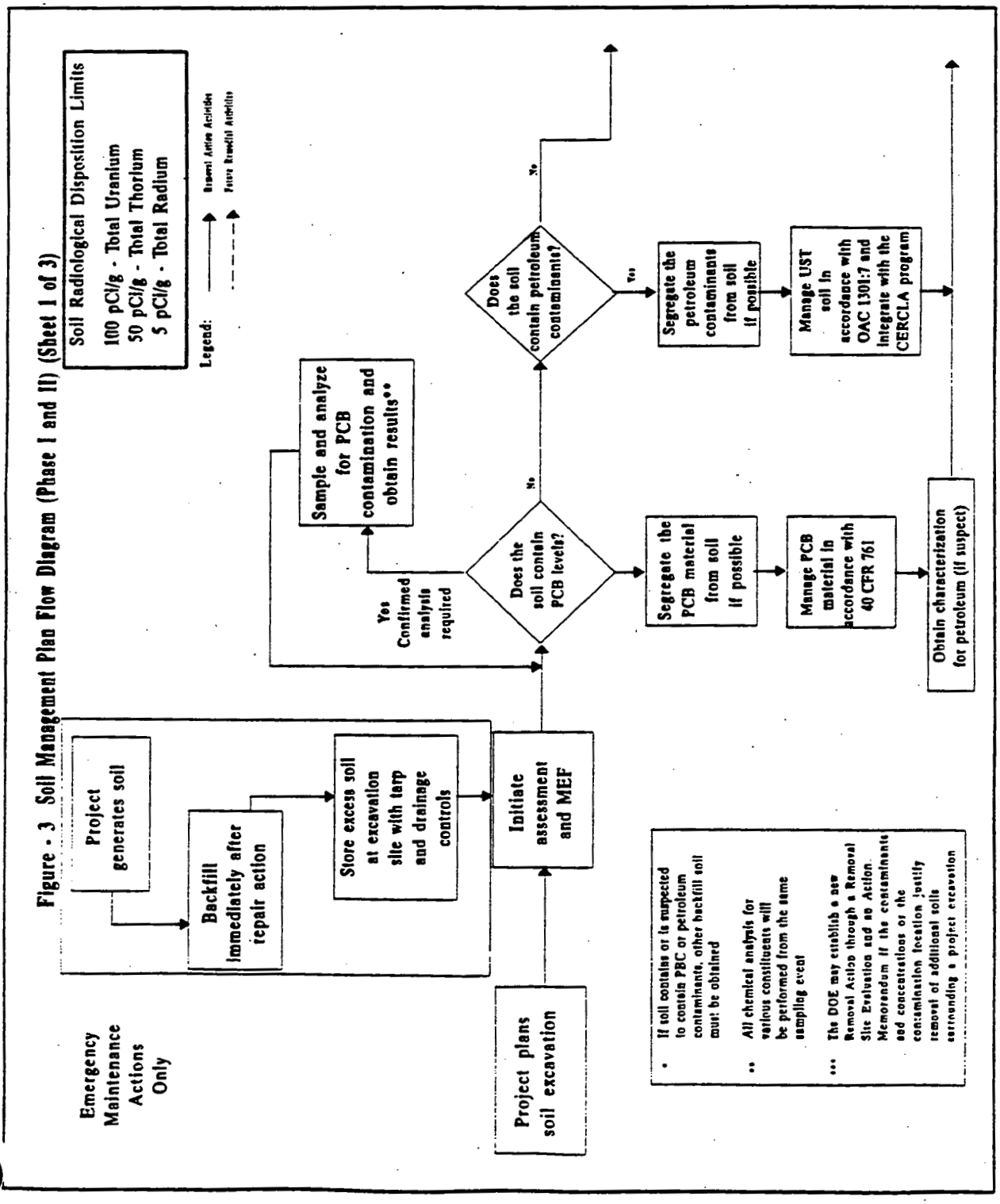


Figure 3 - Soil Management Plan Flow Diagram (Phase I and II) (Sheet 1 of 3)

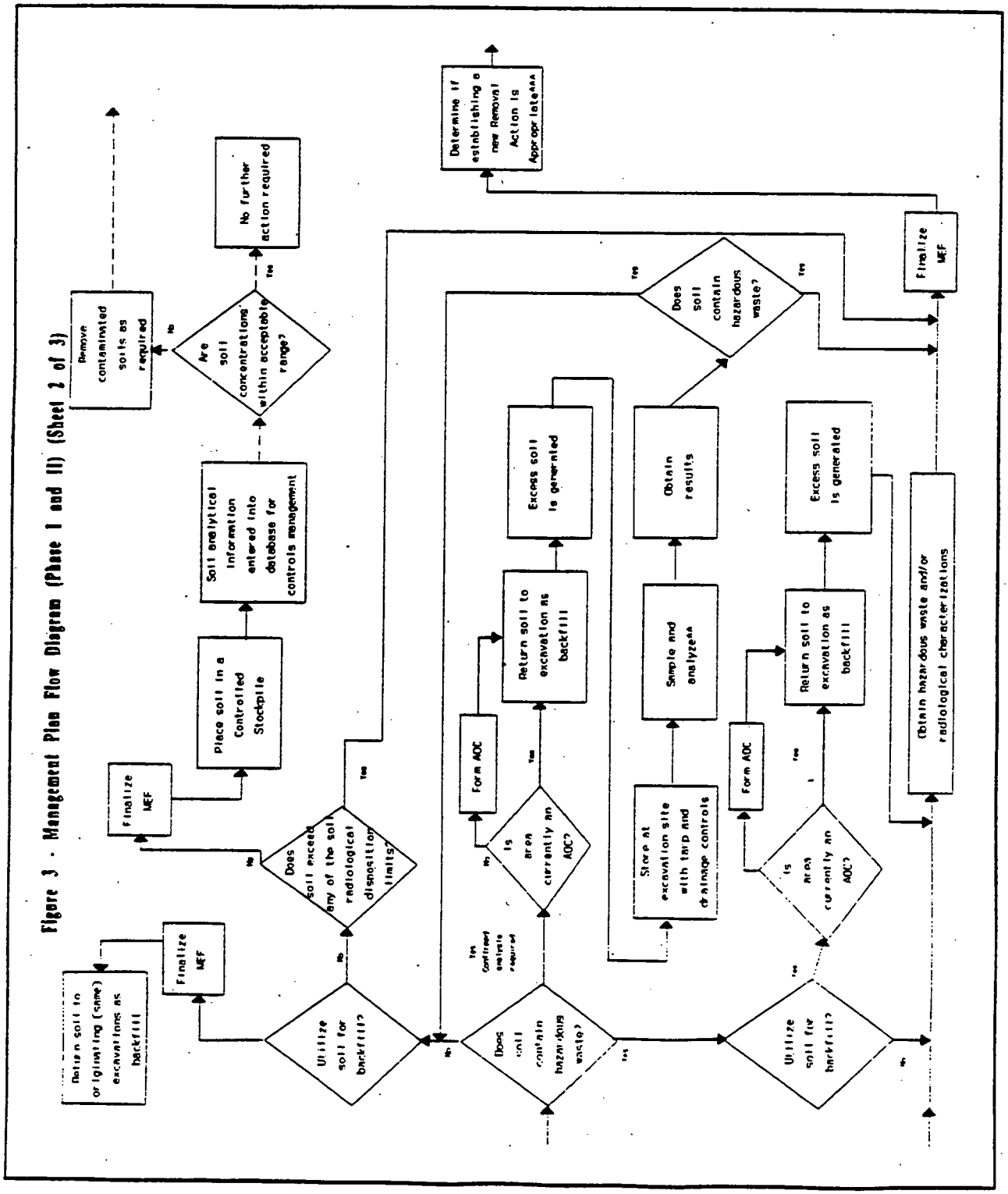


Figure 3 - Management Plan Flow Diagram (Phase I and II) (Sheet 2 of 3)

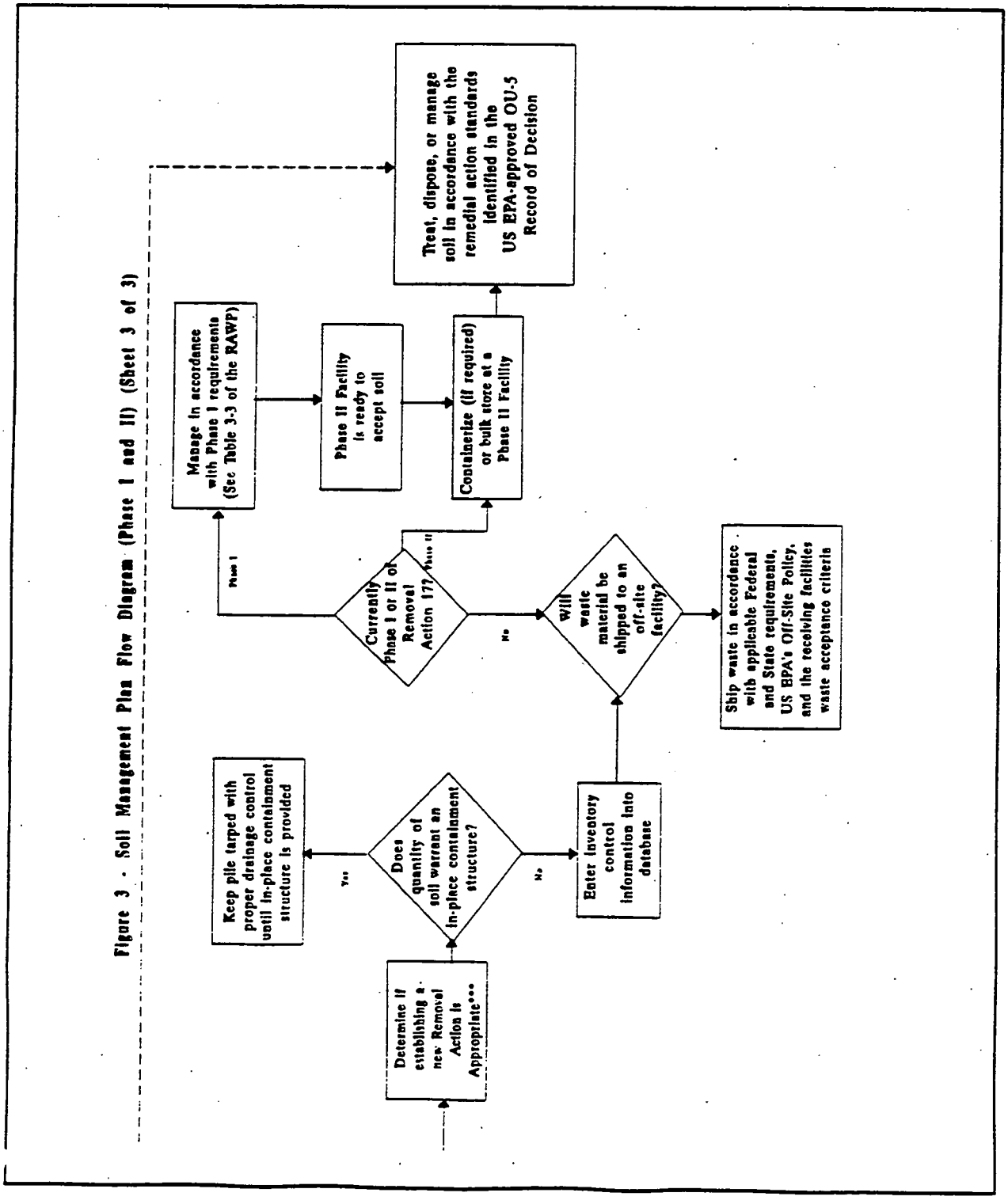


Figure 3 - Soil Management Plan Flow Diagram (Phase I and II) (Sheet 3 of 3)

7.3 PLANNING SOIL MANAGEMENT AND DISPOSITION PLANNING OF EXCESS SOIL (cont.)

WC representative

2. Review all available data and PK on file to complete the evaluation.

3. Complete the MEF per SSOP-0002 and submit to the PE.

PE

4. Review new MEF, add the waste quantity to the PWID and identify the soil disposition.

   NOTE: The newly completed MEF for the soil category will dictate one of the following management options as described in Attachment A, Section 2.1 of this procedure:

5. If the in situ soil, by PK, sampling analysis results, or physical visual evidence, contains or is suspected of containing PCBs, these excavated soils must be staged apart from other soil piles and, if possible, the PCB material should be segregated from the soil.

6. If the in situ soil, by PK, existing sampling analysis results, or physical evidence, contains or is suspected of containing petroleum contaminants, these excavated soils must be staged apart from other soil piles and the petroleum material, if possible, should be separated from the soil.

7. If the in situ soil, by PK, existing sampling analysis results, or physical evidence, contains known RCRA hazardous contamination or originated from closure of a HWMU, the following steps should be taken:

   a. Determine if the soils to be excavated (or the project site itself) are or have been previously declared an Area of Contamination (AOC);

7.3 PLANNING SOIL MANAGEMENT AND DISPOSITION PLANNING OF EXCESS SOIL (cont.)

PE

(1) If in an AOC, the soils excavated can be returned to the originating excavation.

(2) If not in an AOC, the Project Engineer, with CRU Manager concurrence, must assess the feasibility of managing the soils based on the quantity of the contaminated soils to be excavated.

NOTE: For significant quantities of hazardous soil, an AOC should be established (notification to US EPA and Ohio EPA required). For a small quantity of soil, contaminant assessment on affected excavations only.

b. AOC Determination Prior To Start of Field Work: If prior to start of project PE, with CRU management concurrence, has determined that the project area should be considered an AOC this determination must be conveyed to the US and Ohio EPAs in writing per RA 17 Work Plan.

8. If none of the conditions apply to the newly formed MEF for the soil in steps 5 through 7 above (i.e., no RCRA constituents, No HWMU sources, PCB contamination, or petroleum contamination in these soils and none suspected, and there are no high radiological concerns), this soil will be categorized under the existing MEF for Category I or II Radiologically contaminated soils (Category I or II determined in field by the use of beta/gamma friskers at the time of excavation) that may be either staged in a controlled stockpile onsite or staged beside the excavation and utilized for backfill as appropriate. The contamination assessment can be determined on this basis and field activities can proceed without sampling.

NOTE: If excess topsoil or excavated soil remain from the controlled stockpiles mentioned in item 4 above, these piles will be managed according to the disposition option chosen in the PWID or by results of sampling and analysis if required by WC representative.

7.4 INTERIM SOIL STORAGE OPTIONS (See Attachment A, Section 2.1)

NOTE: The determination to containerize, store in a controlled stockpile, or store in an improved storage facility for an excess soil must be based on the completed PWID, a completed MEF, or a contaminant assessment conducted by WC representative.

WC representative

1. Verify and ensure all MEFs are properly established for the soils generated before the disposition options are considered.

WC representative, PE and RSO WML

2. Assess the interim storage options of excess soil (i.e., soil remaining at the completion of the project) based on the identified contaminants and quantities in the PWID form and the options for the categories listed in Attachment A, section 2.1.

   NOTE: The WC representative may require that a MEF, which was completed based on a contaminant assessment process, must be verified through sampling and analysis of the excess soil remaining after completion of project or at the time when the actual disposition option must be implemented.

WC representative

3. Once sampling and analysis or further PK is confirmed by the WC representative, the WC representative will then complete a MEF verification form.

   NOTE: If a soil category has been generated from field activities that was not previously accounted for on the PWID, the WC representative may require verification of the MEF through the contaminant assessment process or sampling and analysis as described in step 2 above.

7.4 INTERIM SOIL STORAGE OPTIONS (See Attachment A, Section 2.1) (cont.)

PE

4. Inform WC representative of any changes to the original quantities and types of wastes in the soils specified in the PWID that have been actually generated from field activities.

WC representative, PE, and RSO WML

5. Refer back to Steps 2 and 3 above in order to assess interim storage options of the unanticipated (i.e, not in the PWID) or newly identified soil category.

PE

6. Notify RSO WML to arrange for the appropriate storage requirements (containers, laydown areas, staging areas, etc.) as determined in the steps above and the categories of soils generated. Generally these arrangements/requirements will include:

   a. During Phase I - Staged in a controlled stockpile for the OU of its origin.

      NOTE: Separate controlled stockpiles will be formed for Category I radiologically contaminated excess soils (to be used for backfill within that OU), Category II radiologically contaminated soils, and other RCRA or contaminant-specific controlled stockpiles for that OU.

   b. During Phase II - Bulk stored or containerized in the CSF or similar containment structure for excess soils KNOWN to be RCRA or exceeding the Radiological control limits (Category II).

7. With concurrence from Project Manager, may establish an AOC during project if most of the soils actually encountered during excavation activities were found to contain or be hazardous and/or exceed the radiological administrative limits.

7.4 INTERIM SOIL STORAGE OPTIONS (See Attachment A, Section 2.1) (cont.)

PE

a. If a large quantity of RCRA hazardous soils or Category II soils is encountered (determined either by sampling, radiological frisking in field, or visual inspection), the PE, with CRU management concurrence, may establish a new AOC and maintain these soils for in-place containment, utilizing tarps and other control measures, until further remediation is determined (i.e., New Removal Action, OU3 or OU5 ROD).

8. Establish a new Removal Action, if applicable.

a. Begin management processes involved with preparing basis for the need of a another Removal Action (RSE, RA Work plan, etc.) as a result of the contaminants discovered from the project.

7.5 PLANNING DEBRIS AND WASTE MATERIALS MANAGEMENT AND DISPOSITION PLANNING OF DEBRIS AND WASTE MATERIALS

[SEE FIGURES 4 & 5, DEBRIS MANAGEMENT PLAN FLOW DIAGRAM (PHASE I AND PHASE II)]

7.5.1 For all anticipated debris and waste materials that are identified in the PWID under existing MEFs, the Project Engineer, WC representative, and RSO WML can determine the disposition options (see Section 2.2 of Attachment A) or reference the project specific work plan for disposition instructions.

7.5.2 For all anticipated debris and waste materials that do not have existing MEFs the following steps must be taken in order to perform a contaminant assessment:

PE

1. Provide any relevant information regarding the material being evaluated, complete the requestor section of the new MEF, and submit to WC representative.

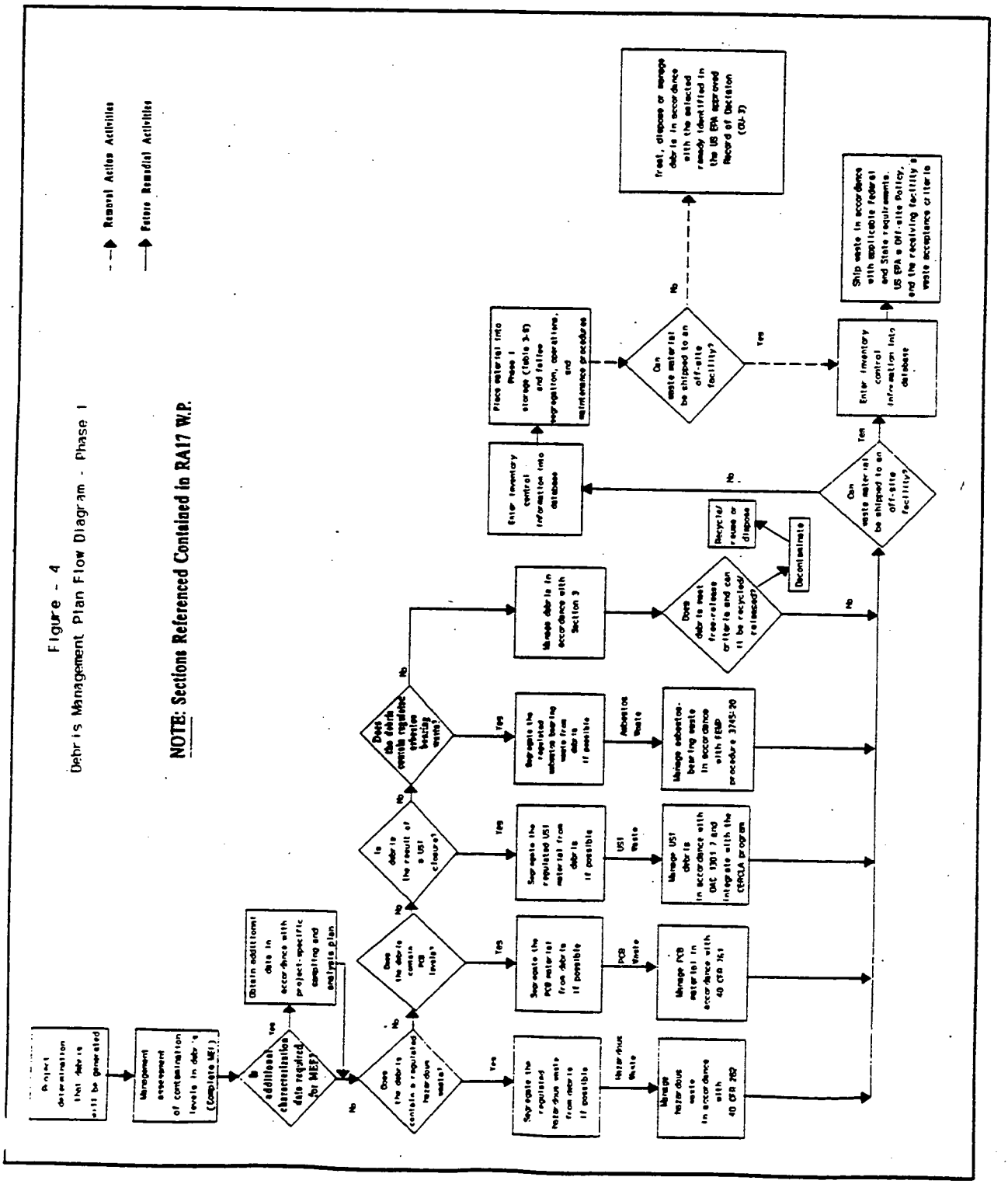
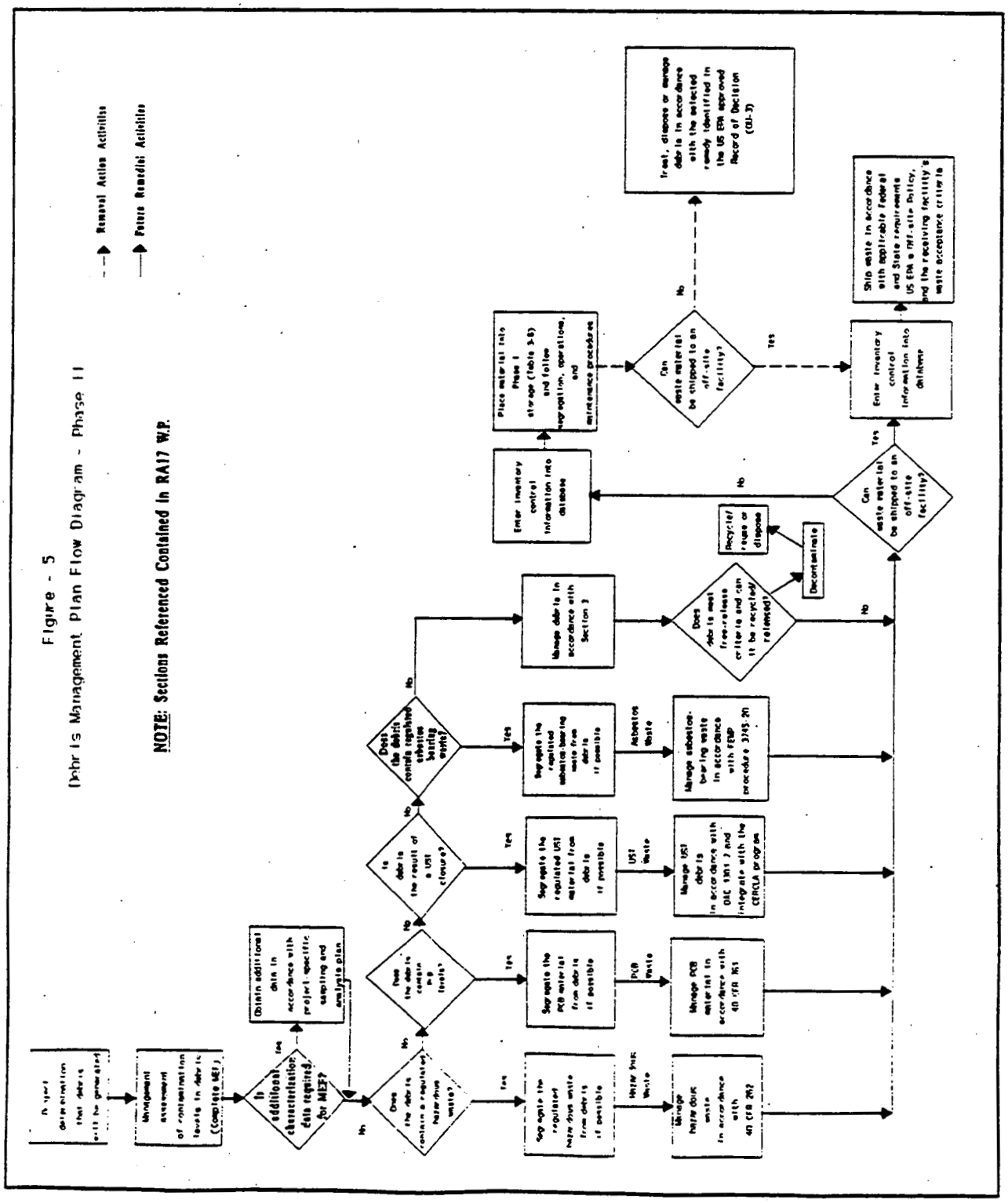


Figure 4 - Debris Management Plan Flow Diagram - Phase I



686 **Figure 5** - Debris Management Plan Flow Diagram - Phase II

7.5 PLANNING DEBRIS AND WASTE MATERIALS MANAGEMENT AND DISPOSITION PLANNING OF DEBRIS AND WASTE MATERIALS (cont.)

WC representative

2. Review all available data and PK on file to complete the evaluation.

3. Complete the MEF per SSOP-0002 and submit to MEF to the PE. The WC representative completes MEF according to SSOP-0002.

4. If additional characterization data required to complete a new MEF:

   a. Obtain additional data by completing the RSA and require analysis in accordance with the PSAP.

   b. Obtain results from sampling and complete MEF per SSOP-0002.

   NOTE: For large scale Dismantling and Decommissioning projects, most storage and disposal options will already be determined according to the project specific work plan.

7.5.3 If the debris or waste, by PK, existing sampling analysis results, or physical evidence, contains or is suspected to contain PCBs, these waste materials/debris should be staged apart from other waste materials/debris and the PCB material should be segregated from the debris if possible.

7.5.4 If the debris or waste, by PK, existing sampling analysis results, or physical evidence, contains petroleum contaminants, these waste materials/debris must be staged apart from other debris piles and the petroleum material should separated from the debris if possible.

7.5.5 If the debris or waste, by PK, existing sampling analysis results, or physical evidence contains RCRA-hazardous waste, these waste materials/debris must be staged apart from other debris piles and the hazardous waste be separated from the debris if possible.

7.5 PLANNING DEBRIS AND WASTE MATERIALS MANAGEMENT AND DISPOSITION PLANNING OF DEBRIS AND WASTE MATERIALS (cont.)

WC representative

7.5.6 If the debris or waste, by PK, existing sampling analysis results, or physical evidence contains asbestos bearing wastes, these waste materials/debris must be staged apart from other debris piles and must be managed according to Ohio Administrative Code (OAC) 3745-20, "Asbestos Handling, Demolition Renovation, Disposal".

NOTE: See Table 1 and 2 for Debris Disposition Planning.

7.6 INTERIM DEBRIS/WASTE STORAGE OPTIONS (See Attachment A, Section 2.2)

NOTE: The determination to containerize, place in a controlled stockpile, or store in an improved storage facility for the debris/waste material must be based on the completed PWID, a completed MEF, or a contaminant assessment conducted by WC representative.

WC representative

1. Verify and ensure that all MEFs are properly established for the wastes and debris generated before the disposition options are considered.

NOTE: This may require a MEF that was completed based on a contaminant assessment process be verified through sampling and analysis of the debris or waste material after it has been generated from field activity or at the time when the actual disposition option must be implemented for interim storage.

WC representative, PE, RSO WML

2. Assess the interim storage options of the debris or waste material based on the identified contaminants and quantities in the PWID or by the options described for the categories in Attachment A, Section 2.2.

Table 1 - Management Alternatives for Debris - Manufactured Objects

	Packaging Alternatives		Storage Alternatives		Disposition Alternatives	
Debris Category	At Point of Generation	Staged then to Central Packaging Facility	Interim Bulk Storage	Interim Containerized Storage	Offsite for disposal or reuse	Onsite or As defined in Work plan
Metal for Decontamination	X		X			X
Metal for Remelt	X		X			X
Non-recoverable metal	X			X	X	X
Scrap Wood	X			X	X NTS	X
Glass, Paper, Cardboard, Plastic, non-hazardous PPE	X	X If compactable		X	X Commercial landfill/ Recycle	
Asphalt, Concrete, Bricks	X		X			X CSF,Stockpile
Regulated Asbestos Containing Material (RACM)	X			X	X	X
Non-regulated ACM	X			X	X NTS	
Non-contaminated, non-hazardous debris	X			X	X Commercial Landfill	
PPE contaminated with regulated waste		X		X	X CSF	
Debris containing hazardous waste or regulated as PCB item	X If HW not separable	X If HW separable		X CSF		X

[1]DFP - Decontamination Facility Pad.
[2]SMP - Scrap Metal Pad.
[3]NTS - Nevada Test Site.
[4]SWP - Scrap Wood Pile.
[5]CSF - Central Storage Facility for soil and debris.

Table 2 - Management Alternatives for Debris - Natural/Geologic Objects

	Management Alternative(s)				
Debris Category	Shredder/ Chipper	Habitat Enhancement	Erosion Control	Interim Bulk Storage	Disposition Defined in Work Plan
Trees	X	X	X		X
Shrubs	X	X			X
Rocks			X		X
Chemical or Radiologically contaminated trees, shrubs, rocks				CSF[1]	X

[1]CSF - Central Storage Facility

7.6 INTERIM DEBRIS/WASTE STORAGE OPTIONS (See Attachment A, Section 2.2) (cont.)

WC representative

3. Once sampling and analysis or further PK is confirmed by the WC representative, the WC representative will then complete a MEF verification form.

   NOTE: If a debris or waste material category has been generated as a result of field activities that was not previously accounted for on the PWID, the WC representative may require verification of the MEF through the contaminant assessment process or sampling and analysis as described in step 2 above.

CMTR

4. Inform PE and RSO WML of any changes to the original quantities and types of wastes in the soils specified in the PWID that have been actually generated from field activities.

WC representative, PE, and RSO WML

5. Refer back to Steps 2 and 3 above in order to assess interim storage options of the unanticipated (i.e, not in the PWID) or newly identified debris category.

6. Determine, with consultation from WC representative, if the debris or waste material can be free-released or recycled.

   a. If free-release or recycling is possible, contact the recycling department to determine most feasible option.

PE

7. Inform RSO WML/CMTR to arrange for the appropriate storage requirements (containers, laydown areas, staging areas) and plan for one of the following debris storage options:

   a. Packaged for disposal at the point of generation to an approved offsite facility.

7.6 INTERIM DEBRIS/WASTE STORAGE OPTIONS (See Attachment A, Section 2.2) (cont.)

PE

b. Staged in bulk in a controlled covered stockpile until offsite shipment can be arranged (PHASE I).

c. Staged in bulk in an improved storage facility until decontamination can be performed (PHASE II).

d. Containerized in an improved storage facility for eventual offsite shipment (PHASE II).

e. Packaged for offsite shipment for recycling.

f. The disposition option outlined in the Work Plan and project performance specifications and drawings.

g. Packaged for shipment to commercial/industrial landfill.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- U.S. DOE, FMPC, and US EPA 1991 Consent Agreement as Amended Under CERCLA Sections 120 and 106(a).
- DOE Order 5400.5, "Radiation Protection of the Public and the Environment"
- DOE Order 5480.11, "Radiation Protection of the Occupational Workers"
- Title 40 CFR, Parts 260, 261 - "Resource Conservation and Recovery Act", 268, and 300 - "Comprehensive Environmental Response Compensation Liability Act"

8.2 REFERENCES

- Removal Action 17 Work Plan - Improved Storage of Soil and Debris, Revision No. 2, February 1993
- SSOP-0002, "Initiating Waste Characterization Activities Using the Material Evaluation Form (MEF)"
- Project/Construction Waste Management procedure

CATEGORIZATION AND DISPOSITION

1.0 Categorizing Materials

Materials generated from projects at the FEMP may be broadly categorized as excess soils, debris, waste materials, and wastewaters. Materials within each of these categories have distinct requirements for segregation/management/disposition. The following sections discuss the criteria for categorizing specific types of materials within each of these four general categories.

1.1 Excess Soils

NOTE: Beta-gamma friskers may be used only for screening soil for Uranium contamination. Quantitative analysis must be performed by other analytical techniques. Beta-gamma friskers can not be used to detect administrative limits of Thorium or Radium as the levels are below the minimum detectable activity of the instrument.

In the planning stages of projects, many in situ soils, especially topsoils, will be assumed to potentially exceed the radiological storage administrative levels (greater than 100 pCi/g U, etc.) at least in some areas where excavations will occur. Soils determined (through PK) to be only radiological contaminated will be managed throughout the project based on the field surveys conducted during the excavations with beta/gamma friskers. Note that the proper use of beta/gamma friskers to verify radiological levels requires procss knowledge of the radionuclides of concern (i.e., U, Th, Ra)

Excavated soils will be stockpiled within project boundaries throughout all field activities into staging areas. Soils determined radiologically contaminated above the administrative levels (based on results using beta/gamma friskers in the field) will be staged separately from soils determined to be below the radiological administrative levels (i.e, not detected by the beta/gamma friskers). All excavated soils staged on the project site are required to be tarped. Only non-radiologically contaminated soil (below the radiological administrative levels) from these staging areas can be borrowed from and utilized for backfill throughout construction activities within the project boundaries if the project site is NOT regarded as an AOC. Soils from a site that has already been classified as an AOC may be used as backfill from staging areas within the designated AOC project boundaries. Upon completion of the project, if any or all of these staging area stockpiles still exist, it is only then that excess soil quantities can be identified.

Measures such as compaction, topsoil reuse, balance of cut and fill, and other means possible to return soil to the original area of excavation shall be employed to minimize quantities of excess soils. Soils that cannot be minimized in one of these ways will need to be managed as excess soils.

Excess soils at the FEMP fall into one of several categories depending on their radiological and chemical composition. The criteria for classifying specific soils into one of the general categories are discussed in the subsections that follow.

1.1.1 Category I Radiologically Contaminated Soils

Excess soils may be classified as Category I soils when they contain equal to or less than 100 pCi/g total U, equal to or less than 5 pCi/g total Ra, and equal to or less than 50 pCi/g total Th. In addition, Category I soils may not contain any hazardous waste or PCBs, or be contaminated with petroleum products. (Typically MEF# 2503)

1.1.2 Category II Radiologically Contaminated Soils

Category II rad contaminated soils are defined as those soils which contain greater than 100, 5, or 50 pCi/g total U, Ra, or Th, respectively. (Typically MEF #2504). Category II soils which contain hazardous waste or PCBs, or are contaminated with petroleum products are not included under this category, but are categorized according to their chemical contamination as discussed below.

1.1.3 Soils Containing Hazardous Waste

Soils that contain hazardous waste are classified under this category. Soils may be determined to contain a hazardous waste by virtue of either containing a waste material which causes the mixture of soil and waste to exhibit one of the hazardous waste characteristics, or containing a waste which meets the description of a listed hazardous waste. Note that the presence of listed hazardous waste constituents does not mean that the soils necessarily contain a listed hazardous waste. In order for soils to be determined to contain a listed hazardous waste there must be sufficient objective evidence to demonstrate that the constituents came from a listed hazardous waste, a mixture of a listed hazardous waste and a solid waste, or were derived from a listed waste source (e.g., a treatment residual).

Disposition options will reflect the need to segregate these materials in interim storage facilities based on the radiological composition and the type of hazardous waste which they contain.

1.1.4 PCB Contaminated Soils

This category includes soils contaminated with regulated PCBs. Excavated soils in an area where there exists process knowledge of a previous PCB spill, or the appearance of an oily substance is discovered, must be removed and isolated by tarps or containerized for staging until characterization can be performed.

1.1.5 Petroleum Contaminated Soils

Soils contaminated with a petroleum product, but which do not contain hazardous waste or PCBs are classified under this category. Limits for benzene, toluene, xylene, ethyl benzene, and total petroleum hydrocarbons (TPH) apply to petroleum contaminated soils from Underground Storage Tank (UST) removals, in accordance with OEPA policy, "The Division of Solid and Hazardous Waste Management Policy on Petroleum Contaminated Soils".

1.2 Debris

Debris at the FEMP falls into general categories depending on the physical form and matrix of the debris and the radiological and chemical contamination. Some of the categories are described below for clarity. (See the PWID form)

NOTE: Some types of debris may continue to exhibit the Toxicity Characteristic. Examples include certain metal alloys containing chromium such as stainless steel. For example; certain high chromium stainless steels, if included with all demolition debris, would be deemed hazardous waste if a representative sample of the debris exhibited a hazardous waste characteristic. However, if the stainless steel is removed and segregated prior to the demolition activities, the stainless steel could be managed separately by recycling it as scrap metal and would be exempt from further regulation.

1.2.1 Scrap Metal

Scrap metals are divided into two general categories; refuse and recoverable. Recoverable scrap metals are further divided into two subcategories; recyclable and reusable. Disposition of the materials can only be identified once the materials are appropriately categorized. Appropriate segregation into these categories will facilitate the most cost effective and timely final disposition of scrap metal waste. Scrap metal can be identified as those materials which meet the criteria of the scrap metal checklist contained in SOP 20-C-625.

Recoverable Metal: Metal which can be radiologically and/or chemically decontaminated or processed for release for use off site. Decontamination may occur onsite or at offsite locations. Disposition of metal for decontamination in this manner helps support FEMP waste volume reduction objectives by reducing the amount of material that must be managed as regulated waste.

Examples of metal for decontamination include: structural steel, Juice (UO_3) Hoppers, rolling mill components, and bulk storage tanks.

Metal for Recycle: Radiologically contaminated metals may be remelted for beneficial reuse in applications where the dose associated with the recycled (e.g., remelted) metal is negligible compared to the dose associated with the application where the remelted metal is used. For example, remelted metals may be cast into shielding blocks, rolled into metal sheets for fabrication of waste disposal containers, or reformed into structural steel or other building materials (e.g., rebar) for use in radioactive material management facilities (e.g., an engineered waste management facility).

Metals for recycle must be free from non-metallic materials (e.g., plastic/rubber fittings, gaskets, etc.).

Examples of metal for remelt include: pipes, conduits, process equipment (e.g., pumps), and other thin gauge metals.

Refuse Metal: Generally non-recoverable metals that are not categorized as metal for decontamination or metal for recycle/reuse. This type of debris will generally be prepared for disposal.

Examples of refuse metals include: metal attached to other materials, extremely rusted metals, etc.

1.2.2 Scrap Wood

In order to be managed as low level waste, scrap wood must meet the criteria specified on the scrap wood checklist contained in SOP 20-C-625. Examples of common types of scrap wood at the FEMP include: pallets, packaging materials, concrete formwork, and two-by-four framing.

1.2.3 Plastic, Paper, Rubber, Cardboard, Fiberglass, Rope, Non-Hazardous PPE

Generated routinely from construction projects at the FEMP. These items must meet the criteria on the completed checklist contained in SOP-C-625.

1.2.4 Asphalt, Bricks, Non-Hazardous/Non-Radioactively Contaminated Concrete

Consult with WC representative to determine which MEF number is applicable for the asphalt, concrete, and brick waste that may be generated (as listed on the PWID).

1.2.5 Regulated Asbestos Containing Materials (RACM)

Suspected ACM needs to be evaluated by the Asbestos Program Coordinator to determine if it is ACM. If it is ACM, then its condition needs to be assessed to determine if it is Regulated ACM (RACM). If it is RACM, then it must be packaged and disposed as such.

1.2.6 Non-Regulated and/or Stabilized ACM

Evaluation by the Asbestos Program Coordinator of asbestos content and condition. Will be verified through the results obtained from stabilization study for transite.

1.2.7 Electrical Equipment

Includes ordinary light fixtures (without the ballasts) including incandescent bulbs, dry-type transformers, conduit, wire and cable, panelboards, and switches. EXCLUDES FLUORESCENT LIGHT TUBES OR ANY GAS TUBES/BULBS, TRANSFORMERS, PANELBOARDS WITH MERCURY SWITCHES.

1.2.8 PPE or Other Trash Contaminated with Regulated Waste

Consult with WC representative to determine which MEF number is applicable for contaminated versus non-contaminated PPE (as listed on the PWID).

1.2.9 Debris Containing Hazardous Waste or Regulated as a PCB Item

Debris that fails criteria for other categories must be evaluated individually to determine if it contains hazardous waste or is regulated as PCB items. It is documented via the MEF verification process and managed accordingly.

1.2.10 Trees, Shrubs and Rocks

Excavated trees and shrubs will be stockpiled within project boundaries throughout all field activities. The trees and shrubs can be used during construction for habitat enhancement throughout the FEMP site or shredded and chipped for mulch. Any excess rocks can be stockpiled and used where necessary for erosion control. At any time, if it is determined that the stockpiled trees, rocks (over 60 mm in size), or shrubs are to be discarded or intended for eventual discard, they shall be managed as debris.

1.2.11 Chemically or Radioactively Contaminated Trees, Shrubs, and Rocks

Any trees, shrubs or rocks that have been characterized by Waste Characterization (through sampling and analysis) to be subject to management as low level radioactive and/or chemically contaminated will be stored, in some form, in the CSF or approved hazardous material storage area. Trees and shrubs shall be reduced in size to make storage more manageable.

1.3 Wastewaters

Wastewaters generated during various projects require an evaluation for several factors; 1) to ensure the NPDES permit and other CWA regulations are complied with; 2) what type of treatment can be provided through other FEMP waste water treatment system; and 3) what , if any, notifications are required for obtaining agency approval for discharge. Consult with a representative from the Regulatory Technical Support (RTS) department of the Regulatory Programs division for completing the PWID if wastewater discharges during projects are anticipated.

The PE and DEC team must determine the following information and provide it to the RTS representative:

1. Quantity of wastewater anticipated during disposition.
2. Frequency of generation.
3. Source of the wastewater (decontamination water, stormwater from excavations, etc.)

CATEGORIZATION AND DISPOSITION

With this data, the project DEC team and RTS representative will develop a list of contaminants of concern identifying the necessary analytical data used to determine whether a discharge can be made; and, if allowed, the discharge sequence. Knowledge of how the wastewater became generated is important in this process of determining the contaminants of concern.

Existing data on wastewaters generated during a prior characterization may be used for this determination. However, all analytical results must be in "totals" (as opposed to TCLP or soluble portions).

1.3.1 Non-Hazardous, Low Organics/No Metals, Wastewater Media:

For the purposes of this section and this procedure, low organics is defined as all organics measured above detection are less than 100 ppb. "No metals" is defined as none of the Clean Water Act (CWA)/RCRA Toxic Metals, have been detected above the detectable levels.

1.3.2 Non-Hazardous, No Organics/Low Metals, Wastewater Media:

For the purposes of this section and this procedure, low metals is defined as less than 100 ppb for all of the CWA/RCRA toxic metals except for Cr, Cu, and Ni. These levels are 27, 90, and 42 ppb respectively. "No Volatile Organic Compound (VOCs)" is defined as non-detection at an analytical detection limit of at least 10 ppb.

1.3.3 Non-Hazardous, Low Organics/Low Metals, Wastewater Media:

* Wastewater meeting the criteria in 1.3.1 and 1.3.2 may be discharged to General Sump.

* Wastewater exceeding the criteria for VOCs in 1.3.1 must be discharged to Plant 8 VOC treatment system.

* Wastewater exceeding the criteria for metals in 1.3.2 but meeting the VOC criteria must be discharged such that treatment through the Plant 8 Filtration system is required.

* Wastewater exceeding both the VOC and metals criteria must be discharged to the Plant 8 VOC treatment system.

  NOTE: Effluent from the Plant 8 VOC treatment system is pumped directly to the Plant 8 filtration system.

1.3.4 Wastewater/Media Containing Listed Waste, Organics

This category must be handled on a case-by-case basis.

1.3.5 Wastewater/Media Containing Hazardous Waste, TC Metals

This category must be handled on a case-by-case basis.

1.3.6 Wastewater/Media Containing Hazardous Waste, TC Organics

This category must be handled on a case-by-case basis.

2.0 IDENTIFYING DISPOSITION OPTIONS

The following subsections identify discriminators for selecting management alternatives and/or disposition options for materials identified in this Attachment generated from FEMP projects. The mechanism for moving materials into the management system and the acceptance criteria for the selected management facility are also identified.

2.1 Excess Soil Disposition Options

2.1.1 Phase I R.A. 17 Disposition Options

NOTE: Phase I (according to RA 17 work plan) addresses storage options prior to completed construction of the 3 Improved Storage Structures; CSF, SMP, DFP).

- **Cover With Tarp and Extend security fence around pile**
  For soils that exceed the radiological administrative levels (greater than 100 pCi/g total Uranium, greater than 5 pCi/g total Radium or greater than 50 pCi/g total Thorium) and are not suspect of/or not known (through analytical sampling results) to contain hazardous waste (See 1.1 under "Categorizing Materials")

- **Controlled stockpiles**
  For soils that do not exceed the radiological administrative levels and are considered non-hazardous. This criterion is verifiable by the completion of the MEF verification form by the WC representative through analytical data or if sufficient objective PK has been provided.

- **Containerize and Store in Hazardous Waste storage area/facility**
  For soils containing PCBs or soils known to contain hazardous waste (supported by analytical results).

- **UST Soils pile**
  For soils known to be contaminated with petroleum products (See 1.1.5 under "Categorizing Materials")

- **Establish AOC/Provide Engineered Cover in-place**
  These options apply if it is estimated prior to the start of excavations or once excavations are complete for a project, that large quantities of excess soils remain that are known (through known spills or sampling and analysis data) to contain hazardous waste and it would prove inappropriate and not feasible (due to the large quantity of soil) to eventually store this excess soil in an improved storage structure. The decision to determine the quantities of excess soil considered too large for storage (i.e., determine the area to be an AOC) in an improved storage facility will be made on a case-by-case basis by PE, the RSO WML, and the project manager. The establishment of an AOC will require USEPA and Ohio EPA concurrence.

2.1.2 Phase II (Removal Action 17) Disposition Options

NOTE: Phase II (according to RA 17 Work plan) addresses storage options and soil/debris management from the time improved storage structures are completed until the final ROD.

- **Central Storage Facility (CSF)**
  Bulk and containerized storage of soil and debris that exceed the radiological administrative action levels or contain other regulated wastes.

- **Maintain in Controlled Stockpile**
  Excess soils from projects that do not exceed the radiological action levels and do not contain regulated wastes will be transferred to a designated controlled stockpile within the AOC where the excess soil originated. These stockpiles are covered with tarps to ensure physical access is limited (bounded with fencing, if one is not already in place). Drainage controls shall be established around the pile to minimize run-on and provide runoff controls from these controlled stockpiles.

2.2 Debris Disposition Options

2.2.1 Package for Disposal at Point of Generation

Based on the information provided in the PWID, if the disposition of certain waste streams, as well as the size and type of container to be used is already known, the waste packaging may occur at the point of generation if it proves to be a safe and prudent method of packaging.

2.2.2 LLW Packaged for Disposal at NTS

The RSO WML shall provide and coordinate the transport of the appropriate approved containers for packaging debris. All packaging shall be completed in accordance with the SSOP(s) for packaging of low-level radioactive wastes for offsite shipment to NTS. RSO shall provide for the transfer of containers from the FEMP staging areas to the project staging areas for shipment preparation. The waste management goal is to provide just-in-time (JIT) inventory for NTS shipments (i.e., to package and transfer materials for shipment without the need for interim storage).

<u>NOTE</u>: For large scale Dismantling and Decommissioning projects, most of the interim storage options mentioned below are not feasible. Most of the wastes generated from these actions, specifically non-RCRA and Low Level Radioactive Wastes, will be packaged at the generation point for shipment to a DOE-approved facility or for recycle/reuse as specified in the project-specific work plans or contract documents with the dismantling subcontractor.

2.2.3 Non-contaminated, Non-hazardous Debris for Industrial Landfill

Non-contaminated, non-hazardous debris (many compactable wastes) are placed into clean construction waste containers (dumpsters) for disposal at a commercial or industrial landfill. When appropriate, a lockable clean waste container shall be staged in the vicinity of the project site. This area should also be monitored using radiological control personnel and instrumentation to ensure background levels are low enough to permit release surveys in that area.

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2.2.4 Central Processing/Packaging Facility

Certain debris may be managed more efficiently in a centralized packaging/processing facility when either one of two conditions is met: 1) the debris is amenable to processing onsite to reduce the volume or toxicity or to improve its physical or chemical form for disposal (e.g., compaction or stabilization), or 2) the material is generated at a sufficiently slow rate that labor-hours and equipment resources are more efficiently deployed at a central location. The central packaging/processing facility will be utilized for any project generating less than 1/2 White Metal Box (3 cubic yards) of debris per week or less than a total of 1 WMB total debris over the life of the project.

RSO or subcontractor forces shall provide roll-off boxes for transfer of the material from the point of generation to the central packaging/processing location. Use of roll-off boxes (in lieu of WMBs) eliminates confusion as to whether debris is in transit or packaged appropriately for disposal.

NOTE: Hazardous debris would be limited to a 90 day accumulation period under this scenario.

2.2.5 Interim Bulk Storage Facilities

RSO or subcontractor shall provide personnel and equipment for transfer of debris to interim bulk storage facilities. **This option is particularly applicable to RCRA contaminated debris that cannot be shipped offsite.** Roll-off boxes shall be used for the transfer of bulk materials. Debris being transferred to an interim bulk storage facility must meet the acceptance criteria for that facility. Materials that do not meet the acceptance criteria of a specified interim bulk storage facility shall be returned to the point of generation for appropriate disposition. Non-conformance to the acceptance criteria shall be documented to collect an appropriate data set for trends analysis and process improvement. Table 1 identifies the acceptance criteria for receiving materials into specific interim bulk storage facilities.

2.2.6 Scrap Metal Pad (SMP) tension support structure

Storage of scrap metal prior to decontamination or offsite shipment

2.2.7 Decontamination Facility Pad (DFP) tension support structure

Staging of contaminated metal/debris prior to decontamination or recycling.

Table 3 - Interim Bulk Storage Facility Acceptance Criteria

Interim Bulk Storage Facility	Acceptance Criteria
Decontamination Facility Pad (DFP)	Metal must not be excessively rusted and not have areas of inaccessible contamination. Material must conform to the metals checklist criteria of SOP 20-C-625.
Scrap Metal Pad (SMP)	Metal must conform to the metals checklist criteria of SOP 20-C-625.

2.2.8 Central Storage Facility (CSF)

Bulk and containerized storage of radioactively contaminated (confirmed through sampling and analysis above the radiological administrative levels) and/or hazardous (confirmed through sampling and analysis) soil and non-recoverable debris.

2.2.9 Interim Containerized Storage Facility

RSO or subcontractor shall provide for transfer of containerized debris requiring storage in an interim container storage facility. Containers will not be transferred to a container storage facility or accepted into a container storage facility without either a completed checklist or a completed MEF and MEF Inventory Attachment. Refer to procedure SOP 20-C-625 for directions on use of checklists. Refer to procedure SSOP-0002 for instructions on completing the MEF and MEF Inventory Attachment.

2.2.10 Disposition Specified in the Project Work Plan

Disposition options for specific types of debris may be called out in the Project Work Plan (e.g., a specific Removal Action Work Plan). These project-specific alternatives will generally be specified to accommodate special handling requirements or to support technology demonstration projects.

2.3 Wastewater Disposition Options

The primary impacts of wastewater discharges is a function of mass loading (mass loading = flow times (x) concentration). Consultation with the RTS representative must occur to determine if the threshold volumes are to be generated as a result of the project.

2.3.1 Non-Hazardous, Low Organics/No Metals, Wastewater Media:

This type of wastewater may be discharged to General Sump. If any VOC measures above 100 ppb, then treatment through the Plant 8 VOC treatment system is required. Large volumes of wastewater with VOCs above 100 ppb may require special disposition.

2.3.2 Non-Hazardous, No Organics/Low Metals, Wastewater Media:

Wastewater meeting these criteria may be discharged to General Sump. Wastewater exceeding these criteria must be discharged so that they are routed to the Plant 8 filtration system.

2.3.3 Non-Hazardous, Low Organics/Low Metals, Wastewater Media:

Wastewater meeting the criteria in 1.3.1 and 1.3.2 may be discharged to General Sump.

Wastewater exceeding the criteria for VOCs in 1.3.1 must be discharged to Plant 8 VOC treatment system.

Wastewater exceeding the criteria for metals in 1.3.2 but meeting the VOC criteria must be discharged such that treatment through the Plant 8 Filtration system is required.

Wastewater exceeding both the VOC and metals criteria must be discharged to the Plant 8 VOC treatment system.

<u>NOTE</u>: Effluent from the Plant 8 VOC treatment system is pumped directly to the Plant 8 filtration system.

2.3.4 Wastewater/Media Containing Listed Waste, Organics

Discharged to the Plant 8 VOC treatment system, regardless of concentration.

2.3.5 Wastewater/Media Containing Hazardous Waste, TC Metals

Disposition must be handled on a case-by-case basis.

2.3.6 Wastewater/Media Containing Hazardous Waste, TC Organics

Disposition must be handled on a case-by-case basis.

ATTACH[illegible] B (Sheet 1 of 4)

PROJECT WASTE IDENTIFICA[illegible] AND DISPOSITION (PWID) FORM

A. General

Project Title:		
Project Location: CRU:	**Date of Original PWID:**	**Current Revision:**
Summary Project Description:	**Project Engineer/Phone #:**	

Additional detail provided in: __ Work Plan __ Work Order __ Other, specify: _____

B. Excess Soils - Identification and Disposition

Excess Soil Type	Volume (m^3)	Weight (kg)	Characterized By	Disposition By
1. Non-RCRA, Equal to or less than 100 pCi/g U, (Cat. I) (SSOP-0044, Section 1.1.1)			MEF Number 2503	
2. Non-RCRA, Greater than 100 pCi/g U (Cat. II) (SSOP-0044, Section 1.1.2)			MEF Number 2504	
3. Soils Containing Hazardous Waste - TC Metals			MEF Number AAAA	
4. Soils Containing Hazardous Waste - TC organics			MEF Number BBBB	
5. Soils Containing Hazardous Waste - listed waste (SSOP-0044, Section 1.1.3)			MEF Number CCCC	
6. Soils Containing PCBs (SSOP-0044, Section 1.1.4)			MEF Number DDDD	
7. Soils Contaminated w/Petroleum Products (SSOP-0044, Section 1.1.5)			MEF Number EEEE	
8. Soils, specify:			MEF Number FFFF	

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ATTACHMENT B (Sheet 2 of 4)
PROJECT WASTE IDENTIFICATION AND DISPOSITION (PWID) FORM

C. Debris - Identification and Disposition

Debris Type	Volume (m^3)	Weight (kg)	Characterized By	Disposition By
1. Scrap metal for decontamination (SSOP-0044, Sec. 1.2.1)			SOP 20-C-625, MEF # 1088 and Scrap Metals Checklist	
2. Scrap metal for recycle (SSOP-0044, Sec. 1.2.1)			SOP 20-C-625, MEF # 1088 and Scrap Metals Checklist	
3. Scrap metal for disposal (SSOP-0044, Sec. 1.2.1)			SOP-20-C-625, MEF # 1088 and Scrap Metals Checklist	
4. Scrap wood (SSOP-0044, Sec. 1.2.2)			SOP-20-C-625, MEF # 905 and Scrap Wood Checklist	
5. Plastic, rubber, paper, fiberglass, rope (SSOP-0044, Sec. 1.2.3)			SOP-20-C-625, MEF # 1539 and Completed Checklist	
6. Glass (SSOP-0044, Sec. 1.2.3)			SOP-20-C-625, MEF # 1284 and Completed Checklist	
7. Concrete, Non-hazardous, Radiologically Contaminated (SSOP-0044, Sec. 1.2.4)			MEF Number 2007	
8. Concrete, Non-hazardous, Non-Radiologically Contaminated (SSOP-0044, Sec. 1.2.4)			MEF Number 2512	
9. Asphalt, Non-hazardous, Radiologically Contaminated			MEF Number 2136	
10. Asphalt, Non-hazardous, Non-Radiologically Contaminated (SSOP-0044, Sec. 1.2.4)			MEF Number GGGG	
11. Bricks, (furnace, acid)			MEF Number HHHHH (furnace) MEF Number IIII (acid)	
12. Regulated Asbestos Containing Material (friable) (SSOP-0044, Sec. 1.2.5)			MEF Number 1340	
13. Non-regulated Asbestos Containing Material (non-friable) (SSOP-0044, Sec. 1.2.6)			MEF Number JJJJ	
14. Electrical Equipment (wire, conduit, light, switches, etc.) (SSOP-0044, Sec. 1.2.7)			MEF Number 2008	
15. Debris Containing Hazardous Waste (SSOP-0044, Sec. 1.2.9)			Appropriate MEF	
16. Debris regulated as PCB Items or Article (SSOP-0044, Sec. 1.2.9)			MEF Number KKKK	

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ATTACH B (Sheet 3 of 4)

PROJECT WASTE IDENTIFICATION AND DISPOSITION (PWID) FORM

D. Residues and Other Waste - Identification and Disposition

Residue/Waste Type	Volume (m^3)	Weight (kg)	Characterized By	Disposition By
1. Lead based paint chips/scrapings			MEF Number 817	
2. Wood, Railroad Ties, Non-hazardous, Radiologically contaminated			MEF Number 2136	
3. Trees, shrubs, rocks (SSOP-0044, Sec. 1.2.10)			MEF Number LLLL	
4. Others, specify:				
5. Others, specify:				
6. Others, specify:				
7. Others, specify:				

E. Waste Waters - Identification and Disposition - (IDW)

Aqueous Waste Type	Volume (l)	Weight (kg)	Characterized By	Disposition By
1. Aqueous waste which contains a listed VOC. (SSOP-0044, Sec. 1.3)			MEF Number MMMM	
2. Aqueous waste containing VOCs above 100 ppb (SSOP-0044, Sec. 1.3)			MEF Number NNNN	
3. Aqueous waste with no VOC or VOC below 100 ppb (SSOP-0044, Sec. 1.3)			MEF Number 2493	
4. Aqueous wastes which contain listed metals and F-Listed constituents			MEF Number 2498	
5. Others, Specify:				
6. Others, Specify:				
7. Others, specify:				

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ATTACHMENT B (Sheet 4 of 4)
PROJECT WASTE IDENTIFICATION AND DISPOSITION (PWID) FORM

F. Approvals

1. Project Engineer:	Date:	Comments:
2. RSO Waste Programs Management:	Date:	Comments/Special Instructions:
3. Waste Characterization:	Date:	Comments:
4. Radiological Control:	Date:	Comments:
5. Waste Management Coordinator:	Date:	Comments:

1.0 PURPOSE

The purpose of this document is to provide the procedure for moving, filling, securing, and inspecting the 28 contaminated trash dumpsters with contaminated trash on the controlled side to meet NVO-325 requirements.

2.0 APPLICABILITY

This procedure is applicable to anyone moving, collecting, and depositing trash into contaminated trash dumpsters.

3.0 RESPONSIBILITIES

3.1 **Administration/Training/Remediation Services Training/Site Support Training** shall be responsible for providing porters, laborers, Motor Vehicle Operators (MVO) and their immediate supervisors, plus any other waste handler associated with collecting or depositing trash into the contaminated trash dumpsters with training or training material on controlling contaminated trash dumpsters.

3.2 **Supervisors** shall be responsible for the following:

3.2.1 Ensuring that personnel are qualified per the established training requirements identified by the Department/Section Manager.

3.2.2 Maintain training records of personnel who are using the dumpsters.

3.2.3 Providing training records to Facilities & Waste Operations.

3.2.4 Contacting Radiological Control or Industrial Safety & Health to determine the appropriate respiratory protection for handling contaminated trash.

3.2.5 Providing Contaminated Trash Handlers with the required respiratory protection.

3.2.6 Reviewing applicable Material Safety Data Sheets with Contaminated Trash Handlers.

3.3 **Contaminated Trash Generators** shall be responsible for ensuring that prohibited items are not placed into trash receptacles. (See Figure 1)

3.0 RESPONSIBILITIES (cont.)

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3.4 **Facility/Dumpster Owners** shall be responsible for the following:

3.4.1 Ensuring that designated contaminated trash dumpster access doors remain locked when not in use.

3.4.2 Ensuring that contaminated trash does not accumulate around the dumpsters.

3.4.3 Maintaining ownership (or delegating ownership) of the key to open the "Master" lock on the contaminated trash dumpster.

3.4.4 Notifying Waste Management, specifically Waste Generation Control (738-8444), to whom ownership of the key has been delegated.

3.4.5 Notifying Waste Generation Control (738-8444) of any problems associated with contaminated trash dumpsters.

3.5 **Contaminated Trash Handlers** shall be responsible for complying with this SOP.

3.6 **Remedial Support Operation/Operations/Waste Management/Waste Generation Control (WGC)** shall be responsible for the following:

3.6.1 Periodically updating the prohibited items list to be posted on each contaminated trash dumpster and the appropriate action to take if prohibited items are found.

3.6.2 Maintaining a list of facility/dumpster owners and copies of the keys to the dumpster locks.

3.6.3 Routinely issuing "employee updates" to inform personnel of their responsibilities pertaining to the generation of contaminated trash.

3.6.4 Configuration of contaminated trash dumpsters to better serve the site needs.

3.7 **Quality Control (QC)** shall be responsible for the following:

3.7.1 Performing weekly inspections of 25% of the dumpsters and documenting that information in Figure 3.

3.7.2 Contacting dumpster Owners about deviations and forwarding copies to Quality Assurance (QC) & (WGC).

3.8 **Quality Assurance** shall be responsible for the following:

3.8.1 Evaluating the Contaminated Trash Dumpster QC Inspection Checklist along with documentation from the package certifiers (pre-baled trash inspection) and baler operators.

3.8.2 Contacting Facility/Dumpster Owners and issuing Deviation Reports whenever appropriate.

CIO NO. C93-757 5692

Effective Date: 01-11-94

Expiration Date: 07-11-94

CHANGE IN OPERATION
REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM

DOCUMENT NO.: 20-C-604	AFFECTED DOCUMENT PAGE NO.: 2	AREA AFFECTED: Dumpster & Trash Control
DIVISION: RSO	DEPARTMENT: ENV. WASTE MGT.	SECTION: WASTE GENERATION CONTROL

TITLE: Control and Utilization of Contaminated Trash Dumpsters

AUTHORIZATION: (Signature on File) M.L. West, Environmental Waste Management Manger

CHANGE:

1) Section 3.4 (Steps 3.4 thru 3.4.5) is replaced with the following (Steps 3.4 thru 3.4.9):

FILING INSTRUCTIONS: File facing page 2 of SOP 20-C-604 (Issue Date: 10-18-93 Rev. No. 0)

DOCUMENT PTR: M. Frost

3.4 **Facility/Dumpster Owners** shall be responsible for the following:

3.4.1 Ensuring that designated contaminated trash dumpster access doors remain locked when not in use.

3.4.2 Ensuring that contaminated trash does not accumulate around the dumpster, unless the dumpster is full.

3.4.3 Ensuring that unidentified (un-labelled) bags that have been "dropped" at the dumpster are marked with a large red "X" and placed in the dumpster for segregation and internal inspection at the contaminated trash baler, per SOP 02-C-923.

3.4.4 Contacting the Motor Vehicle Operator (MVO) to empty/transport full dumpsters.

3.4.5 Maintaining ownership (or delegating ownership) of the key to open the "Master" lock on the contaminated trash dumpster.

3.4.6 Notifying Waste Management, specifically Waste Generation Control (738-8444), whenever key-control is delegated to someone other than the designated key-holder.

3.4.7 Notifying Waste Generation Control (738-8444), of any problems associated with contaminated trash dumpsters.

3.4.8 Working with the Contaminated Trash Handlers to ensure that visually (externally) inspected bags with prohibited items are addressed at the point of generation.

3.4.9 Responsible for depositing labeled, acceptable contaminated trash into their dumpsters or ensuring that only authorized contaminated trash handlers deposit trash into their dumpsters.

2) Step 3.5 is revised to read as follows:

3.5 **Contaminated Trash Handlers/MVO** shall be responsible for complying with this SOP.

3) A new Step 3.6.5 is added to read as follows:

3.6.5 Working with the Dumpster Owner to ensure that only authorized contaminated trash handlers deposit trash into their respective dumpsters.

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4.0 **DEFINITIONS**

4.1 Contaminated Material - A substance containing radioactive constituents that are above the limit for unrestricted release (1,000 dpm/cm^2).

4.2 Contaminated Trash Dumpster - Secured container for the collection of contaminated trash located throughout the controlled area. The dumpsters are gray in color with a rounded top and a locked door on each end (two doors).

4.3 Contaminated Trash Generator - Any person that has a TLD and works within the controlled area, or will access the controlled area periodically to perform their duties, and subsequently be disposing of trash.

4.4 Contaminated Trash Handler - Any person (porter, laborer, HAZWAT, chemical operator, sub-contractor, MVO, or radiation technician) that will collect contaminated trash for disposal.

4.5 Contaminated Trash - Any trash on the site suspected to have contaminated material which would prelude the trash from disposal at a sanitary landfill.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

5.1.1 PO-D-026, "Site Services Document Program"

5.1.2 "FEMP Conduct of Operations Manual"

5.1.3 RM-0012, "Quality Assurance Program Description"

5.1.4 NVO-325, "Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirement"

5.2 References or Related Documents

5.2.1 SOP 02-C-923, "Trash Baler Operation"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 A defined safety system is not involved.

6.2 Safety glasses with side shields shall be worn unless other eye protection is specified by ES&H or posted signs.

6.3 Respiratory protection provided by the supervisor shall be worn when required by ES&H.

6.4 Leather-palm gloves shall be worn when handling rough and/or contaminated material.

6.5 Contaminated trash shall not be allowed to accumulate around the dumpsters.

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

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6.6 Contaminated Trash Handlers shall have reviewed and be familiar with MSDSs for hazardous materials/chemicals that may be used or handled.

6.7 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.8 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the Item or Step to which they apply.

8.0 PROCEDURE

CONTAMINATED TRASH HANDLER

8.1 Bag Inspection

8.1.1 Visually examine the trash for prohibited items or categories of waste (See Figure 1) as the clear plastic bags are filled, or where that is not possible, perform external visual inspection.

8.1.1.1 Remove prohibited items from the trash and dispose of in an approved manner (See Figure 1) as instructed by the supervisor or Waste Generation Control.

8.1.1.2 Contact the supervisor and dumpster owner and request disposition instructions. If the supervisor or dumpster owner are unable to determine disposition contact the Waste Generation Control at 738-8444.

8.1.1.3 Ensure the building, office area, or project from which the trash originated is clearly marked on the accumulation bags with a permanent marker or paint pen.

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8.0 **PROCEDURE** (cont.)

8.2 Filling Contaminated Trash Dumpsters

8.2.1 Dispose of small or loose items as follows:

8.2.1.1 Place the small/loose material in clear plastic bags.

8.2.1.2 Inspect the trash in the secured clear plastic bag to ensure there are no prohibited items.

8.2.1.3 Gather or twist the open end of the bag until the opening is closed.

8.2.1.4 Using tape, secure the bag.

8.2.1.5 Ensure that the building, office area, or project from which the trash originated is clearly marked on the accumulation bags with a permanent marker or paint pen.

8.2.2 Contact the Dumpster/Facility owner listed on the information sheet that is posted on the dumpster to obtain approval for disposal and the lock key (See Figure 2).

8.2.3 Unlock dumpster.

8.2.4 Place bulky items (such as oversize pieces of cardboard) directly into the dumpster.

8.2.6 Inspect the bags for damage.

8.2.6.1 Place damaged bags into undamaged bags.

CAUTION

Piping and pieces of wood over two feet in length shall not be placed in the dumpster.

NOTE: Do not place unsecured, unidentified bags or damaged bags into the dumpster. Do not place green-tinted "clean office trash bags" into the dumpsters. These bags are disposed of separately than the contaminated trash. A "clean office trash" program is established and green-tinted bags are accumulated next to the contaminated trash dumpsters. The bags are picked up by transportation twice per week.

8.2.7 Place identified contaminated trash, excluding items in Figure 1, into the dumpster.

8.2.8 Lock dumpster.

8.2.9 Return the lock key to the Dumpster/Facility owner.

8.2.10 Notify Dumpster/Facility owner when dumpster becomes full and requires emptying.

8.0 **PROCEDURE** (cont.)

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8.3 Transporting Contaminated Trash Dumpsters

MOTOR VEHICLE OPERATOR (MVO)

8.3.1 Transport the contaminated trash dumpsters according to the schedule listed in Figure 2.

8.3.2 Pick up any prohibited items that have been properly segregated and transport them for disposal at the appropriate locations.

8.3.3 Contact Facility/Dumpster Owner when transport schedule cannot be met.

8.4 Dumpster Inspection

QUALITY CONTROL

8.4.1 Each dumpster shall be inspected monthly and the inspection documented in Figure 3.

8.4.2 The Facility/Dumpster Owner shall be contacted/copied on the results of the inspection (Figure 3).

8.4.3 Copy Waste Generation Control on the inspection report (Figure 3).

9.0 **APPLICABLE FORMS**

9.1 NN, "Contaminated Trash Dumpsters"

9.2 NN, "Contaminated Trash Dumpsters - QC Inspection Checklist"

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NTS Waste Stream -- ONLO-00000007
"Contaminated Trash"

Allowed Items	Restrictions
Certain Batteries	No Lead-Acid (vehicle) or Ni-Cad (rechargeable)
Empty Cans	No Prohibited Item Residue
Metal	Less than 2 ft. in length, Free from grease, oil, residues, lead-based paint
Paper/Cardboard	
Personal Protective Equipment (Anti-C's, Boots, Gloves, Tyvek)	Unless specifically restricted by Work Plan
Plastic	
Rope, Twine, String	
Styrofoam, Rubber	
Wood	Less than 2 ft. in length, Free from creosote, residue, stains, lead-based paint

Dumpster Usage Instructions:

1. All trash MUST be marked with the building or area of origin.
2. All trash MUST be placed inside the dumpster **(except green-bagged Office Trash)**.

Prohibited Items	Examples	Where to Go	Who to Contact
Asbestos Containing Material	Transite, Pipe Insulation, Floor Tile	---	Leigh Fisher, x8638
Batteries	Auto, Ni-Cad Rechargeable	Plant 6	Susan Hoskins, x6826
Compressed Gases and Aerosol Cans (unpunctured)	Spray Paint, Deodorant Cans, Spray Disinfectant Cleaner, WD-40, Propane	Plant 1	Sam Laupola, x6052
Glass	Bottles, Jars, Light bulbs	Plant 1	Sam Laupola, x6052
Lead-bearing Material	Lead metal, Pipe dope, Lead flashing, Oil filters	Satellite Accum. Areas	John Grace, x8924
Liquids	Water, Coffee, Ice, Pop	Sink	---
Mercury-bearing Material	Switches, Vaccuum Pumps	Satellite Accum. Areas	John Grace, x8924
Particulates (unbagged)	Ashes, Dust, Pad Sweepings	---	Chris Gilbert, x6428
Solvents and Soaked Rags	Kerosene, Toluene, Acetone	Satellite Accum. Areas	John Grace, x8924
UNCONTAMINATED TRASH	Office Trash, Paper, Non-radioactive trash	---	Chuck Menche, x6428
Wood	Pallets, 2x4's,Lumber	Plant 1	Lori Hurst, x8448

Any Questions...Call
Waste Generation Control - x8444

PROHIBITED WASTE
Figure 1

Contaminated Trash Dumpsters

No.	Check-Off	New Lock	Pickup Schedule Mon	Tue	Wed	Thu	Fri	Location	Location Description	Facility Owner	Phone	Keyholder(s)	Phone
1		2459						Plt 4 E	E Entrance to Plant 4	Bob Bischoff	6256	Darrell Kirby	6410
2		2703						H&S	Outside (North) of Medical	Joe Legge	6975	Sam Wilhite	6477
3		2989						Plt 7 S	Gravel near T-84	Joe Legge	6975	Bob Gindling	8409
4		2759						Plt 5 NE	NE corner	Ken Peters	6451	Ken Peters	6451
5		2977						Plt 6 S	Across street from Garage	Dale Vizedom	6478	Dale Vizedom	6478
6		2870						Plt 6 Insp	E side of Plant 6	Ken Peters	6451	Alan Blundell	6611
7		2212						Plt 6 N	N side of Plant 6	Ken Peters	6451	Alan Blundell	6611
8		2589	x	x	x	x	x	Lab Pad 15B	Between Lab and Services Bldg	Doug Stamper	8984	Wanda Burk	6556
9		X2227						Garage	S side near fence	Tony Frye	6078	Roy Peterson	6078
10		X2232						Bldg 12 SE	SE end of bldg	Karl Schaefer	6866	Paul Raab	6441
11		X2698						Bldg 12 SW	SW end of bldg	Karl Schaefer	6866	Mark Collins	6673
12		X2362						Plt 1	Near Plant 1 Pad	Sam Laupola	6052	Sam Laupola	6052
13		2333						Decontamination	SE corner	Jerry Knight	6708	Roy Douglas	6274
14		2287						Plt 9 W	NW corner	Ken Peters	6451	Bill Gibson	6798
15		2323					x	Bldg 12 N	North side (Electrical Shop)	Bill Libbert	6855	Bill Libbert	6855
16		X2403						Plt 1	Near loading dock	Sam Laupola	6052	Sam Laupola	6052
17		2655	x	x	x	x	x	Pilot Plant	Between Lab and Pilot Plant	Bob Bischoff	6256	Jim Campbell	6798
18		2256						Plt 1	Near offices on west side	Sam Laupola	6052	Sam Laupola	6052
19		X2890						Lab W	Between Lab and Pilot Plant	Doug Stamper	8984	Wanda Burk	6556
20		X2386						Bldg 3045	NE corner	C.K. Smith	6953	C.K. Smith	6953
21		2728						Services Bldg	W side, near Laundry	J e Legge	6975	Jean West	8476
22		X2445						Hot Raffinate Bldg	South side	Bob Bischoff	6256	Jim Campbell	6798
23		2382						Plt 6 E	In contamination area on south side	Ken Peters	6451	Phil Kraus	6696
24		2709						Plt 1	NE of Bldg 71	Sam Laupola	6052	Sam Laupola	6052
25		X2122						Plant 2/3 S	South Alley	Bob Bischoff	6256	Billy Bowling	9081
26		X2464						Water Treatment	Beneath "Electrostatic Precipitator" sign	Bill Naber	6434	Bill Naber	6434
27		2553						K-65	East of K-65 silos	Nick Glassey	648-6602	Ray Rosenberry	6433
28		2191						Lime Bldg	S. of Bulk Lime Handling Building	Ron Young	6437	Mike Olberding	6425
		Totals	2	2	2	2	3						

CONTAMINATED TRASH DUMPSTERS
Figure 2

5692

CIO NO. C94-002

Effective Date: 01-11-94

Expiration Date: 07-11-94

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CHANGE IN OPERATION

REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM

DOCUMENT NO.: 20-C-604	AFFECTED DOCUMENT PAGE NO.: 8	AREA AFFECTED: Contaminated Trash Dumpsters
DIVISION: RSO	DEPARTMENT: WST. MGT	SECTION: WST. MGT.

TITLE: Control and Utilization of Contaminated Trash Dumpsters

AUTHORIZATION: (Signature on File)
M.L. West, Waste Management Manager

CHANGE:

1) Figure 2 is revised as follows:

FILING INSTRUCTIONS: File facing page 8 of SOP 20-C-604 (Issue Date: 10-18-93 Rev. No. 0)

DOCUMENT PTR: M. Frost

Contaminated Trash Dumpsters – Master

No.	Check-Off	New Lock	Pickup Schedule Mon	Tue	Wed	Thu	Fri	Location	Description	Facility/ Dumpster Owner	Phone	Keyholder(s)	Phone
1		X2584	X					Plt 4 E	E Entrance to Plant 4	Brenda Perkins	6001	Brenda Perkins	6001
2		2703		X				Lab 8	South of Lab Bldg.	Ken Ball	6570	Ken Ball	6570
3		2989			X			South of Union Trailer	Gravel near T-84	Jim Hey	6118	Bob Gindling	6409
4		2759				X		Plt 5 NE	NE corner	Ken Peters	6451	Ken Peters	6451
5		2977					X	Plt 6 S	at Bldg 31	Dale Vizedom	6478	Dale Vizedom	6478
6		2870	X					Plt 6 Insp	E side of Plant 6	Ken Peters	6451	Alan Blundell	6611
7		2212		X				Plt 6 N	N side of Plant 6	Ken Peters	6451	Alan Blundell	6611
8		2569	X	X	X	X	X	Lab Pad W	West of Lab Dock	Doug Stamper	6984	Wanda Burk	6556
9		X2227				X		Garage	S side near fence	Steve Schonegg	6822	Tim Feltner	6045
10		X2232					X	Bldg 12 SE	SE end of bldg	Karl Schaefer	6566	Paul Haab	6441
11		X2696	X					Bldg 12 SW	SW end of bldg	Karl Schaefer	6566	Mark Collins	6673
12		X2462		X				Plt 1	Near Plant 1 Pad	Sam Laupola	6052	Sam Laupola	6052
13		2339			X			Decontamination	SE corner	Jerry Knight	6706	Roy Douglas	6776
14		2287				X		Plt 9 W	NW corner	Ken Peters	6451	Bill Gibson	6798
15		2323					X	Bldg 12 N	North side (Electrical Shop)	Bill Libbert	6855	Bill Libbert	6855
16		X2403	X					Plt 1	Near loading dock	Sam Laupola	6052	Sam Laupola	6052
17		2655	X	X	X	X	X	Pilot Plant	Between Lab and Pilot Plant	Brenda Perkins	6001	Brenda Perkins	6001
18		2256			X			Plt 1	Near offices on west side	Sam Laupola	6052	Sam Laupola	6052
19		X2690				X		Lab W	West of Lab Dock	Doug Stamper	6984	Wanda Burk	6556
20		X2356					X	Bldg 3045	NE corner	C.K. Smith	6953	C.K. Smith	6953
21		2726	X					Services Bldg	W side, near Laundry	Joe Legge	6975	Jean West	6476
22		X2445		X				Hot Refinate Bldg	South side	Brenda Perkins	6001	Brenda Perkins	6001
23		2362			X			Plt 5 W	West side of Plt 5 near annex	Ken Peters	6451	Phil Kraus	6696
24		2709				X		Plt 1	NE of Bldg 71	Sam Laupola	6052	Sam Laupola	6052
25		X2122					X	Plant 2/3 S	South Alley	Brenda Perkins	6001	Brenda Perkins	6001
26		X2464	X					Boiler Plant	Beneath "Electrostatic Precipitator" sign	Bill Naber	6434	Bill Naber	6434
27		2553		X				K-65	East of K-65 silos	Nick Glassey	648-6602	Ray Roseberry	6433
28		2191			X			Lime Bldg	S. of Bulk Lime Handling Building	Ron Young	6437	James Ellis	6396
		Totals	6	7	7	7	7						

CONTAMINATED TRASH DUMPSTERS
Figure 2

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
05-24-88	0	New procedure issued from CIO C88-014 per Request No. P88-056, initiated by J. E. Harmon.
12-27-90	1	Revised procedure to incorporate CIO C90-024 per Request No. P90-255.
01-28-91	2	Revised to incorporate CIO C91-061 per Request No. P92-015.
12-08-92	3	Revised to incorporate CIO C92-015 (P92-284) and update to current procedure program requirements.
10-18-93	0	Reissued to update to current requirements per Request No. P93-1006, initiated by C. Gilbert. Also CIO C93-717 (P93-1007) was incorporated.

Contaminated Trash Dumpsters
QC Inspection Checklist

No.	Location	Description	Dumpster Condition OK? Yes	Dumpster Condition OK? No	Locks on both Doors? 3P1	Locks on both Doors? Master	Prohibited List Posted? Yes	Prohibited List Posted? No	How full is the Dumpster? (Approx. %)	ALL Bags Labeled? Yes	ALL Bags Labeled? No	Prohibited Items Found(1)?	Dumpster Owner Contacted(2)	# Bags Outside Dumpster(3) Green	# Bags Outside Dumpster(3) Other
1	Plt 4 E	E Entrance to Plant 4													
2	H&S	Outside (North) of Medical													
3	Plt 7 S	Gravel near T-84													
4	Plt 5 NE	NE corner													
5	Plt 6 S	Across street from Garage													
6	Plt 6 Insp	E side of Plant 6													
7	Plt 6 N	N side of Plant 6													
8	Lab Pad 15B	Between Lab and Services Bldg													
9	Garage	S side near fence													
10	Bldg 12 SE	SE end of bldg													
11	Bldg 12 SW	SW end of bldg													
12	Plt 1	Near Plant 1 Pad													
13	Decontamination	SE corner													
14	Plt 9 W	NW corner													
15	Bldg 12 N	North side (Electrical Shop)													
16	Plt 1	Near loading dock													
17	Pilot Plant	Between Lab and Pilot Plant													
18	Plt 1	Near offices on west side													
19	Lab W	Between Lab and Pilot Plant													
20	Bldg 3045	NE corner													
21	Services Bldg	W side, near Laundry													
22	Hot Raffinate Bldg	South side													
23	Plt 6 E	In contamination area on south side													
24	Plt 1	NE of Bldg 71													
25	Plant 2/3 S	South Alley													
26	Water Treatment	Beneath "Electrostatic Precipitator" sign													
27	K-65	East of K-65 silos													
28	Lime Bldg	S. of Bulk Lime Handling Building													

Notes:

(1) Visually inspect 5 bags, or the entire dumpster contents, whichever is less.
(2) Refer to Prohibited Items Posting on each dumpster for Facility Owner name and number.
(3) Only if the dumpster is FULL, are bags (other than the segregated Office Trash "green bags") allowed outside the dumpster.

Inspector: _____

Date: _____

Instructions:

a) At a minimum, seven (7) dumpsters are to be inspected each week.
b) Sign and date the checklist at the bottom right.
c) Send one copy of this checklist to Waste Generation Control and file one copy for Deviation Report documentation

CONTAMINATED TRASH DUMPSTERS
QC INSPECTION CHECKLIST
Figure 3

5692

NON-CONTROLLED COPY

MAY 1994

CIO NO. C94-001

Effective Date: 01-11-94

Expiration Date: 07-11-94

CHANGE IN OPERATION
REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM

DOCUMENT NO.: 02-C-923	**AFFECTED DOCUMENT PAGE NO.:** 1	**AREA AFFECTED:** Plant 2/3
DIVISION: RSO	**DEPARTMENT:** RSO	**SECTION:** RSO

TITLE: Trash Baler Operation

AUTHORIZATION: (Signature on File)
O.F. Peters, RSO Operations Manager

CHANGE:

1) Step 3.3 is revised to read as follows:

   3.3 **Baler Operators** shall be responsible for operating the baler at least one shift per day, five days per week, and for following this SOP.

FILING INSTRUCTIONS: File facing page 1 of SOP 02-C-923 (Issue Date: 10-18-93 Rev. No. 0)

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DOCUMENT PTR: M. Frost

1.0 PURPOSE

The purpose of this document is to provide the procedure for baling contaminated trash for off-site disposal.

2.0 APPLICABILITY

This procedure applies to the SELCON Trash Baler in the Incinerator Bldg.

3.0 RESPONSIBILITIES

3.1 **Administration/Training/Remediation Services Training/Site Support Training** shall be responsible for providing trash baler operators, motor vehicle operators (MVO) and their immediate supervisors with training or training material on the operation of the trash baler.

3.2 **RSO Operations Supervisors** shall be responsible for the following:

3.2.1 Ensuring that personnel are qualified per the established training requirements identified by the Department/Section Manager.

3.2.2 Maintain training records of personnel operating the trash baler.

3.2.3 Contacting Radiological Control to determine the appropriate respiratory protection for handling contaminated trash.

3.2.4 Providing operators with the required respiratory protection.

3.2.5 Securing (locking out) power to the baler per SSOP-0719 prior to repairs, making adjustments, or cleaning the baler.

3.2.6 Establishing a regular schedule for the delivery of contaminated trash dumpsters to the trash baler, and periodically revising that schedule to reflect changes in the sites operations.

3.2.7 Providing Waste Generation Control with the information needed to provide the proper feedback regarding prohibited items identified in Nevada Test Site Waste Stream ONLO-000000007, "Contaminated Trash".

3.2.8 Contacting Quality Control/Waste Verification when ready to load bales into ISO for shipment.

3.3 **Baler Operators** shall be responsible for following this SOP.

3.0 **RESPONSIBILITIES** (cont.)

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3.4 **Remediation Support Operation/RSO Operations/Waste Management/Waste Generation Control** shall be responsible for the following:

3.4.1 Periodically updating the prohibited items list to be posted on each contaminated trash dumpster and the trash baler with the appropriate action to take if prohibited items are found.

3.4.2 Communicating to the appropriate generator, facility owner and handler, on a monthly basis, the proper disposal alternative for any prohibited items.

3.5 **Remediation Support Operation/Quality Control/Waste Verification** shall be responsible for the following:

Package Certifiers

3.5.1 Performing inspections of 10% of trash prior to baling and documenting prohibited items segregated, according to EQP 12.03.

3.5.2 Communicating to violators the prohibited items found and documenting that communication on Form ECQ-910315-3, Rev. 3.

3.5.3 Completing Part III of the Trash Baler Operation Log.

Real Time Radioscopic (RTR) Operators

3.5.4 Perform RTR inspection on 10% of the baled trash and document any prohibited items found on the examination log per EQP 11.24.

3.5.5 Forward a copy of the examination log each week to Waste Generation Control.

3.6 **Quality Assurance** shall be responsible for the following:

3.6.1 Evaluating the Trash Baler Operation Log along with documentation from the Package Certifiers (pre-baled trash inspection) and the Dumpster Inspections.

3.6.2 Contacting the Facility/Dumpster Owners or Generators about prohibited items and issuing Deviation Reports whenever appropriate.

4.0 **DEFINITIONS**

4.1 Contaminated Material - A substance containing radioactive constituents that are above the limit for unrestricted release (1,000 dpm/cm^2).

4.2 Contaminated Trash Dumpster - Secured container for the collection of contaminated trash located throughout the controlled area. The dumpsters are gray in color with a rounded top and a locked door on each end (two doors).

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4.C DEFINITIONS (cont.)

4.3 Contaminated Trash Generator - Any person that has a TLD and works within the controlled area, or will access the controlled area periodically to perform their duties.

4.4 Platen - Pressure plate of the baler.

5.0 APPLICABLE DOCUMENTS

5.1 Drivers

5.1.1 PO-D-026, "Site Services Document Program"

5.1.2 "FEMP Conduct of Operations Manual"

5.1.3 NVO-325, "Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements"

5.2 References

5.2.1 SOP 20-C-902, "Liquid Propane Gas (LPG) Powered Handstackers and Tuggers".

5.2.2 SSOP-0719, "Energy Control Procedure (Lockout and Tagout)".

5.2.3 EQP 12.03, "Certification of Waste Package Examination, and Sealing for Off-Site Shipments"

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Safety glasses with side shields shall be worn at all times unless other protection is specified by the supervisor, ES&H, or posted signs.

6.3 Leather-palm gloves shall be worn when loading or conveying trash.

6.4 When making adjustments or cleaning the baler, electrical power shall be shut off per the "Energy Control procedure (Lockout and Tagout)", SSOP-0719.

6.5 Respiratory protection provided by the supervisor shall be worn when specified by ES&H, the supervisor, or posted signs.

6.6 Personnel shall move away from the incinerator bin and conveyor while dumpsters are being emptied.

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6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.7 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.8 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the Item or Step to which they apply.

8.0 PROCEDURE

8.1 Trash Receiving

BALER OPERATOR

8.1.1 After a dumpster has been emptied, check inside to ensure that trash has been deposited in the bin.

8.1.1.1 If trash remains inside the dumpster, use a rake and pull the material from the dumpster and into the bin.

8.1.2 Complete Part I, "Trash Baler Operation Log", (See Figure 1).

8.1.3 Visually inspect the trash to determine if prohibited items or categories of waste (See Figure 2) are contained in the trash, then begin completing Part II of the Baler Operation Log.

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ASSUMPTIONS: Baler operates 5 days a week 8 hours a day (1st shift).

This contingency plan will be used until the new compactor is on-line and baling operations are transitioned.

Generation rate of compactable unbaled trash on any given two week period can be contained in 3 ISO containers.

STRATEGY: STATEMENT This plan may take effect in the event the Trash Baler or its supporting facility or vehicles are inoperable. This plan will be implemented after an inoperable period of one or more of the above assumptions for 3 working days. However, should this period of inoperability last longer than 10 working days, additional contingencies will need to be made available.

COLLECTION: Dumpster Owners will notify RSO Waste Operations of their excess trash (i.e., trash that can not be put into the dumpster because it is already full). This trash will be collected daily by RSO Waste Operations and taken to the area containing the interim storage ISO containers.

HANDLING: RSO Waste Operations will load and unload excess compactable trash.

INSPECTION: QC will inspect the excess trash prior to loading into the interim storage ISO containers. If scheduling conflicts arise and QC can not inspect prior to loading, the ISO may be inspected during the unloading for compaction at the baler.

STORAGE: Storage of the excess compactable trash will be in 3 ISO containers numbered I, II, and III and located north of Storm Sewer Lift Station. These ISO containers are to be used only when this plan is activated and are to be unloaded and baled at the earliest possible date.

CONTINGENCY PLAN
Figure 5

BALER OPERATOR

NOTE: The bags marked with a red "X" are bags that were dropped at a dumpster with no identification from where the trash was generated.

8.1.3.4.A Segregate bags that have been marked with a large red "X" and place them to the side for internal inspection. If an unmarked bag is discovered, mark the bag with a red "X", place the bag to the side for inspection, and contact Waste Generation Control.

8.1.3.4.B When a significant amount of bags marked with a red "X" have accumulated, contact Radiation Safety to be present during the opening of the bags for internal inspection.

8.1.3.4.C Inspect the contents of the unidentified bags and segregate prohibited items and manage as stated in Steps 8.1.3.1 through 8.1.3.4. Document on the Baler Operation Log any evidence which may indicate the point of generation. After the unidentified bags are inspected, document on the Baler Log and mark these bags as having been reworked at the baler.

8.1.3.4.D In the event the Trash Baler or its supporting facility or vehicles are inoperable, notify the supervisor.

2) A new Step 8.1.3.8 is added as follows:

8.1.3.8 In the event the Trash Baler or its supporting facility or vehicles, are inoperable, implement the Contingency Plan outlined in Figure 5.

3) Figure 5 is added as follows:

CIO NO. C93-754

Effective Date: 01-11-94

Expiration Date: 07-11-94

CHANGE IN OPERATION
REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM

DOCUMENT NO.: 02-C-923	AFFECTED DOCUMENT PAGE NO.: 5	AREA AFFECTED: Trash Baler
DIVISION: RSO	DEPARTMENT: RSO/OP	SECTION: RSO/OP

TITLE: Trash Baler Operation

AUTHORIZATION: (Signature on File)
O.F. Peters, RSO Operations Manager

CHANGE:

1) New Steps 8.1.3.4.A thru 8.1.3.4.D are added immediately following 8.1.3.4 and preceding 8.1.3.5 (Responsibility of the Baler Operator) to read as follows:

FILING INSTRUCTIONS: File facing page 5 of SOP 02-C-923 (Issue Date: 10-18-93 Rev. No. 0)

DOCUMENT PTR: M. Frost

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8.0 **PROCEDURE** (cont.)

WARNING

Protective clothing identified by the supervisor or by posted signs shall be worn while removing items.

8.1.3.1 If prohibited items are found, remove the items from the trash, label the items with their point of origin and place them in interim storage within the appropriate receptacle located adjacent to the baler.

NOTE: Prohibited waste types shall be separated into containers (such as paint cans in one, glass in another).

8.1.3.2 Segregate each item in a container or plastic bag designated for that type of waste and document from which area the prohibited item originated in Part II of the "Trash Baler Operation Log".

8.1.3.3 Label each bag/container with the waste description.

8.1.3.4 Notify the supervisor of prohibited items found.

SUPERVISOR

8.1.3.5 Notify the Dumpster/Facility Owner & Waste Generation Control of prohibited items found.

8.1.3.6 Notify Waste Generation Control (8444) of prohibited items found in the event of a serious violation, or if more than 10% of dumpster contents has prohibited items.

8.1.3.7 Forward a copy of the Trash Baler Operation Log to Quality Control Package Certifiers after Parts I & II are completed, so Part III can be completed.

BALER OPERATOR

NOTE: The Trash Baler operator shall sign the 1945-XX Card as "Generator".

8.1.4 Complete an "Item Production/Certification/Identification card", Form FS-F-1945-XX (See Figure 3).

8.1.5 Ensure that the bale removal chain at the rear of the baler is unhooked from the platen (See Figure 4).

NOTE: The Trash Baler will not operate in the automatic mode unless the door is positioned against limit switches and latched.

8.1.6 Ensure that the bale removal door is closed and securely latched.

8.1.7 Check the scaffold for loose items.

8.1.7.1 Remove items, if found, from the scaffold.

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8.0 **PROCEDURE** (cont.)

8.1.8 Position the scaffold platform against the bale removal door.

8.1.9 Lock the scaffold wheels in place.

8.1.10 Latch scaffolding chain locks onto the baler frame.

8.1.11 Place moveable walkway between the scaffolding and the platform.

8.1.12 Position the south swinging gate between the angle iron and scaffolding.

8.1.13 Chain and lock the north swinging gate to the scaffolding.

8.2 Baler Operation (See Figure 4)

8.2.1 Raise the safety gate.

8.2.2 Cover the bale chamber floor with a large sheet of trash cardboard.

8.2.3 Place trash bags in the bale chamber.

NOTE: The baler will not operate in the automatic mode unless the safety gate is closed and latched.

8.2.4 Pull down the safety gate until the gate is latched.

NOTE: The baler will automatically compact the contents and return to the UP position.

8.2.5 At the control panel, press the DOWN button.

8.2.6 Repeat Steps 8.2.1 and 8.2.3 thru 8.2.5 until the bale is nearly complete.

8.2.7 Before compaction is complete, add a large cardboard sheet to the top of bale.

NOTE: When a bale is completed, the indicator at the control panel will light and the baler automatically shut off in the DOWN position.

8.2.8 Repeat Steps 8.2.1 and 8.2.3 thru 8.2.5 and complete the bale.

8.2.9 Record the bale number on the "Trash Baler Operation Log."

8.3 Bale Removal

8.3.1 Check the scaffold to ensure that loose items have been removed from the platform.

8.3.1.1 Remove remaining loose items, if found.

8.3.2 Unlock scaffold platform wheels.

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8.0 **PROCEDURE** (cont.)

8.3.3 Move the platform away from the bale removal door.

8.3.4 Using the gradual tension release latch, open the Bale Removal Door.

8.3.5 Insert a maximum of six wires through the slots in the floor of the baling chamber.

8.3.6 Wrap the wires around bale and then back through the slots in the ram of the baler.

8.3.7 Insert the end of each wire through the end loop.

8.3.8 Wrap each end of the wire at least four times above the end loop.

8.3.9 At the rear of the baler, hook the bale removal chains onto the platen.

8.3.10 Inspect the handstacker or tugger to be used per SOP 20-C-902.

8.3.11 Operate the handstacker or forklift to be used without a load to ensure safe conditions.

8.3.12 Using the handstacker or forklift, position a wood skid at bale removal door.

8.3.13 Ensure that the baler safety gate is in the closed position.

NOTE: Only one bale shall be placed on a skid.

8.3.14 On the control panel, press and hold the UP button until the bale rolls out onto the skid.

8.3.15 Using the handstacker or forklift, move the skid away from the baler.

NOTE: Use bale number "W050-240-P-027-XXXX." The last four numbers shall be in sequence, starting with 0001.

8.3.16 Mark the bale with the date and bale number.

8.3.17 Record the bale number on the Trash Baler Operation Log.

8.3.18 On the baler, close and latch the bale removal door.

8.3.19 At control panel, press and hold the DOWN button.

8.3.20 When the baler platen reaches the lowest position, ensure that bale removal chains automatically unhook from rear of platen.

8.3.21 If chains fail to unhook proceed as follows:

8.3.21.1 Release the DOWN button.

8.3.21.2 Press the EMERGENCY STOP button at the control panel.

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8.0 PROCEDURE (cont.)

8.3.21.3 Manually unhook the chains.

NOTE: The baler cycle shall complete with the baler ram in the UP position.

8.3.21.4 Turn the EMERGENCY STOP button head.

NOTE: The baler shall return to the UP position.

8.3.22 Release the DOWN button.

8.3.23 Complete the "Item Production/Certification Identification" card (See Figure 3).

8.3.24 Give the completed 1945-XX card and, when filled-out, the Trash Baler Operation Log to the supervisor.

8.3.25 Move completed bale to the designated storage area.

8.3.26 When bailing is complete, secure the area and switch electrical power "OFF".

8.4 Trouble Shooting

8.4.1 If the baler will not start or stops during operation, proceed per Table 1.

8.4.2 If the problem cannot be corrected or if other problems are encountered, notify the supervisor.

SUPERVISOR

8.4.3 Inform Maintenance that repair is required.

8.4.4 Report problems to the facility owner of the building where the dumpster is located.

9.0 **APPLICABLE FORMS**

9.1 NN, "Trash Baler Operation Log"

9.2 FS-F-1945-XX, "Item Production/Certification/Identification"

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TABLE 1
BALER TROUBLE SHOOTING

PROBLEM	CAUSE	CORRECTIVE ACTION
1. Baler will not start.	A. Bale removal door/latch open.	A. Close removal door and latch.
	B. Safety Gate Open.	B. Close Safety Gate.
	C. EMERGENCY STOP Switch activated.	C. Turn EMERGENCY STOP push button head to release the locking device.
2. Baler Shuts Down	A. Safety gate raised faster than ram.	A. Allow ram to move up before activating safety gate.
	B. Releasing the UP push button during the ejection cycle.	B. Press and hold the UP button.

FEMP
WEEKLY TRASH BALER OPERATION LOG
PLANTS 2/3

PART I							PART II	PART III	
DATE	SHIFT	OPERATOR INITIALS	DUMPSTER NUMBER/REWORK	NUMBER OF BAGS/LABELLED	BALE NUMBER	PROHIBITED ITEMS FOUND AND DESCRIPTION	WHERE WAS PROHIBITED ITEM DISPOSED?	NAME OF DUMPSTER OWNER OR GENERATOR CONTACTED	QUALITY CONTROL SIGNATURE/DATE

At the end of each week:

1. Operators complete PARTS I and/or II, forward a copy to QC at MS 67.
2. QC complete PARTS II and/or III and forward a copy to Operators at MS 62 and Waste Generation Control at MS 73.
3. QC keep a copy as part of Deviation Reporting System backup file.
4. Operators keep original and copy from QC on file at Baler work station.

WEEKLY TRASH BAILER OPERATION LOG
Figure 1

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CIO NO. C93-755

Effective Date: 01-11-94

Expiration Date: 07-11-94

CHANGE IN OPERATION
REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM

DOCUMENT NO.: 02-C-923	AFFECTED DOCUMENT PAGE NO.: 10	AREA AFFECTED: Trash Baler
DIVISION: RSO	DEPARTMENT: RSO/OP	SECTION: RSO/OP

TITLE: Trash Baler Operation

AUTHORIZATION: (Signature on File) O.F. Peters, RSO Operations Manager

CHANGE:

1) Figure 1 is revised as follows:

FILING INSTRUCTIONS: File facing page 10 of SOP 02-C-923 (Issue Date: 10-18-93 Rev. No. 0)

DOCUMENT PTR: M. Frost

FEMP
WEEKLY TRASH BALER OPERATION LOG
PLANTS 2/3

PART I							PART II	PART III	
DATE	SHIFT	OPERATOR INITIALS	DUMPSTER #, BLDG #, PROJ #, OR AREA	NUMBER OF BAGS/LABELLED *	BALE NUMBER	PROHIBITED ITEMS FOUND AND DESCRIPTION	WHERE WAS PROHIBITED ITEM DISPOSED?	NAME OF DUMPSTER OWNER OR GENERATOR CONTACTED	QUALITY CONTROL SIGNATURE/DATE

At the end of each week:

1. Operators complete PARTS I and/or II, forward a copy to QC at MS 67.
2. QC complete PARTS II and/or III and forward a copy to Operators at MS 62 and Waste Generation Control at MS 73.
3. QC keep a copy as part of Deviation Reporting System backup file.
4. Operators keep original and copy from QC on file at Baler work station.

* Any bag that has no markings (Building #, Plant, Area, Project, or a red "X") shall be marked with a red "X" and set aside for internal inspection.

WEEKLY BAILER OPERATION LOG
Figure 1

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NTS Waste Stream -- ONLO-00000007

"Contaminated Trash"

Allowed Items	Restrictions
Certain Batteries	No Lead-Acid (vehicle) or Ni-Cad (rechargeable)
Empty Cans	No Prohibited Item Residue
Metal	Less than 2 ft. in length, Free from grease, oil, residues, lead-based paint
Paper/Cardboard	
Personal Protective Equipment (Anti-C's, Boots, Gloves, Tyvek)	Unless specifically restricted by Work Plan
Plastic	
Rope, Twine, String	
Styrofoam, Rubber	
Wood	Less than 2 ft. in length, Free from creosote, residue, stains, lead-based paint

Dumpster Usage Instructions:

1. All trash MUST be marked with the building or area of origin.
2. All trash MUST be placed inside the dumpster **(except green-bagged Office Trash)**.

Prohibited Items	Examples	Where to Go	Who to Contact
Asbestos Containing Material	Transite, Pipe Insulation, Floor Tile	---	Leigh Fisher, x8638
Batteries	Auto, Ni-Cad Rechargeable	Plant 6	Susan Hoskins, x6826
Compressed Gases and Aerosol Cans (unpunctured)	Spray Paint, Deodorant Cans, Spray Disinfectant Cleaner, WD-40, Propane	Plant 1	Sam Laupola, x6052
Glass	Bottles, Jars, Light bulbs	Plant 1	Sam Laupola, x6052
Lead-bearing Material	Lead metal, Pipe dope, Lead flashing, Oil filters	Satellite Accum. Areas	John Grace, x8924
Liquids	Water, Coffee, Ice, Pop	Sink	---
Mercury-bearing Material	Switches, Vaccuum Pumps	Satellite Accum. Areas	John Grace, x8924
Particulates (unbagged)	Ashes, Dust, Pad Sweepings	---	Chris Gilbert, x6428
Solvents and Soaked Rags	Kerosene, Toluene, Acetone	Satellite Accum. Areas	John Grace, x8924
UNCONTAMINATED TRASH	Office Trash, Paper, Non-radioactive trash	---	Chuck Menche, x6428
Wood	Pallets, 2x4's,Lumber	Plant 1	Lori Hurst, x8448

Any Questions...Call
Waste Generation Control - x8444

PROHIBITED WASTE
Figure 2

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CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA	MEF NO.
				EMPTY CONTAINER AT START					
				RUST HOLES OR DENTS					
				MATERIAL IS AS CODED			DCAR	SURV. NO.	GROSS WEIGHT
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS					
				LIQUIDS IN CONTAINER					
PACKAGE TYPE				MINIMUM OF VOID SPACE					TARE WEIGHT
PACKAGE SIZE				PACKAGE SECURED					
PROJECT				DRAIN PLUG SECURED					
				OVERPACK					
				REPACK					NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-1 (REV. 11/20/92)

CARD 65-2 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA	MEF NO.
				EMPTY CONTAINER AT START					
				RUST HOLES OR DENTS					
				MATERIAL IS AS CODED			DCAR	SURV. NO.	GROSS WEIGHT
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS					
				LIQUIDS IN CONTAINER					
PACKAGE TYPE				MINIMUM OF VOID SPACE					TARE WEIGHT
PACKAGE SIZE				PACKAGE SECURED					
PROJECT				DRAIN PLUG SECURED					
				OVERPACK					
				REPACK					NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-2 (REV. 11/20/92)

CARD 65-3 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA	MEF NO.
				EMPTY CONTAINER AT START					
				RUST HOLES OR DENTS					
				MATERIAL IS AS CODED			DCAR	SURV. NO.	GROSS WEIGHT
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS					
				LIQUIDS IN CONTAINER					
PACKAGE TYPE				MINIMUM OF VOID SPACE					TARE WEIGHT
PACKAGE SIZE				PACKAGE SECURED					
PROJECT				DRAIN PLUG SECURED					
				OVERPACK					
				REPACK					NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-3 (REV. 11/20/92)

CARD 65-4 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA	MEF NO.
				EMPTY CONTAINER AT START					
				RUST HOLES OR DENTS					
				MATERIAL IS AS CODED			DCAR	SURV. NO.	GROSS WEIGHT
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS					
				LIQUIDS IN CONTAINER					
PACKAGE TYPE				MINIMUM OF VOID SPACE					TARE WEIGHT
PACKAGE SIZE				PACKAGE SECURED					
PROJECT				DRAIN PLUG SECURED					
				OVERPACK					
				REPACK					NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-4 (REV. 11/20/92)

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION
FS-F-1945-1 thru 4
Figure 3

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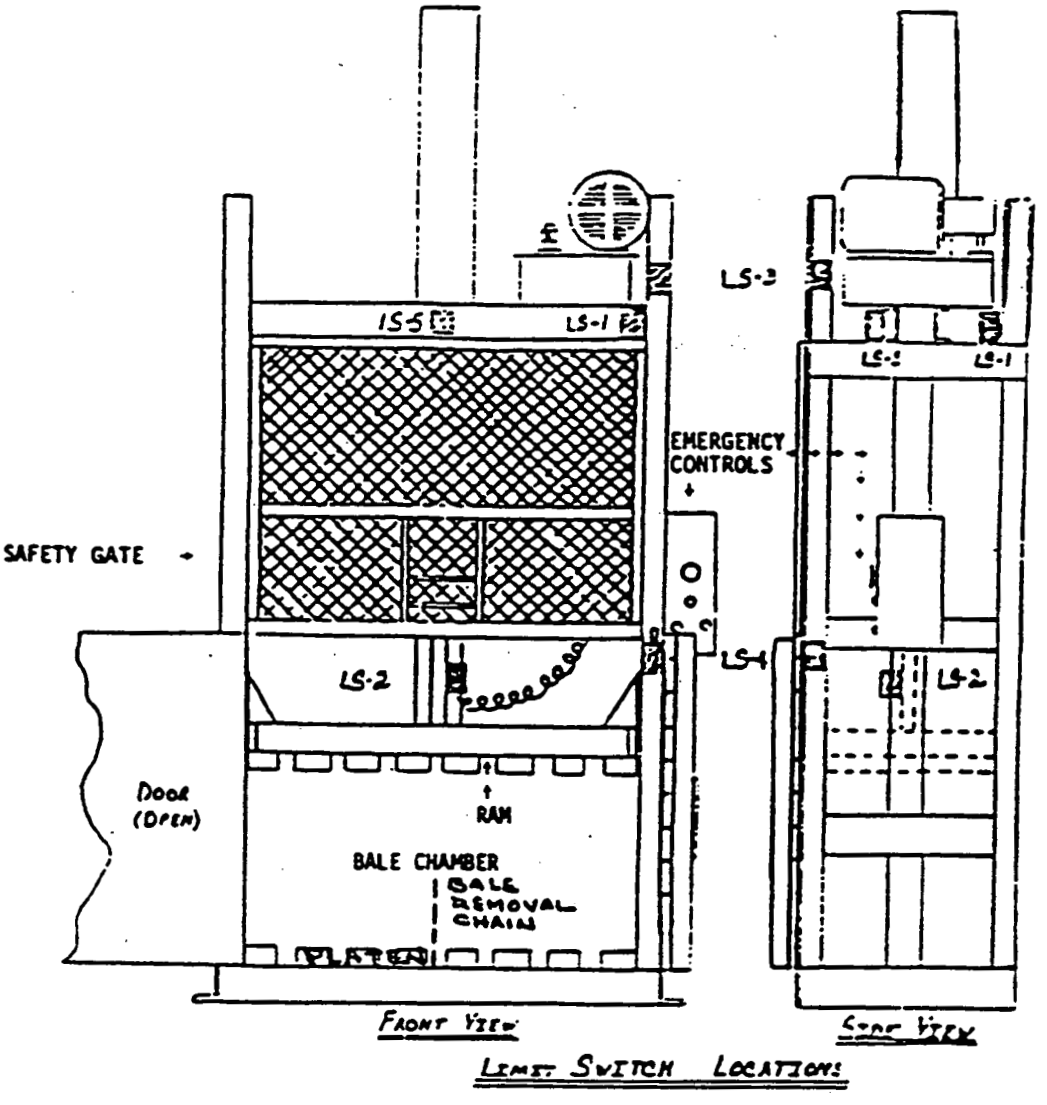

LS-1 - UP STOP
LS-2 - GATE-PLATEN INTERLOCK
LS-3 - GATE CLOSE
LS-4 - BALE CHAMBER DOOR
LS-5 - BALE SIZE

TRASH BALER CONFIGURATION
Figure 4

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
10-21-87	N/A	Preparation of procedure for Baling Trash per Request No. P86-168, initiated by B. Perkins.
06-19-89	N/A	Revised to incorporate C89-002 per Request No. P89-098.
09-01-89	1	Revised to incorporate CIO Nos. C89-065 (P89-352), C89-066 (P89-372), and C89-005 (P89-100). Revision program changed from "Page Revision Date" to "Revision No.".
10-14-91	0	Reissued to update technical content per Request P91-270, initiated by M. Jackson and to incorporate CIOs C90-058, (P91-095) and C90-062 (P91-112).
07-01-92	1	Revised to incorporate CIO C92-014 (P92-137) and update to current procedure program requirements, other than CIO incorporation, no changes were made to technical content.
10-18-93	0	Reissued to update procedure to current requirements, per Request No. P93-1004, initiated by R.W. Bischoff. Also CIO C93-716 (P93-1005) incorporated.

NON-CONTROLLED COPY

POLICY
DOCUMENT NO. PO-0307
REVISION NO. 0

5692

CONTROL AND ACCOUNTABILITY OF NUCLEAR MATERIAL

PO-0307

Effective Date: 06-30-93

AUTHORIZED BY: _____ 7/2/93
N. C. Kaufman, President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
06-30-93	0	New policy to replace FMPC-0307, per Request No. S92-228 initiated by Donald Dunaway.

1.0 OBJECTIVE

This document establishes the policy by which Fernald Environmental Restoration Management Corporation (FERMCO) shall maintain control and accountability of nuclear materials at the Fernald Environmental Management Project (FEMP). It also implements the authority and responsibilities for the nuclear materials control and accountability program planning and management.

DOE order 5633 series, "Control and Accountability of Nuclear Materials", establishes the requirements, responsibilities and authorities for nuclear Materials Control and Accountability under Department of Energy jurisdiction. FERMCO, a DOE contractor, is subject to all applicable parts of these regulations.

2.0 SCOPE

This policy is applicable to all personnel and organizations at the FEMP performing Materials Control and Accountability (MC&A) functions.

3.0 DEFINITIONS

Accountability - The functions of nuclear materials management which pertain to the measurement, recording, and reporting system of transfers and inventories which provides current and accurate information as to the chemical and physical form, disposition, quantity, and availability of nuclear materials.

Book Inventory - The quantity of nuclear material shown in the accounting records to be present at a given time.

Depleted Uranium - Uranium having less than 0.711 percent by weight of the isotope U-235.

Economic Discard Limit - The value of U-235 and uranium assay at which a uranium residue may be declared a waste material.

Enriched Uranium - Uranium containing greater than 0.711 percent by weight of the isotope U-235.

Isotopic Crossover - Any accidental or intended mixing of uranium materials having different percentages of U-235 with the result of downgrading the material having the higher enrichment.

Lot Marking and Color Coding System - The method used at the FEMP for nuclear material identification by assigning a 15-digit alphanumeric code number (11 digits for thorium) and using colors to assure complete separation of depleted, normal, and enriched uranium or thorium materials, (refer to RM-0005).

3.0 **DEFINITIONS** (cont.)

Low-Level Radioactive Waste - A term applied to nuclear materials which have been evaluated and determined to be uneconomical to recover. This term also applies to such materials as trash, construction rubble, and soil that is contaminated with nuclear materials. Materials designated for shipment offsite must meet criteria in "Waste Certification Program Plan", QA 87001.

Normal Operating Losses (NOL) - Measured or estimated loss of nuclear material (whether in the form of a solid, liquid or gas) from a process stream which includes operating losses, measured discards, and accidental losses.

Normal Uranium - Uranium containing 0.711 percent by weight of U-235, which is that isotopic content which occurs in nature.

Nuclear Material Discard - Nuclear material removed intentionally from process inventory and disposed of as waste by approved methods.

Nuclear Materials Management and Safeguards System (NMMSS) - The national database and information support system for nuclear materials controlled by the U. S. Government.

Nuclear Material (NM) - Collective term including all materials designated by the DOE. At the FEMP, nuclear materials shall mean depleted, normal and enriched (less than 20% U-235 by weight) uranium and thorium.

Physical Inventory - The quantity of nuclear material determined to be on hand by piece count and assigned value. The assigned value was determined from sample analyses and bulk measurement. Nuclear material quantities in bulk storage and process holdup have been calculated.

Reporting Units - Unit of measurement, for a given type of nuclear material, used for reporting transactions or inventory information to the DOE-ORO and to the NMMSS.

Safeguards - Controls mandated by DOE orders designed to prevent theft or diversion of nuclear materials.

4.0 ELEMENTS

4.1 The facility shall prepare a materials control and accountability plan and procedures per DOE Order 5633.3A and other DOE Directives (required for facilities possessing nuclear materials). These documents identify the responsibilities and requirements for nuclear materials control and accountability program management, threat considerations, performance criteria, the accounting system, physical inventories, measurements and measurement control, control limits, loss detection elements, nuclear material alarms, access control, containment and surveillance.

4.2 The requirements for handling and storing nuclear materials at the FEMP are to be included in RSO standard operating procedures.

4.3 No Category I, II or III nuclear material (plutonium, U-233, or enriched uranium containing 20 or more percent U-235) is stored at the FEMP. Only certain Category IV nuclear material (enriched uranium containing less than 20 percent by weight of the isotope U-235, normal, and depleted uranium, and thorium plus an exempt quantity of laboratory standards greater than 20% U-235) is authorized at the FEMP.

4.4 All nuclear materials shall be lot marked and color coded as outlined in RM-0005, "Lot Marking and Color Coding System."

4.5 Nuclear materials may only be shipped to the FEMP with the written approval of MC&A All shipments from the FEMP shall be authorized by Form FS-S-558, "Shipping Order for Nuclear Material".

4.6 All nuclear material data that is to be released outside the FERMCO organization, including estimates or calculations of possible process losses, shall be submitted to MC&A for review and comment before release to the public or the news media.

4.7 Training is required for all personnel involved in performing MC&A functions. This includes not only MC&A Department personnel but all facility personnel, i.e., supervisors and managers as well as hourly personnel, involved in handling nuclear material and making nuclear material measurements such as weighing, sampling and analysis.

5.0 IMPLEMENTATION

5.1 The "Materials Control and Accountability Plan" (PL-FMPC-3006) supplemented by the MC&A Internal Procedures Manual, satisfies the requirements stated in 4.1. Detailed procedures and instructions for implementing this site policy are provided in MC&A Department procedures and RSO Division Standard Operating Procedures.

5.2 Assigned responsibilities needed to implement this policy are as follows:

Materials Control and Accountability (MC&A) - The manager of MC&A is responsible for the nuclear materials control and accountability program at the FEMP. To achieve this objective, MC&A must formulate plans, procedures, control systems, performance criteria, provide training, oversee physical inventories, conduct surveys, maintain an accounting of all nuclear material and report regularly to DOE and FERMCO management regarding the physical and book inventories.

MC&A is responsible for reporting occurrences in accordance with DOE Order 5000.3B. MC&A is also responsible for maintaining the FMPC Lot Marking and Color Coding System, RM-0005, and the MC&A Plan, PL-FMPC-3006.

Remediation Support Operation (RSO) - The Facilities and Waste Operations Section and Materials Management Department are responsible for identifying, sampling, handling, weighing, packaging, moving, storing, and inventorying of nuclear materials at the FEMP. Documents that track the movements of nuclear materials onsite are originated by Facilities and Waste Operations and by Waste Storage and Dispositions, but must be approved by MC&A. Facility Engineering and Maintenance is responsible for maintenance of NM scales and water treatment operations which monitor and sample effluent streams for NM discards reporting.

Resource Management - Responsible for programming and electronic data processing (EDP) for the nuclear materials accounting system.

The Analytical Laboratory - Responsible for analyzing and reporting uranium assay and isotopic analysis of any uranium-bearing materials required for nuclear materials control and accountability. The analytical laboratory is also responsible for maintaining nuclear materials inventory records for the proper and safe storage of all nuclear materials in their jurisdiction.

Logistic Administration - Responsible for the safe transport of nuclear materials in accordance with DOT, DOE and EPA regulations as well as FEMP internal procedures, including MC&A requirements.

5.0 **IMPLEMENTATION** (cont.)

Security - Responsible for safeguarding the FEMP's nuclear materials inventory against theft or diversion and for preparing the Site Safeguards and Security Plan.

Shippers of Nuclear Material from the FEMP - The off-site shipment of all nuclear materials (including samples) must be via a "Shipping Order for Nuclear Material" (Form FS-F-558).

6.0 **APPLICABLE DOCUMENTS**

6.1 DRIVERS

- DOE Order 5000.3B, "Occurrence Reporting and Processing of Operations Information.
- DOE Order 5633.2A, "Control and Accountability of Nuclear Materials: Responsibilities and Authorities"
- DOE Order 5633.3A, "Control and Accountability of Nuclear Material"
- DOE Order 5633.4, "Nuclear Materials Transactions: Documentation and Reporting"
- DOE Order 5633.5, "Nuclear Materials Reporting and Data Submission Procedures"

6.2 REFERENCES

- PL-FMPC-3006, "Materials Control and Accountability Plan"
- RM-0005, "FEMP Lot Marking and Color Coding System"

CONTROL NO. NON-CONTROLLED COPY
SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-0719
REVISION NO. 1

5692

FERMCO LOCKOUT/TAGOUT

(HAZARDOUS ENERGY AND MATERIAL CONTROL)

PROCEDURE

SSOP-0719

Effective Date: 02-14-94

AUTHORIZED BY: _____ 12/17/93
N. C. Kaufman, President *Date*

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

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RECORD OF ISSUE/REVISIONS

5692

DATE	REV. NO	DESCRIPTION AND AUTHORITY
04-30-93	0	Procedure required for energy control (Lockout and Tagout) per Request No. S92-225, initiated by A. Miller. This procedure replaces PP-FMPC-0719, dated 2/15/91, Revision 0.
02-14-94	1	Major revision to procedure to reflect new Lockout and Tagout process per Request No. S93-293, initiated by A. Miller. This procedure supersedes SSOP-0719, dated 4/30/93, Rev. 0.

1.0 PURPOSE

This procedure provides the Fernald Environmental Restoration Management Corporation (FERMCO) minimum safety requirements for locking and tagging equipment and/or systems to protect personnel, property, and the environment from events which may cause the unexpected release of hazardous energy and/or hazardous materials. Examples of hazardous energy include, but are not limited to: electrical, mechanical, hydraulic, pneumatic, chemical, radiological, and thermal energies, as well as various forms of potential (stored) energy, such as in springs, compressed gases, or suspended objects. Examples of hazardous materials include those toxic materials defined and listed in various Federal, state, and local regulations; as well as those materials presenting temperature, pressure, or situational hazards.

This procedure provides instructions for the lockout and tagout of all processes, machines, or equipment to ensure isolation from all potentially hazardous energy and materials before any servicing and/or maintenance (preventive and corrective) activities are performed at the Fernald Environmental Management Project (FEMP).

2.0 SCOPE

This procedure applies to all FERMCO personnel, subcontractors, and teaming partners in FERMCO managed facilities. Work performed on motor vehicles; routine adjustments, cleaning, and tightening operations; work or cord and plug electrical equipment if the cord and plug are NOT connected to a receptacle and the cord and plug remain in the exclusive control of the Authorized Employee while the work is being performed and where the equipment does NOT have the ability to store or reaccumulate hazardous energy; electrical voltage of less than thirty volts; and work performed by the electrical utility company (CG&E) are NOT covered by this procedure.

This procedure provides a dual approach to the lockout/tagout process by combining both the centrally controlled and individual controlled approaches. This procedure provides means for each Facility Owner to centrally control the lockout/tagout activities within his/her facility while providing each individual Authorized Employee, while performing the work, a measure of control over his/her work environment. This procedure is invoked by work order/requests, maintenance, construction, operating procedures or other approved documents; and should NOT be interpreted to mean that any other procedures take precedence over this procedure.

The requirements of this procedure are mandatory and shall be incorporated in FERMCO and subcontractor implementing procedures.

3.0 DEFINITIONS

Affected Employee - An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout. Or an employee whose job requires him/her to work in an area in which such servicing or maintenance is being performed but does NOT require entry into the path of hazardous energy or material. The level of training for an Affected Employee is covered in "GET", General Employee Training.

Appointed Employee - A trained Affected Employee performing lockout/tagout activities in physically isolated areas for construction and demolition activities as outlined in section 7.11 of this procedure.

Assistant Emergency Duty Officer (AEDO) - The emergency management authority on site when the Emergency Operations Center (EOC) is not operational. The AEDO is the incident commander of the FEMP emergency response activities. In non-emergency times, the AEDO is the Utility Engineer.

Authorized Employee - A qualified employee who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment or whose work requires him/her to enter the path of hazardous energy or hazardous material. An Affected Employee becomes an Authorized Employee when that employee's duties include performing servicing or maintenance covered under this procedure. An Authorized Employee also includes anyone who authorizes lockouts/tagouts or work performed under this procedure. Authorized Employees are not required in activities performed under section 7.11 of this procedure.

Capable of being locked out - An energy or material isolating device is considered capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy or material isolating devices are considered capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy or material isolating device or permanently alter its energy or material control capability.

CAUTION Tag (Attachment A) - A tag used to assure that notice of some precaution or some information which is necessary prior to the operation of a process, machinery, and/or equipment is readily apparent. Caution tags shall NOT be used for personnel protection (i.e., Caution tags shall NOT be used where it is appropriate to use a lock and DANGER - Do Not Operate tag). The use of Caution tags should be restricted to those situations in which a component or system is functional, but when some precaution or item(s) of information is necessary prior to operation. Caution tags in use are tracked via the Lockout and Tagout Log.

3.0 DEFINITIONS (cont.)

Cleared - An energy or material isolation device is "cleared" when all locks and tags have been removed. The Facility Owner lock and associated DANGER - Do Not Operate Tag(s) shall be the last lock and tag(s) removed. An energy or material isolation device cannot be cleared until all Authorized Employees working on the affected equipment or system have released it.

Concurrent Dual Verification - In operations where it is critical that the Authorized Employee who is isolating the hazardous energy or hazardous material follow a specific process or series of sequential steps, it may be impossible for the verifier to determine that the steps were performed correctly through observation of the completed action. These operations should be verified by two Authorized Employees independently observing that the proper steps, sequence, or adjustments are performed according to the energy or material isolation plan. The interaction between the Authorized Employee performing the isolation and the Authorized Employee verifying the action should be minimal so as to maintain independence. This type of verification is only allowed in special cases authorized in the individualized energy or material isolation plan.

Construction Manager / Construction Engineer / Construction Contracts Manager - A person who oversees construction activities within a designated work package assigned to construction for completion.

Controlled Document - A document, that is dated, signed, and can be verified to be the most current version prior to its use.

Controlled Drawing - A drawing, that is dated, signed, for which methods exist to verify that it is the most current revision prior to its use.

DANGER - DO NOT OPERATE Tag (Attachment B) - A tag used to warn against hazardous conditions if machinery or equipment is energized or material is not contained or constrained. The tag shall contain the legend "DANGER - Do Not Operate". The tag is hung by or under the authority of the Facility Owner. The use of DANGER - Do Not Operate tags is tracked via the Lockout and Tagout Log. This tag shall NOT be hung on any in-service equipment.

3.0 **DEFINITIONS** (cont.)

DANGER - PERSONNEL WORKING Tag (Attachment C) - A tag used to confirm that each Authorized Employee (except on activities covered by section 7.11), who is working on the activity, agrees that the hazardous energy or hazardous material has been correctly isolated at the point identified by the tag. The use of DANGER - Personnel Working tags is NOT tracked via the Lockout and Tagout Log (except on activities covered by section 7.11). This tag shall NOT be hung by itself; it must be overhung where a DANGER - Do Not Operate tag is already hanging (except on activities covered by section 7.11).

Energized - Connected to an energy source or containing residual or stored energy.

Energy or Material Isolation Device - A mechanical device which physically prevents the transmission or release of hazardous energy or hazardous material, including but not limited to the following: a manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate hazardous energy or hazardous materials. Push buttons, selector switches and other control circuit type devices are NOT energy or material isolating devices.

Energy or Material Isolation Plan - A written plan which outlines in detail the steps and special pieces of hardware necessary for isolating all hazardous energy and hazardous materials of a specific process, equipment, machine, or system. An energy or material isolation plan outlines steps used for the restoration of hazardous energy and hazardous materials for testing purposes and special unique measures for the isolation of hazardous energy or hazardous materials. An energy or material isolation plan is written by or under the authorization of the Facility Owner and approved by Occupational Safety & Health (OS&H). It is a controlled document. The plan shall include:

- The specific steps for shutting down, isolating, blocking, and securing the specific machine, equipment, or components to control the hazardous energy or hazardous materials.
- The method(s) of verifying (including independent verification) energy and hazardous material isolation.
- The specific steps for the placement and removal of Facility Owner locks and DANGER - Do Not Operate tags.
- The specific requirements for testing a machine or equipment to determine and verify (including independent verification) the effectiveness of the Facility Owner locks, DANGER - Do Not Operate tags, and other hazardous energy and hazardous material control measures.

3.0 DEFINITIONS (cont.)

- Any special instructions, such as checks to be made or people to be notified including notification to all Affected Employees.
- Drawings or other means to assure the use of the correct energy or material isolation devices and maintenance of the proper configuration.

Examples of energy or material isolation plans include Specific Equipment Plans, Maintenance Work Instructions, Operating Procedures, Specific Equipment Plans (Construction), documented "walk-downs" of valve and/or equipment alinements, and other similar controlled documents.

Energy Source - Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, potential (e.g., gravity) energy, or other source from which hazardous energy can be supplied to the affected system either directly or indirectly.

Facility Owner - An individual who has the responsibility for a facility or area of the FEMP. This responsibility is granted by FERMCO management.

Facility Owner Designee or Facility Owner Alternate - An "Alternate" is an assigned replacement for a Facility Owner having the same authority and responsibility as the Facility Owner. A "Designee" is authorized to act for the Facility Owner with some limited authority and responsibility of the Facility Owner to the extent authorized by the Facility Owner. This authority and responsibility is granted by the Facility Owner in writing.

Facility Owner Locks - An uniquely identified lock used to isolate hazardous energy and hazardous material sources under the authorization of the Facility Owner. The use of Facility Owner locks is tracked via the Lockout and Tagout Log. These locks shall remain unique by being used only to secure energy or material isolation devices from unauthorized use.

NOTE: This definition does NOT apply to personal locks installed by the Authorized Employees performing the requested activity.

3.0 **DEFINITIONS** (cont.)

Group Lockout - A Group Lockout is a special means of isolating equipment which reduces the number of locks required for Authorized Employees performing the work. It can be used by Construction or other project type activities when described and approved in the energy or material isolation plan. A Group Lockout consists of a representative of the group (e.g., crew) installing a lock and DANGER - Personnel Working tag at each hazardous energy or hazardous material isolation point where a DANGER - Do Not Operate tag and Facility Owner lock have already been installed by or under the authorization of the Facility Owner. The keys from this group representative's locks are to be placed in a container which is then locked (using a personal lock) and DANGER - Personnel Working tagged by each Authorized Employee working on the activity. The key to this container is treated in the same manner as an energy or material isolation device by the Authorized Employees in regards to how they handle their personal locks and DANGER - Personnel Working tags.

Hazardous Material - Any material which either by its chemical composition (recognized toxicity), physical condition (e.g., temperature, pressure), or location in regards to another hazard (e.g., water near electrical service) creates a danger to nearby workers, equipment, or the environment. Examples of hazardous materials include those toxic materials defined and listed in various Federal, state, and local regulations; as well as those materials presenting temperature, pressure, or situational hazards.

Hot Tap - A method used in the repair, maintenance, and service activities which involves direct connection (e.g., welding on a piece of equipment such as a pipeline, vessel, or tank which is under pressure) to an energy or material source which has NOT been isolated for the purpose of installing connections or appurtenances. Hot taps should only be used when continuity of service is essential. Performing a "hot tap" means that a connection is made to an energized line (usually electricity or a pressurized fluid). (Except in special cases, approved by OS&H and FERMCO department management or above, where no other acceptable means exists to perform this activity, hot taps SHALL NOT be performed at the FEMP.)

Independent Verification - The act of checking a condition, such as a component position separately from activities related to establishing the condition or component's position. Independent Verification recognizes the human element of component operation; i.e., any individual, no matter how proficient and conscientious, can make a mistake.

Lockout - The placement of a Facility Owner lock (with associate DANGER - Do Not Operate tag) on an energy or material isolating device, in accordance with an established procedure, ensuring that the energy or material isolating device and the equipment being controlled cannot be operated until the lock or lockout device is removed.

3.0 DEFINITIONS (cont.)

Lockout device - The Facility Owner lock which holds the energy or materials isolating device in the safe position and prevents the energizing of a machine or equipment. A lockout device also includes blank flanges and bolted slip blinds. Where a lock cannot be installed, jacks, air gaps, or other devices approved by OS&H may be used.

Lockout/Tagout Box - The locked box kept by the Facility Owner where Facility Owner locks; Danger - Do Not Operate tags; Caution tags; the Lockout & Tagout Log; the list of qualified Authorized Employees; one-piece, all-environment-tolerant-nylon cable ties; and other assorted hardware necessary for Lockout/Tagout are stored. The box shall be kept locked. The key shall be controlled by the Facility Owner or Facility Owner Designee or the Facility Owner Alternate.

Lockout & Tagout Log (Attachment D) - A log consisting of an index and various record sheets (by activities) used by the Facility Owner for recording the placement and removal of Facility Owner locks, DANGER - Do Not Operate tags, and Caution tags on equipment within a facility (except on activities covered by section 7.11).

Normal Production Operations - The utilization of a machine or equipment to perform its intended production function.

Personal Locks - Unique locks used by Authorized Employees to assure hazardous energy or material isolation while they are performing an activity which requires the isolation of hazardous energy or hazardous materials. There are no master keys available; only the Authorized Employee has keys to his/her locks. These locks will be unique by only being used by Authorized Employees to exercise control of energy or materials isolation devices already locked by the Facility Owner (except on activities covered by section 7.11). Keys of personal locks shall remain in the Authorized Employee's control at all times.

Physically Isolated Facility - A facility or section of a facility that has had all FEMP supplied sources of energy and hazardous material isolated from it. A physically isolated facility does not receive energy or hazardous material from the FEMP. Physically isolated means that a gap exist in the utilities and materials sources, or the energy or material isolation devices have been Facility Owner locked and DANGER - Do Not Operate tagged by the Facility Owner, Construction Contracts Manager, and Subcontactor's Lockout/Tagout Program Coordinator.

Program Coordinator - The subcontractor's representative who is responsible for the lockout/tagout program of physically isolated areas as per section 7.11 of this procedure.

3.0 **DEFINITIONS** (cont.)

Qualified Employee - A properly trained Authorized Employee who is capable of using the necessary equipment and/or knowledge to verify the isolation of the potential hazard for which he/she is "qualified" and who is familiar with the construction and operation of the equipment being isolated and hazards involved.

NOTE: The Qualified Employee's supervisor shall determine if an employee is "properly trained" based on the supervisor's knowledge of the work involved, the employee's experience (including the equipment involved), and the employee's training. As a minimum, a Qualified Employee who is qualified for electricity shall meet 29 CFR 1910.331-335 and 339.

Released - The agreement between the Facility Owner and the Authorized Employee conducting the activity for which protection efforts can be ended and boundary isolation points changed or removed. It requires the inspecting of the work area to ensure that the machine and equipment components are operationally intact and the checking of the work area to ensure the safe positioning of all Affected Employees.

Removed - An energy or materials isolation device is removed by an Authorized Employee when the Authorized Employee removes his/her personal lock and DANGER - Personnel Working tag from the energy or materials isolation device. An energy or materials isolation device cannot be cleared until all Authorized Employees working on the affected equipment or system have released it and removed their DANGER - Personnel Working tag(s) and personal lock(s). The Facility Owner will remove the Facility Owner lock(s) and DANGER - Do Not Operate tag(s) after the Authorized Employee has removed his/her DANGER -Personnel Working tag(s) and personal lock(s).

Safe Condition Check - An inspection of conditions established to permit work to be performed within a lockout/tagout boundary, attained by isolating the work area from all sources of hazardous energy or hazardous materials outside of the boundary and removing or securing all sources of potential hazardous energy or hazardous materials inside of the boundary.

Servicing and/or maintenance - Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, maintaining, and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment, and making adjustments or tool changes, which could cause the employee to be exposed to the unexpected energization or startup of the equipment or release of hazardous energy or hazardous materials.

3.0 **DEFINITIONS** (cont.)

Setting up - Any work performed to prepare a machine or equipment to perform its normal production operation.

Subcontractor - Personnel performing work at the FEMP who are not employed by DOE, FERMCO, or a teaming partner and whose work is defined by a contract.

Tagout - The placement of a DANGER - Do Not Operate tag on an energy or materials isolating device, in accordance with an established energy or materials isolation plan, to indicate that the energy or material isolating device and the equipment being controlled may NOT be operated until the DANGER - Do Not Operate tag is removed.

Tagout Device - A DANGER - Do Not Operate tag.

4.0 **RESPONSIBILITIES**

AFFECTED EMPLOYEES

- Assuring their own safety and the safety of other Affected Employees.
- Attending and successfully completing initial training and annual refresher training on this procedure. Understanding that they are NOT permitted to hang locks or tags or to work under the protection of lockouts and tagouts without being trained and qualified as Authorized Employees.

AUTHORIZED EMPLOYEES

- Implementing the requirements of this procedure (except section 7.11) and reviewing energy or material isolation plans on machinery or equipment for the performance of servicing or maintenance on the identified equipment or process.
- Attending and successfully completing all scheduled training and periodic refresher training in recognition of applicable hazardous energy or hazardous material sources as well as the type and magnitude of the hazardous energy or hazardous materials present at the work site prior to locking out processes, systems, machinery, or equipment or working under the protection of lockout/tagout devices.
- Ensuring obtainment of the proper authorization prior to hanging or removing a Facility Owner lock and an associated DANGER - Do Not Operate tag or a Caution tag.

4.0 RESPONSIBILITIES (cont.)

AUTHORIZED EMPLOYEES

- Controlling their personal locks and the DANGER - Personnel Working tags.
- Prohibiting the shutdown, deenergizing, and restarting or reenergization of any equipment or system NOT directly under their control.

CONSTRUCTION MANAGER / CONSTRUCTION ENGINEER / CONSTRUCTION CONTRACTS MANAGER

- Assures that subcontract personnel working at the FEMP perform activities in accordance with this procedure, or if working in an exempted area, they are working under a lockout/tagout procedure that offers the same level of protection.
- Checking to assure the proper generation and maintenance of all required documentation. For the purpose of this procedure, if the work is in an area without an assigned Facility Owner, the FERMCO Construction Manager / Construction Engineer / Construction Contract Manager shall be the Facility Owner with all the responsibilities noted in this procedure including keeping the required logs and creation of energy or materials isolation plans.
- Coordinating activities with Facility Owners for appropriate hazardous energy and hazardous materials control of equipment, systems, or utilities.
- Assuring the required language of this procedure is contained in contracts to subcontractors.
- Initiating the proper permits to support subcontractor activities.
- Assuring the inclusion of the requirements for lockout/tagout in the project documents.

4.0 **RESPONSIBILITIES** (cont.)

FACILITY OWNERS or FACILITY OWNER DESIGNEES or FACILITY OWNER ALTERNATES

- Overseeing all activities of an assigned facility or an area of the FEMP.
- Knowing how to isolate all hazardous energy or hazardous materials sources within their facility. Knowing "how" includes knowing "who" to contact with the knowledge.
- Ensuring the adherence to this procedure within their facilities.
- Keeping the required lockout and tagout logs involved in the usage of Facility Owner locks, DANGER - Do Not Operate tags, Caution tags, energy or materials isolation plans and quarterly inspections.
- Ensuring that no work in their facility is performed without their consent.
- Ensuring the removal and installation of all Facility Owner locks, associated DANGER - Do Not Operate tags, and Caution tags in their facilities only with their authorization (verbal and/or written).
- Ensuring the training of Authorized and Qualified Employees with sufficient knowledge (in the judgement of the Facility Owner) to accept and perform their responsibilities.
- Attending the training offered to learn about hazardous energy or hazardous materials sources and methods of hazardous energy or hazardous materials isolation in their facilities.
- Ensuring the notification all Affected Employees of activities of hazardous energy or hazardous material isolation prior to the requested activity.
- Maintaining files with hazardous energy or material isolation plans and lockout/tagout logs.
- Updating or initiating energy or material isolation plans (Controlled Documents or Drawings) when required.

4.0 **RESPONSIBILITIES** (cont.)

FACILITY OWNERS or FACILITY OWNER DESIGNEES or FACILITY OWNER ALTERNATES

- Assuring compliance with this procedure by subcontract personnel working in the facilities.

- Using the Lockout & Tagout log to conduct a quarterly inspection of all Facility Owner locks, DANGER - Do Not Operate tags, and Caution tags hanging in their facility.

  - Note any improper use of these tags.

  - Resolve any conflicts between the field observations and the Lockout/Tagout Log.

  - After ensuring that the need still exists for a Caution tag older than 90 days, remove the old tag and replace it with a new tag documenting as required in Section 7.9.

  - Initial and date the bottom of each Lockout/Tagout Log as the inspections are complete.

- Correcting findings identified by others in inspections and audits of their facilities lockout/tagout program.

- Assuring that whenever major replacement, repair, renovation, or modification of equipment or machines is performed and whenever new machines or equipment are installed, they shall be designed to accept a Facility Owner lock.

OCCUPATIONAL SAFETY & HEALTH (OS&H)

- Coordinating the training requirements for each Affected and Authorized Employee on the purpose and use of this procedure, the recognition of applicable hazardous energy or hazardous material sources, the type and magnitude of hazardous energy or hazardous materials available in the work place, and the methods and means of isolation.

- Conducting random periodic inspections of the logs, locks, and tags to assure compliance within the scope of this procedure.

- Verifying the corrective actions of previously identified findings.

4.0 **RESPONSIBILITIES** (cont.)

OCCUPATIONAL SAFETY & HEALTH (OS&H)

- Reporting to Facility Owners and the Manager of OS&H the findings from periodic inspections.
- Reviewing and approving, by signing, all energy or materials isolation plans.
- Assuring the inclusion of the requirements for lockout/tagout in the project documents.

QUALIFIED EMPLOYEES

- Using the necessary equipment and/or knowledge, verifying the isolation of the potential hazard for which they is qualified. This verification is the boundary and safe condition check. Electrically qualified employees will meet 29 CFR 1910.331, 335, and 339 requirements.

QUALITY ASSURANCE

- Conducting an annual audit/surveillance of a minimum of ten FEMP procedural requirements within the boundaries of this procedure. This audit/surveillance will be conducted in a manner to meet all requirements of 29 CFR 1910.147 for periodic inspections.
- Submitting a letter to the Manager of OS&H reporting on the findings of the audit(s) and/or surveillance(s) and certifying the performance of the assessments.
- Following up with the Facility Owner and the responsible department manager to assure the implementation of proper and timely corrective actions where major findings or concerns are found.

RESPONSIBLE SUPERVISORS

- Verifying the adequate and current training of their Affected and Authorized Employees on this procedure.
- Verifying the generation and maintenance of all required documentation by this procedure.

4.0 RESPONSIBILITIES (cont.)

RESPONSIBLE SUPERVISORS

- Assisting the Facility Owner with direct action or by assigning personnel to identify and/or isolate the various hazardous energy and hazardous materials sources.
- Randomly monitoring the performance of their employees to assure compliance with this procedure.
- Assuring the performance of the required safe condition checks by Authorized and Qualified Employees.

SUBCONTRACTORS

- Prohibiting the shutting-down, deenergizing, restarting or reenergizing any equipment or system NOT directly under their control.
- Ensuring the familiarization of all Affected Employees, within their employment, with the FEMP Lockout/Tagout Program and this procedure .
- Training of their Authorized Employees and their Responsible Supervisors in the FEMP Lockout/Tagout Program.
- Monitoring their employees periodically for effective performance under FEMP's Lockout/Tagout Program. The frequency shall be as necessary, based on the work involved, hazards, level of employee knowledge, and previous observations to assure effective performance by the subcontractor employee.
- Designating a program responsible person(s) to coordinate and fulfill the requirements of section 7.11 of this procedure for lockout/tagout activities for physically isolated facilities under construction or demolition.

TRAINING

- Conducting effective initial and continuing training programs that meet the requirements of this procedure.
- Conducting annual refresher training for Affected and Authorized Employees.

4.0 **RESPONSIBILITIES** (cont.)

UTILITY ENGINEER

- For the purpose of this procedure, in the absence of the assigned Facility Owner or Facility Owner Designee or Facility Owner Alternate, during abnormal conditions, the Utility Engineer shall act as the Facility Owner, including assuring the generation and maintenance of the proper documentation.

5.0 **GENERAL**

- Where Facility Owner locks are either not available or do not provide the level of protection required, other means of isolation may be used. Those other means include air gaps, blind slips, blank flanges, jack stands, blocks, double valve isolation and others as outlined in DOE-STD-1030-92, DOE STANDARD GUIDE TO GOOD PRACTICES FOR LOCKOUT AND TAGOUTS.

- Whenever major replacement, repair, renovation, or modification of equipment or machines is performed and whenever new machines or equipment are installed, Facility Owners or Engineering shall assure that energy or materials isolating devices are be included in the design to accept a Facility Owner lock.

- Multiple work assignments may occur under a single Facility Owner lockout/tagout control as long as each Authorized Employee follows the requirements of this procedure.

- When it is necessary to remove energy or material isolation devices and restore hazardous energy for the purpose of testing equipment following the performance of servicing, inspecting, construction, or maintenance activities, no exception to this procedure is permitted unless these actions are approved as part of a previously approved energy or materials isolation plan. The Facility Owner and Affected Employees shall be notified prior to this restoration of hazardous energy.

- In case of an emergency (where taking no action would create a greater hazard or allow a hazard to continue), when it is necessary to close valves or open circuit breakers, this procedure shall be suspended for the purpose of eliminating the emergency condition. However, no work can be performed to repair the condition until all isolated energy or material sources have been locked out and tagged out per this procedure.

5.0 GENERAL (cont.)

- Personal locks (keys) MAY be transferred from Authorized Employees of one shift to the next, as long as new DANGER - Personnel Working tags are hung by the on-coming (replacement) Authorized Employees. The replacement Authorized Employees should follow this procedure concerning placement of DANGER - Personnel Working tags and verify (independently) the isolation of hazardous energy or hazardous material.

  NOTE: The transferring of keys is also transferring control of the locks.

5.1 EXEMPTED WORK

- Routine adjustments, cleaning, and tightening operations are NOT covered by this procedure but must have alternative protection equal to the protection provided by this procedure.

- This procedure does NOT apply to work on cord and plug electrical equipment if the cord and plug are NOT connected to a receptacle. The cord and plug remain in the exclusive control of the Authorized Employee while the work is being performed, and where the equipment does NOT have the ability to store or reaccumulate hazardous energy.

- Work performed on motor vehicles, physically isolated activities (new construction, including decontamination / demolition activities) where the facility is physically isolated from the rest of the facility, or electrical voltage of less than thirty volts as well as work performed by the electrical utility company (CG&E) are NOT covered by this procedure.

  NOTE: When the activity that was previously physically isolated from the facility and using section 7.11 of this procedure is making connections to site energy and/or material distribution systems (e.g., steam, water, electrical, air), sections 7.1 through 7.8 of this procedure must be used.

5.0 GENERAL (cont.)

5.2 TAGS

- Operation of a DANGER - Do Not Operate tagged equipment or system is NEVER permitted.

- The hanging of a tagout is permitted at the FEMP only for the use of Caution tags and for special conditions approved individually by the Manager of OS&H where the application of a lockout is NOT practical or would create an additional hazard.

- DANGER - Do Not Operate and DANGER - Personnel Working tags should be installed using the associated lock (with the shackle of the lock inserted through the grommet hole of the tag). If this method is NOT possible, DANGER - Do Not Operate and DANGER - Personnel Working tags shall be installed using a one-piece, all-environment-tolerant nylon cable tie (i.e., TY-WRAPS, or equivalent). Caution tags shall also be installed using the nylon cable tie.

- Caution tags should be used for situations which require special operator or maintenance precautions or to amplify information that should be brought to the attention of the shift supervisor or Facility Owner. The supervisor or Facility Owner should ensure the necessity of issuing a Caution tag and that the tag is NOT being used in place of more appropriate administrative action (such as a temporary procedure change, placement of an operator aide, use of work control system, or issuance of a Lockout or Tagout.)

- Tags should be disposed of after use. Those tags which were installed in a radiologically controlled area should be disposed of inside the area in accordance with applicable procedures; however Lockout/Tagout Logs must be filled out properly. The other tags may be returned to the Facility Owner for disposal.

5.0 GENERAL (cont.)

- The tags are a multi-part 4" x 7-1/2" form. The portion of the tag that is hung is constructed of tyvek with a pressure sensitive overlaminate on the side containing the written information. (Tyvek is the same material used in our anti-contamination clothing.) In addition, each tag form has a piece of bond paper (appearance identical with the tyvek tag's written side) and carbon paper. The bond paper and the carbon are detached from the tag form before hanging, providing the writer a written record of the tag. (The carbon paper and paper protecting the overlaminate are discarded.) The two tags that must be recorded according to this procedure, the "DANGER - DO NOT OPERATE" tag and the "CAUTION" tag, are uniquely pre-numbered (similarly to the work request/order forms). The "DANGER - PERSONNEL WORKING" tags are not recorded and are not pre-numbered. All tags are used once and then discarded.

5.3 PRACTICES

a. GENERAL

- Except in special cases, approved by OS&H and FERMCO department management or above, where no other acceptable means exists to perform an activity, hot taps SHALL NOT be performed at the FEMP.

- Fire Protection systems are normally locked and tagged just like any other system on the FEMP; however, where the lock would create a greater hazard and after the approval of the Manager of OS&H, permission MAY be granted for a tag only isolation. When this is done, other measures, that provide protection equal to lockout/tagout, must be established.

b. ELECTRICAL

- Electrical control circuits may NOT be used as boundary isolation points since they do NOT provide adequate protection to interrupt main power. They may be DANGER - Do Not Operate tagged to protect the equipment but are insufficient to provide a safe condition and isolation boundary for personnel protection.

5.0 GENERAL (cont.)

b. ELECTRICAL

- During the lockout/tagout or before starting work, test equipment shall be used by a Qualified Employee to test the circuit elements and electrical parts of equipment to which Authorized Employees will be exposed and to independently verify the deenergization of the circuit elements and equipment parts.

- Test equipment used on circuits with a nominal voltage rating greater than 600 volts shall be checked for proper operation immediately before and after the test.

  NOTE: Controls should not be operated at this time since some devices "seal in" when actuated and could cause equipment to start when power is restored. Use only the steps listed in the approved energy or material isolation plan to verify isolation.

- In addition to checking test equipment, the position indicators on electrical isolation devices shall be checked to verify that they are open or that all disconnects are open.

- If electrical grounding devices are required, the location and sequence for installation of each device should be specified in the energy or material isolation plan. All electrical grounding devices used in lockout/tagout must be DANGER - Do Not Operate tagged to ensure the placement of the grounds until the work is complete, and the removal of the grounds before reenergizing the system.

c. ROTATING AND MOVING EQUIPMENT

- Equipment will be independently verified for deenergization by checking of the position indicators on electrical isolation devices, visual verification the opening of any disconnects, or performing a voltage check to ensure the cessation of available power.

  NOTE: If verification does not confirm the proper positioning, the Authorized Employee who isolated the equipment will be notified and the conflict resolved by rehanging and repositioning as necessary.

5.0 GENERAL (cont.)

c. ROTATING AND MOVING EQUIPMENT

- Where isolation from a hazardous energy source does NOT eliminate the potential for hazardous movement of equipment, the equipment shall be blocked or otherwise secured to prevent such movement. The blocking or securing devices shall be tagged and, if possible, locked in place.

d. PIPING SYSTEMS

- For liquid and/or gas systems whose maximum operating temperature is less than 200°F and maximum operating pressure is less than 500 psig, the following methods shall be used.

  - Systems and components normally operating at temperatures and pressures above ambient shall be isolated using at least one valve between the work area and any heated or pressurized fluid, vented and, if possible, drained.

    NOTE: The venting and draining of hazardous materials should be performed with the proper care and with an approved procedure.

  - If possible, the equipment shall be maintained depressurized by tagging open a vent or drain in the isolated portion of the system using a DANGER - Do Not Operate tag (allowing for thermal expansion/contraction).

  - If a normal depressurization path cannot be provided within the work boundary, other methods shall be used to ensure adequate depressurizing and draining of the system or component (such as loosening the fasteners on flanged connections or valve bonnets, removing instrument tubing, etc.). Strict supervisory control and advance planning are required if these methods are used.

5.0 GENERAL (cont.)

d. PIPING SYSTEMS

- When isolating systems or equipment whose operating temperature exceeds 200°F or operating pressure exceeds 500 psig, the following limits shall be observed in addition to those of 5.3.c above.

  - At least two shutoff valves in series ("two-valve protection") shall be used to provide isolation from the fluid. The requirements for two-valve protection shall apply to all paths from which the fluid could cross the work boundary.

  - Single-valve isolation may be used if the system operating controls are locked/tagged where pressures greater than 500 psig and/or temperatures greater than 200°F cannot be reached. (For example, if a boiler is cooled down for maintenance and its operating controls are locked and tagged, work on the steam system can be done with single-valve isolation.)

  - If the required two-valve protection cannot be obtained and the system must remain in operation, the Facility Owner or OS&H may authorize single-valve isolation, provided that the following three conditions are all met:

    - ▲ Alternate isolation devices (such as blank flanges, blocks, or freeze seals) have been considered and determined to be unfeasible or impracticable.

    - ▲ Approval of the single-valve isolation is documented on the energy or materials isolation plan.

    - ▲ The integrity of the single isolation valve is verified by venting or draining the portion of the system to be worked on, and observing it for at least 15 minutes to assure there are no leaks, and positive valve closure and leak tightness before starting work.

5.0 GENERAL (cont.)

e. VALVE ISOLATION

- Pneumatically or solenoid operated valves which fall open shall NOT be considered shut for isolation purposes unless the valve operating supplies are isolated and a jacking device or gag is installed to shut or keep the valve shut. The valve and its energy or materials isolation device must be DANGER - Do Not Operate tagged and Facility Owner locked.

- Pneumatically or electrically operated valves which fail shut shall NOT be considered shut for isolation purposes unless the valves are verified shut and the valve operating supplies are isolated and tagged out.

- To use a pneumatically or electrically operated valve as a hazardous energy or hazardous materials control boundary, the motive energy source for the valve shall be isolated and locked/tagged out after the valve is in the required position.

- All local and remote pneumatic and electric valve operators shall be tagged when the valve is used as a system isolation boundary point.

- Pressure operated valves, regulators and check valves shall NOT be used as isolation boundary valves unless the valve is mechanically restrained in the required position with a gagging device designed to be used for isolation valve purpose and tagged out.

- Additional isolations shall be considered and specified as necessary to ensure protection when working on valve motor actuators with manual overrides, springs, or other operating mechanisms.

- The local control point (e.g., handwheel, manual operator) for a motor or pneumatically operated valve must be Facility Owner locked and DANGER-Do Not Operate tagged when the valve is used as an isolation boundary point. Any remote control points (e.g., control switches) should also be tagged.

f. STORED ENERGY

- After locks/tags are applied to energy or material isolating devices, all potentially hazardous stored or residual hazardous energy shall be relieved, disconnected, restrained, and otherwise made safe.

5.4 SHIFT CHANGE

Unless excluded in an approved energy and material isolation plan, Authorized Employees working on the activity may leave their personal locks and DANGER - Personnel Working tags installed for the duration of the time that they are assigned to the activity (over several days and through different shifts). They must repeat step 1 of Section 7.6 each time they return to the activity.

6.0 PREREQUISITES

- Facility Owners shall maintain Authorized Employee and Qualified Employee lists.
- Operating procedures shall be used to assure an orderly shutdown of the equipment or system.

7.0 PROCEDURE

NOTE: Cautions and Warnings precede the steps to which they apply.

NOTE: Facility Owners may set restrictions on who may carry out parts of this procedure.

NOTE: Where steps are shown without alphanumeric order, they may be performed in any order providing they are completed prior to the next alphanumeric step.

NOTE: If the activity is in a physically isolated facility, go to section 7.11.

7.1 PREPARING FOR LOCKOUT/TAGOUT

NOTE: Use of this procedure is invoked by work order/requests, maintenance, construction, operating procedures or other approved documents. This should NOT be interpreted to mean that any other procedures take precedence over this procedure.

FACILITY OWNER or AUTHORIZED EMPLOYEE

1. Check to see if all of the following conditions exist:

   - The machine or equipment has no potential for stored or residual energy or reaccumulation of stored energy after shutdown which could endanger personnel.

.1 PREPARING FOR LOCKOUT/TAGOUT (cont.)

FACILITY OWNER or AUTHORIZED EMPLOYEE

- The machine or equipment has a single energy source which can be readily identified and isolated.
- The isolation and locking out of that energy source will completely de-energize and de-activate the machine or equipment.
- The machine or equipment is isolated from that energy source and locked out during servicing or maintenance.
- A single lockout device will achieve a locked out condition.
- The lockout device is under the exclusive control of the authorized personnel performing servicing of maintenance.
- The servicing or maintenance does NOT create hazards to other personnel.
- The employer, in utilizing the exception, has had no accidents involving the unexpected activation or re-energization of the machine or equipment during servicing or maintenance.

2. If all of the conditions in Step 1 above exist, an energy or materials isolation plan is not required. However if one of the above conditions do not exist, an energy and isolation plan must be prepared (refer to SSOP- 1067 [Draft]).

3. Authorize the installation of a Facility Owner lock at each point of energy or material isolation with a DANGER - Do Not Operate tag, labeling why the source of hazardous energy or hazardous material has been isolated.

4. Notify all Affected Employees about the pending hazardous energy or hazardous material isolation.

5. If the Facility Owner is NOT performing the lockout/tagout, discuss with the Authorized Employees the method(s) of hazardous energy or hazardous material isolation per approved energy or material isolation plan.

   <u>NOTE</u>: The Authorized Employee who is performing the hazardous energy or hazardous material isolation must be a "Qualified Employee" for the hazard being isolated.

7.1 PREPARING FOR LOCKOUT/TAGOUT (cont.)

FACILITY OWNER or AUTHORIZED EMPLOYEE

6. Locate and identify, using the energy or material isolation plan (if applicable), the energy or material isolation devices necessary to isolate or safeguard the affected equipment of all systems.

7.2 INSTALLING THE LOCKOUT/TAGOUT DEVICE

FACILITY OWNER or AUTHORIZED EMPLOYEE

1. Place the energy or material isolation device in the required position (specified on the energy or material isolation plan).

   NOTE: In some cases, an Authorized Qualified Employee may be required to position the energy or material isolation device (e.g., a pipefitter may be required to install the required pipe blank flanges) prior to being locked and/or tagged.

2. Install the Facility Owner lock and DANGER - Do Not Operate tag on the identified energy or material isolation device.

   a. If the installation of a Facility Owner lock and the associated DANGER - Do Not Operate tag will prevent verification of the safe condition check, the verification may be made before the Facility Owner lock and the associated DANGER - Do Not Operate tag are installed. This shall be done only if there is a way to make certain the maintenance of the safe condition after the check is complete and before the Facility Owner lock and DANGER - Do Not Operate tag are installed.

   b. Install the Facility Owner lock with the first DANGER - Do Not Operate tag (before any subsequent tags), if more than one DANGER - Do Not Operate tag is to be installed on an energy or material isolation device (e.g., more than one activity is being performed). Additional Facility Owner locks need not be installed with subsequent DANGER - Do Not Operate tags; however, all DANGER - Do Not Operate tags shall be cleared before the Facility Owner lock is removed.

7.2 INSTALLING THE LOCKOUT/TAGOUT DEVICE (cont.)

FACILITY OWNER or AUTHORIZED EMPLOYEE

NOTE: Hazardous energy or hazardous materials isolation must NOT normally impact conditions established by Operational Safety Review (OSR), fire protection, or environmental requirements unless approved by the Facility Owner and a FERMCO department manager or above.

3. If a Facility Owner lock cannot be installed, hang a DANGER - Do Not Operate tag and use an additional means of rendering the energy or material isolation device inoperative.

NOTE: When a Facility Owner lock is NOT used, it must be approved by the Safety Engineer of OS&H in the energy or material isolation plan.

NOTE: OS&H Safety Engineering and others may be consulted to assist in finding an additional means of rendering the energy or material isolation device inoperative.

a. Record the non-use of a Facility Owner lock on the DANGER - Do Not Operate tag and in the Lockout/Tagout log.

4. Ensure that each DANGER - Do Not Operate tag is numbered and contains:

- The date of the hazardous energy or hazardous material isolation.
- The equipment or process being isolated.
- The activity or service which requires the lockout.
- The position of the component.
- The signature of the person authorizing the installing the Facility Owner lock and DANGER - Do Not Operate tag.

7.2 INSTALLING THE LOCKOUT/TAGOUT DEVICE (cont.)

FACILITY OWNER or AUTHORIZED EMPLOYEE

- The signature of the person installing the Facility Owner lock and DANGER - Do Not Operate tag.

  NOTE: Do not separate the components of the DANGER - Do Not Operate Tag; the independent verifier must still sign and date the tag before it can be separated (section 7.3).

5. Repeat Steps 1 through 4 of Section 7.2 as many times as necessary to install the specified locks/tags.

6. Maintain control of keys to installed Facility Owner locks.

   NOTE: Authorized Employees shall also maintain control of the keys to their installed personal locks.

7. Enter in the Lockout/Tagout Log the required information; type of tag - DDNO (for DANGER - Do Not Operate tag), tag number (tag #), Facility Owner lock number (lock #), component isolated, component's position, initials of person authorizing the lockout/tagout, and initials of person installing the lockout/tagout.

7.3 VERIFYING PROPER INSTALLATION OF LOCKOUTS/TAGOUTS

NOTE: Independent Verification shall be the normal method of verification unless special authorization exists in the energy or material isolation plan for concurrent dual verification.

AUTHORIZED EMPLOYEE

NOTE: This individual must be different from the employee who performed the hazardous energy or hazardous material isolation, DANGER - Do Not Operate tagging and Facility Owner lock installation.

NOTE: This action must also be separated by a period of time after the hazardous energy or hazardous material isolation, DANGER - Do Not Operate tagging and Facility Owner lock installation.

7.3 VERIFYING PROPER INSTALLATION OF LOCKOUTS/TAGOUTS

NOTE: Some energy or material isolation devices such as throttled valves (valves in a position intermediate between fully open and fully closed) cannot be verified independently and may require concurrent dual verification. Concurrent dual verification is permitted in only those unique cases (e.g., throttled valves) where independent verification would not be effective; it must be approved in the energy or material isolation plan.

CAUTION:

COMPONENTS THAT ARE DANGER - DO NOT OPERATE TAGGED MUST NOT BE MANIPULATED FOR THE PURPOSE OF INDEPENDENT VERIFICATION.

1. Independently verify the correct installation of the equipment or components covered by the lockout/tagout per the energy and material isolation plan.

   - Correct component identified
   - Correct position identified in the energy or material isolation plan
   - Correct position identified on the DANGER -Do Not Operate tag
   - Correct position determinates as appropriate
     - Observed process parameters
     - Remote indicators
     - Valve stems/position indicators

7.3 VERIFYING PROPER INSTALLATION OF LOCKOUTS/TAGOUTS (cont.)

2. Verify the correct completion of all documentation.

CAUTION:

THE UNDERLYING PRINCIPLE OF INDEPENDENT VERIFICATION IS THAT ANYONE CAN MAKE A MISTAKE. THIS ALSO MEANS THAT ANY INCONSISTENCY IDENTIFIED BY THE VERIFIER COULD BE THE VERIFIER'S MISTAKE. THE VERIFIER SHOULD NOT CHANGE THE POSITION OR STATUS OF A COMPONENT TO CORRECT AN INCONSISTENCY.

3. If an inconsistency is discovered, the verifier should immediately stop and notify his Responsible Supervisor and the Facility Owner.

4. If the correct installation is verified, sign and date the DANGER - Do Not Operate tag. The tag should also be separated and sealed (the plastic laminate covering the tyvek copy).

5. Initial and date the Lockout/Tagout Log.

7.4 SAFE CONDITION CHECKS / VERIFICATION OF ISOLATION

CAUTION:

DO NOT OPERATE THE CONTROLS (E.G., PUSH THE START BUTTON) SINCE SOME DEVICES "SEAL IN" WHEN ACTUATED AND COULD CAUSE EQUIPMENT TO START WHEN POWER IS RESTORED. USE ONLY STEPS LISTED IN THE ENERGY AND MATERIAL ISOLATION PLAN TO VERIFY ISOLATION.

AUTHORIZED EMPLOYEE

NOTE: This Authorized Employee should be, where he/she is qualified, one of the employees performing the activity.

1. Perform a safe condition check per the energy and material isolation plan.

2. If the safe condition check / verification of isolation reveals any inconsistencies, immediately notify the Facility Owner.

7.5 NOTIFICATION OF INSTALLATION

AUTHORIZED EMPLOYEE

1. Notify the Facility Owner of the installation of the lockout/tagout.

FACILITY OWNER OR AUTHORIZED EMPLOYEE

2. Notify all Affected Employees of the installation of the lockout/tagout.

   NOTE: The energy and material isolation plan will list any Affected Employees and/or others who must be notified.

7.6 PERFORMING REQUESTED ACTIVITY

AUTHORIZED EMPLOYEES

1. Review the points of hazardous energy or hazardous material isolation and confirm the isolation of all hazardous energy or hazardous material sources.

   NOTE: A physical walkdown should be performed to verify the isolation per the energy or material isolation plan.

   NOTE: If an approved group lockout (see Definition) is used, the installation of the DANGER - Personnel Working tag and associated personal lock for each Authorized Employee is the key container associated with the group lockout.

2. As the review of each point of hazardous energy or hazardous material isolation is made, each Authorized Employee performing the activity shall install a DANGER - Personnel Working tag and a personal lock.

   NOTE: The hanging of the DANGER - Personnel Working tag and personal lock signifies the agreement of the Authorized Employee with the hazardous energy or hazardous material isolation. No activity or service is to begin until all Authorized Employees have installed their own personal locks and DANGER - Personnel Working tags.

7.6 PERFORMING REQUESTED ACTIVITY (cont.)

AUTHORIZED EMPLOYEES

3. If a discrepancy is found, resolve the discrepancy with the Responsible Supervisor and/or Facility Owner, then start again at Section 7.6 Step 1.

   NOTE: If an inconsistency is found during this check, an investigation of the events should be made to find the root cause of the inconsistency not being found earlier.

4. Perform the requested activity for which the hazardous energy or hazardous material isolation has been performed.

7.7 SUSPENDED WORK / TEMPORARY OR PARTIAL CLEARANCE

NOTE: Temporary or partial removal of a lockout/tagout is NOT allowed, except when required as a part of an approved energy and material isolation plan (e.g., to stroke a motor operated valve or to check phase rotation on a motor). It is important that a temporary or partial removal of lockout/tagout is NOT regarded as an opportunity to take shortcuts.

AUTHORIZED EMPLOYEE

1. If work is to be suspended and personal locks and DANGER - Personnel Working tags are to be removed:

   a. Leave the Facility Owner's lock(s) and DANGER - Do Not Operate tag(s) in place during the work suspension if required for safety reasons.

   b. If the Facility Owner's lock(s)/tag(s) are to be cleared, all Authorized Employees working on the affected equipment or system must first release the energy or material isolation device.

FACILITY OWNER

2. If testing or troubleshooting of a locked/tagged component is required, verify the existence of an approved energy and material isolation plan or Standard Operating Procedure requiring the testing or troubleshooting of a locked/tagged component.

7.7 SUSPENDED WORK / TEMPORARY OR PARTIAL CLEARANCE (cont.)

FACILITY OWNER

3. If an approved energy and material isolation plan does not exist requiring the testing or troubleshooting of a locked/tagged component and one is required, have one created and approved.

4. If an approved energy and material isolation plan exists for testing and troubleshooting, authorize the "lifting" (temporary removal) of locks/tags and:

   a. Ensure the removal of all tools and equipment from the equipment.

   b. Verify that no personnel could be harmed by operation of the component(s).

   c. Ensure the acceptability to the OS&H and the Responsible Supervisor (if applicable) of the planned operation.

   d. Authorize temporary clearance of the Facility Owner locks and DANGER - Do Not Operate tags.

   e. Document the authorization and the reason for lifting the Facility Owner locks and DANGER - Do Not Operate tags on the Lockout/Tagout Log.

FACILITY OWNER AND AUTHORIZED EMPLOYEE(S)

5. Meet and agree to release the lockout/tagout on the affected component(s).

6. Release the affected components and remove the locks and tags from the affected components. The affected component(s) are now cleared.

FACILITY OWNER

7. Make the required entries in the Lockout/Tagout Log.

AUTHORIZED EMPLOYEE(S)

8. Performed the testing or troubleshooting as outlined in the approved energy and material isolation plan.

7.7 SUSPENDED WORK / TEMPORARY OR PARTIAL CLEARANCE (cont.)

AUTHORIZED EMPLOYEE(S)

9. If the equipment is ready to be returned to service, remove the remainder of the Lockout/Tagout by following section 7.8.

10. If the equipment is not ready to be returned to service, restore the equipment to the isolation position/condition (as per the approved energy and material isolation plan), reinstall the Facility Owner locks and DANGER - Do Not Operate tags, then perform a safe condition check as described in sections 7.2 through 7.7 (include new tags and log entries).

    NOTE: If other jobs or operations require the retests (as defined by the energy and materials isolation plan) to be delayed after clearing tags, ensure the awareness of the Affected and Authorized Employees pertaining to the system NOT being fully returned to service.

    NOTE: The status of the retests should be included in every shift turnover until the system is fully restored. Caution tags on system controls may be used for extra assurance to prevent inadvertently operating the system until retests the are complete.

7.8 REMOVING LOCKOUTS/TAGOUTS

AUTHORIZED EMPLOYEE

1. Ensure the removal all tools, and any items associated with the job, and clearance of the work site.

2. When work is complete, notify the Responsible Supervisor of the work status.

RESPONSIBLE SUPERVISOR

3. Check the work site to confirm the completion of the work, the non-creation of any unsafe conditions by the work, and the removal of any work related materials from the work site.

4. Notify the Facility Owner of the completion of the work.

7.8 REMOVING LOCKOUTS/TAGOUTS (cont.)

FACILITY OWNER

5. Check the work site to confirm the completion of the work, verify the shutdown condition of the controls, and the removal of tools and excess materials from the work site.

FACILITY OWNER AND AUTHORIZED EMPLOYEE(S)

6. If work is complete and satisfactory, release then remove or authorize the removal of the Personal locks, DANGER - Personnel Working tags, Facility Owner lock(s), and/or DANGER - Do Not Operate tag(s) from energy or material isolation devices.

7. If an Authorized Employee has left a personal lock and/or DANGER - Personnel Working tag installed and is NOT available to remove it, the personal lock and/or DANGER - Personnel Working tag may be removed under the direction of the Facility Owner if it can be verified that:

   - The Authorized Employee who installed the personal lock and/or DANGER - Personnel Working tag is NOT onsite.

   - A reasonable effort has been made to contact and inform the Authorized Employee that all personal locks and/or DANGER - Personnel Working tag are to be removed.

   - The Authorized Employee has knowledge of the removal of his/her personal lock and/or DANGER - Personnel Working tag prior to resuming work at the site.

8. If work is not complete and satisfactory, consult with the Responsible Supervisor and complete the requested activity.

FACILITY OWNER

9. Make the required entries in the Lockout/Tagout Log.

10. Notify Affected Employees of the removal of the lockout/tagout.

7.8 REMOVING LOCKOUTS/TAGOUTS (cont.)

FACILITY OWNER

11. Update all normal configuration and status /equipment status logs, boards, and documentation.

    NOTE: The Facility Owner must coordinate the approvals necessary to establish the plant conditions required when a lockout/tagout is cleared. The Facility Owner must also ensure the understanding of the person clearing tags about which components are to be repositioned when clearing the lockout/tagout.

7.9 INSTALLING CAUTION TAGS

FACILITY OWNER or AUTHORIZED EMPLOYEE

1. Confirm the need for a Caution tag (refer to 3.0, definition of CAUTION tag).

   NOTE: Caution tags are prohibited from being used for employee protection.

2. Ensure that Caution tags:

3. Hang the Caution tag in a position where the tag, and information on the precaution, are readily apparent to an individual but do NOT interfere with or obscure indicators, switches, or other control devices.

   - Contain the information on the precaution in clear concise wording.
   - Are uniquely numbered.
   - Contain the date of the precaution notice.
   - Contain the equipment or process on which the precaution is given.
   - Name of the person(s) authorizing and installing the Caution tag.

   NOTE: Caution tags have a 90-day limit of existence. If after 90-days, the need still exists, a new tag must be hung. The Caution tag 90-day limit is to encourage Facility Owners to correct the temporary condition causing the Caution tag to be hung.

7.9 INSTALLING CAUTION TAGS

FACILITY OWNER or AUTHORIZED EMPLOYEE

4. Log the hanging of the Caution tag, including the information in step 3 of 7.9, in the Lockout/Tagout log.

5. To remove a Caution tag:

   a. Confirm correction of the condition requiring the Caution tag.

   b. Remove the tag, and note the removal in the Lockout/Tagout Log.

7.10 MISSING, MUTILATED, or ILLEGIBLE TAGS

FACILITY OWNER

1. If a tag is found mutilated, is illegible, or is missing, verify by using the Lockout/Tagout Log the continuing requirement for the Facility Owner lock or DANGER - Do Not Operate tag or Caution tag.

2. Obtain and complete a replacement tag.

3. Note the replacement of the tag and the number of the replacement tag on the Lockout/Tagout Log.

4. Install the tag.

   NOTE: A safe condition check is NOT required unless designated by the Facility Owner.

5. Have replacement tag independently verified (see Section 7.3).

6. Remove and dispose of the damaged or mutilated tag

7.11 PROCEDURE FOR PHYSICALLY ISOLATED AREAS (UNDER CONSTRUCTION OR DEMOLITION)

NOTE: All employees performing lockout and tagout activities under this section of this procedure will be responsible for their own safety by personally locking-out and tagging the equipment they will be working on. Group lockout is permitted as defined in this procedure (see section 3.0, "Group Lockout").

For activities, physically isolated from the facility (i.e., new construction or demolition activities), subcontractor(s) shall implement a Lockout/Tagout Program containing the following requirements:

1. A representative person(s) of the subcontractor shall be designated responsible for issuing personal locks and DANGER - Personnel Working tags and maintaining the following:

   - An adequate quantity of personal locks (single keys) (obtained from FERMCO Stores). The representative shall assure that each is uniquely numbered.

     NOTE: The personal locks come from Stores numbered and must have a number etched on the attached tag.

   - An adequate quantity of DANGER - Personnel Working tags (obtained from FERMCO Stores).

   - A lockout/tagout log for documenting information concerning the distribution of personal locks. (See Attachment E)

     NOTE: Personal locks can remain in the possession of the appointed employee when approved by the employee's supervisor and while the appointed employee is assigned to the physically isolated project.

2. All employees performing work on the physically isolated project shall attend no less than General Employee Training (GET) which identifies the requirements for Lockout/Tagout at the FEMP as Affected Employees.

   NOTE: This training does not qualify these employees as "Authorized" to perform lockout and tagout under the requirements of section 7.1 through 7.10 of this procedure.

7.11 PROCEDURE FOR PHYSICALLY ISOLATED AREAS (UNDER CONSTRUCTION OR DEMOLITION) (cont.)

Each representative will train (or assure training) and document the following basic responsibilities for controlling hazardous energy and materials for employees:

- INVOKE

  - Requirements for the protection of "appointed employees," and equipment and hazardous material control for performing work directly under the control of the subcontractor's organization.

- PREPARE

  - Selection of "appointed worker(s)" based on training to perform lockout/tagout activities.

  - Notification of all Affected Employees of the impending lockout/tagout activity by the appointed employee.

  - Maintenance of adequate quantities of personal locks and DANGER - Personnel Working tags necessary to perform the work and documentation on the Lockout/Tagout Log of whom the personnel locks were issued to.

- INSTALL

  - Location and de-energization of energy sources and installation of personal locks and DANGER - Personnel Working tags by appointed employees. In some cases, other means of securing stored energy may be required. The purpose of this procedure is that all energy shall be controlled.

- SAFE BOUNDARY CHECK

  - Assurance of the isolation of all potentially hazardous energy (including all potential energy) and material, as well as the installation of personal locks and DANGER - Personnel Working tags by appointed employee(s) who have checked for proper de-energization of equipment by testing or inspecting equipment by:

7.11 PROCEDURE FOR PHYSICALLY ISOLATED AREAS (UNDER CONSTRUCTION OR DEMOLITION) (cont.)

- SAFE BOUNDARY CHECK

  a) Reading gauges

  b) Checking with a meter

  c) Other means per his/her management

  - Upon completion of the Safe Boundary Check, the "Appointed Employee(s)" may perform the work.

    NOTE: Personal locks and DANGER - Personnel Working tags hung on equipment where the work has not been completed by the end of the shift may remain on the equipment until the work is complete. Where the work assignment will continue on a following shift, the transfer of personal locks to the appointed employee on the following shift (on-coming) is permitted as long as the on-coming appointed employee controls the key to the personal lock by keeping it in his/her possession at all times and that the on-coming appointed employee installs a new DANGER - Personnel Working tag, and the Lockout/Tagout Log reflects this transfer of control.

- REMOVING LOCKS AND TAGS

  - Upon completion of work, appointed employee(s) shall remove all tools and materials.

  - Notification of the Responsible Supervisor concerning the completion of the activity.

  - Notification of all Affected Employees of the completion of the work and of the pending return to service of the equipment by the appointed employee(s).

  - Appointed Employee(s) discards tags and returns the locks to the subcontractor's representative only if he/she has completed work.

7.11 PROCEDURE FOR PHYSICALLY ISOLATED AREAS (UNDER CONSTRUCTION OR DEMOLITION) (cont.)

- SUSPEND WORK/TEMPORARY OR CLEARANCE

  - If work is suspended or partial clearance is required, refer to "REMOVING LOCKS AND TAGS" above. If equipment is again de-energized for repair, refer to "INVOKE", "PREPARE", and "INSTALL" as outlined in this section.

  - In situations where a piece of equipment has been locked and tagged by an absent appointed employee and the personal lock and DANGER - Personal Working tag needs to be removed, the Subcontractor's Responsible Supervisor directing the work and the Program Coordinator responsible for the Lockout/Tagout Program shall:

    a) Examine the equipment for safe startup of the equipment.

    b) Remove all equipment and material that affect safe startup.

    c) Notify all Affected Employees that equipment will be restarted.

    d) Note in the Lockout/Tagout log that the lock(s) were removed and why.

    e) Notify the appointed employee who hung the personal lock that his/her personal lock and DANGER - Personnel Work tag were removed and why.

8.0 APPLICABLE DOCUMENTS

NOTE: Copies are available for review in the FEMP Library.

8.1 DRIVERS

- DOE 5480.19, "Conduct of Operations Requirements"
- DOE-STD-1030-92, "GUIDE TO GOOD PRACTICES FOR LOCKOUT AND TAGOUTS"

8.1 DRIVERS (cont.)

- DOE-STD-1036-93, "GUIDE TO GOOD PRACTICES FOR INDEPENDENT VERIFICATION"
- DOE 4330.4A, "Maintenance Management Program"
- 29 CFR 1910.147 - "Occupational Safety and Health Standards"
- 29 CFR 1910.331-335 & 339 - Occupational Safety and Health Standards

8.2 REFERENCE DOCUMENTS

- SSOP-0061, "FEMP Work Request/Order Procedure"
- RSM-0013, "Fire Protection Impairment"
- SSOP-1067, "FERMCO Procedure for Initiating Energy Isolation and Hazardous Material Plans (Draft)"

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CAUTION

TAG NO. _____ DATE: _____

COMPONENT OR SYSTEM: _____

_____

_____

SPECIAL INSTRUCTION: _____

_____

_____

_____

_____

_____

AUTHORIZED BY: _____

Posted by: _____

CAUTION TAG

CAUTION

DO NOT OPERATE UNTIL SPECIAL INSTRUCTIONS ON OTHER SIDE ARE THOROUGHLY UNDERSTOOD

DO NOT REMOVE THIS TAG WITHOUT PROPER AUTHORITY

SEE OTHER SIDE.

5692

DANGER

DANGER - DO NOT OPERATE

DATE:_____

EQUIPMENT OR PROCESS:_____

_____

REASON FOR LOCKOUT:_____

_____

POSITION OF COMPONENT:_____

_____
FACILITY OWNER/ALTERNATE

_____
AUTHORIZED EMPLOYEE HANGING LOCK

_____
INDEPENDENT VERIFIER

(UNIQUELY NUMBERED)

DANGER

DO NOT OPERATE

DO NOT REMOVE THIS TAG WITHOUT PROPER AUTHORITY

SEE OTHER SIDE.

DANGER - Do Not Operate Tag

5692

DANGER

PERSONNEL WORKING

DO NOT OPERATE

DATE:_____

EQUIPMENT OR PROCESS:_____

_____

_____

AUTHORIZED EMPLOYEE HANGING LOCK/badge number

DANGER

PERSONNEL WORKING

DO NOT OPERATE

REMOVAL OF THIS TAG WITHOUT PROPER AUTHORITY IS A VIOLATION OF SITE SAFETY PROCEDURES

SEE OTHER SIDE.

DANGER - Personnel Working Tag

ATTACHMENT D

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Lockout/Tagout Log

Facility Owner:

Facility:

Tag Type (Caution or DANGER - Do Not Operate	Tag #	Lock #	Component	Position	Authorized By/Date	Installed By/Date	Verified By/Date	Date of Removal

LOCKOUT/TAGOUT LOG

Fernald Environmental Management Project

Lockout/Tagout Log For Physically Isolated Areas

Subcontractor(s):

Lockout/Tagout Program Coordinator:

Physically Isolated Area:

Personal Lock Number	Appointed Employee's Name	Appointed Employee's Badge Number	Appointed Employee's Subcontractor	Date Lock Issued	Date Lock Returned

LOCKOUT/TAGOUT LOG FOR PHYSICALLY ISOLATED AREAS

CONTROL NO. NON-CONTROLLED COPY
POLICY
DOCUMENT NO. PO-0518
REVISION NO. 1

5692

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) PROGRAM

PO-0518

Effective Date: 12-06-93

AUTHORIZED BY: _____ _____
N. C. Kaufman, President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
07-30-93	0	Document describing the NEPA Program at the FEMP, per Request No. S93-153, initiated by J. Homer. This document replaces PP-0518, dated 10/01/91, Rev. 1.
12-06-93	1	Minor change to document per Request No. S93-259, initiated by J. Homer.

1.0 OBJECTIVE

Fernald Environmental Restoration Management Corporation (FERMCO) shall ensure that all actions/projects at the Fernald Environmental Management Project (FEMP) comply with the requirements of the National Environmental Policy Act (NEPA), Department of Energy (DOE) Guidelines and Orders, and Secretary of Energy Notices pertaining to NEPA. NEPA is driven by 40 CFR 1500 through 1508, and the DOE implementing procedures for NEPA are found in 10 CFR 1021.

2.0 SCOPE

This policy describes the NEPA Program at the FEMP and identifies the responsibilities of FERMCO organizations for implementing and supporting the NEPA Program.

This policy applies to all employees of FERMCO, including subcontractors.

3.0 DEFINITIONS

Action/Project - A DOE endeavor regarding a project, program, plan, or policy. A new or continuing activity which involves facility construction, operation, decontamination, CERCLA removal actions, RCRA closures or other modifications to the project, facilities, or site. Other examples of actions/projects include maintenance activities, site characterization and environmental monitoring, and treatability studies.

Categorical Exclusion (CX) - A category of actions, as defined in 40 CFR 1508.4 and listed in Appendix A or B to Subpart D of 10 CFR Part 1021, which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by the DOE implementation regulations.

Environmental Assessment (EA) - A concise public document which has three defined functions: (1) to provide sufficient evidence and analysis for determining whether to prepare an EIS or Finding of No Significant Impact (FONSI); (2) to aid an agency's compliance with NEPA when no EIS is necessary; and (3) to facilitate the preparation of an EIS when one is necessary.

Environmental Impact Statement (EIS) - An analytical concise document prepared in accordance with 40 CFR Part 1502 requirements. This document provides an impartial and complete discussion of significant environmental impacts of a project/action under consideration and informs decision makers and the public of responsible alternatives that avoid or minimize adverse impacts or enhance the quality of the human environment.

3.0 DEFINITIONS (cont.)

NEPA (National Environmental Policy Act) - The basic national charter for protection of the environment. It establishes policy, sets goals, and provides the means for carrying out the policy.

NEPA Documents - A CX, Action Description Memorandum (ADM), EA, Finding of No Significant Impact (FONSI), EIS, Record of Decision (ROD), NOI (Notice of Involvement or intent), or any documentation prepared pursuant to a requirement of NEPA, the CEQ Regulations, or the DOE regulations that identifies and assesses the individual and cumulative impacts of the continuing and reasonably foreseeable future actions at a DOE site.

NEPA Program - The program at the FEMP which implements federal environmental regulations through the issue of applicable NEPA documents, project monitoring for NEPA compliance, and NEPA training.

4.0 ELEMENTS

4.1 NEPA Purpose/Program Description

- The purpose of NEPA is to ensure that all federal agencies (including DOE) consider environmental impacts in the planning and decision-making phases of their projects.
- Regulatory oversight of NEPA was provided by the Council on Environmental Quality (CEQ). However, the CEQ has since been disbanded. Regulatory oversight in the future may be provided by the proposed office of Environmental Policy.
- The CEQ regulations ensure the consideration of environmental impacts in decision-making by federal agencies. This information is recorded in appropriate NEPA documentation, such as an EIS, EA, or CX.
- The DOE, along with other federal agencies, must ensure that NEPA is consistent with CEQ guidance and adopt procedures for determining the type of NEPA documentation required, the content of the documentation, and the review and approval cycle for that documentation.
- The NEPA Program implements the CEQ and DOE regulations applicable to the FEMP through issued NEPA documents, project monitoring for NEPA compliance, NEPA document tracking system, auditing, and NEPA training.

4.0 **ELEMENTS** (cont.)

4.2 NEPA Program Support to CERCLA and RCRA

- The NEPA Program shall support the integration of the NEPA and Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) environmental laws.

- The FEMP NEPA/CERCLA integration will be accomplished by combining the Remedial Investigation/Feasibility Study (RI/FS) process of CERCLA with the EIS process of NEPA and issuing integrated documents (i.e., RI/FS-EIS). The NEPA Compliance Section shall support the RI/FS process by preparing and integrating NEPA considerations into the appropriate CERCLA documentation.

- The FEMP NEPA/CERCLA integration is also implemented by FERMCO addressing NEPA implications for CERCLA removal actions. This may usually be accomplished at the CX or EA level.

- The NEPA Program shall support the integration of NEPA and Response Conservation and Recovery Act (RCRA) regulations. Under certain circumstances, RCRA closures and partial closures can be categorically excluded under Section D, 10 CFR 1021.

  NOTE: Refer to the "National Environmental Policy Act (NEPA) Compliance Plan", PL-3025, for further information on NEPA integration with CERCLA and RCRA.

- The NEPA Program shall integrate with other compliance programs within the Regulatory Programs division. This integration is accomplished through information sharing (primarily in the form of an environmental compliance questionnaire) and conducting floodplains and wetlands assessments, archeological surveys, and biological assessments.

5.0 IMPLEMENTATION

1. The Environmental Assurance Section of the Quality Assurance (QA) Department shall conduct compliance reviews of DOE Directives and NEPA procedures and audit the NEPA program.

2. The NEPA Compliance Group within the Environmental Planning Department shall implement and maintain the NEPA program at the FEMP by preparing and updating NEPA documents and procedures, interfacing with DOE, evaluating the NEPA document process, monitoring selected Actions/Projects for NEPA Compliance, resolving audit findings, and preparing NEPA training information for Centralized Training.

3. Centralized Training shall provide NEPA training to all applicable FEMP employees as requested and/or arranged by the NEPA Compliance Manager/NEPA Coordinator.

6.0 APPLICABLE DOCUMENTS

6.1 DRIVERS

- DOE Order 5440.1E, "National Environmental Policy Act Compliance Program"
- National Environmental Policy Act, 42 U.S.C.4321
- 40 CFR 1500 - 1508, Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA
- 10 CFR 1021, U.S. DOE "National Environmental Policy Act Implementing Procedures and Guidelines"
- Secretary of Energy Notice SEN 15-90 "National Environmental Policy Act"
- DOE NEPA Compliance Guide, October 1988
- DOE Orders and Memorandums (NEPA related)

6.2 REFERENCE

- SSOP-0031, "National Environmental Policy Act (NEPA) Document Process"
- PL-3025, "National Environmental Policy Act (NEPA) Compliance Plan"

CONTROL NO. NON-CONTROLLED COPY
SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-0031
REVISION NO. 2

5692

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DOCUMENT PROCESS

SSOP-0031

Effective Date: 12-21-93

AUTHORIZED BY: N. C. Kaufman, President — 12/8/93 Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
10-01-91	0	Procedure required for development, preparation, tracking, review, and approval of NEPA documents per Request No. P91-405, initiated by D. L. Rathgens.
08-06-93	1	Procedure needed to describe the NEPA document process at the FEMP per Request No. S93-154, initiated by J. Homer. This procedure supersedes SSOP-0031, dated 10/01/91, Rev. 0.
12-21-93	2	Minor changes to document per Request No. S93-260, initiated by J. Homer.

1.0 PURPOSE

National Environmental Policy Act (NEPA) documents support the requirements of the (NEPA) Program at the Fernald Environmental Management Project (FEMP). This procedure provides the steps necessary to obtain approval for a NEPA document. This procedure also describes the formal environmental review and documentation program developed to comply with NEPA regulations proclaimed by the Council on Environmental Quality (CEQ) and implementing regulations proclaimed by the Department of Energy (DOE).

2.0 SCOPE

This procedure applies to all organizations/divisions submitting NEPA documents.

3.0 DEFINITIONS

Action Description Memorandum (ADM) - An internal DOE document (typically not more than 5 pages) containing a concise description of a proposed action and discussion of relevant potential environmental issues to assist DOE in determining the appropriate level of NEPA documents for a proposed action.

Action Memorandum - A letter from the DOE-FN (Department of Energy, Fernald Field Office) to FERMCO stating that a determination has been made that the described removal action is appropriate and gives direction to FERMCO to proceed with the action.

Action/Project - A DOE endeavor regarding a project, program, plan, or policy. A new or continuing activity which involves facility construction, operation, decontamination, CERCLA removal actions, RCRA closures or other modifications to the project, facilities or site. Other examples of actions/projects include maintenance activities, site characterization and environmental monitoring, and treatability studies.

Categorical Exclusion (CX) - A category of actions, as defined in 40 CFR 1508.4 and listed in Appendix A or B to Subpart D of 10 CFR Part 1021, which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by the DOE implementation regulations.

Clearly Insignificant - This term indicates that the project/action will not have a significant (see definition) effect on the environment.

3.0 **DEFINITIONS** (cont.)

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) - The statute that provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and for cleanup of inactive hazardous waste disposal sites.

CERCLA Remedial Actions - Responses to releases that are consistent with a permanent remedy to prevent or minimize the release of hazardous substances, pollutant, or contaminants to eliminate migration and cause substantial danger to present or future public health or welfare of the environment.

CERCLA Removal Action - Any appropriate action taken by a lead agency to abate, prevent, minimize, stabilize, mitigate, or eliminate a release or threat of release to the environment.

CERCLA Removal Site Evaluation (RSE) - A document prepared to describe a condition that presents a potential threat of release of contaminants to the environment. The document helps to determine whether a Removal Action shall be taken to mitigate the potential threat of release described.

Council on Environmental Quality (CEQ) - Established by NEPA to promulgate regulations as defined in 40 CFR 1508.6.

Cumulative Impact - The impact on the environment which results from the incremental impact of an action when added to other past, present, and foreseeable future actions regardless of their sponsor. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

DOE Final Approval - The written approval of a NEPA document granted by the DOE Director for Office of NEPA Oversight (EH-25), or, in the case of CXs, from the DOE-FN manager.

DOE Official Approval - The oral or written approval of a NEPA document granted by DOE Director of Environmental Restoration and Waste Management, (EM-1).

Environmental Assessment (EA) - A concise public document that has three defined functions: (1) to provide sufficient evidence and analysis for determining whether to prepare an EIS or FONSI; (2) to aid an agency's compliance with NEPA when no EIS is necessary; and (3) to facilitate the preparation of an EIS when one is necessary.

3.0 DEFINITIONS (cont.)

Engineering Evaluation/Cost Analysis-Environmental Assessment (EE/CA-EA) - A document that integrates an engineering evaluation/cost analysis, as defined under CERCLA (40 CFR 300.415), and an environmental assessment, as defined under NEPA. The document's content is similar to that of a conventional EA, but the format is different.

Environmental Impact Statement (EIS) - An analytical and concise document, prepared in accordance with the requirements of 40 CFR Part 1502, which provides a full and fair discussion of significant environmental impacts of a project/program under consideration and informs decision makers and the public of reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of human environment. This document requires the opportunity for public review and comment, followed by a Record of Decision (ROD).

Environmental Impact Statement (EIS) Implementation Plan (IP) - A brief document that explains and supports the scope, target schedule, and approach DOE will use to prepare an EIS.

Finding of No Significant Impact (FONSI) - A document, defined in 40 CFR 1508.13, prepared to record a departmental decision that the environmental impacts of an action considered in an EA will not have a significant effect on the human environment and that an EIS is not required for the proposed action.

Floodplains - the low and adjoining inland and coastal waters and relatively flat areas and flood-prone areas of offshore islands including, at a minimum, that area inundated by a one percent or greater chance of flood in any given year. The base floodplain is defined as the 100-year (1.0 percent) floodplain. The critical action floodplain is defined as the 500-year (0.2 percent) floodplain.

Impacts - Impacts, as used in this procedure, include direct and indirect. Direct impacts are caused by the action and occur at the same time and place. Indirect impacts are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Some other kinds of impacts are ecological, natural resources (including air and water), aesthetic, historic, cultural, economic, social or health whether adverse, beneficial, direct, indirect or cumulative.

Initiator - Any manager, supervisor, or engineer responsible for or in need of NEPA services for a FEMP project/activity.

Mitigation Action Plan (MAP) - A document that describes the plan for implementing commitments made in a DOE EIS and its associated ROD, or when appropriate, an EA or FONSI, to mitigate adverse environmental impacts associated with an action.

3.0 DEFINITIONS (cont.)

Monitoring - The Process by which the NEPA Compliance Officer and the NEPA Compliance Group assures that project results are the same as stated in the NEPA document and the project is performed without causing significant impact on the environment.

Monthly NEPA Report - A document submitted monthly to DOE-Headquarters that identifies the status of NEPA documents that are being prepared or that have been submitted for review and approval. The initial date of transmittal and a required approval date are specified, together with the "Type of Commitment" -- EPA, Contract or Work Ongoing, to enable the reviewer to assign the proper priority.

National Environmental Policy Act (NEPA) - The basic national charter for protection of the environment enacted in 1969; signed into law January 1, 1970. It establishes policy, sets goals, and provides the means for carrying out the policy.

NEPA Compliance Officer (NCO) - A DOE employee at each Field Office and optionally at other offices, designated to coordinate, assist, and generally oversee the NEPA compliance activities in that office.

NEPA Documents - A CX, ADM, EA, FONSI, EIS, ROD (Record of Decision), NOI (Notice of Intent), or any other documentation prepared pursuant to a requirement of NEPA, the Council on Environmental Quality (CEQ) Regulations, or the NEPA Regulations that identifies and assesses the individual and cumulative impacts of the continuing and reasonably foreseeable future actions at a DOE site.

NEPA Program - The program at the FEMP which implements federal environmental regulations through the issuance and tracking of applicable NEPA documents, project monitoring for NEPA compliance, and NEPA training.

Notice of Intent (NOI) - A notice that an EIS will be prepared and considered. The notice shall briefly describe the proposed action and possible alternatives, describe the agency's proposed scoping process including when and where any scoping meeting will be held, and state the name and address of a person within the agency who can answer questions about the proposed action and the EIS.

Record of Decision (ROD) - A document prepared in accordance with the requirements of 40 CFR 1505.2, that provides a concise public record of the DOE's decision on a proposed action for which an EIS was prepared, and identifies the alternatives considered in reaching the decision.

3.0 DEFINITIONS (cont.)

Removal Site Evaluation (RSE) - A document prepared to describe a condition that presents a potential threat of release of contaminants to the environment. The document helps to determine whether a removal action should be taken to mitigate the potential threat of release described.

Resource Conservation and Recovery Act (RCRA) - The statute that mandates "cradle to grave" control of specified hazardous waste by imposing management requirements generators, transporters, and owner/operators of treatment, storage, and disposal (TSD) facilities.

RCRA Closure - The process mandated by RCRA in which a Hazardous Waste Management Unit (HWMU) is closed, minimizing the need for further maintenance and controls and minimizing or eliminating, to the extent necessary, the contamination release or threat of contamination release to the environment.

RCRA Closure Plan - A plan prepared by FERMCO that describes the project activities related to closing a particular operation/facility of the FEMP. This plan describes the process of removing the hazardous substances so that when removed the operation/facility will no longer be a RCRA concern.

Request for NEPA Services Form - A form completed by the initiator that starts the NEPA process. This form includes a questionnaire to identify possible environmental impacts.

Significant - This means having or likely to have influence, deserving to be considered, or the quality of being important. Outside of statistical analysis (where significance is defined mathematically), determining whether the effects of a proposed action are likely to have a significant influence on the human environment requires subjective judgement. Neither NEPA nor CEQ have provided firm definitions for this term. The agency must communicate with the public when deciding what is significant.

Tracking - The process by which the NEPA Compliance Group follows the activities of each facility project from initial submission of a "Request for NEPA Services" form, through the DOE approval cycle, and an analysis of the time expended in carrying out the project. Tracking identifies where the project stands, at any point in time, relative to the review, comment, and approval cycle.

Transmittal Letter - A FERMCO letter, with letter number, that transmits a document, report, etc., from one department/group to another.

3.0 DEFINITIONS (cont.)

Wetlands - Those areas that are inundated by surface or groundwater enough to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflow, mudflats, and natural ponds.

4.0 RESPONSIBILITIES

DOE-FN Manager

- Designates a NEPA Compliance Officer for the FEMP.
- Approves CXs
- Submits ADMs, EAs, EISs, and associated documents to DOE-HQ for approval

DOE NEPA Compliance Officer

- Coordinates, assists and oversees all NEPA compliance activities at the FEMP.

NEPA Quality Committee

- Meets monthly or as necessary to recommend approval of previously submitted CXs to DOE-FN.
- Meets monthly or as necessary to audit documentation previously submitted to DOE-HQ for completeness and accuracy.
- Meets when necessary to resolve complex issues.

Environmental Planning Manager

- Develops and manages the NEPA Program for the FEMP.
- Interfaces with DOE-FN on NEPA matters, coordinating the NEPA program.
- Deleted
- Manages the preparation of NEPA documents to maintain project schedules.
- Provides NEPA direction to the Project Engineer/Project Manager, Construction Manager, Maintenance Supervisor, and the Environmental Planning Group.

4.0 **RESPONSIBILITIES** (cont.)

NEPA Compliance Group

- Implements and maintains the NEPA Program at the FEMP.
- Researches, prepares, and updates draft NEPA documents and procedures.
- Interfaces with DOE-FN regarding NEPA issues.
- Evaluates the NEPA document process, revising procedures and resolving audit findings.
- Monitors selected actions/projects to ensure NEPA compliance.
- Arranges NEPA training for affected FEMP employees through Centralized Training.
- Tracks NEPA documents from initiation to final approval.

Initiator

- Obtains a NEPA evaluation for any action/project.

  NOTE: An Action/Project may not be implemented until the NEPA Document is approved by DOE.

- Assists in the preparation and revision of NEPA documents.
- Follows projects from beginning through completion to assure the work is performed as described in the documents.
- Where mitigation measures are indicated, assures that measures are fully implemented.

Centralized Training Department

- Provides NEPA training to affected FEMP employees.

Public Affairs

- Notifies public of a project or program that requires an Environmental Assessment or an Environmental Impact Statement.

5.0 GENERAL

5.1 NEPA Purpose

NEPA calls for judgment by scientists, professional decision-makers, and the public to achieve a proper balance between the value of a federal proposal for a project, decision, or action, the environmental costs of that project and the need for mitigation of those costs. NEPA ensures that the agency (DOE) weighs the significance of environmental impacts that are reasonably foreseeable, and consider reasonable alternatives to avoid, minimize or mitigate any such impacts that are adverse.

5.2 NEPA Document Process Description

NEPA documents prepared by FERMCO in support of the NEPA Program are the ADM (Attachment A), CX (Attachment B), EA (Attachment C), FONSI (Attachment D), NOI (Attachment E), ROD (Attachment F) and the EIS (Attachment G). MAP may also be prepared, as necessary.

Initiators shall implement the review for NEPA as early as possible in the conceptual stage of project development and well in advance of the desired date for action implementation. The FERMCO Environmental Planning Department will meet with initiators to discuss a preliminary scoping of possible environmental impacts. Any changes in the scope of an action/project shall be relayed to the Environmental Planning Department in order that a proper NEPA evaluation can be completed.

Although FERMCO makes recommendations concerning the appropriate NEPA documentation required, DOE determines which NEPA documents are required.

The DOE-HQ must approve NEPA documentation (except for CXs, in which case DOE-FN must approve) before FERMCO can proceed with implementation of the action/project.

A Closure Plan, Removal Site Evaluation, Action Memorandum, or Draft Work Plan may be required in support of NEPA documents.

5.0 GENERAL (cont.)

5.3 DOE Review and Approval

The DOE reviews and approves NEPA documents submitted by FERMCO as follows:

CX - Prepared by the NEPA Compliance Group and undergoes FERMCO review. CX is then submitted to DOE-FN. DOE-FN holds a NEPA Quality Committee meeting. Once the Committee is satisfied, CX is submitted to DOE Site Manager for Approval. Once approved, action may begin. Two months should be allowed for preparation and approval.

ADM - After preparation by the NEPA Compliance Group, the ADM undergoes review by FERMCO. It is then submitted to DOE-FN for review. Once approved, the ADM is submitted to DOE-HQ for determination as to the appropriate level of documentation.

EA - Document is prepared by the NEPA Compliance Group and undergoes review by FERMCO. It is then submitted to DOE-FN. If the EA supports the finding that the proposed action will not have a significant effect on the human environment, FERMCO prepares a FONSI, which undergoes internal review and is then submitted to the DOE-FN. After review by DOE-FN the FONSI is submitted to DOE-HQ for approval. The DOE-HQ shall make FONSIs available for public review for 15 days prior to the commencement of the proposed project/activity.

If the EA does not support a FONSI, FERMCO prepares an EIS and issues a ROD before taking action on the proposal.

5.0 **GENERAL** (cont.)

EIS - FERMCO shall prepare an EIS IP to provide guidance for the preparation of an EIS after a public scoping process. An EIS is then prepared, reviewed and submitted to DOE-FN and appropriate agencies. Other agencies will review the EIS as appropriate. The DOE submits the EIS to EPA for publication of a Notice of Availability (NOA) of the document in the Federal Register. The DOE allows 45 days for public review once the NOA is published. Also, DOE holds at least one public hearing on draft EISs. Comments are addressed in a final EIS, submitted to the EPA for approval.

Before any action is taken on the proposal, a ROD shall be prepared by FERMCO, submitted to DOE, and published in the Federal Register. Following completion of an EIS and its associated ROD, FERMCO prepares a Mitigation Action Plan (MAP) to address mitigation commitments in the ROD. The MAP is submitted to the DOE for approval. The MAP is made available to the public.

5.4 Approximate Approval Time for NEPA Documents (from project design to document approval)

EA and FONSI - 12 months

ADM - 3 months (includes preparation time)

CX - 2 months

EIS - 2 years (includes review process at HQ)

6.0 **PREREQUISITES**

None

7.0 **PROCEDURE**

7.1 INITIATING NEPA EVALUATION FOR ACTION/PROJECT

INITIATOR

1. Upon receipt of an assigned action/project, obtain a "Request for NEPA Services" form (FMPC-EC-3276) along with the Environmental Compliance Questionnaire attachment (Figure 1) from Stores.

FEMP
REGULATORY PROGRAMS/NEPA COMPLIANCE
REQUEST FOR NEPA EVALUATION
NOTE: Following completion of this form, please see attached questionnaire.

DATE REQUESTED:

DATE NEPA APPROVAL REQUIRED:

ACTION/PROJECT TITLE AND NUMBER:		ORIGINATING DEPARTMENT MANAGER:	
CHARGE NO.:	COGNIZANT PROJECT ENGINEER:	EXTENSION:	E-MAIL:

ATTACHED DOCUMENTATION (CHECK TO INDICATE):
- ☐ PROJECT SCHEDULE
- ☐ ENVIRONMENTAL COMPLIANCE QUESTIONNAIRE
- ☐ WORK PLAN
- ☐ OTHER DOCUMENTATION

ACTION/PROJECT DESCRIPTION (INCLUDING ACTION TYPE, LOCATION AND SKETCH/MAP):

(FOR NEPA COMPLIANCE USE ONLY)

RECEIVED BY:	ASSIGNED TO:	DATE RECEIVED:	NEPA NO.:

NEPA COMPLIANCE COMMENTS:

FS-3278 (REV. 9/9/93)

Figure 1 - Request for NEPA Services Form (Sheet 1 of 3)

FEMP REGULATORY PROGRAMS/NEPA COMPLIANCE **ENVIRONMENTAL COMPLIANCE QUESTIONNAIRE** (ATTACHMENT TO REQUEST FOR NEPA EVALUATION)	*Please answer the following questions with as much information as you have. Following completion, submit this Questionnaire with the completed Request for NEPA Evaluation form to the NEPA coordinator.*

A. AIR COMPLIANCE INFORMATION	
1.	Explain the construction or installation of any equipment which may emit dust, fumes, or gases (other than O_2, N_2, or CO_2) during operation.
2.	Explain the construction or installation of any fuel combustion equipment, even on a temporary basis.
3.	Define any equipment or process involved currently having an Ohio Environmental Protection Agency permit to Install or Operate.
4.	Will the action/project require use of any of the storage tanks currently on site or installation of new storage tanks? If yes, explain.
5.	Will the action/project involve any of the process equipment which contain radioactive material or involve managing/processing radioactive material? Explain.

B. WATER COMPLIANCE INFORMATION	
1.	Identify all bodies of surface water (e.g., streams, rivers) affected by the action/project.
2.	Will any dredge or fill materials be deposited in rivers, lakes, or tributaries of rivers and lakes? Explain.
3.	Does the action/project involve construction or, or modification to, a wastewater treatment system? Explain.
4.	Does the action/project involve the use or discharge of water? This includes collected stormwater in excavation. Explain.
5.	Identify any permits required.

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Figure 1 - Request for NEPA Services Form (Sheet 2 of 3)

FEMP
ENVIRONMENTAL COMPLIANCE QUESTIONNAIRE
(CONTINUED)

C. WASTE COMPLIANCE INFORMATION	
1.	Will the construction/operation of the action/project result in the generation of waste? If yes, what type(s)?. Provide forecasted quantities of each type (volume, weight, etc.)
2.	How will this waste be handled (stored or shipped off-site)?.
3.	Does the action/project involve storage, treatment or disposal of hazardous or mixed waste?
4.	Does the action/project involve asbestos removal?

D. SUPPLEMENTAL NEPA COMPLIANCE INFORMATION	
1.	Are there any ground disturbing activities associated with the action/project? Explain.
2.	Are there any archeological features (e.g., mounds, foundations) in the action/project area? Are there any historical structures or markers in the action/project area? Explain.
3.	What habitats exist in the project area?
4.	Are you aware of any delineated wetlands affected by the action/project?
5.	Is this action/project in the 100 or 500 year floodplain? If so, will it result in permanent alterations to the floodplain? Explain.
6.	Are there any potential groundwater impacts associated with this action/project? Explain.

NOTE: The NEPA Coordinator will forward a copy to the Request for NEPA Evaluation and the Environmental Compliance Questionnaire to other appropriate Compliance and permitting groups.

FS-F-3276-1 (9/9/93)

Figure 1 - Request for NEPA Services Form (Sheet 3 of 3)

7.1 INITIATING NEPA EVALUATION FOR ACTION/PROJECT (cont.)

2. Complete the "Request for NEPA Services" form and the Environmental Compliance questionnaire, and provide a sketch or map of the proposal area, if possible.

   a. If the action/project is a CERCLA removal action, attach a Removal Site Evaluation (RSE), Action Memorandum, and a draft work plan (if available).

   b. If the action/project is a RCRA closure, attach the draft closure plan.

3. Submit the completed request form and other applicable documentation to the applicant.

7.2 DETERMINING IF A NEPA DOCUMENT IS REQUIRED

Environmental Planning Manager or approved designee (applicant)

1. Review the submitted "Request for NEPA Services" form for NEPA applicability and discuss with the initiator if necessary.

   a. If additional information is required contact the initiator to discuss what additional information is needed and proceed to Section 7.3.

      NOTE: Appropriate maps will be reviewed to check if the area of the proposed action/project involves wetlands, floodplains, threatened and endangered species habitats, or locations of cultural resources.

   b. If a NEPA document is not required, notify the Initiator in writing that a NEPA document is not required.

2. Forward the Environmental Compliance questionnaire to the appropriate compliance group(s) within the Regulatory Programs division.

7.3 TRACKING THE NEPA DOCUMENT

Environmental Planning Manager or approved designee (applicant)

1. Assign a NEPA document number to the action/project requested.

2. Enter action/project information by NEPA Document Number into tracking database system.

7.3 TRACKING THE NEPA DOCUMENT (cont.)

Environmental Planning Manager or approved designee

3. Track document by date from the time of initiation through DOE final approval.

   NOTE: The details of the NEPA document tracking system are provided in the QA department procedure titled "NEPA Document Tracking System".

7.4 DETERMINING TYPE OF NEPA DOCUMENT REQUIRED

NEPA Compliance Group

1. Determine if the proposed action/project can be categorically excluded based upon the list of categorical exclusions listed in 57 FR 15122, Section D of the Federal Register.

   a. If the action/project can be categorically excluded, proceed to Section 7.5.

   b. If the action/project cannot be categorically excluded, contact DOE-FN to determine whether an ADM is required.

2. Utilize the Environmental Review Questionnaire for Categorical Exclusions (Attachment B) to assist in determining if the action/project can be CXed.

3. Reference the appropriate site maps (wetlands delineation maps, threatened and endangered species suitable habitat survey maps, archaeological findings maps, and 100 and 500 year floodplain maps) to identify any potential impacts.

4. If an ADM is not required, contact DOE-FN to determine the NEPA document needed for the action/project and proceed to Section 7.5.

5. If an ADM is required, prepare an ADM (see Attachment A).

6. Submit ADM to DOE-FN to transmit to DOE-HQ for determination of NEPA document type.

7.5 PREPARING A NEPA DOCUMENT

NEPA Compliance Group

1. After notification from DOE-FN of document type, assign a staff member(s) from the NEPA Compliance Group to prepare CX, EA, FONSI, NOI, MAP, or EIS as applicable, according to the DOE suggested format.

2. If the action/project will involve potential impacts to the environment prepare to provide sufficient evidence and analysis for determining whether to prepare an EIS or FONSI.

   NOTE: A project involving significant impacts will require an EIS.

   NOTE: The EIS shall be integrated with RI/FS documentation whenever applicable.

3. Confer as necessary with the Initiator.

   NOTE: If changes to the scope of the Action/Project occur, the Project Engineer must relay these changes as soon as possible to the NEPA Compliance Group.

7.6 NEPA DOCUMENT REVIEW AND APPROVAL

NEPA Compliance Group

1. Upon completion of NEPA document, prepare a "Correspondence Record Sheet" (Blue Sheet, Figure 2) submit copies to initiator, Regulatory Integration Manager, NEPA Compliance Manager, Environmental Planning Manager, Permitting and Reporting Manager, and the Regulatory Program Manager (Internal FERMCO Reviewers) for review and concurrence.

   a. If the document is not satisfactory, record comments on blue sheet and forward to author.

   b. If document is satisfactory forward to the author.

CORRESPONDENCE RECORD SHEET

Need Date: _____ Parallel Review: Yes ☐ No ☐

Letter No.: _____ Date: __/__/__

Subject: _____

_____

Author: _____ Phone No.: _____

Signee: _____ Date: __/__/__

The following have reviewed the subject document and concur with the content, and distribution list (with exception of comments) for release to external distribution:

Comments

Reviewed by:	Yes	No	Date:
_____	_____	_____	__/__/__
_____	_____	_____	__/__/__
_____	_____	_____	__/__/__
_____	_____	_____	__/__/__
_____	_____	_____	__/__/__
_____	_____	_____	__/__/__
_____	_____	_____	__/__/__
_____	_____	_____	__/__/__

Comments: _____

_____

Figure 2 - Correspondence Record Sheet

7.6 NEPA DOCUMENT REVIEW AND APPROVAL (cont.)

AUTHOR OF DOCUMENT (NEPA Compliance Group)

2. Address any comment received from reviewers on the Correspondence Record Sheets and incorporate resolutions into document.

3. Transmit NEPA document with review sheets and transmittal letter to the FERMCO president for signature.

4. After obtaining the required signature, deliver NEPA document and transmittal letter to DOE-FN for approval and enter NEPA document into the NEPA database tracking system.

   NOTE: CXs can be approved at the DOE-FN. EAs and EISs must be submitted to DOE-HQ for review. It may be appropriate for other agencies to review EAs and EISs as coordinated with DOE.

5. After approval of NEPA document from DOE-FN or DOE-HQ (verbally or signed document) is received, complete the following:

   a. Upon official verbal approval, complete a "Regulatory Agency Contact Report", Form FMPC-REST-2848 (Figure 3), documenting DOE's approval to authorize the initiator to proceed with the project.

   b. Upon official written approval, notify initiator of DOE official approval per a "NEPA Documentation Status" form (Figure 4) and/or copy of the signed NEPA document. Keep the original as a permanent record.

   c. Maintain contact report as a permanent record.

      NOTE: The NEPA Quality Committee will convene monthly (or more frequently as needed) to approve CXs and audit documentation previously submitted to DOE-HQ for completeness and accuracy.

   d. If the NEPA document is not approved, revise document to resolve DOE comments and resubmit document to DOE-FN until all comments are resolved.

      NOTE: An action/project may not be implemented until the NEPA document is approved by DOE.

FEMP
REGULATORY PROGRAMS

REGULATORY AGENCY CONTACT REPORT/REQUEST

DATE OF CONTACT:	ORIGINATOR	☐ Has contacted ☐ Was contacted by
REGULATORY AGENCY:	AGENCY REPRESENTATIVE:	

SUBJECT:	
INFORMATION PROVIDED TO AGENCY:	
INFORMATION OBTAINED FROM AGENCY:	
FERMCO ACTIONS REQUIRED AS RESULT OF CONTACT:	

ORIGINATOR'S SIGNATURE/DATE

MANDATORY DISTRIBUTION:

DOE SITE OFFICE REPRESENTATIVE

MANAGER, REGULATORY PROGRAMS

OFFICE OF COUNSEL

IMMEDIATE SUPERVISOR

FS-F-2848 (REV. 9/8/93)

Figure 3 - Regulatory Agency Contact Report

FEMP
REGULATORY PROGRAMS/NEPA COMPLIANCE

NEPA DOCUMENTATION STATUS

PROJECT TITLE:

NEPA DOCUMENT NUMBER:

COGNIZANT PROJECT ENGINEER:

NEPA DOCUMENT STATUS:

☐ Final Approval by DOE-FN on _____.
A copy of the approval memorandum is enclosed for your files.

☐ Reviewed and needs additional information.

☐ Disapproved by DOE on _____ for the following reason(s):

_____
_____
_____

If you have any questions regarding this action, please contact the NEPA Compliance Group at 738-8660.

_____ NEPA COORDINATOR _____ DATE

If this document has been approved, please retain this sheet and the attached coversheet for you files. If this document requires further work, please sign and return this form with your revised NEPA document.

_____ COGNIZANT PROJECT ENGINEER _____ DATE

FS-F-3285 (REV. 9/10/93)

Figure 4 - NEPA Documentation Status

7.6 NEPA DOCUMENT REVIEW AND APPROVAL (cont.)

INITIATOR

6. Upon notification of DOE official approval from the NEPA Group, proceed with the project.

7.7 PUBLIC NOTIFICATION

PUBLIC AFFAIRS

1. Upon request by DOE, notify the public as specified by DOE.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- 40 CFR 1500-1508, "Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act"
- 10 CFR 1021, "National Environmental Policy Act Implementing Procedures"
- DOE Order 5440.1E, "National Environmental Policy Act Compliance Program"
- National Environmental Policy Act, 42 U.S.C. 4321 et. seq./ Council on Environmental Quality Regulations, 40 CFR 1500-1508
- Secretary of Energy Notice SEN 15.90, "National Environmental Policy Act"
- DOE Orders and Memorandums (NEPA related)

8.2 REFERENCE DOCUMENTS

- PL-3025, "National Environmental Policy Act Compliance Plan"
- PO-0518, "National Environmental Policy Act (NEPA) Program"

ATTACHMENT - A

ADM-DOE SUGGESTED DOCUMENT FORMAT

ADM FORMAT

1.0 **DESCRIPTION OF THE PROPOSED ACTION** - Describe the purpose and need, background, and preferred alternative.

2.0 **LOCATION OF THE ACTION** - Identify the proposed location of the action clearly by naming the closest city or metropolitan area and the county and state where the action is to take place. Characteristics such as environmental setting, urban or rural qualities, and economic conditions should be included, as appropriate.

3.0 **POTENTIAL ENVIRONMENTAL ISSUES** - Present briefly any known or potential environmental issues. These may include such issues as the presence of endangered species, conflict with historic areas, Indian lands or religious sites, involvement of floodplains or wetlands, known air or water quality problems, or worker impacts.

4.0 **NATIONAL ENVIRONMENTAL POLICY ACT DOCUMENTATION** - An ADM is prepared to facilitate a determination of the appropriate NEPA document required.

ATTACHMENT - B (Sheet 1 of 4)

CX-DOE SUGGESTED DOCUMENT FORMAT

CX

1.0 **PROPOSED ACTION** - Briefly describe the proposed action.

2.0 **LOCATION OF THE ACTION** - Give specific details as to where the proposed action will take place.

3.0 **BACKGROUND** - Explain previous and current conditions existing at the site relating to the proposed action and background information regarding the action itself.

4.0 **DESCRIPTION OF THE PROPOSED ACTION** - Describe briefly the proposed action and discuss any other regulatory concerns that may be issues (i.e. RCRA, CERCLA etc.). Include the estimated cost of the project.

5.0 **CX TO BE APPLIED** - State the CX basis from the Federal Register that is appropriate for the action described. State the reasons for applicability.

6.0 **COMPLIANCE ACTION** - Signed approval statement from DOE-FN manager determining that the proposed action meets the requirements for the CX basis referenced in the document.

ATTACHMENT - B (Sheet 1 of 4)

CX-DOE SUGGESTED DOCUMENT FORMAT

CX

1.0 **PROPOSED ACTION** - Briefly describe the proposed action.

2.0 **LOCATION OF THE ACTION** - Give specific details as to where the proposed action will take place.

3.0 **BACKGROUND** - Explain previous and current conditions existing at the site relating to the proposed action and background information regarding the action itself.

4.0 **DESCRIPTION OF THE PROPOSED ACTION** - Describe briefly the proposed action and discuss any other regulatory concerns that may be issues (i.e. RCRA, CERCLA etc.). Include the estimated cost of the project.

5.0 **CX TO BE APPLIED** - State the CX basis from the Federal Register that is appropriate for the action described. State the reasons for applicability.

6.0 **COMPLIANCE ACTION** - Signed approval statement from DOE-FN manager determining that the proposed action meets the requirements for the CX basis referenced in the document.

ATTACHMENT - B (Sheet 3 of 4)

ENVIRONMENTAL REVIEW QUESTIONNAIRE
FOR CATEGORICAL EXCLUSIONS (CX) (cont.)

Threatened and Endangered Species (State and Federal):
Has the U.S. Fish and Wildlife Service or Ohio Department of Natural Resources reviewed the project?
_____ Date: ___/___/___

Is the project in the vicinity of any threatened or endangered species listed in the site-wide ecological survey?
_____

What wildlife habitat exists within the project? And is there enough wildlife habitat to warrant a biological assessment?
_____

Will any dredged or fill materials be deposited in rivers or lakes? _____
_____

Will there be any cutting of trees? _____
_____

Hazardous Waste: _____
_____

What waste streams will be created by this project? _____
_____

How will waste be handled (stored and disposed)? _____
_____

Noise: _____
_____

Is this a Type I project (new construction)?
Are there any traffic lanes being added? Will traffic increase considerably? _____
_____

Are there any receptors (residents, habitats, etc.) within the project area? _____
_____

Type of equipment used? _____
_____

Visual Impacts: _____
_____

What can be seen from the project, including background? (describe in landscape units)

Are there any scenic views?

Who are the receptors?

Will the project have any adverse effects on visual quality that would require a visual assessment?

ATTACHMENT - B (Sheet 4 of 4)

ENVIRONMENTAL REVIEW QUESTIONNAIRE FOR CATEGORICAL EXCLUSIONS (CX) (cont.)

Water Quality:
Identify all bodies of water (streams, lakes, wetlands, reservoirs, etc..) And describe the affects that the project will have on them.

Will groundwater be impacted?
Are any permits required?

Wetlands:

Are there any wetlands affected by the project? (refer to the EBASCO 1993 Sitewide Wetlands Delineation Report) (describe acres affected, type and function)

Is avoidance possible?

Are there measures to minimize harm?

Are there any potential mitigation sites?

Floodplains:

Is this project in the 100 or 500 year floodplain? If so, what effect will the project have on the floodplain.

Any permits needed?

ROW - Relocation: (Coordination required for any public land taken with appropriate agency)
Describe ownership, acres, and impact of any taken ROW.

Any relocations of residents?

Socio-economics:

What are the socio-economic impacts encompassing the project? (describe in terms of residential vs. employment impacts, population characteristics, impacts to public facilities e.g. highways, roads, recreational, schools, hospitals, impacts to community cohesion and impacts to future development.)

ATTACHMENT - C

EA-DOE SUGGESTED DOCUMENT FORMAT

EA

TITLE PAGE

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

EXECUTIVE SUMMARY

1.0 **PURPOSE AND NEED FOR ACTION** - Describe the purpose of the project and the need to do this action.

2.0 **DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES** - Discuss the proposed action in detail and all reasonable alternatives, including the no action alternative.

3.0 **DESCRIPTION OF THE AFFECTED ENVIRONMENT** - Describe the existing or baseline environment in terms of affected resources.

4.0 **RISK ASSESSMENT AND ACCIDENT SCENARIOS** - Discuss, qualitatively and schematically, the hazards associated with the proposed action. Refer to all Safety Assessments and/or Risk Assessment Reports that may have been prepared.

5.0 **POTENTIAL ENVIRONMENTAL IMPACTS** - Describe the potential environmental impacts of each alternative, including the proposed action and the no action alternative.

6.0 **REFERENCES** - List all sources of information alphabetically. Include articles, books, publications, letters, etc.

ATTACHMENT - D

FONSI-DOE SUGGESTED DOCUMENT FORMAT

FONSI

1.0 **SUMMARY** - Summarize the proposed action and make formal declaration that the preparation of an EIS is not required.

2.0 **AVAILABILITY OF EA** - List the name, address, and telephone number for copies of the EA.

3.0 **BACKGROUND INFORMATION** - Describe briefly the setting of the proposed action and information on the process or technology.

4.0 **PROPOSED ACTION** - Explain the proposed action.

5.0 **ENVIRONMENTAL EFFECTS** - Itemize and briefly describe the environmental impacts.

6.0 **ALTERNATIVES CONSIDERED** - Discuss the alternatives and impacts considered.

7.0 **DETERMINATION** - Summarize the potential environmental impacts, justify the conclusion of no significance, and declare the finding.

ATTACHMENT - E

NOI-DOE SUGGESTED DOCUMENT FORMAT

NOI

1.0 **SUMMARY** - Summarize the proposed action and possible alternatives, and invitation to comment in writing and/or at a public scoping meeting, if one is held during the defined comment period.

2.0 **AGENCY CONTACTS** - List the name, address, and telephone number for scoping comments, information on proposed action, and NEPA process.

3.0 **BACKGROUND INFORMATION** - Provide Site description; proposed action (including need for the action); alternatives to the proposed action; identification of environmental, socioeconomic, and health and safety issues; and availability of related documentation.

4.0 **DESCRIPTION OF SCOPING PROCESS** - Provide description including date, location, procedure for scoping meeting, and availability of related documentation.

ATTACHMENT - F

ROD-DOE SUGGESTED DOCUMENT FORMAT

ROD

1.0 **DECISION** - State the DOE decision.

2.0 **BACKGROUND** - Describe the location of the proposed action and the existing situation. Summarize the sequence of events that led to the ROD.

3.0 **DESCRIPTION OF ALTERNATIVES** - Identify all alternatives considered by DOE in reaching its decision, specifying the alternative or alternatives which were considered to be environmentally preferable.

4.0 **BASIS FOR DECISION** - Identify and discuss all technical and economic factors, including any essential considerations of national policy, which were balanced by DOE in making its decision. State how these considerations entered into the decision.

5.0 **CONSIDERATIONS IN THE IMPLEMENTATION OF THE DECISION** - Discuss the monitoring and/or enforcement program that will be adopted to assure the decision is carried out properly.

6.0 **CONCLUSION** - State whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why not. State the decision again and that DOE will proceed with this decision subject to the authorization and appropriation of funds by Congress.

ATTACHMENT - G

EIS-DOE SUGGESTED DOCUMENT FORMAT

EIS

TITLE PAGE

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

EXECUTIVE SUMMARY

1.0 PURPOSE AND NEED - Describes the purpose and need for the proposed action.

2.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT - Describe the existing or baseline environment in terms of affected resources.

3.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES - Discuss the proposed action in detail and all reasonable alternatives, including the no the no action alternative.

4.O IMPACT ANALYSIS OF THE ALTERNATIVES - Evaluate the alternatives in terms of impacts to human health and the environment.

5.0 MONITORING AND MITIGATION MEASURES - Discuss measures taken to minimize impacts to human health and the environment.

6.0 UNAVOIDABLE ADVERSE IMPACTS - Discuss impacts that will occur regardless of mitigation measures.

7.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES - Identify resources that will be lost as a result of the proposed action, such as wetlands and endangered species habitat.

8.0 IMPACTS OF POTENTIAL LOSS OF INSTITUTIONAL CONTROLS - Discuss impacts that would occur if institutional or engineering controls were to unexpectedly fail.

9.0 SHORT-TERM USES AND LONG-TERM PRODUCTIVITY - Discuss the short term and long term advantages of the preferred alternative

10. POTENTIAL CUMULATIVE IMPACTS - Summarize all short term and long term impacts resulting from the preferred alternative

11. IDENTIFICATION OF PREFERRED ALTERNATIVE - Identify the preferred alternative to the proposed action.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

1.0 GENERAL

A. The site uses permits to safeguard working personnel. A permit is required because it formalizes job safety planning both by the supervisor and by safety and/or hygiene personnel. It also serves to advise working personnel of health and safety requirements for the job. Finally, it informs Occupational Safety and Health (OS&H) personnel about the start of a job so they can determine whether job requirements have changed from those anticipated.

B. This procedure outlines the minimum safety requirements for work inside a permit-required confined space (permit space). This program also lists requirements for protecting individuals in a permit space from hazards such as hazardous atmospheres, hazardous materials, moving parts, and blocked escape routes.

C. To qualify as a confined space, a space must meet all of the following requirements: large enough and so configured that a worker may bodily enter and perform work; has limited or restricted means for entry and exit; and not designed for continuous occupancy by personnel.

D. There are many types of confined spaces found at the FEMP site. Confined spaces include but are not limited to storage tanks, process vessels, pits or permanent structures (e.g., silos, vats, degreasers, reaction vessels, furnaces, boilers, ventilation and exhaust ducts, manholes, sewers, tunnels, underground utility vaults and pipelines).

E. A confined space shall be classified as a permit space if it has one or more of the following characteristics: contains or has the potential to contain a hazardous atmosphere, contains a material that has the potential for engulfing an entrant, has an internal configuration such that an entrant could be trapped or asphyxiated, or contains any other recognized serious safety or health hazard.

F. All confined spaces at the FEMP shall be identified as permit spaces and labels affixed to the exterior of the space. This labeling provides instruction that a Confined Space Entry Permit is required to be issued before entry into the permit space may be authorized.

G. A permit space may be re-classified as a non-permit confined space if it does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm. A permit-space may be re-classified as a non-permit space by OS&H through completion of a Confined Space Evaluation.

H. Prior to any entry into a confined space, a Confined Space Evaluation must be performed by OS&H.

I. Based on the Confined Space Evaluation, if no hazards are present inside the space and no hazard will be created by the work to be performed inside the space, the permit space may be re-classified by OS&H a non-permit confined space.

J. OS&H may authorize extended work inside a non-permit space when the potential for hazards do not exist.

K. The goal of the FERMCO permit space program is that prior to any entry into a permit space, every effort should be made to remove any hazard which may be present inside a space as well as any potential hazards so that the space can be re-classified as a non-permit confined space.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

L. Anytime a permit space must be entered and all hazards cannot be removed, a Confined Space Entry Permit shall be issued by OS&H prior to any personnel entering the permit space.

M. The FERMCO Permit-Required Confined Space Program shall be reviewed on an annual basis and revised as necessary. Anytime deficiencies are found in the program which may subject personnel to permit space hazards, those deficiencies shall be corrected immediately and the program revised accordingly.

2.0 RESPONSIBILITIES

2.1 Facility Owner

A. Signs the FERMCO Work Permit authorizing the Supervisor-In-Charge to perform the work task in their facility.

B. Ensures that the work site is provided in a safe a condition.

2.2 Supervisor-In-Charge (Entry Supervisor)

A. Identifies the need and initiates the work permit based on the work to be performed.

B. Ensures completion of the work permit by checking that the appropriate entries have been made on the permit, that all tests have been conducted and that all procedures and equipment specified by the permit are in place before signing the permit and allowing entry to begin.

C. Ensures that personnel are trained and adhere to all permit requirements.

D. Immediately reports any unwanted, unplanned event to the Assistant Emergency Duty Officer (AEDO), Emergency Response Team (ERT) and/or the Facility Owner as appropriate.

E. Ensures that OS&H personnel are notified of any changes in work site conditions since permit issuance.

F. Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and the consequences of exposure to the hazards.

G. Terminates the entry and cancels the permit when the entry operations have been completed or when a condition that is not allowed under the entry permit arises in or near the permit space.

H. Verifies that the means to summon rescue services are available and operable.

I. Ensures the removal of unauthorized individuals who enter or may enter the permit space during entry operations.

J. Ensure that entry operations remain consistent with the terms of the entry permit whenever responsibility for a permit space entry is transferred and at intervals dictated by the hazards and operations performed within the space.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

2.3 Authorized Permit Space Entrant

A. Adheres to all requirements listed on the work permit.

B. Ensures that they have signed section D of the permit stating that they understand all permit requirements.

C. Knows the hazards that may be faced during permit space entry, including information on the mode, signs or symptoms, and consequences of exposure to the hazards.

D. Ensures proper use of equipment required for the permit space entry.

E. Communicates with the standby person as necessary to enable the standby to monitor the status of entrants and to enable the standby to alert entrants of the need to evacuate the space when required.

F. Alerts the standby whenever the entrant recognizes any warning sign or symptom of exposure to a dangerous situation or when the entrant detects a prohibited condition.

G. Exits the permit space as quickly as possible whenever; an order to evacuate is given by the standby or the entry supervisor, the entrant recognizes any warning sign or symptom of exposure to a hazardous condition, the entrant recognizes a prohibited condition, or an evacuation alarm is activated.

2.4 Standby Person

A. Adheres to all requirements listed on the permit.

B. Ensures that they have signed section D of the permit stating that they understand all permit requirements.

C. Notifies personnel in the vicinity, the permit space entrant(s), the entry supervisor, or the Communication Center when the supervisor is not present, when they recognize an emergency or prohibited condition.

D. Knows the hazards that may be faced during permit space entry, including information on the mode, signs or symptoms, and consequences of exposure to the hazard.

E. Ensures awareness of possible behavioral effects of hazard exposure in authorized entrants.

F. Continuously maintains a count of authorized entrants in the permit space and ensures that the names of authorized entrants in the permit space are listed on the entry permit.

G. Remains outside the permit space during entry operations until relieved by another standby person.

H. Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space when necessary.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

I. Monitors activities inside and outside the space to determine if it is safe for entrants to remain in the space and orders the entrants to evacuate the permit space immediately if a prohibited condition is detected, if the behavioral effects of hazard exposure are detected in entrants, if a situation is detected outside the space that could endanger the entrants, or if the standby cannot effectively and safely perform all their assigned duties.

J. Summons rescue and other emergency services as soon as the standby determines that the entrants may need assistance to escape from permit space hazards.

K. Ensures the following actions are taken when unauthorized persons approach or enter a permit space while entry is underway; warn the unauthorized persons that they must stay away from the permit space, advise the unauthorized persons that they must exit immediately if they have entered the permit space, and inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.

L. Performs non-entry rescue of entrants when required.

M. Performs no duties that might interfere with the standby's primary duty to monitor and protect the authorized entrants.

2.5 OS&H Representative

A. Reviews the FERMCO Work Permit (see SPR 2-13) to ensure that it is complete.

B. Inspects the work site for compliance with the conditions listed on the Work Permit.

C. Performs atmospheric testing as required to ensure the proper level of protective equipment is specified on the permit.

D. Evaluates the confined space and completes the Confined Space Evaluation/Permit (Attachment A) to classify the confined space as a permit-required confined space or a non-permit confined space.

E. Completes the Confined Space Entry Permit when required.

3.0 REQUIREMENTS

3.1 Permit Requirements

A. Entry into a confined space occurs when any part of an individual's body breaks the plane of any opening of a confined space.

B. When a "FERMCO Confined Space Evaluation/Permit" is required, a "FERMCO Work Permit" is also necessary (see SPR 2-13).

C. Prior to workers entering a confined space, the supervisor-in-charge must complete and sign a FERMCO Work Permit authorizing entry into the confined space and outlining specific requirements. The Work Permit is valid only for the job, location, and time period specified. The permit must be approved by the supervisor, Facility Owner, and OS&H organization.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

D. After completion of the Work Permit, the confined space shall be evaluated by OS&H to determine whether the space is a permit-required confined space or a non-permit space for the work to be performed. The OS&H representative will complete a Confined Space Evaluation classifying the space as a permit space or a non-permit space.

E. When the confined space is classified as a non-permit space, sections 3.2, 3.3, 3.7, and 3.9 through 3.16 of this procedure apply.

F. When the confined space is classified as a permit space, all sections of this procedure apply.

G. All persons entering the permit space, standby personnel, and backup personnel must review and sign the Confined Space Permit. All personnel signing the permit shall be qualified to enter the permit space.

H. The Confined Space Permit must be posted near the entry point of the permit space.

I. If conditions change significantly from those listed on the permit, the entrants shall exit the space, and the permit is no longer valid. The permit shall be terminated and a new permit is required.

J. If any unplanned or unwanted event occurs while performing work under the guidelines of the permit, it must be reported immediately to the Supervisor-in-Charge.

K. When working in a non-permit space, if the conditions change significantly or an unplanned/unwanted event occurs, OS&H shall be contacted to re-evaluate the space to determine if it should be re-classified as a permit space.

L. The OS&H representative, has the "Stop Work Authority" (terminate the work permit for the job).

M. When Confined Space Permit work has been completed, the space shall be closed and OS&H contacted to terminate the permit.

N. Terminated permits shall be returned to OS&H for review and maintained in OS&H files.

3.2 Initiation of FERMCO Confined Space Evaluation/Permit

A. SUPERVISOR-IN-CHARGE

Contact OS&H for an OS&H representative to perform the initial evaluation.

B. OS&H REPRESENTATIVE

- Check the completeness of the "FERMCO Work Permit" which is posted at the job site.
- Check other permits which must be posted, and verifies that their expiration date has not passed.
- Complete the required atmospheric tests.
- Complete the Work Permit PPE Requirements page specifying the proper personal protective equipment required for the work to be performed and sign in the appropriate block.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

- Complete the applicable portions of Sections "A" and "B" of the Confined Space Evaluation/Permit, and signs in the appropriate block(s).

C. SUPERVISOR-IN-CHARGE

- Ensure that all employees on the job have read and understand the required precautions and required PPE.
- Ensure that all employees on the job have signed the permit in block "D".
- Note permit expiration date(s)/time(s).
- Sign the permit.
- Post the original at the job site, and distributes the copies as indicated on the form.

3.3 Renewal of FERMCO Confined Space Evaluation/Permit

A. SUPERVISOR-IN-CHARGE

Contact an OS&H representative to perform a re-evaluation of the permit space.

B. OS&H REPRESENTATIVE

- Check the completeness of the "FERMCO Work Permit" which is posted at the job site.
- Check other permits which must be posted, and verifies that their expiration date has not passed.
- Complete the required atmospheric tests.
- Check the PPE Requirements page verifying that the specified personal protective equipment (PPE) is proper for the work to be performed. If necessary, PPE requirements should be modified as appropriate. If the PPE requirements change, the OS&H representative will issue a new PPE Requirements page to document the change.
- Complete the applicable portions of Sections "A" and "B" of the Confined Space Evaluation/Permit, and signs in the appropriate blocks.

C. SUPERVISOR-IN-CHARGE

- Ensure that any new employees on the job have read and understand the required precautions and required PPE.

  Note: If the required precautions or PPE have changed, all employees on the job are considered to be new employees.

- Ensure that all new employees on the job have signed the permit in block "D".
- Note permit expiration date(s)/time(s).

PERMIT-REQUIRED CONFINED SPACE PROGRAM

- Sign the permit.
- Post the original and distributes the copies as indicated on the form.

Note: Both an unexpired permit and the signature of each employee on the job must be posted at the job site. This will usually require that more than one "FERMCO Confined Space Evaluation/Permit" must be posted. The supervisor may prefer to have all employees sign the permit each time it is issued.

3.4 Rescue Plan

A rescue plan must be developed and reviewed by the entry supervisor with all personnel entering a permit space and all standby personnel. The rescue plan must include the following:

A. Who and how to call for assistance in case of emergency (phone 6511, radio Control, or pull nearest fire alarm pullbox).

B. How persons are to be removed from the permit space in case of emergency.

3.5 Rescue Procedures

A. If a person inside a permit space is unconscious, it shall be assumed that there is a hazardous atmosphere present in the space. The standby person should not enter the confined space, but should try to remove the person by non-entry rescue using the safety harness and retrieval system.

B. For emergency situations on the FEMP site, the Communication Center shall be notified by radio, telephone (extension 6511), or by pulling the lever of the nearest fire alarm pullbox. The Communication Center shall be told that the Emergency Response Team (ERT) is needed because a person is down and/or injured inside a confined space. The ERT officer shall evaluate the situation and determine the rescue method to be used.

C. When rescuing an unconscious victim, self-contained breathing apparatus (SCBA) shall be worn by every individual conducting the rescue inside the confined space, and shall be available for each backup individual. A safety harness and lifeline shall be worn by any rescue personnel entering the confined space, unless the harness and lifeline would not assist in the rescue procedure.

D. Any rescue situation involving the use of SCBA shall include a backup person outside the confined space at all times to: monitor the rescue efforts; maintain unobstructed lifelines; and communicate with all personnel inside the space.

E. The designated standby person shall not enter the permit space for rescue purposes unless told to do so by the Emergency Response Team officer. The standby person shall not make even an ordered entry into the confined space unless wearing the proper personal protective equipment.

F. Under no circumstance shall the standby person enter the permit space until a backup standby person is at the entrance of the permit space.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

G. When developing a rescue plan for permit space work off the FEMP site, special arrangements need to be made. Offsite emergency response personnel may need to be notified of the permit space work. Mutual aid response arrangements may need to be made to deal with permit space rescue situations.

H. Consult the Fire Protection and Emergency Response organization for additional information on rescue procedures.

3.6 Training

A. All personnel entering a permit space, standby personnel, and backup standby personnel shall be provided training so they acquire the understanding, knowledge, and skills necessary for the safe conduct of permit space work.

B. This training shall include instruction on the nature of permit space hazards; the mode, signs or symptoms, and consequences of exposure to hazardous conditions; the precautions to be taken to avoid incidents; and the use of emergency and personal protective equipment required to work inside a permit space.

C. Training shall be provided before an employee is first assigned duties for a permit space entry.

D. Additional training shall be provided whenever there is a change in permit space operations which presents a hazard which the employees entering the permit space have not previously been trained or whenever a deviation from permit space entry procedures indicate that a worker's knowledge or use of permit space procedures are inadequate.

3.7 Evaluating the Confined Space Hazards

A. Prior to personnel entering a confined space, the space shall be evaluated by OS&H to determine whether any hazards may be present inside the space.

B. The hazards or potential hazards which may be present inside a permit space are: the space may contain or have the potential to contain a hazardous atmosphere, contain a material that has the potential for engulfing an entrant, has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or a floor which slopes downward and tapers to a smaller cross-section, or contains any other recognized serious safety or health hazard.

C. The confined space shall be evaluated with respect to its previous contents to ensure that the necessary ventilation, protective clothing, respiratory equipment, and fire prevention precautions are specified and provided.

3.8 Alternate Permit Space Entry Procedure

A. When a permit space has been evaluated, and the only hazard identified within the space is the potential for the development of a hazardous atmosphere, the following alternate procedures may be used to reduce the requirements for the permit space entry: the atmosphere within the permit space shall be controlled through the use of forced air ventilation from a clean air supply and the atmosphere within the space shall be continuously monitored to ensure the atmosphere within the space remains safe for entry.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

B. When this alternate procedure is used to work in a permit space, a Confined Space Entry Permit shall be issued and all personnel performing the permit space work shall have completed training as required by section 3.6. Other sections of this SPR may apply when required by the supervisor-in-charge and/or the OS&H representative authorizing the permit space entry.

3.9 Testing the Atmosphere

A. The atmosphere in the confined space must be tested by OS&H prior to personnel entering the space, and special care must be taken to ensure that all accessible areas of the confined space are sampled. OS&H must determine the type and frequency of sampling which is required during the entry. Atmospheric testing may also be required in the area outside the space.

B. The atmosphere must meet the following conditions for entry;

- Oxygen - 19.5 percent minimum, 23.5 percent maximum
- Flammable gases - less than 10 percent of the lower explosive limit (LEL)
- Toxic gases - less than one-half OSHA permissible exposure limit or the ACGIH threshold limit value (whichever is more stringent)
- Radioactivity - not to exceed limits established by Radiation Control

C. If the above atmospheric conditions are not attainable, ensure that a special job plan is written. The job plan must be approved by the OS&H organization.

D. Continuous atmospheric testing for oxygen and flammable gases shall be performed while personnel are working inside permit spaces. Continuous and/or periodic atmospheric testing shall be conducted for other contaminants when necessary.

E. If work inside the permit space could generate flammable vapors or produce an oxygen-deficient or hazardous atmosphere, the space shall be provided with continuous forced ventilation and the atmosphere shall be tested continuously with an instrument capable of producing an audible alarm while work is being performed inside the permit space.

F. Smoking is not allowed in a confined space or in areas immediately adjacent to entrances of confined spaces.

G. No internal combustion pumps, generators, or blowers shall be used in any confined space. Observe caution when locating this equipment near the openings of confined spaces due to the possibility of carbon monoxide entering the space.

H. Consult the OS&H organization for additional information on toxic or explosive vapors.

3.10 Lock and Tag

A. Follow the steps outlined in SPR 2-24 for lockout and tagout of process systems before entry into a confined space.

B. Take confined space drive or agitator out of service by uncoupling the drive, removing belts, or disconnecting the motor leads.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

3.11 Low-Voltage Lighting and Electrical Equipment

A. Low-voltage (12 volt) lighting is preferred for use inside a confined space. All other lighting sources must be protected by an approved ground fault circuit interrupter (GFCI). All electrical tools used inside a confined space must be protected by an approved GFCI.

B. Lighting and tools should be on separate circuits. The GFCI, transformer, and disconnects must be located outside the confined space. For more information on using GFCI devices, see SPR 2-23, Ground Fault Circuit Interrupters.

C. Adequate lighting shall be provided for the work to be performed in the confined space and shall meet the illumination requirements of 29 CFR 1910.120.

D. All flashlights and/or lamps shall be approved for use in the atmosphere within the confined space.

E. All electrical equipment shall be in good condition, grounded, protected against physical abuse, and approved for the atmosphere in which it is to be used.

F. All potential for ignition in confined spaces shall be removed.

3.12 Grounding Cable

If the confined space is equipped with a grounding cable, it must be Megger tested to confirm the existence of a firm mechanical joint.

3.13 Process Isolation

All pipe lines to the confined space must be physically disconnected or blanked before entry in accordance with SPR 2-24.

3.14 Cleaning Procedures

A. No confined space shall be entered which contains an IDLH atmosphere.

B. All noxious, toxic and/or flammable material, gases and vapors shall be eliminated as much as possible from tanks and other confined spaces by such methods as washing, inerting, neutralizing, purging or ventilating.

C. Continuous forced ventilation from a clean air source shall be provided in such a manner to maintain the confined space safe for entry.

3.15 Barriers/Barricades

A. When personnel working inside a confined space may be exposed to hazards from vehicle or pedestrian traffic, barricades shall be established around the opening of the space.

B. Where appropriate, barricades shall be established around the entry of a confined space to prevent unauthorized entry into the space.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

C. All barricades and barricade tags shall be used in accordance with SPR 2-15.

3.16 Ladders

When ladders are required for entry into confined spaces, they shall be secured and shall not be removed while persons are inside the confined space except in response to an emergency.

3.17 Safety Harness

All persons entering a permit space must wear a safety harness and lifeline. Where the entrance is too restricted to allow removal of a person equipped with safety harness, use a shoulder-type safety harness or a wrist harness.

3.18 Lifelines and Retrieval Systems

A. All persons entering a permit space must wear a safety harness and lifeline. Due to the configuration of a permit space or the large number of people involved, it may not be practical to keep lifelines attached. In such cases, the safety harness must be worn, and the lifeline must be kept ready at the permit space entry point in case of emergency.

B. To allow for non-entry rescue, retrieval systems or methods shall be used whenever personnel enter a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant.

C. A mechanical device shall be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.

3.19 Personal Safety and Escape Equipment

Personnel who work inside a permit space, including all standby personnel, must be aware of personal safety, escape procedures, and equipment.

3.20 Respirators

A. Respiratory protection shall be determined based on atmospheric testing performed as part of the confined space evaluation. The need for 5-minute escape air packs should be considered for personnel entering the permit space. A SCBA or air-supplied respirator equipped with escape provisions must be available in case rescue assistance is needed.

B. Only those persons trained to use SCBAs shall use them for permit space entry or rescue.

3.21 Standby Person

A. A minimum of one standby person must be at the entry point to the permit space. The standby person's primary responsibility is to be attentive to the personnel inside the permit space. The standby person shall make every effort to constantly observe workers who are in the permit space. There shall be constant communication between persons working in the permit space and the standby person. Two-way radios may be required for communication during some entry operations.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

B. A standby person shall not be assigned to observe work being conducted in more than one permit space at a time. If work must be performed simultaneously in multiple permit spaces, one standby person must be assigned to cover each separate entry.

C. The standby person shall know the location of the nearest telephone, fire alarm pullbox, safety shower, fire extinguisher, and evacuation exit; the practices or procedures to shut down all equipment on the job; be observant to determine any malfunction of the respiratory equipment in use by personnel inside the permit space; and the way to contact the ERT in an emergency.

D. The standby person should be observant of activities outside the permit space. Unauthorized personnel should not be allowed around the permit space during authorized entry. Unplanned activities outside the permit space may require evacuation of the permit space. The permit space shall immediately be evacuated if any building alarm (e.g., evacuation, fire) is activated.

3.22 Backup Standby Person

In case of an emergency during a permit space entry and the ERT would not be immediately available, one or more backup standby person(s) must be available to assist the standby person to perform a non-entry rescue of entrants inside the permit space.

3.23 Protective Clothing and Equipment

If entry is required to clean the permit space, the appropriate protective clothing and equipment shall be provided to the workers performing the entry.

3.24 Breathable Atmosphere

A. A breathable atmosphere should be maintained inside a permit space through use of either natural draft or forced fresh air ventilation. Compressed air must not be blown into a permit space.

B. Air-supplied respiratory equipment with escape provisions is required when entering a permit space where there is the potential for an oxygen deficiency (less than 19.5 percent).

3.25 Welding and Burning

A. Personnel involved in welding or burning inside a confined space must consider personal safety, equipment requirements, and potentially hazardous conditions. An Open Flame/Welding Permit is required for all welding and burning operations (see SPR 2-57).

B. Welding or burning operations inside a confined space will result in the space being classified as a permit space.

C. When burning inside a confined space, locate all cylinders outside the space. Check hose connections for leakage prior to entry. When welding inside a confined space, locate welding machines outside the space. Remove all hoses from the confined space at the end of the work shift unless multishift work is in progress.

D. Where welding/cutting operations are indefinitely suspended, all gas and/or electrical supply to equipment used in the confined space shall be shut off, and all torches, leads and hoses shall be removed from the area.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

E. No welding equipment except hoses, stingers, torches and lead cable shall be taken into the confined space.

F. All welding and burning equipment taken into a confined space shall have shutoffs the standby person can control to quickly secure the gas and/or electric supply.

3.26 Shell Material

Consider the possibility of flammable, explosive, or toxic materials being absorbed into the shell material of the confined space prior to burning or welding.

3.27 Stripping Toxic Coatings

Strip all surfaces covered with toxic coatings at least 6 inches from the area of heat application. If toxic coatings are not stripped, protect employees with positive pressure air-supplied respirators, ventilation, and, if applicable, protective clothing.

3.28 Fume Releases

The Confined Space Permit is automatically cancelled in the event of any plant emergency alarm or area fire alarm (except a test alarm). Personnel inside the permit space must exit the space and follow emergency procedures. When the "all clear" has sounded, the Confined Space Permit can be reinstated after atmospheric tests are retaken and the results are noted on the permit.

3.29 Non-FERMCO Personnel Working in Permit Spaces

A. Non-FERMCO personnel who may enter a permit space controlled by FERMCO shall be required to follow all the requirements of this SPR.

B. FERMCO shall inform non-FERMCO personnel that permit spaces are located in their work area and that permit space entry is only allowed through compliance with this SPR.

C. FERMCO shall inform non-FERMCO personnel of any hazards identified in a permit space that they may be required to enter.

D. FERMCO shall inform non-FERMCO personnel of any precautions or procedures which FERMCO has implemented for the protection of workers in or near the permit space.

E. FERMCO shall coordinate entry operations when both FERMCO and non-FERMCO personnel will be working in or near permit spaces so that workers of each company do not endanger each other during permit space entry activities.

F. FERMCO will debrief non-FERMCO personnel at the conclusion of entry operations regarding any hazards confronted or created in permit spaces during entry operations.

4.0 ATTACHMENTS

Attachment A: FERMCO Confined Space Evaluation/Permit and Chemical Hazardous Materials Work Permit

PERMIT-REQUIRED CONFINED SPACE PROGRAM

ATTACHMENT A
Page 1 of 1

FERMCO Confined Space Evaluation/Permit and Chemical Hazardous Materials Work Permit

FERMCO
CONFINED SPACE EVALUATION/PERMIT AND CHEMICAL HAZARDOUS MATERIALS WORK PERMIT

WORK PERMIT NUMBER:

SECTION A - BACKGROUND INFORMATION (This permit is only valid when attached to a FERMCO WORK PERMIT)

TODAY'S DATE:	TIME:	ESTIMATED COMPLETION DATE:	
BUILDING/PLANT:	LEVEL:	COORDINATES:	PLANT JOB NUMBER:

SECTION B - CONFINED SPACE EVALUATION

HAZARDS OF SPACE
- ☐ HAZARDOUS ATMOSPHERE
- ☐ MECHANICAL/MOVING PARTS
- ☐ SPACE CONFIGURATION/ENTRAPMENT
- ☐ ELECTRICAL
- ☐ ENGULFMENT
- ☐ OTHER: _____

ATMOSPHERIC TEST RESULTS

GAS	ACCEPTABLE ENTRY CONDITIONS	INITIAL CONCENTRATION	PEAK CONCENTRATION	TIME
Oxygen %	19.5 to 23.5			
L.E.L. %	<10%			
CO (ppm)	<25			
H_2S (ppm)	<10			
ALT	<5			

INSTRUMENT ID NUMBER | FIELD CALIBRATION DATE

SPACE HAS BEEN EVALUATED AND ☐ IS ☐ IS NOT A PERMIT-REQUIRED CONFINED SPACE FOR THIS WORK.

IH SIGNATURE: | BADGE NO.:

Contact Industrial Hygiene if there is any change in work activity.

CONFINED SPACE ENTRY PERMIT

Entry/Exit Points Evaluated ☐ Yes

Monitoring Required ☐ Continuous ☐ Periodic

Standby to Worker Communication ☐ Voice ☐ Sight ☐ Radio ☐ Other: _____

Standby to ERT Communication ☐ Radio ☐ Phone ☐ Fire Alarm

PRECAUTIONS	REQ'D.	DNA
Mechanical Ventilation	☐	☐
Additional Lighting	☐	☐
Explosion-Proof Lights	☐	☐
Safety Line & Harness	☐	☐
Rescuer Equipment	☐	☐

SPECIAL INSTRUCTIONS:

IH SIGNATURE: | BADGE NUMBER:

PERMIT ISSUE DATE: | TIME:

PERMIT EXPIRATION DATE: | TIME:

Permit void if conditions change from original issuance conditions!
Call IH to pick up equipment and close permit when finished

PERMIT TERMINATION (Work Completed/Job Conditions Have Changed)

IH SIGNATURE: | DATE:

DISTRIBUTION OF COPIES

1 (Post at Job	3 (Industrial Hygiene/Industrial Safety
2 (Supervisor in Charge	4 (Employee Representative

SECTION C - CHEMICAL/HAZARDOUS MATERIAL PERMIT

NAME OF MATERIAL:	HAZARDOUS COMPONENT:
NAME OF MATERIAL:	HAZARDOUS COMPONENT:
NAME OF MATERIAL:	HAZARDOUS COMPONENT:

1. TYPE OF HAZARD ☐ Chemical ☐ Biological ☐ Physical
2. PHYSICAL STATE ☐ Solid/Dust ☐ Liquid/Mist ☐ Gas/Vapor
3. TYPE OF OPERATION ☐ Sampling ☐ Clean Up ☐ Repair ☐ Inspection ☐ Other _____
4. MSDS REVIEWED ☐ Yes ☐ DNA ☐ Not Available (Hazards Reviewed)
5. POTENTIAL HAZARDS ☐ Skin ☐ Inhalation/Ingestion ☐ Eye ☐ Oxygen Deficiency ☐ Explosive (Contact FS if >2%)
6. MONITORING REQUIRED ☐ BZ ☐ GA ☐ Permeator ☐ Clearance ☐ None ☐ Other _____
7. WORKER-TO-RESCUE COMMUNICATION ☐ Radio ☐ Phone (6511) ☐ Pull Box
8. HYGIENE REQUIREMENTS ☐ Wash Hands at Breaks ☐ Shower at Lunch/End of Shift ☐ Other _____

SPECIAL INSTRUCTIONS:

IH SIGNATURE: | BADGE NUMBER:

PERMIT ISSUE DATE: | TIME: | PERMIT EXPIRATION DATE: | TIME:

Permit Void If Conditions Change Significantly During The Job

SECTION D - SIGNATURES (Employees assigned to job)

I have read and understand all requirements of this permit.

EMPLOYEE(S) SIGNATURE(S)	BADGE NO.	DATE
1.		
2.		
3.		
4.		
5.		
6.		

WORK AUTHORIZATION REVIEWED AND FOUND ACCEPTABLE FOR USE

SUPERVISOR IN CHARGE: | DATE: | TIME:

IN CASE OF EMERGENCY CALL "CONTROL" BY RADIO PHONE 6511, OR USE NEAREST FIRE ALARM BOX.

5092

UNCONTROLLED

Fernald Environmental FERMCO Restoration Management Corporation	ENVIRONMENTAL SAFETY AND HEALTH DIVISION RADIOLOGICAL CONTROL	PROC NO: RC-DPT-008 EFFECTIVE DATE: 10/28/93 REV NO: 0
TITLE: Radiological Work Permits		PAGE 1 OF 20 AUTHOR: R.D. Daniels
APPROVAL: M.C. Tester, Manager, Radiological Control		DATE: 10-25-93

Supersedes SP-P-35-016, Rev. 3

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SUMMARY LOG

Revision Number	Description of Revision	Pages Affected
0	Initial Implementation	All

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1.0 PURPOSE

To establish methods for completing, issuing, and controlling Radiological Work Permits (RWP) at the Fernald Environmental Management Project (FEMP) according to Fernald Environmental Restoration Management Corporation (FERMCO) and U.S. Department of Energy (DOE) guidelines.

2.0 SCOPE

2.1 This procedure applies to the following Radiological Control personnel:

A. Manager, Radiological Engineering (or designee)
B. Manager, Radiological Compliance (or designee)
C. Manager, Dosimetry
D. Radiological Engineer
E. Radiological Control Technician Supervisor (RCTS)
F. Radiological Control Technician (RCT)

2.2 This procedure addresses the initiation and use of the RWP as it pertains to the FERMCO site work permit system.

3.0 REFERENCES

3.1 Source Documents

3.1.1 DOE Order 5400.5, Radiation Protection of the Public and Environment

3.1.2 DOE Order 5480.20, Training for Reactor and Non-Reactor Facilities

3.1.3 Comprehensive Environmental Occupational Safety and Health Program Manual (ES&H Manual)

3.2 Interface Documents

3.2.1 DOE Radiological Control Manual (DOE/EH-0256T)

3.2.2 DOE Order 5480.11, Radiation Protection for Occupational Workers

3.2.3 SP-P-35-023, Radiological Contamination Surveys

3.2.4 SP-P-35-025, Radiological Posting

3.2.5 SP-P-35-026, Occupational Air Sampling

3.2.6 SP-P-35-067, ALARA Review and Evaluation

3.2.7 SP-P-33-003, The Use of Direct Reading Dosimeters

3.2.8 SP-P-41-056, Respirator Selection

3.2.9 SP-P-35-048, Routine Radiation Surveys

4.0 DEFINITIONS

4.1 **Active (work) Area** - An area where routine work, or other activity, is likely to result in changing radiological conditions. Walk through inspections (e.g., supervisory tours, safety inspections, safety shower inspections) do not require an area to be classified as active.

4.2 **ALARA Review** - A formal protocol for work activity evaluation. The evaluation focuses on maintaining radiation exposure As Low As Reasonably Achievable and is completed according to SP-P-35-067, ALARA Review and Evaluation.

4.3 **Beta dose (external)** - Applies to the external exposure of the skin or an extremity from beta radiation.

4.4 **Continuous Coverage** - Radiological safety coverage provided at the work site, by one or more Radiological Control Technicians (RCT), whenever work is in progress.

4.5 **Deep dose (gamma)** - The dose equivalent from external gamma radiation determined at a tissue depth of 1 cm.

4.6 **Derived Air Concentration (DAC)** - The concentration of a radionuclide in air that, if breathed over the period of a work year, would result in the Annual Limit of Intake (ALI) for that radionuclide being reached. The DAC is obtained by dividing the ALI by the volume of air breathed by an average worker during a working year (2400 m^3).

4.7 **Extremity dose** - The external exposure (deep dose and beta dose) to the extremity. Extremity dose is measured at a distance of one-half inch (½") from the source of radiation. Extremities include the hands and feet, arms below the elbow, and legs below the knee.

4.8 **High-Efficiency Particulate Air (HEPA) filter** - Throwaway extended pleated medium dry-type filter with 1) a rigid casing enclosing the full depth of the pleats, 2) a minimum particle removal efficiency of 99.97 percent for thermally generated monodisperse DOP smoke particles with a diameter of 0.3 micrometer, and 3) a maximum pressure drop of 1.0 inch w.g. when clean and operated at its rated airflow capacity.

4.9 **Radiological Control Hold Point** - Cautionary step in a technical work document requiring Radiological Control to perform an action or verification. Radiological Hold Points shall be completed prior to continuing work.

4.10 **Radiological Work Permit (RWP)** - The RWP is an administrative mechanism used to establish radiological controls for work activities in order to limit exposure to workers, prevent the spread of contamination, and provide for augmented monitoring and surveillance. The RWP informs workers of radiological conditions, entry requirements, and provides a mechanism to relate worker exposure to work activities.

4.11 **REM (rem)** - Unit of dose equivalent. Dose equivalent in rem is numerically equal to the absorbed dose in rad multiplied by a quality factor, distribution factor, and any other necessary modifying factor. 0.01 sievert (Sv) = 1 rem = 1000 milli-rem (mrem).

4.12 **Requesting Supervisor** - The supervisor initiating an RWP.

4.13 **Roentgen (R)** - Unit of exposure. One roentgen unit is defined as that quantity of X- or gamma radiation that produces in air, ions carrying 1 statcoulomb of charge per cc air at STP. 2.58×10^{-4} X units = 1 roentgen (R) = 1000 milliroentgen (mR).

4.14 **Skin dose** - Beta dose and deep dose combined. Skin dose is measured at a distance of 30 cm (approximately 1 foot) from the source of radiation.

4.16 **Stay-time** - A predetermined time limit for area occupancy that is established to minimize exposure.

4.17 **Technical Work Document (TWD)** - A term used to generically identify formally approved documents that direct work, such as procedures, work packages, job or research plans.

4.18 **Whole body dose** - For the purpose of this procedure whole body dose refers to deep dose only. Whole Body Dose is measured at a distance of 30 cm from the source (approximately 1 foot) of radiation.

5.0 RESPONSIBILITIES

5.1 Manager, Radiological Engineering (or designee)

5.1.1 Evaluates and approves of alternatives (i.e. TWDs) to the issuance of an RWP.

5.1.2 Evaluates and approves the RWP **WHEN** the isotope of concern is other than uranium or the conditions for continuous coverage are met.

5.1.3 Calculates stay-time.

5.1.4 Develops and implements unique work and radiological safety requirements for RWPs that meet the conditions of continuous coverage.

5.2 Manager, Radiological Compliance (or designee)

5.2.1 Performs ALARA Reviews.

5.2.2 Evaluates and approves the RWP when ALARA Review is required.

5.3 Radiological Control Technician Supervisor (RCTS)

5.3.1 Receives requests for RWPs.

5.3.2 Initiates RWP process.

5.3.3 Reviews TWD and other related documentation for content.

5.3.4 Assigns RCT to complete RWP.

5.3.5 Approves RWP by signature or verbal assent.

5.3.6 Maintains active RWP files.

5.4 Radiological Control Technician (RCT)

5.4.1 Performs and documents radiological surveys.

5.4.2 Completes the Radiological Work Permit Form.

5.4.3 **IF** requested by work supervision, **THEN** assists in the performance of pre-job briefings.

5.4.4 Issues the RWP.

5.4.5 Distributes the RWP.

5.5 Radiological Engineer

5.5.1 Reviews and approves RWP.

5.6 Manager, Dosimetry

5.6.1 Maintains records of RWPs.

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6.0 PROCEDURE

6.1 General Requirements

Radiological Control Technicians (RCT)

6.1.1 Use Radiation Work Permits to control access to the following areas:

A. Very High Radiation Areas
B. High Radiation Areas
C. High Contamination Areas
D. Airborne Radioactivity Areas

6.1.2 Use RWPs to control the following activities unless other alternative controls are in place:

A. Entry into Radiation Areas
B. Entry into Contamination Areas
C. Work in Controlled Areas or Fixed Contamination Areas
D. Entry into Uncharacterized Radiological Areas
E. Handling material which exceeds Controlled Area restrictions, such as decontamination of contaminated surfaces and radioactive material which may become loose or airborne

Manager, Radiological Engineering

6.1.3 An alternative formal mechanism, such as a written protocol or procedure, experiment authorization, or a Technical Work Document (TWD), may be used in lieu of the RWP as the administrative control over radiological work activities IF sufficient detail is provided for radiological controls. Alternatives to the RWP require the review and approval of the Manager, Radiological Engineering.

RCT

6.1.4 Use RWPs to control:

A. Unusual operations or work in areas with changing radiological conditions. Job-specific RWPs remain in effect for the duration of the job, not to exceed one year.

B. Routine or repetitive activities (e.g., tours, inspections, minor work activities) where radiological conditions are well characterized and stable. Standing RWPs remain in effect no longer than one year.

6.1.5 The RWP remains in force for the duration of the job, as long as conditions are not adversely changed, i.e., all materials, equipment, shielding and structures that were present when the pre-job survey was performed were not adjusted or moved during the performance of work in such a way as to adversely change the conditions of the original permit.

A. **IF** area conditions or job scope have changed, **THEN** issue a new RWP reflecting the current conditions.

B. At least once per day, conduct follow up inspections of active work areas which are under an RWP to ensure the requirements of the RWP are being complied with and conditions of the area have not changed as to effect the RWP requirements.

6.1.6 Maintain RWP requirements consistent with the requirements established by other safety groups such as Fire & Safety (F&S) or Industrial Hygiene (IH).

6.1.7 Conduct surveys to support RWP requirements in accordance with SP-P-35-023, Radiological Contamination Surveys; SP-P-35-025, Radiological Posting; and SP-P-35-026, Occupational Air Sampling, and SP-P-35-048, Routine Radiation Surveys.

6.1.8 Post current survey results, survey maps and the RWP near access points of the work areas to inform personnel of current radiological conditions.

6.1.9 In the event that personnel are not readily available for required approval signatures, the approval can be granted by telephone and so designated on the RWP by the RCT. **IF** approval signatures are obtained by telephone communications, **THEN** do the following:

A. Print the full name of the person(s) providing the approval in the respective signature block followed by "per telecom".

B. Initial, date and time the entry in the respective block.

6.2 RWP Initiation

Radiological Control Technician Supervisor (RCTS)

6.2.1 Upon request for an RWP from the Requesting Supervisor, initiate the RWP process.

6.2.2 **IF** TWD is provided by the Requesting Supervisor **THEN** review TWD for content and acceptance prior to issuing the RWP.

6.2.3 Assign **AND** give the RWP to RCT.

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6.3 RWP Completion

RCT

6.3.1 Review available documentation pertaining to the job.

6.3.2 Complete the following blocks of FEMP Radiological Work Permit (Attachments A and B):

A. Block 2: Date
B. Block 3: Time

6.3.3 Complete the following blocks of Attachment A by transferring information from the FERMCO Work Permit (Attachment C) to Attachment A:

A. Block 1: Work Permit Number
B. Block 4: Estimated Completion Date of work
C. Block 5: Building/Plant where work is to be performed
D. Block 6: Level of floor or elevation where work will take place
E. Block 7: Coordinates, if supplied
F. Block 8: Plant Job Number, if supplied
G. Block 9: Supervisor in Charge of work
H. Block 10: Telephone Extension/Radio Number of work supervisor
I. Block 11: Estimated Job Man-Hours

6.3.4 Conduct surveys of the RWP location according to SP-P-35-023, SP-P-35-025, SP-P-35-026, and SP-P-35-048.

6.3.5 Attach survey data to the RWP.

6.3.6 **IF** any of the following are true, **THEN** contact Manager, Radiological Engineering or designee for evaluation of job stay-times:

A. Radiation surveys indicate a potential skin **OR** extremity dose rate greater than 50 millirem (mrem)/hr.
B. Radiation surveys indicate a potential whole body dose rate greater than 2 mrem/hr.
C. Airborne radioactivity concentrations exceed or are likely to exceed 100% Derived Air Concentration (DAC) **OR** potential internal exposure is likely to exceed 4 DAC-Hrs/wk.

Manager, Radiological Engineering, or designee

6.3.7 Use the radiation survey data **AND** the detailed description for the work to be performed to calculate the job stay-time in keeping with As Low As Reasonable Achievable (ALARA) practices as follows:

> NOTE
>
> As an alternative to assigning stay-time, in cases where gamma radiation is limiting (> 2 mr/hr.) **OR** where the gamma dose rate is variable, a Self Reading Dosimeter may be issued.

A. Determine a stay-time (in hours per week), for whole body dose.

B. Determine a stay-time (in hours per week), for skin dose.

C. **IF** extremity dose rate potential exceeds 50 mrem/hr, **THEN** assign extremity dosimetry by checking (✓) the extremity dosimetry block (Block 19) of Attachment A.

6.3.8 **IF** airborne radioactivity concentrations are the limiting concern, **THEN** determine a stay-time in hours per week as follows:

A. Minimize internal exposure to ALARA, generally less than 4 DAC-Hrs/wk.

B. **IF** respiratory protection is required according to SP-P-41-056, Respirator Selection, **THEN** apply proper respiratory protection factors as stated in SP-P-41-056.

6.3.9 Enter the most limiting stay time in Block 12 of Attachment A.

6.3.10 Check the dose concern (e.g., Skin, Extremity, Whole Body or Airborne) corresponding to the stay time basis in Block 13 of Attachment A.

6.3.11 **IF** the stay-time is based on airborne radioactivity, **THEN** enter the airborne concentration value (%DAC) used to determine the stay-time in Block 13 of Attachment A.

6.3.12 **IF** the stay-time is based on radiation dose rates, **THEN** enter the dose rate value in Block 13 of Attachment A.

6.3.13 Enter the identification number for the survey or air sample data sheet used as basis for the stay time in Block 13 of Attachment A.

RCT

6.3.14 **IF** none of the conditions listed in Step 6.3.6 are true, **THEN** enter **N/A** in Block 12 of Attachment A.

6.4 Establishing RWP Requirements

RCT

6.4.1 Coverage Requirements

A. **IF** any of the following are true, **THEN** check Continuous Coverage in Block 14 of Attachment A:

1. Personnel will enter or work in areas with > 100 mR/hr penetrating radiation, or > 1000 mrem/hr skin dose

2. Personnel will work in areas where airborne concentrations can exceed 10 times the DAC stated in Attachment 1 of DOE Order 5480.11

3. Personnel will work in areas with loose surface contamination > 100 times the values specified in Table 2-2 DOE Radiological Control Manual (DOE/EH-0256T)

4. There is a high potential for an environmental release

5. Scope of work could cause changes in the work environment such that any of the above conditions are met.

B. **IF** continuous coverage is **NOT** required, **THEN** select the appropriate radiological coverage commensurate with the needs of the task **AND** annotate Block 14 of Attachment A.

6.4.2 Air Monitoring Requirements

IF a potential for airborne radioactivity greater than 10% DAC exists, **THEN** select the proper airborne monitoring methods according to SP-P-35-026 **AND** check appropriate box in Block 15 of Attachment A.

6.4.3 Contamination Control

A. **IF** a HEPA ventilation system is to be used, **THEN** check the corresponding box in Block 16 of Attachment A **AND** enter the MMIC number of the unit.

B. **IF** a HEPA vacuum system is to be used, **THEN** check the corresponding box in Block 16 of Attachment A **AND** enter the MMIC number of the unit.

C. **IF** work area isolation (e.g., boundary rope) is required, **THEN** check the corresponding box in Block 16 of Attachment A.

D. **IF** a containment device is required, **THEN** check the corresponding box in Block 16 of Attachment A **AND** provide a brief description of the containment device in Block 20 of Attachment A.

6.4.4 ALARA Review

A. Complete a Preliminary ALARA Assessment form (FS-F-3749) in accordance with SP-P-35-067, ALARA Review and Evaluation.

B. **IF** the conditions for an ALARA Review are true, **THEN** check Yes in Block 17 of Attachment A **AND** forward the RWP to the Manager, Radiological Compliance or designee.

Manager, Radiological Compliance or Designee

C. Initiate ALARA Review process in accordance with SP-P-35-067, ALARA Review and Evaluation.

D. Attach a copy of the completed ALARA Review package to the RWP **AND** return the RWP to responsible RCTS.

RCT

E. **IF** an ALARA review is **NOT** required, **THEN** check No in Block 17 of Attachment A.

6.4.5 Pre-Job Brief

A. **IF** any of the following are true, **THEN** check Yes in Block 18 of Attachment A:

1. The isotope of concern is other than uranium.
2. Continuous coverage is required.
3. An ALARA Review is initiated.

B. **IF** none of the conditions listed in Step 6.4.5.A are true, **THEN** check No in Block 18 of Attachment A.

6.4.6 Dosimetry Requirements

A. **IF** direct reading dosimetry is required as per SP-P-33-003, The Use of Direct Reading Dosimeters, **THEN** check Direct Reading Dosimeter in Block 19 of Attachment A.

B. **IF** Job-specific TLDs are required as directed by the ALARA Review process, **THEN** check Job Specific TLD in Block 19 of Attachment A.

C. **IF** Extremity dosimetry is required as outlined in Step 6.3, **THEN** check Extremity Dosimetry in Block 19 of Attachment A.

6.4.7 Radiological Training

Indicate any radiological training required for the work performance in Block 20.

6.4.8 Comments Section

List any comments, special radiological precautions or further explanations regarding the assigned radiological requirements in Block 21.

6.4.9 Work Permit PPE Requirements

A. Assign personal protective equipment (PPE) according to FEMP guidelines for anti-contamination clothing, applicable radiological data, area observations and working conditions as follows:

1. Coordinate, as necessary, with cognizant Radiological Engineer for selection of proper PPE.

2. Check the appropriate boxes on the FERMCO Work Permit PPE Requirements sheet (Attachment D) corresponding to the selected PPE.

3. List special radiological safety requirements, as deemed necessary, on Attachment D.

4. Designate as a Radiological Control requirement by placing an RC directly to the right of the requirement **AND** underneath the appropriate Responsible Department column.

5. Sign and date the bottom of Attachment D.

6. **IF** PPE is required for non-radiological hazards, **THEN** review the work scope with Industrial Hygiene **AND** obtain concurrence signature.

7. Attach a copy of Attachment D to the RWP.

B. **WHEN** work permit PPE requirements are determined, **THEN** check Yes in Block 22 of Attachment A.

6.5 RWP Approval

RCT

6.5.1 Forward the RWP for approval to the RCTS.

RCTS

6.5.2 Review the RWP for acceptance **AND** complete Block 23 of Attachment A for approval.

6.5.3 Forward the RWP for approval to the Radiological Engineer.

Radiological Engineer

6.5.4 **IF** the conditions for continuous coverage are met, **OR** the isotope of concern is other than uranium, **THEN** review the RWP for acceptance **AND** sign and date Block 24 of Attachment A for approval.

6.5.5 Forward the RWP for approval to the Manager, Radiological Compliance (or designee).

Manager, Radiological Compliance or designee

6.5.6 **IF** the conditions for an ALARA Review are met, **THEN** review the RWP for acceptance **AND** sign and date Block 25 of Attachment A for approval.

6.5.7 Forward RWP to RCT.

RCT

6.5.8 **IF** the cognizant work supervisor concurs with the requirements of the RWP, **THEN** obtain his signature and date in Block 26 of Attachment A.

6.6 Pre-Job Brief

RCT

6.6.1 **IF** a pre-job radiological briefing is required by Step 6.4.5 **AND WHEN** requested by the work supervisor, **THEN** assist the work supervisor in conducting the pre-job briefing. Include the following items, at a minimum:

A. Scope of work to be performed
B. Radiological conditions of the workplace
C. Procedural and RWP Requirements
D. Special Radiological Control Requirements
E. Radiologically limiting conditions (Radiation and/or contamination levels that may void the RWP)

F. Radiological Control Hold Points
G. Communication and coordination with other groups
H. Provisions for housekeeping and final clean up
I. Emergency response provisions

6.6.2 Enter the FERMCO Work Permit number in Block 1 of Attachment B.

6.7 Issuance of the RWP

6.7.1 **WHEN** RWP is complete, **THEN** complete Block 27 of Attachment A as follows:

A. Sign and print RCT name.

B. Record RCT office location.

C. Record RCT office phone number.

D. Record date issued.

E. Record time issued.

6.8 Distribution

6.8.1 Post original RWP at the work site for worker review and signature.

6.8.2 Route first copy of the RWP to RCTS for one year retention.

6.8.3 Route second copy of the RWP to the Manager, Dosimetry for final record retention.

6.8.4 As a minimum, review the posted RWP **AND** job site weekly to verify that workers have read and understood the requirements of the RWP **AND** have completed Part II of Attachment B.

6.8.5 Remove expired RWPs from the job site and file with job records.

7.0 RECORDS

7.1 FS-F-1372, FEMP Radiological Work Permit, Part I and Part II

7.2 FS-F-1372-1, FEMP Radiological Work Permit, Part III

8.0 ATTACHMENTS

8.1 Attachment A, FS-F-1372, FEMP Radiological Work Permit, Part I and Part II

8.2 Attachment B, FS-F-1372-1, FEMP Radiological Work Permit, Part III

8.3 Attachment C, FS-F-2939, FERMCO Work Permit

8.4 Attachment D, FS-F-2939-1, FERMCO Work Permit PPE Requirements Sheet

ATTACHMENT A

FS-F-1372, FERMCO RADIOLOGICAL WORK PERMIT PART I AND PART II

FEMP
RADIOLOGICAL WORK PERMIT
This permit is only valid when attached to a FERMCO WORK PERMIT.

(1) WORK PERMIT NUMBER:	PAGE: 1 OF

PART I - RADIOLOGICAL CONTROL REQUIREMENTS

(2) TODAY'S DATE:	(3) TIME:	(4) ESTIMATED COMPLETION DATE:	
(5) BUILDING/PLANT:	(6) LEVEL:	(7) COORDINATES:	(8) PLANT JOB NUMBER:
(9) SUPERVISOR IN CHARGE:		(10) PHONE EXT./RADIO:	(11) ESTIMATED JOB MAN-HOURS:

(12) STAY TIME:	(13) STAY TIME BASIS (Determined by Radiological Engineering):		
	SKIN	LIMITING DOSE RATE	mrem/hr
	WHOLE BODY	IF AIRBORNE	%DAC
	EXTREMITY	SURVEY I.D. NUMBER	
HOURS/WEEK	AIRBORNE		

NOTICE *Post most recent survey data at the work site.* *NOTICE*

(14) COVERAGE REQUIREMENTS	(15) AIR MONITORING REQUIREMENTS	(16) CONTAMINATION CONTROL
INTERMITTENT COVERAGE	CONTINUOUS AIR MONITOR (Type:)	HEPA VENTILATION: #
CONTINUOUS COVERAGE	BREATHING ZONE AIR SAMPLER (PAS)	HEPA VACUUM: #
NOTIFY RC EACH SHIFT WHEN RWP IS USED	GENERAL AREA AIR SAMPLING	AREA ISOLATION
OTHER:	OTHER:	CONTAINMENT DEVICE
OTHER:	OTHER:	OTHER:

(17) COMPLETE AN ALARA ASSESSMENT AS PER SP-P-35-087, ALARA REVIEW AND EVALUATION.
Is an ALARA Review Required? ☐ YES ☐ NO (If YES, THEN attach form)

(18) PRE-JOB BRIEF REQUIRED? ☐ YES ☐ NO

(19) DOSIMETRY		(20) REQUIRED TRAINING	
Special Bioassay *(See Comments)*	Job Specific TLD	Rad Worker I	Respirator Training
Direct Reading Dosimeter	Extremity Dosimetry	Rad Worker II	Other: *(Specify Below)*

(21) COMMENTS:

(22) WORK PERMIT PPE REQUIREMENTS ATTACHED:
☐ YES ☐ NO

APPROVALS *Signee verifies FERMCO Work Permit, PPE Requirements, Health & Safety Plan, or other additional documentation have been reviewed and approves of the requirements of the RWP.*

(23) RCT SUPERVISOR:	DATE:	(24) RADIOLOGICAL ENGINEERING:	DATE:
(25) RADIOLOGICAL COMPLIANCE:	DATE:	(26) REQUESTOR (CONCURRENCE):	DATE:

(27) RCT SIGNATURE:	RCT OFFICE LOCATION:	DATE ISSUED:	TIME ISSUED:
RCT PRINTED NAME:	RCT PHONE:		

PART II - BRIEFING GUIDANCE SHEET *(APPLICABLE ONLY IF BRIEFING IS REQUIRED)*

SCOPE OF WORK TO BE PERFORMED	RADIOLOGICAL CONTROL HOLD POINTS
RADIOLOGICAL CONDITIONS OF THE WORKPLACE	COMMUNICATION AND COORDINATION WITH OTHER GROUPS
PROCEDURAL AND RWP REQUIREMENTS	PROVISIONS FOR HOUSEKEEPING AND FINAL CLEANUP
SPECIAL AND RADIOLOGICAL CONTROL REQUIREMENTS	EMERGENCY RESPONSE PROVISIONS
RADIOLOGICALLY LIMITING CONDITIONS (Radiation and/or contamination levels that may void the RWP)	PROVISIONS FOR HOUSEKEEPING AND FINAL CLEANUP
COMMUNICATIONS AND COORDINATION WITH OTHER GROUPS	EMERGENCY RESPONSE PROVISIONS

NO.	DISTRIBUTION OF
1.	JOB SITE
2.	RCT SUPERVISOR
3.	DOSIMETRY MANAGER

FS-F-1372 (REV. 10/7/93)

☐ RWP CONTINUED ON NEXT PAGE

ATTACHMENT B

FS-F-1372-1, FERMCO RADIOLOGICAL WORK PERMIT PART III

FEMP
RADIOLOGICAL WORK PERMIT
This permit is only valid when attached to a FERMCO WORK PERMIT.

(1) WORK PERMIT NUMBER:	PAGE:

PART III - WORKER VERIFICATION
Signature verifies worker has read, understood, and will comply with the requirements of this RWP.

NAME			BADGE NUMBER	BRIEFED PER PART II?	RESPIRATOR FIT TEST CURRENT?	RADIATION WORKER TRAINING
PRINTED	SIGNATURE	DATE				
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II
				☐ YES ☐ NO	☐ YES ☐ NO	☐ I ☐ II

NO.	DISTRIBUTION OF
1.	JOB SITE
2.	RCT SUPERVISOR
3.	DOSIMETRY MANAGER

FS-F-1372-1 (REV. 10/7/93)

☐ RWP CONTINUED ON NEXT PAGE

ATTACHMENT C

FS-F-2939, FERMCO WORK PERMIT

FERMCO
WORK PERMIT

WORK PERMIT NUMBER:

SECTION A - BACKGROUND INFORMATION *(Completed by Supervisor-In-Charge)*

WBS NUMBER:	JOB START DATE:	ESTIMATED COMPLETION DATE:
CONSTRUCTION WORK ORDER NUMBER:	COMPANY:	EXACT LOCATION:
EXACT DESCRIPTION OF WORK:		
SUPERVISOR-IN-CHARGE NAME:	BADGE NUMBER:	PHONE/RADIO NUMBER:
PROJECT ENGINEER/CONSTRUCTION COORDINATOR:	BADGE NUMBER:	PHONE/RADIO NUMBER:

SECTION B - TYPES OF PERMITS REQUIRED *(Completed by Supervisor In Charge)*

- ☐ OUTAGE
- ☐ PENETRATION
- ☐ ASBESTOS (posted)
- ☐ CHEM/HAZ MATERIAL (posted)
- ☐ CONFINED SPACE (posted)
- ☐ OPEN FLAME/WELDING (posted)
- ☐ HAZARDOUS WORK (posted)
- ☐ RADIOLOGICAL (posted)

SECTION C - GENERAL PRECAUTIONS *(Completed by Supervisor-in-Charge)*

PRELIMINARY	REQ'D.	DNA	AREA ISOLATION	REQ'D.	DNA
1. Check for Utilities	☐	☐	20. Area Barricades	☐	☐
2. Health & Safety Plan	☐	☐	21. Signs (PPE)	☐	☐
3. Work Plan	☐	☐	22. Signs (Warning)	☐	☐
4. Working surface safe for load (especially roof work)	☐	☐	23.	☐	☐
5.	☐	☐	24.	☐	☐
ENERGY CONTROL (Lock & Tag)			**OTHER CONTROLS**		
6. Electrical	☐	☐	25. Exhaust Ventilation	☐	☐
7. Chemical	☐	☐	26. Supplied Air Ventilation	☐	☐
8. Mechanical	☐	☐	27. GFCI	☐	☐
9. Other (Steam, etc.)	☐	☐	28. Screen/Shield	☐	☐
10. Specific Equipment Plan Required	☐	☐	29. Non-Sparking Tools	☐	☐
11.	☐	☐	30. Intrinsically Safe Equipment	☐	☐
ACCIDENT PREVENTION			31.	☐	☐
12. Fire Extinguisher	☐	☐	**EGRESS/FALL PROTECTION**		
13. Safety Shower Operable & Less Than 100 ft. Away	☐	☐	32. Ladder	☐	☐
14. Eye Wash Operable & Less than 100 ft. Away	☐	☐	33. Scaffolds/Railings	☐	☐
15. Protection	☐	☐	34. High Lift Platform	☐	☐
16. Communications	☐	☐	35. Safety Belt	☐	☐
17. Magnetic Survey for Buried Utilities/Objects	☐	☐	36. Safety Harness	☐	☐
18.	☐	☐	37. Safety Line	☐	☐
19.	☐	☐	38. Tripod/Retrieval System	☐	☐

SUPERVISOR IN CHARGE SIGNATURE:	BADGE NUMBER:	DATE:

WORK TASK REVIEWED, APPROVAL TO PERFORM WORK

FACILITY OWNER'S SIGNATURE:	BADGE NUMBER:	DATE:

NO.	DISTRIBUTION OF COPIES
1	Post at Job *(OS&H Copy)*
2	Supervisor In Charge
3	OS&H Field Copy

IN CASE OF EMERGENCY: CALL "CONTROL" BY RADIO, PHONE 6511, OR USE NEAREST FIRE ALARM BOX.

PERMIT TERMINATION (WORK COMPLETED/JOB CONDITIONS HAVE CHANGED)

SUPERVISOR-IN-CHARGE SIGNATURE:	DATE:

FS-F-2939 (REV. 9/29/93)

Return Copy 1 to OS&H (MS 651)

ATTACHMENT D

FS-F-2939-1, FERMCO WORK PERMIT PPE REQUIREMENTS

FERMCO
WORK PERMIT PPE REQUIREMENTS

WORK PERMIT NUMBER

Page: 2 of

HEAD PROTECTION ☐ None	☐ Surgeon's Cap ☐ Anti-C Hood ☐ Goggles	☐ Face Shield ☐ Welding Goggles ☐ Hard Hat	☐ Safety Glasses ☐ Other _____ ☐ Other _____
GLOVES ☐ None	☐ Cotton ☐ Nitrile ☐ Vinyl Liner	☐ Leather Palm ☐ Vitron ☐ Rubber	☐ Neoprene ☐ Other _____ ☐ Other _____
PROTECTIVE CLOTHING ☐ Double set PPE* ☐ None *Supplies IH Consumables	☐ Production Coveralls ☐ Smock ☐ Paper Coveralls ☐ Tyvek Coveralls ☐ Cloth Coveralls	☐ Saranex Coveralls ☐ Taped Openings ☐ Acid Splash Suit ☐ Fire Retardant ☐ Rubber Shoecovers	☐ Disposable Shoecovers ☐ Safety Shoes ☐ Other _____ ☐ Other _____ ☐ Other _____
RESPIRATOR ☐ None	☐ Half Mask APR ☐ Full Face APR ☐ Powered APR ☐ Continuous Flow Airline	☐ Belt Mounted Half Mask APR ☐ Air Line Half Mask ☐ Air Line w /Escape ☐ Pressure Demand Airline	☐ Air Line w /Dual Flow ☐ Hooded Airline ☐ SCBA ☐ Other _____
CARTRIDGE ☐ None	☐ HEPA ☐ HF Canister ☐ Ammonia	☐ Organic/HEPA Comb. ☐ Organic Vapor ☐ Acid Gas	☐ Mercury ☐ Ammonia/HEPA ☐ Other _____
OTHER ☐ None	☐ Ear Plugs ☐ Ear Muffs	☐ Cool Vest ☐ Other _____	☐ Other _____ ☐ Other _____

Special Safety Instructions:	RESPONSIBLE DEPARTMENT	
	Item No.	(IH, RC, and/or F&S)

NO.	DISTRIBUTION OF COPIES
1.	POST AT JOB
2.	RADIOLOGICAL CONTROL
3.	OS&H

RADIOLOGICAL CONTROL SIGNATURE:	DATE:
OSAH SIGNATURE:	DATE:

FS-F-2939-1 (10/08/93)

REMEDIATION SUPPORT OPERATIONS PROCEDURE	Hazardous Material Spill Clean-up	SOP 20-C-606 Area: As Applicable
(Signature on File Authorization: H. Bailey, Material Management Mgr.	Supersedes: 20-C-606 Dated: 10-12-89	Issue Date: 07-28-93

NON-CONTROLLED COPY

1.0 PURPOSE

The purpose of this document is to establish the procedure for reporting, containing, controlling, and cleaning hazardous material leaks and spills.

2.0 APPLICABILITY

This procedure applies to hazardous material leak and spill events which occur in RSO areas.

3.0 RESPONSIBILITIES

3.1 Supervisors shall be responsible for the following:

3.1.1 Upon notification of a spill, immediately reporting the incident by telephone or radio to the Assistant Emergency Duty Officer (AEDO).

3.1.2 Performing an investigation and preliminary evaluation of the magnitude and nature of the incident.

3.1.3 Securing the spill area and controlling or containing the spill/leak.

3.1.4 Reporting the spill incident to the Area or Section Manager.

3.1.5 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.6 Contacting Industrial Hygiene and/or Radiological Control to determine the appropriate respiratory protection and protective equipment.

3.1.7 Contacting Industrial Hygiene and/or Radiological Control and/or Materials Control & Accountability as required to assist in the identification of the spilled substance and provide technical information.

3.1.8 Issuing the required respiratory protection and other protective equipment to personnel.

3.1.9 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.1.10 Ensuring equipment is cleaned after use.

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3.0 RESPONSIBILITIES (cont.)

3.2 **Industrial Hygiene (IH) and/or Radiological Control** shall be responsible for the following:

3.2.1 Assisting supervision in identification of the material spilled as requested.

3.2.2 Determining exposure risk and appropriate personal protective equipment.

3.2.3 Providing smear surveys of an area following cleanup of a PCB spill, in order to verify the area as clean as specified by the EPA.

3.3 The **Assistant Emergency Duty Officer (AEDO)** shall be responsible for the following:

3.3.1 Classifying the event.

3.3.2 Providing the necessary information to the Spill Advisor for support in the assessment and establishment of the off-site reporting requirements.

3.3.3 Completing reporting requirements as specified in the Site Policy and Procedure FMPC-503.

3.4 **Materials Control and Accountability (MC&A)** shall be responsible for assisting supervision in the identification of the material spilled as requested.

3.5 **Waste Storage** shall be responsible for the following:

3.5.1 Determining the container compatibility for the waste.

3.5.2 Providing training material and support to supervision as required.

4.0 DEFINITIONS

4.1 Acid - Corrosive chemicals (such as hydrochloric acid, hydrofluoric acid, nitric acid, and sulfuric acid) with a pH of less than 7.0.

4.2 Assistant Emergency Duty Officer (AEDO) - The onsite management authority for abnormal events during all shifts.

4.3 Caustics - Corrosive chemicals (such as ammonia, calcium oxide, calcium hydroxide, and potassium hydroxide) with a pH greater than 7.0.

4.4 Compatible Container - A container, usually a drum, that is approved to hold the spilled material.

4.5 Hazardous Material - A substance or material capable of posing an unreasonable risk to health, safety, and property.

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4.0 DEFINITIONS (cont.)

4.6 Hazardous Substance - A material designated as a "hazardous substance" by the Clean Water Act (CWA), a "hazardous waste" regulated under the Resource Conservation and Recovery Act (RCRA), any "toxic pollutant" listed under the Clean Air Act, any "hazardous air pollutant" section 7 of the Toxic Substances Control Act (TSCA), and any additional substances designated by USEPA as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or any substance reportable under the Occupational Safety and Health Act (OSHA).

4.7 Reportable Quantity - The amount of a substance released to the environment which must be reported to regulatory agencies.

4.8 Sorbent - A substance (such as straw, clay, vermiculite, activated charcoal, sorbent sheet, or PIGS and pillows) that adsorbs.

4.9 Event - An unplanned, unwanted occurrence that requires classification by the AEDO.

4.10 Hazardous Waste - A waste material exhibiting the characteristics of ignitability, corrosivity, reactivity, or toxicity or listed in 40 CFR 261 (RCRA) or identified in applicable state regulations.

4.11 Spill Incident - An unplanned event that allows a hazardous toxic pollutant, hazardous substance, hazardous material, toxic pollutant, hazardous air pollutant, radioactive substance, oil or TSCA chemical substance or mixture to enter the environment.

.12 TSCA Section 8 (e) Chemical Substance - A chemical substance or mixture which presents a substantial risk of injury to health or environment, as defined in the Toxic Substances Control Act (TSCA).

4.13 Resource Conservation and Recovery Act (RCRA) - The Congressional Act requiring strict control for the safe handling and disposal of hazardous waste.

5.0 APPLICABLE DOCUMENTS

5.1 Drivers

5.1.1 PO-D-026, "Site Services Document Program"

5.1.2 "FEMP Conduct of Operations Manual"

5.1.3 RM-0012, "Quality Assurance Program Description"

5.2 References

5.2.1 SOP 20-C-601, "Packaging Low Level Radioactive Waste for Off-Site Disposal"

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5.0 **APPLICABLE DOCUMENTS** (cont.)

5.2.2 SSOP-0035, "Accumulating Hazardous Waste in Satellite accumulation areas and Interim Containers"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 Safety glasses shall be worn in the Process Area unless other eye/face protection is required by the supervisor, ES&H, or posted signs.

6.2 Personal protective equipment and clothing specified by ES&H shall be worn for spill clean-up.

6.3 Leather-palm gloves shall be worn when handling drums, operating equipment, and when handling rough or sharp-edged material.

6.4 Chemical resistant gloves applicable to the material type shall be worn when handling liquids.

6.5 In the case of contact with acids or caustics, contaminated clothing shall be removed and the affected body area thoroughly flushed with water in a Safety Shower/Eye Bubbler. Injured personnel shall report to Medical Services for treatment as soon as possible.

6.6 Personnel shall wear respiratory protection issued by the supervisor.

6.7 Personnel shall have reviewed and be familiar with MSDSs for hazardous chemicals/materials that may be used or encountered.

6.8 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.9 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

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7.0 **GENERAL**

7.1 Warnings, Cautions, and Notes precede the Item or Step to which they apply.

7.2 Any employee who detects an actual or potential hazardous spill shall be responsible for reporting the spill.

8.0 **PROCEDURE**

8.1 Reporting a Spill

8.1.1 Immediately alert nearby workers.

8.1.2 Leave the area of the spill.

8.1.3 Notify supervision of the spill.

8.1.3.1 If a supervisor is not available, pull the lever on the nearest fire alarm box or use the telephone and notify the Communications Center (X6511).

8.1.4 If required, report the location of the spill, identify of material (if known), any personnel injuries or unusual conditions, the source of the spill, whether or not the flow has stopped, and approximately how much material was spilled.

8.2 Preparation For Cleaning Spill

WARNING:

If the spilled contains a flammable substance, the supervisor shall identify all sources of electrical, thermal and mechanical energy which may be a source of ignition, de-energize and lock out the sources per SSOP-0719, "Energy Control Procedure (Lockout and Tagout)."

NOTE 1: The supervisor shall inform spill cleanup personnel of the spilled material and hazards associated with the cleanup.

NOTE 2: IH and Radiological Safety personnel shall assist in the identification of the spilled material and provide technical information as requested. Material Safety Data Sheets, or the Material Lot Marking System may be used for material identification.

NOTE 3: If the spill is flammable substance, the Fire Protection Engineer shall be contacted.

8.2.1 If the material is flammable, ensure that heat sources in the area are shut off, locked and tagged or removed.

8.2.1.1 If not, notify the supervisor.

8.0 **PROCEDURE** (cont.)

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8.2.2 Place barricades with restrictive signs around the affected area to prevent personnel not associated with the cleanup from entering.

8.2.3 Check that required personal protective equipment, as identified by the MSDS or IH representative, is available and in good condition prior to start of the cleanup.

8.2.3.1 If not, inform the supervisor of missing/damaged equipment.

NOTE: If material is leaking from tank, piping, or other process equipment, directions for containing leaking hazardous material shall be provided by the supervisor or AEDO.

8.3 Containing Leaking Material from Drums/Small Containers

NOTE: Spill cleanup supplies shall consist of patches, plugs, large plastic bags, diking materials, sorbents, plastic shovels, pails, and miscellaneous tools.

8.3.1 Before attempting to contain leaking material, ensure spill cleanup supplies are available.

8.3.1.1 Notify the supervisor of missing equipment.

8.3.2 If possible, turn the container until the damaged area is above the material level.

NOTE: A transfer of material from the leaking container to a new container may be required.

8.3.3 Patch the leak, if possible, using one or more of the following methods:

NOTE: The patching material shall be compatible with the material in the damaged container.

8.3.3.1 Patch small punctures located above the liquid level which are not subject to pressure with insoluble putty.

8.3.3.2 Use ball plugs pierced by a bolt, washer, and wing nut assembly to patch small punctures that are relatively round in shape.

CAUTION:

Felt plugs shall not be used for drums containing corrosive materials.

8.3.3.3 If the patch will be subjected to liquid pressure, use a soft, wooden plug with felt padding or a self-tapping screw with a washer or gasket.

8.3.3.4 Patch small linear punctures by placing felt into the crack of the leaking drum using a wedge.

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8.0 **PROCEDURE** (cont.)

8.3.3.5 Patch larger, irregular holes with a gasket backed plate, held in place by a compression washer, nut and bolt combination, or equivalent.

8.3.3.6 Patch large holes with a combination of square tapered wedge shaped plugs, arranged to fit into the hole, that are wrapped in felt prior to insertion.

NOTE: The sealing surface shall be dry and free of residues prior to application of tape.

8.3.4 As applicable, use heavy-duty tape over the patch as a temporary seal.

8.3.5 Cover the patched and/or plugged hole with a plastic bag to prevent leakage when drum is overpacked.

8.3.6 Using a drum turner or other mechanical device, invert the overpack drum slowly.

8.3.7 Lower the overpack onto the patched drum.

8.3.8 Using a drum lifter, gently tip the two drums to an upright position.

8.3.9 If specified by supervision, place absorbent material in space between two drums.

8.3.10 Lid the container.

8.3.11 Torque the lock ring bolt to 45 ft-lbs using certified break-away torque wrench.

8.3.12 Tighten the locking nut against the threaded flange (right flange) by hand.

8.3.13 Using a wrench tighten the nut 1/4 turn.

8.3.14 Dab bolt with red paint as a visual code designating that the tightening procedure has been completed.

8.3.15 Stencil the lot number, drum number, gross, tare, net weights and all other applicable markings as specified in SSOP-0035.

8.3.16 Apply appropriate labeling as specified in SSOP-0035.

8.4 Controlling A Spill

NOTE: Chemically inert sorbent materials such as vermiculite, diatomaceous earth, sand, sorbent pigs, or equivalent shall be used as dikes to contain the spilled material to the immediate area.

8.4.1 Build dikes at the edges of the spill.

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8.0 **PROCEDURE** (cont.)

8.3.3.5 Patch larger, irregular holes with a gasket backed plate, held in place by a compression washer, nut and bolt combination, or equivalent.

8.3.3.6 Patch large holes with a combination of square tapered wedge shaped plugs, arranged to fit into the hole, that are wrapped in felt prior to insertion.

NOTE: The sealing surface shall be dry and free of residues prior to application of tape.

8.3.4 As applicable, use heavy-duty tape over the patch as a temporary seal.

8.3.5 Cover the patched and/or plugged hole with a plastic bag to prevent leakage when drum is overpacked.

8.3.6 Using a drum turner or other mechanical device, invert the overpack drum slowly.

8.3.7 Lower the overpack onto the patched drum.

8.3.8 Using a drum lifter, gently tip the two drums to an upright position.

8.3.9 If specified by supervision, place absorbent material in space between two drums.

8.3.10 Lid the container.

8.3.11 Torque the lock ring bolt to 45 ft-lbs using certified break-away torque wrench.

8.3.12 Tighten the locking nut against the threaded flange (right flange) by hand.

8.3.13 Using a wrench tighten the nut 1/4 turn.

8.3.14 Dab bolt with red paint as a visual code designating that the tightening procedure has been completed.

8.3.15 Stencil the lot number, drum number, gross, tare, net weights and all other applicable markings as specified in SSOP-0035.

8.3.16 Apply appropriate labeling as specified in SSOP-0035.

8.4 Controlling A Spill

NOTE: Chemically inert sorbent materials such as vermiculite, diatomaceous earth, sand, sorbent pigs, or equivalent shall be used as dikes to contain the spilled material to the immediate area.

8.4.1 Build dikes at the edges of the spill.

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8.0 **PROCEDURE** (cont.)

8.4.2 To prevent hazardous material from entering a drain/manhole, proceed as follows:

8.4.2.1 Cover the drain or manhole with a plastic or rubber sheet, plywood, or other material as specified by the supervisor,

8.4.2.2 Using sorbent materials (Refer to Step 8.4.1) build a dike around edges and top of the cover.

NOTE: Neutralization and adsorption or adsorption only, as specified by supervision or the IH Representative, shall be used to start cleanup of spilled materials.

8.5 Cleaning Spill

NOTE: Only corrosive material spills shall be neutralized.

8.5.1 If spilled material is corrosive (acid or caustic) neutralize the spilled/leaked material as follows:

CAUTION:

IH shall check the spilled material for dangerous gases or vapors before proceeding with neutralization.

NOTE: The neutralizing agent as specified on the MSDS, by the supervisor, or IH Representative shall be used.

8.5.1.1 Apply neutralizing agent to the spill to reduce or eliminate the hazardous properties of the spill.

8.5.1.2 Apply sorbent to neutralized spill per Step 8.5.2.

8.5.2 Adsorb the spilled/leaked materials as follows:

NOTE 1: Non-reactive sorbent materials shall be used when the spilled material is a solvent, the chemical make-up of the spilled material is unknown, or the reaction resulting from neutralization would create an unsafe condition.

NOTE 2: Supervisor shall specify sorbent to be used.

8.5.2.1 Ensure that the correct sorbent is available.

CAUTION:

Because sorbents do not change the hazardous properties of a spilled substance, use caution during cleanup and disposal.

8.5.2.2 Apply the specified sorbent to the spill, from the outer edges toward the center to reduce the chances of spreading the material.

8.0 PROCEDURE (cont.)

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WARNING:

When using sorbent for flammable materials, non-sparking tools shall be used to avoid starting a fire. Appropriate fire fighting equipment shall be readily available in case of an emergency.

8.5.3 Using a shovel, transfer the saturated sorbent material to a compatible waste container.

8.5.4 When the container is full or cleanup is completed, lid the container.

8.5.5 Tighten the bolt ring assembly per Step 8.3.11 thru 8.3.15.

8.5.6 Stencil the lot number, drum number, gross, tare, net weights, and other applicable markings as specified in SSOP-0035.

8.5.7 Apply appropriate labeling as specified in SSOP-0035.

NOTE: Any disposable item which comes into contact with a hazardous material shall be handled and stored as a hazardous waste.

8.5.8 Discard contaminated disposable items (such as clothing and diking/adsorbent materials) in properly identified containers.

8.5.9 After spill is removed, clean the equipment per SOP 1-C-101 before returning the equipment to use.

NOTE: The supervisor shall inform IH that a smear test of the spill area is required to determine if cleanup was effective.

8.5.10 Following cleanup of a PCB spill, notify the supervisor of completion.

9.0 APPLICABLE FORMS

None

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RECORD OF ISSUE/REVISIONS

E	REV. NO.	DESCRIPTION AND AUTHORITY
10-12-89	0	Procedure required for cleaning hazardous spills per Request No. P89-370, initiated by K. A. Lawson.
07-28-93	0	Reissued to update technical content, per Request No. P93-135, initiated by C. Glassmeyer, incorporate CIO C93-133 per Request P93-595, and reformat to conform with Procedure Program requirements.

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SATELLITE ACCUMULATION AREAS AND INTERIM CONTAINERS FOR HAZARDOUS WASTES

SSOP-0035

Effective Date: 09-28-93

AUTHORIZED BY: _____ 9/16/93
N. C. Kaufman, President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
10-26-92	0	SSOP required for use of SAAs and interim containers per Request No. P91-443, initiated by J. Ogg. This document replaces Site Services SOP 20-C-605.
09-28-93	1	Revision needed to address accumulation of batteries, closing an SAA, and update organization names per Request S93-029, initiated by R. Enneking. This revision supersedes Revision 0, dated 10-26-92.

1.0 PURPOSE

This procedure provides the instructions for establishing, maintaining and closing a Satellite Accumulation Area (SAA), accumulating hazardous waste in SAA containers and interim containers, and preparing SAA containers and interim containers for transfer to storage at the Fernald Environmental Management Project (FEMP).

2.0 SCOPE

This procedure is applicable to FEMP personnel responsible for establishing and maintaining SAAs and interim containers for hazardous waste containment at any area of the FEMP site. The procedure also applies to personnel who prepare accumulation containers for transfer to storage.

This procedure outlines the steps for (1) identifying the need for an SAA container or interim container; (2) establishing an SAA; (3) accumulating hazardous waste in an accumulation container; (4) preparing containers for transfer to storage; (5) inspecting an SAA; and (6) closing an SAA.

3.0 DEFINITIONS

Accumulation Container - An approved container, usually a drum, that is specified by RCRA Program and Logistics Administration to be compatible with the waste to be accumulated.

Accumulation Start Date - A date indicating when the container is declared full which is the start date for the "Three Day Rule."

Approved Container - A container that meets U.S. Department of Transportation (DOT) specifications defined in 49 CFR part 173.

Battery Accumulation Container - A container designated solely for the purpose of temporarily storing depleted batteries excluding lead-acid and dry-cell batteries (those commonly used in flashlights, pagers).

Authorized Personnel - Individuals who have successfully completed all FEMP training requirements to perform work related to this procedure.

Bung Drum - A container used to hold liquid materials.

Corrosive - RCRA term referring to aqueous wastes with a pH ≤ 2 or ≥ 12.5 or a liquid waste that will corrode SAE 1020 steel at a rate > 0.25 inches per year at 55° C (130° F).

D.O.T. Proper Shipping Name - The name of a hazardous material as specified in the D.O.T. Regulations 49 CFR 172.101.

3.0 **DEFINITIONS** (cont.)

D.O.T. UN or NA Number - D.O.T. identification number prefixes for hazardous materials as specified in the D.O.T. Regulations 49 CFR 172.101 and 172.102. "UN" denotes materials recognized for international and domestic shipments. "NA" denotes materials recognized for domestic shipments and shipments to and from Canada, but not for other international shipments.

U.S. EPA Identification Number (EPA ID. No.) - The 12-digit code assigned to the FEMP as a generator and storage facility of hazardous waste (OH6890008976).

EPA Hazardous Waste Number (EPA WASTE NO.) - The 4-digit alpha-numeric code that categorizes a hazardous waste and is specific for the waste in a particular container.

FEMP Lot Marking and Color Coding System - A system which assigns 15-digit alpha-numeric codes and a color code to identify nuclear materials ensuring complete separation of depleted, normal, and enriched uranium or thorium materials.

Hazardous Waste - A discarded material listed in the Environmental Protection Agency Hazardous Waste List (40 CFR 261, subpart D) which poses a threat to human health and/or the environment or which exhibits any of the following four characteristics: ignitability, corrosivity, reactivity or Toxicity Characteristic Leaching Procedure (TCLP) toxicity (40 CFR 261, subpart C). Both "listed" and "characteristic" wastes are regulated under RCRA. (The hazard characteristics are defined in this section.)

Ignitable - RCRA term referring to liquid wastes with closed-cup flash points <60°C (140°F), or non-liquid wastes capable of causing fire through friction, absorption of moisture, or spontaneous chemical changes.

Incompatible Materials - Materials of differing enrichments or materials which, when placed near each other, produce undesirable chemical effects.

Interim Container - A container used for collecting hazardous waste that within 72 hours from the start of accumulation will be transferred to an approved storage area.

Mixed Waste - Waste containing both radioactive and hazardous waste components.

Open-head Drum - A container used to hold material mixtures of solids and liquids.

3.0 **DEFINITIONS** (cont.)

Reactive - A RCRA term referring to wastes which exhibit properties such as reacting violently, forming potentially explosive mixtures or generating toxic gases with water, generating toxic gases (cyanide or sulfide) at pH between 2 and 12.5, or detonating or exploding at standard temperature and pressure or when heated under confinement.

Reactivity Group Code (RGC) System - An identification system for hazardous waste designed to ensure that no incompatible materials are accumulated or stored adjacently.

Resource Conservation and Recovery Act (RCRA) - The Congressional Act which established safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control and proper management of hazardous waste.

SAA Generator - A person authorized to deposit hazardous waste in an accumulation drum/container.

Satellite Accumulation Area (SAA) - An area approved to accumulate waste characterized as RCRA hazardous waste for an extended period of time (over 72 hours) at or near the waste generation point under control of the supervisor managing the operation generating waste.

Spill Accumulation Container (SAC) - Containers designed to hold material. These include portable polyethylene containers designed to hold one 55-gallon drum of material, flammable liquid cabinets, and welded or seamless pans designed to contain leaks. All accumulation containers except those accumulating solids with no free liquids shall stand in SACs.

Spill - Any unplanned event involving spilling, leaking, pumping, pouring, injecting, escaping, emitting, emptying, leaching, releasing, dumping, discharging, or disposing of hazardous waste onto the ground, into water, or into the air, within or beyond the boundaries of the FEMP.

Three-Day Rule - A RCRA regulation requiring transfer of all containers in an accumulation area to an approved storage facility within three days from the date the SAA exceeds the 55-gallon volume limit.

Toxicity Characteristic - A RCRA term referring to wastes whose extracts by the Toxicity Characteristic Leaching Procedure (TCLP) contaminants listed in Table 1 of 40 CFR 261.24, at a concentration equal to or greater than the applicable value stated in the table.

3.0 **DEFINITIONS** (cont.)

TCLP - A RCRA term referring to an Analytical procedure (Method 1311 from 40 CFR Appendix II) which checks if materials listed in Table 1 of 40 CFR 261.24 can be extracted from a waste.

4.0 **RESPONSIBILITIES**

Supervisor/Facility Operator responsible for each waste generation area/SAA

- Initiates a Material Evaluation Form (MEF) as required.
- Determines if an SAA is required.
- Establishes an SAA as determined from the results of a material evaluation and notifies Hazardous Waste Compliance and Field Implementation (HWC&FI) for assistance in establishing the SAA.
- Determines the location of the SAA and interim container.
- Coordinates and notifies support organizations of assistance required per this procedure.
- Ensures compliance with "Radiological Controls Manual", RM-0009.
- Coordinates the filling of accumulation containers and ensures only authorized personnel access the areas and make additions of hazardous waste to the accumulation containers.
- Ensures applicable documentation, signs, and labels are located in the SAA and the required documentation is completed, signed, and transferred with the drum to storage.
- Ensures applicable documentation is completed, signed, and transferred with interim container to storage.
- Ensures inspections are performed within seven calendar days of previous inspection.
- Ensures labeling of accumulated waste is in accordance with the FEMP Lot Marking and Color-Coding System, Reactivity Group Code (RGC) system, and DOT standards and EPA standards.
- Ensures no incompatible materials are accumulated in adjacent accumulation containers within an SAA in accordance with the RGC system.

4.0 **RESPONSIBILITIES** (cont.)

- Supplies necessary tools.
- Contacts Industrial Hygiene and Radiological Control to determine the appropriate respiratory protection and other personal protective equipment (PPE).
- Provides SAA generators with the required respiratory protection and other PPE.
- Contacts Radiological Control to acquire the Radiological Work Permits required.
- Contacts Quality Control to perform independent checks of full containers.
- Ensures lever lock rings are replaced with bolt lock rings on 30- and 55-gallon accumulation containers declared full prior to movement from the SAA.
- Maintains a list of personnel authorized to perform this procedure.

SAA Generators

- Deposits hazardous waste in an accumulation container per this procedure.
- Reports any unusual condition to the supervisor, or in the supervisor's absence, the Assistant Emergency Duty Officer (AEDO).

Waste Characterization

- Supplies EPA Waste Numbers to categorize waste streams determined as RCRA.
- Provides analytical data and waste stream process knowledge to Environmental Engineering for determining RGC(s).

Hazardous Waste Compliance and Field Implementation (HWC&FI)

- Maintains a current list of SAAs.
- Ensures applicable regulatory requirements, including those defined by the U.S. and Ohio EPA, Department of Energy, Department of Transportation, and the FEMP are incorporated in this procedure and are followed at the site.
- Oversees implementation of this procedure.

4.0 **RESPONSIBILITIES** (cont.)

- Assists in the designation, establishment, and closure of an SAA.

Quality Control (QC) performs an independent oversight check on accumulation containers to ensure compliance with this procedure prior to transferring any material to storage.

Industrial Safety and Health (IS&H)

- Determines appropriate respiratory equipment and any other personal protective equipment required for each SAA.
- Supports establishment and closure of SAAs.

Environmental Engineering provides the supervisor of the SAA with the appropriate RGC(s), based on material evaluation data.

Motor Vehicle Operator (MVO)

- Obtains an accumulation container as specified by immediate supervisor in accordance with DOT regulations and completed Material Evaluation Forms (MEF).
- Transports approved empty containers to the accumulation area.
- Transports full accumulation containers from SAAs to RCRA Storage Facilities.

Materials Control and Accountability (MC&A)

- Prepares and maintains nuclear material generation and transfer records when containers are filled.
- Verifies drum identification in accordance with material evaluation results.
- Designates storage area destination of an accumulation container declared full with assistance from Waste Management.

Toxic & Solid Waste Programs (TSWP) provides the DOT proper shipping name.

ES&H, Radiological Control, and HWC&FI approve the SAA location.

Waste Management Program (RSO Division) handles disposal of photographic and drafting solutions.

5.0 GENERAL

None

6.0 PREREQUISITES

6.1 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

A defined safety system is not specified.

Safety glasses shall be worn unless other eye protection is specified by ES&H. Goggles or face shields shall be worn when handling caustic, acids, or any other chemical which could cause immediate skin damage upon contact.

Respiratory protection provided by the supervisor shall be worn when required.

Leather-palm gloves shall be worn when handling drums, operating equipment, and when handling rough, sharp-edged, or contaminated material.

Gloves specified by ES&H shall be worn when handling hazardous chemical substances where skin contact is possible.

A rubber apron shall be worn when handling caustic, acids, or any other chemical which could cause immediate skin damage upon contact.

HEPA type filter vacuum cleaners or a vacuum system approved by the Radiological Control Department with a current DOP test label properly affixed to vacuum shall be used for spill cleanup.

Any release of hazardous waste shall be reported immediately to the supervisor or, in the supervisor's absence, the AEDO.

Two-way communication devices and emergency response equipment shall be available to personnel performing this procedure.

6.0 **PREREQUISITES** (cont.)

Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a supervisor. The supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control for evaluation. The involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a followup urine sample. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.2 PERSONNEL REQUIREMENTS

- Annual SAA Classroom Training, "RCRA-Hazardous Waste SAA Training"

6.3 TOOLS AND MATERIALS REQUIRED

- Bung Wrench
- Socket Wrench or Adjustable Wrench

7.0 **PROCEDURE**

7.1 DETERMINING IF AN SAA CONTAINER OR INTERIM CONTAINER IS NEEDED

SUPERVISOR/FACILITY OPERATOR

1. For hazardous waste that can be accumulated within 72 hours, set up an interim container per 7.4.

2. For hazardous waste that cannot be accumulated within 72 hours, establish a SAA per 7.2.

   NOTE: Each SAA can contain more than one approved container and/or waste stream but the total capacity of the containers in the SAA shall not exceed 55 gallons.

7.2 ESTABLISHING A SATELLITE ACCUMULATION AREA

SUPERVISOR/FACILITY OPERATOR

1. Determine the location of the SAA, ensuring that the SAA is located at or near the generation area of the waste and will use a hard surface (i.e. concrete with sealer) as the floor of the SAA.

2. Notify HWC&FI for assistance in establishing the SAA.

3. Acquire the approved Material Evaluation Form (MEF) for the waste streams to be accumulated from Waste Characterization.

4. Ensure that two-way communication devices and emergency response equipment are accessible.

5. Contact IS&H, Radiological Control (RC), and HWC&FI for approval that the SAA requirements, protective equipment, postings, and location are in compliance with regulatory requirements and site procedures.

6. When approval is received from IS&H, RC, and HWC&FI, contact HWC&FI for assignment of a unique identification number to the SAA which will be used on applicable forms to identify the SAA location.

7. Notify HWC&FI to update the SAA Data List with information on the establishment of the new SAA.

8. For 30 and 55-gallon accumulation containers, complete the following substeps.

   a. Identify and establish the SAA per Figure 1.

   b. Notify MVO to deliver an accumulation container and SAC (as applicable) for the waste to be accumulated and stored per a completed MEF.

9. For 5- and 10-gallon containers, complete the following substeps.

   a. Identify and establish the SAA per Figure 2.

   b. Acquire containers and SACs from Stores or Purchasing.

      NOTE: Wastes that do not contain free liquids are not required to be placed in a SAC.

7.2 ESTABLISHING A SATELLITE ACCUMULATION AREA (cont.)

MVO

10. Select the accumulation container according to the waste to be accumulated and stored per a completed MEF.

    NOTE: A black open-head drum or black bung drum, as applicable, shall be used as the accumulation container unless a different container type is specified for compatibility reasons or volume size.

    NOTE: Material placed in containers other than black drums prior to 7-1-91 shall not require repackaging.

11. Transport container to SAA per applicable department procedure.

7.3 PREPARING THE SAA CONTAINER

NOTE: The identification of the accumulation container shall be placed as shown in Figure 3 or Figure 4. The drum labeling arrangement in Figure 3 is effective as of 11-16-90. Drums labeled prior to 11-16-90 shall not require relabeling.

NOTE: Information stencilled on 5- to 10-gallon accumulation containers shall be one inch in height.

NOTE: Information stencilled on an accumulation container >10 gallons shall be 1-1/2 to 2 inches in height.

SAA GENERATOR

1. Using criteria in Tables 1, 2, and 3, ensure the accumulation container and SAC for accumulating waste are free of damage and debris prior to use in the SAA.

2. Check Table 4 to see if waste to be accumulated requires a vented container.

    a. If the container needs to be vented, notify supervisor of the Material Type Code (MTC) and Source Code (SRC) for the waste to be accumulated.

    b. As directed by supervisor, vent drum per SOP 20-C-910.

7.3 PREPARING THE SAA CONTAINER (cont.)

SAA GENERATOR

3. Stencil the FEMP Lot Marking Code on the side of the 55-gallon drum/5- or 10-gallon container with the "P.O. No., Source, Material Class, and Material Type" per Figure 3 or Figure 4, as applicable.

   NOTE: The sequence number is recorded when the drum is declared full.

   NOTE: The FEMP Lot Marking Code shall be determined by using the FEMP Lot Marking and Color-Coding System, RM-0005, or contacting Materials Control and Accountability.

4. Tare weigh the accumulation container and SAC separately.

   NOTE: Ensure the scale to be used has been tested per the applicable scale procedure.

5. Stencil the tare weight on the side of the accumulation container and SAC per Figure 3.

6. Stencil the Reactivity Group Code (RGC), as specified by supervisor, on the container.

   NOTE: The RGC will be provided to the supervisor by Environmental Engineering.

7. If the material to be accumulated is a solvent, stencil the solvent name on the container.

8. Affix a clear, weather-resistant envelope to the top or handle of the container.

9. Fill out a "Hazardous Waste Disposal Record" (see Figure 6), completing the SAA number, material description, and the DOT Proper Shipping Name, and insert in the envelope on the container.

7.3 PREPARING THE SAA CONTAINER (cont.)

SAA GENERATOR

10. Fill out an "Item Production/Certification/Identification", 65 Card (see Figure 7) as follows:

    a. Record the FEMP Lot Marking Code in the areas titled "P.O. No.," "Source," "Material Class," and "Material Type".

    b. Record a general description of the waste in the area titled "Waste Description and Comments".

       NOTE: The "Sequence Number" is recorded when the drum is declared full.

    c. Record the type of container in the area titled "Package Type".

    d. Record the size or volume of the container in the area titled "Package Size".

    e. Complete all the required package checks of the container in the section titled "Package Physical Certification".

       NOTE: Other information shall be added to the card after the container is declared full (refer to Section 7.3, step 21).

11. Insert the 65 Card into the envelope on the container.

12. If the "Hazardous Waste Marking" label (see Figure 3) is not preprinted, use a black waterproof permanent marker and fill in the following information:

    NOTE: No other information is required on the "Hazardous Waste Marking" label until the container is declared full.

    a. Record the "Name, Address, City, State, and Zip" as follows:

       DOE/FEMP
       7400 Willey Rd.
       Fernald, OH 45030

7.3 PREPARING THE SAA CONTAINER (cont.)

SAA GENERATOR

b. Record the "EPA Identification Number".

NOTE: The EPA Identification Number is "OH6890008976".

c. Record the "DOT Proper Shipping Name".

NOTE: Transportation Regulatory Compliance shall provide this information.

d. Record the "EPA Waste Number" provided by the supervisor.

NOTE: Environmental Management shall provide the EPA waste number.

e. Record the "Phone Number" as (513)738-6200.

f. Identify either UN or NA and record the appropriate UN or NA Number.

13. Affix the "Hazardous Waste Marking" label and appropriate DOT Marking and/or DOT label on the drum.

14. Inspect the container to ensure the stenciling, marking, and labeling have been placed correctly on the drum/container (see Figure 3 or 4, as applicable).

15. Place a SAC in the SAA, ensuring tare weight is visible.

NOTE: Wastes that do not contain free liquids are not required to be placed in a SAC.

16. Place the accumulation container into the SAC. For drums, place the drum into the SAC with the drum seam facing the front of the SAA.

7.4 ACCUMULATING WASTE IN AN INTERIM CONTAINER

NOTE: For an interim container being used to store excess waste at an SAA, steps 8, 9, and 10 of this section do not apply.

SUPERVISOR/FACILITY OPERATOR

1. Ensure a Material Evaluation Form (MEF) has been completed. If a MEF has not been completed for the material, initiate a form per SSOP-0002.

2. Contact MVO to deliver a compatible 30 or 55-gallon container or contact Stores/Purchasing to acquire a 5 or 10-gallon container.

   NOTE: Some SAA containers are not stocked and will need to be ordered (i.e. five gallon stainless steel containers used by the Analytical Laboratory).

MVO

3. Select the accumulation container per the completed MEF.

4. Transport empty accumulation container to specified area.

SAA GENERATOR

5. On the container, label or stencil "Hazardous Waste", the material name, and the date and time the material started to be accumulated.

   NOTE: Waterproof ink or paint and stencil set shall be used for stencilling.

6. As directed by supervisor, place waste in interim container within 72 hours. If the interim container is required to accumulate material for more than 72 hours, establish a SAA per Section 7.2.

7. Secure container as instructed by supervisor.

8. Fill out an "Item Production/Certification/Identification" (65 card), Form FS-F-1945-XX (see Figure 7), excluding weights per the following:

7.4 ACCUMULATING WASTE IN A INTERIM CONTAINER (cont.)

SAA GENERATOR

a. Record the FEMP Lot Marking Code in the areas titled "P.O. No.," "Source," "Material Class," and "Material Type".

b. Record a general description of the waste in the area titled "Waste Description and Comments".

c. Record the type of container in the area titled "Package Type".

d. Record the size or volume of the container in the area titled "Package Size".

e. Complete all the required package checks of the container in the section titled "Package Physical Certification".

f. Determine lot sequence number in accordance with RM-0005 and record number in the area titled "Sequence Number".

g. Sign the area provided for generator's signature on the 65 card.

9. Notify supervisor the interim container is ready for transfer to approved RCRA storage.

10. Submit 65 card to supervisor.

SUPERVISOR/FACILITY OPERATOR

11. Ensure the interim container is moved to an approved storage area within 72 hours of the time accumulation started.

12. Sign the 65 card and obtain completed "NM Transfer Record/NM Receipt Record/Material Identification Record", 68/69 card (see Figure 9) from the Nuclear Materials Reporting Specialist (NMR).

13. Sign 68/69 card and return to NMR.

14. Contact MVO to move container to approved RCRA storage.

7.4 ACCUMULATING WASTE IN A INTERIM CONTAINER (cont.)

SUPERVISOR/FACILITY OPERATOR

15. Ensure a copy of the 65 and 68/69 cards accompany the container when transferred to approved RCRA storage.

7.5 ACCUMULATING WASTE IN A SAA CONTAINER

NOTE: Spills and/or unsafe conditions shall be reported immediately to the supervisor or the AEDO.

SAA GENERATOR

WARNING

NEVER MIX WASTE MATERIAL TYPES.

1. Select the accumulation container designated to receive the waste type requiring disposition.

   NOTE: A five-gallon, foot-lever container (see Figure 5) may be used for solid materials being collected.

2. Remove the container lid and visually check the waste volume in the accumulation container.

   a. If the waste is a solid material, ensure the material is approximately three inches or more below the top of the container.

   b. If the container is nearly full of liquid waste (less than 5 inches remaining at the top), notify supervisor.

   c. For a battery accumulation container, ensure an addition to the container will not cause the volume or plastic liner (if present) to raise above the vent holes or prevent the lid from closing.

      NOTE: Dry-cell batteries are not hazardous waste and are not to be accumulated in SAAs.

7.5 ACCUMULATING WASTE IN A SAA CONTAINER (cont.)

SAA GENERATOR

WARNING

ONLY AUTHORIZED PERSONNEL SHALL HANDLE HAZARDOUS WASTE.

3. If the container has adequate capacity, carefully add the waste (excluding batteries) to the container. If a spill occurs, proceed per SOP 20-C-606, "Hazardous Material Spill Cleanup".

   a. For batteries, cover all exposed electrical contacts with electrical tape or equivalent and then carefully place the depleted batteries in the container.

4. If the container does not have adequate capacity, complete the following steps and proceed to Step 5.

   a. Prepare an interim container as directed by supervisor and place the container by the SAA.

   b. Put the excess waste into the interim container per section 7.4.

   c. Prepare full container per 7.6.

5. Secure the lid or bung on the container once the additions are completed.

   NOTE: The container of hazardous waste shall be closed at all times except while adding, inspecting, or sampling the waste.

   NOTE: A lever-lock ring may be used for containers greater than 10 gallons while located in the SAA. Bolt-type rings are required when transporting and storing these containers.

7.5 ACCUMULATING WASTE IN A SAA CONTAINER (cont.)

SAA GENERATOR

6. Record addition of waste material to the accumulation container on the "Hazardous Waste Disposal Record" (see Figure 6) by completing the following substeps:

   a. Remove the disposal record from the plastic envelope attached to the accumulation area collection container lid or handle.

   b. Record the date of the waste addition in the appropriate column.

   c. Record badge number in the column labeled "Generator's Badge Number."

   d. If conditions exist which are not defined by this procedure or if anything unusual is noticed, note in comment column of the disposal record and notify supervisor immediately.

7. Return the disposal record to the plastic envelope attached to the container lid or handle.

7.6 PREPARING A FULL SAA CONTAINER FOR TRANSFER TO STORAGE

NOTE: Spills and/or unsafe conditions shall be reported immediately to the supervisor or the AEDO.

SAA GENERATOR

1. Check with supervisor for maximum weight limits.

   NOTE: For 55-gallon drums being shipped off site up to and including December 31, 1995, the maximum gross weight is 1200 lbs.

   NOTE: For 55-gallon drums to be shipped after December 31, 1995, the maximum gross weight is 883 lbs.

7.6 PREPARING A FULL SAA CONTAINER FOR TRANSFER TO STORAGE (cont.)

SAA GENERATOR

2. When the material is approximately three inches from the top of container, complete steps 3 through 29 of section 7.6 immediately.

3. Notify supervisor of Satellite Accumulation Area to verify the container is full.

   NOTE: Once a drum of hazardous waste is declared full, it must be transferred to an approved RCRA storage area within three calendar days.

SUPERVISOR/FACILITY OPERATOR

4. Check the disposal record (see Figure 6) to ensure only authorized personnel made additions to the container and only the waste specified was placed in the container.

5. Record the date and time the container is declared full and sign the "Hazardous Waste Disposal Record". Send a copy of disposal record to HWC&FI.

   NOTE: A Deviation Report (DR) must be completed for containers not transferred within three calendar days.

SAA GENERATOR

6. For a full battery accumulation container, complete the following substeps to dispose of batteries.

   a. If the batteries are in a 5-or 10-gallon container, perform the following steps.

      1) Remove batteries from accumulation container and place in a plastic bag.

      2) Mark "HAZARDOUS WASTE" on the plastic bag.

      3) Using tape or tie, close and secure the bag.

7.6 PREPARING A FULL SAA CONTAINER FOR TRANSFER TO STORAGE (cont.)

SAA GENERATOR

4) Notify supervisor the bag of batteries is ready for storage.

NOTE: Supervisor shall ensure the bag is transported to Building 81 for storage and eventual disposal.

b. If the batteries are in a 30- or 55-gallon drum, use tape or tie to secure plastic bag.

7. For 30- or 55-gallon drums, install a lid and bolt-type lock ring on an open head drum, or install a threaded bung plug on a bung head drum, as applicable.

8. Secure lid on drum as follows:

a. Check gasket placement and condition of drum lid (for open head drums). Replace damaged gaskets.

b. Seat lid evenly on open head drum or using a bung wrench, screw bung plug into bung hole tightly and evenly, as applicable.

c. Place locking bolt ring no more than six inches from the seam of the drum on lid of open head drum ensuring the flanges point downward from lock ring (see Figure 8).

d. Install locking bolt shaft through unthreaded flange, locking nut, and then threaded flange (see Figure 8) so that the bolt head rests against unthreaded flange.

e. Using a breakaway torque wrench, torque bolt to 45 pound feet.

f. Manually tighten the locking nut against the threaded flange. Then using a wrench, tighten the nut against the flange an additional 1/4 turn.

7.6 PREPARING A FULL SAA CONTAINER FOR TRANSFER TO STORAGE (cont.)

SAA GENERATOR SUPERVISOR

9. Specify the scale to be used.

   a. If a scale is not available at the SAA area, notify Facilities & Warehousing.

      NOTE: The drum/container may be transferred and weighed at an approved RCRA Storage Area.

MVO

10. Inspect the forklift, as applicable.

11. Using the forklift, move the SAC containing the full accumulation container to the area for weighing.

    NOTE: Only drums are required to be moved in SACs.

SAA GENERATOR

12. Inspect the scale to be used if not previously completed.

    NOTE: The scale shall be inspected and operated in accordance with the SOP applicable to the area.

MVO

13. Using a forklift as needed, move the full accumulation container onto the scale (with SAC, as applicable).

    NOTE: Drums shall not be removed from SAC before weighing.

SAA GENERATOR

14. Obtain the gross weight of the container. For drums, obtain gross weight by subtracting the tare weight of the SAC (indicated on the side) from the weight indicated on the scale.

15. If the drum is within the specified weight limit, proceed to Step 18.

7.6 PREPARING A FULL SAA CONTAINER FOR TRANSFER TO STORAGE (cont.)

SAA GENERATOR

16. If a 55-gallon drum is over the specified weight limit, move the drum back to the SAA and transfer the excess material to another accumulation drum by completing the following steps.

    NOTE: Step 16 is applicable to 55-gallon drums only.

    a. Remove lock ring and lid or bung head from the drum.

    b. Using scoop or approved removal device, remove material from the drum and place in an accumulation drum (within a SAC) in the SAA until the drum weight is within limits.

       NOTE: The removed material may be either included in an unweighed, underfilled drum of the same lot, or placed in empty drum of the same lot according to Sections 7.3 and 7.5.

    c. Install a lid and bolt-type lock ring on an open head drum, or install a threaded bung plug on a bung head drum, and secure by completing section 7.6, step 7.

MVO

17. Using the forklift, move the SAC containing the accumulation drum on to the scale and complete steps 13 through 15 in this section until the drum weight is within limits.

18. Using the forklift as needed, remove the accumulation container from the scale.

SAA GENERATOR

19. Remove the 65 card from the envelope on the container and record gross weight, net weight, lot sequence number, and badge number.

20. Stencil the gross weight, net weight, lot sequence number, and drum number on the container (see Figure 3 or 4, as applicable).

21. Sign the area provided for generator's signature on the 65 Card.

7.6 PREPARING A FULL SAA CONTAINER FOR TRANSFER TO STORAGE (cont.)

SUPERVISOR/FACILITY OPERATOR

22. Record the date and time the container is declared full on the 65 card, sign the 65 card, and obtain completed "NM Transfer Record/NM Receipt Record/ Material Identification Record", 68/69 card (see Figure 9) from MC&A.

SUPERVISOR/SAA GENERATOR

23. Sign the area indicated for the shipper's signature on the 68/69 card.

SAA GENERATOR

24. Upon receipt of the signed forms, insert the completed 65 Card and the 68/69 Card into the plastic envelope on the lid or handle of the container.

    NOTE: The area titled "Manifest Document Number" shall not be completed until the waste is ready for offsite shipment.

25. Using a black waterproof permanent marker, record the date that the container was declared full in the area titled "Accumulation Start Date" on the "Hazardous Waste Marking" label (Figure 3).

26. Complete a "Hazardous Waste Container Pre-Transfer Checklist" (see Figure 10), including the drum number and lot mark code.

27. Notify the supervisor that the container is ready for transport to the storage area and a replacement container required.

    NOTE: A SAC is required for a container holding free liquid.

    NOTE: The three-day rule must be followed when a container is ready for shipment to storage.

28. Insert completed "Hazardous Waste Container Pre-Transfer Checklist" into plastic envelope.

7.6 PREPARING A FULL SAA CONTAINER FOR TRANSFER TO STORAGE (cont.)

SUPERVISOR/FACILITY OPERATOR

29. Contact Quality Control (QC) to perform an independent check.

    NOTE: No container shall be released to MVO for transfer to storage until approval has been received from QC.

QC

30. Perform an independent check of the hazardous waste container per applicable written department procedures.

SUPERVISOR/FACILITY OPERATOR

31. Correct any noted deficiencies and insert form and copy of MEF into the plastic envelope on the lid or handle of the container.

SUPERVISOR

32. Notify MVO and MC&A that a drum of hazardous waste is ready for shipment to storage and a replacement drum is required with a SAC, as applicable.

7.7 REPLACING FULL ACCUMULATION CONTAINER

SAA GENERATOR

1. When the full accumulation container(s) has been prepared per 7.6 and removed, place a new accumulation container in the SAA.

    a. If the interim container meets accumulation container requirements, use the interim as the new accumulation container.

    b. If the interim is not used as the new accumulation container, perform the following; (1) empty the contents of the interim in the accumulation container; (2) Mark out the date and the hazardous waste markings on the interim container; (3) Mark "Empty" on the interim container; (4) Store the interim container as directed by supervisor.

7.8 TRANSFERRING FULL SAA CONTAINER TO STORAGE

MVO

1. Deliver replacement container and a drum SAC (if required) to SAA.

2. Transport full container to storage per the applicable division procedure and sign the 68/69 card.

OPERATOR/SUPERVISOR

3. For containers ≤10 gallons, transport to the appropriate RCRA warehouse.

   a. If the waste stream is solution from photographic or drafting equipment, contact the Waste Management Program section in the RSO Division for disposal.

   NOTE: RSO shall transfer the material into the applicable waste stream drum.

4. Return empty ≤ 10 gallon container to the original SAA for collection of same waste stream as long as that stream exists.

7.9 INSPECTING AN SAA

CAUTION

A SPILL OR UNSAFE CONDITION SHALL BE REPORTED TO THE SUPERVISOR, OR IN THE SUPERVISOR'S ABSENCE, THE AEDO.

SAA GENERATOR

1. Inspect the SAA within seven calendar days of previous inspection and complete the "Hazardous Waste Satellite Accumulation Area Inspection Log", Form FS-F-3136 (see Figure 11).

7.9 INSPECTING AN SAA (cont.)

SAA GENERATOR

2. If a defective container is found during inspection, proceed per Tables 1, 2, and 3 prior to completing the inspection log.

   NOTE: Overpacking shall be completed per SOP 20-C-600, as required.

   NOTE: Both the inspector and supervisor shall sign and record the date and time the inspection was performed.

   NOTE: Supervisor shall immediately correct deficiencies on Form FS-F-3136 found during inspection.

3. Transmit completed inspection log to supervisor of the SAA.

   NOTE: Supervisor/Facility Operator shall review, sign, and distribute inspection log to HWC&FI.

7.10 CLOSING AN SAA

SUPERVISOR/FACILITY OPERATOR

1. Determine if an SAA is no longer required based on usage.

2. When an SAA is not required, notify HWC&FI in writing why the SAA is not needed along with a request for assistance in closing the SAA.

3. Declare container(s) in the SAA as full and handle per this procedure.

HWC&FI

4. When a closure request is received, survey the SAA to determine if the SAA is empty of accumulated waste.

   a. If the SAA is free of waste, proceed to step 5.

   b. If the SAA contains waste, transfer to RCRA Storage Area.

5. Transfer SAA accumulation logs and inspection records to the RCRA Operating Record maintained by HWC&FI.

6. Notify applicable organizations in writing that the SAA is closed.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- 40 CFR 265, "Interim Status Standards of Hazardous Waste Treatment, Storage, and Disposal Facilities"
- 40 CFR 262, "Standards Applicable to Generators of Hazardous Waste"
- 40 CFR 261, "Identification and Listing of Hazardous Waste"
- 49 CFR 172, "Hazardous Material Regulations; General Information, Regulations, and Definitions"
- 49 CFR 173, "Shipper's General Requirements for Shipments and Pagkagings"

8.2 REFERENCES

- RM-0005, "FEMP Lot Marking and Color-Coding System"
- RM-0009, "Radiological Controls"
- SOP 20-C-600, "Overpacking Defective Containers"
- SOP 20-C-606, "Hazardous Material Spill Cleanup"
- SOP 20-C-910, "Venting Potentially Explosive Drums"
- SSOP-0002, "Completing the Material Evaluation Form"

TABLE 1
CORROSION INSPECTION TYPES

CATEGORY	*CHARACTERISTIC*	*COULD CAUSE LOSS OF DRUM INTEGRITY*		*CORRECTIVE ACTION*
		YES	NO	
1	Severe corrosion with deep pitting and/or metal flaking	X		1. Notify supervisor. **NOTE**: The drum requires disposition as directed by supervision within 24 hours.
2	Corrosion with shallow pitting and/or mild metal flaking		X	1. Notify supervisor. **NOTE**: Disposition shall be determined by the supervisor following review of completed inspection form.
3	Surface rust with no pitting and mild paint flaking which exposes bare metal		X	1. Notify supervisor. **NOTE**: Repainting shall be scheduled by supervisor.

TABLE 2
LEAKER INSPECTION CATEGORIES

TYPE	*CHARACTERISTIC*	*CORRECTIVE ACTION*
1	Material flowing from container and accumulation on pallet or pad.	1. Notify supervisor. **NOTE**: Supervisor notifies AEDO. 2. Stop or contain leak as directed by supervisor. 3. Record on inspection form that the container requires mitigation within 24 hours. 4. Complete additional cleanup as necessary. **NOTE**: Supervisor shall initiate an Occurrence Report.
2	Material on container exterior only; no material on pallet or pad.	1. Record leak on inspection form. 2. Notify supervisor. **NOTE**: Supervisor shall initiate an Occurrence Report. **NOTE**: Supervisor shall review the completion inspection forms to prioritize containers for transfer to overpack staging area and subsequent mitigation.
3	Container exterior discolored/visible contamination; no material release.	1. Record condition on inspection form. **NOTE**: Supervisor shall schedule container for overpacking. **NOTE**: Supervisor shall initiate an Occurrence Report.

TABLE 3
DENT/BULGE INSPECTION TYPES

TYPE	*CHARACTERISTIC*	*CORRECTIVE ACTION*
1	Dents and/or bulges affect container to degree of potential or actual release	Overpack or transfer to new container.
2	Dents and/or bulges not affecting container integrity	Continue to monitor.

TABLE 4
MATERIAL REQUIRING VENTING

MTC CODES											
039[1]	040	041	042	046	051	055	056	070	075	076	080
081	084	098	103	104		107	109	110	111	112	113
114	118	119	120	124		125	128	129	130	131	136
137	141	153	161	218		219	220	221	222	223	224
225	227	228	229	230		231	232	233	234	235	236
237	238	239	240	241		242	243	244	245	246	251
252	254	260	261	262		263	300 and above				

(1) Material Type Code (MTC) 039 with source codes 655-659 do not require vented drums and can be moved without restrictions.

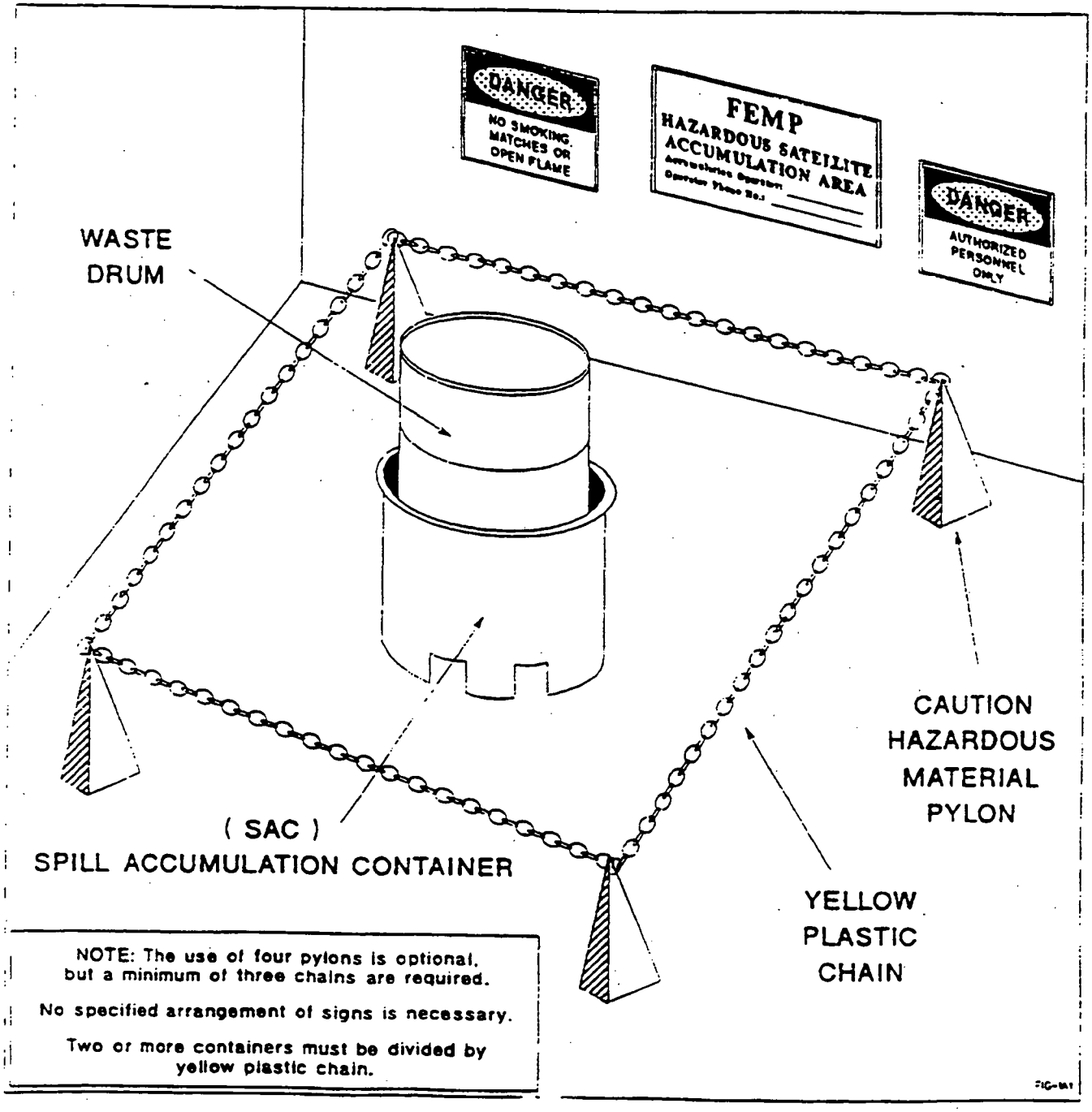


Figure 1 - Diagram of SAA for 55-Gallon Containers

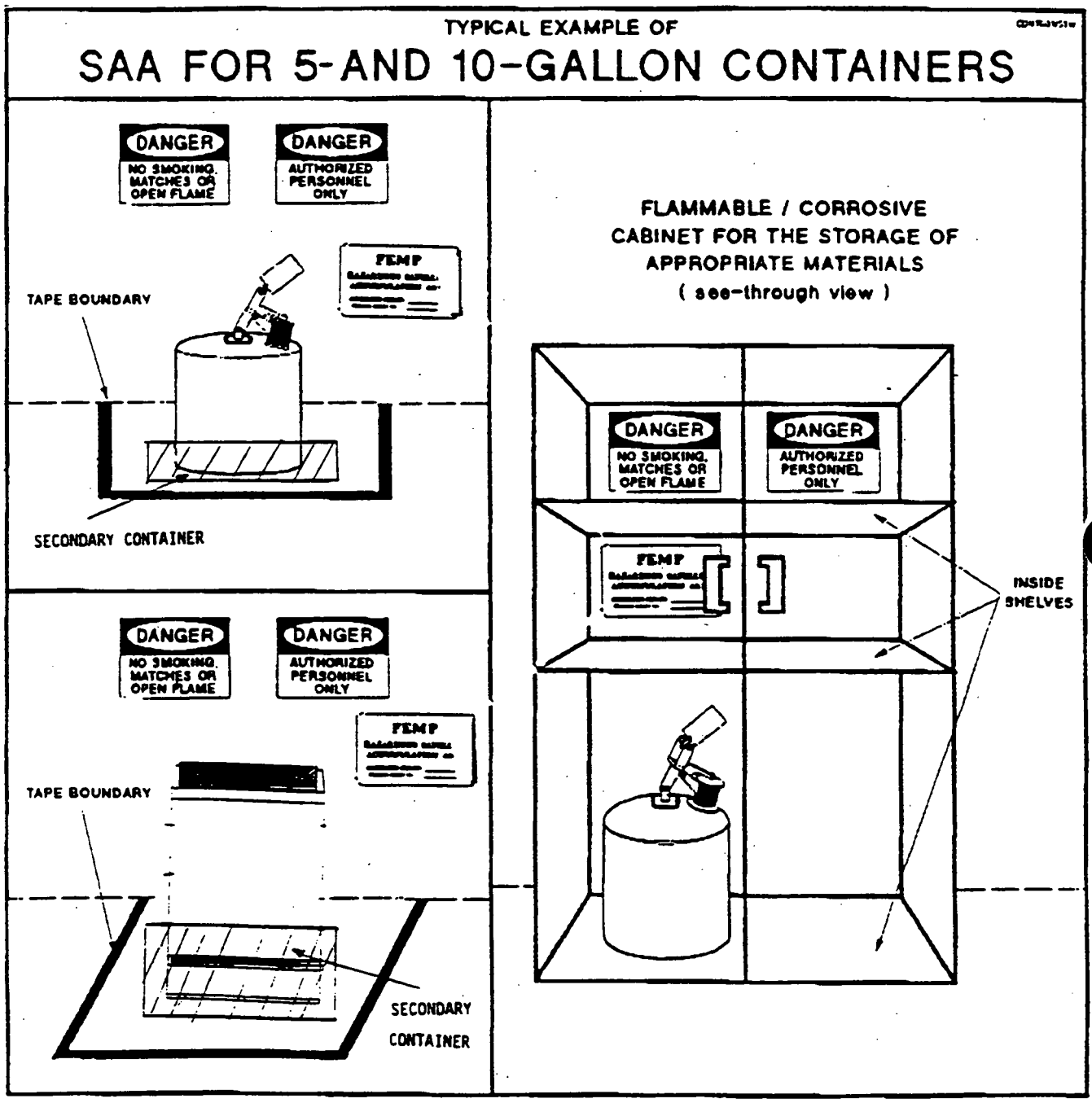
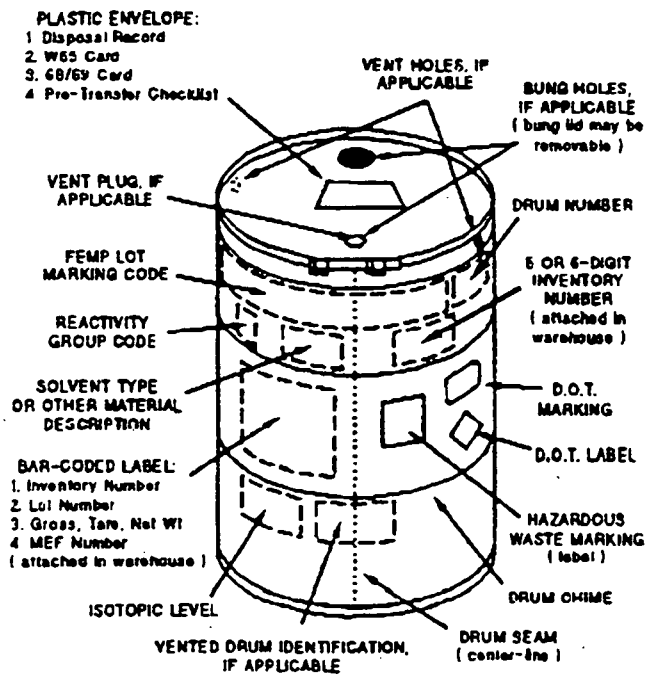


Figure 2 - Diagram of SAA for 5- and 10-Gallon Containers

TYPICAL EXAMPLE OF

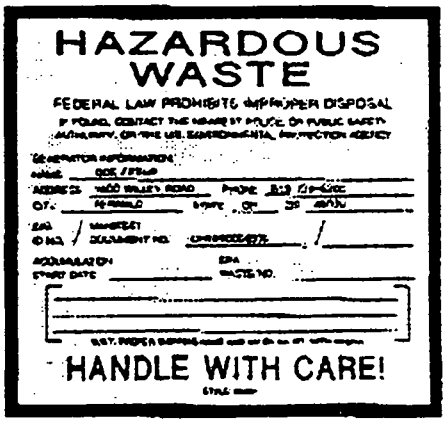
LABELING/STENCILING OF AN OPEN HEAD OR BUNG CONTAINER



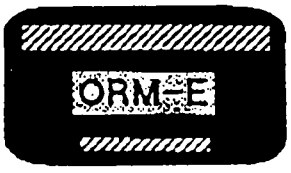
TYPICAL EXAMPLES OF

MARKINGS/LABELS

HAZARDOUS WASTE MARKING (LABEL)



D.O.T. MARKING



D.O.T. LABEL

SAC SPILL ACCUMULATION CONTAINER (EXAMPLE)

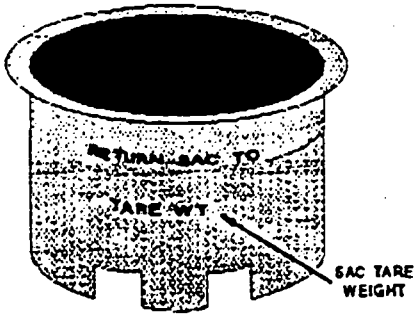


Figure 3 - Diagram of 55-Gallon Drum Identification

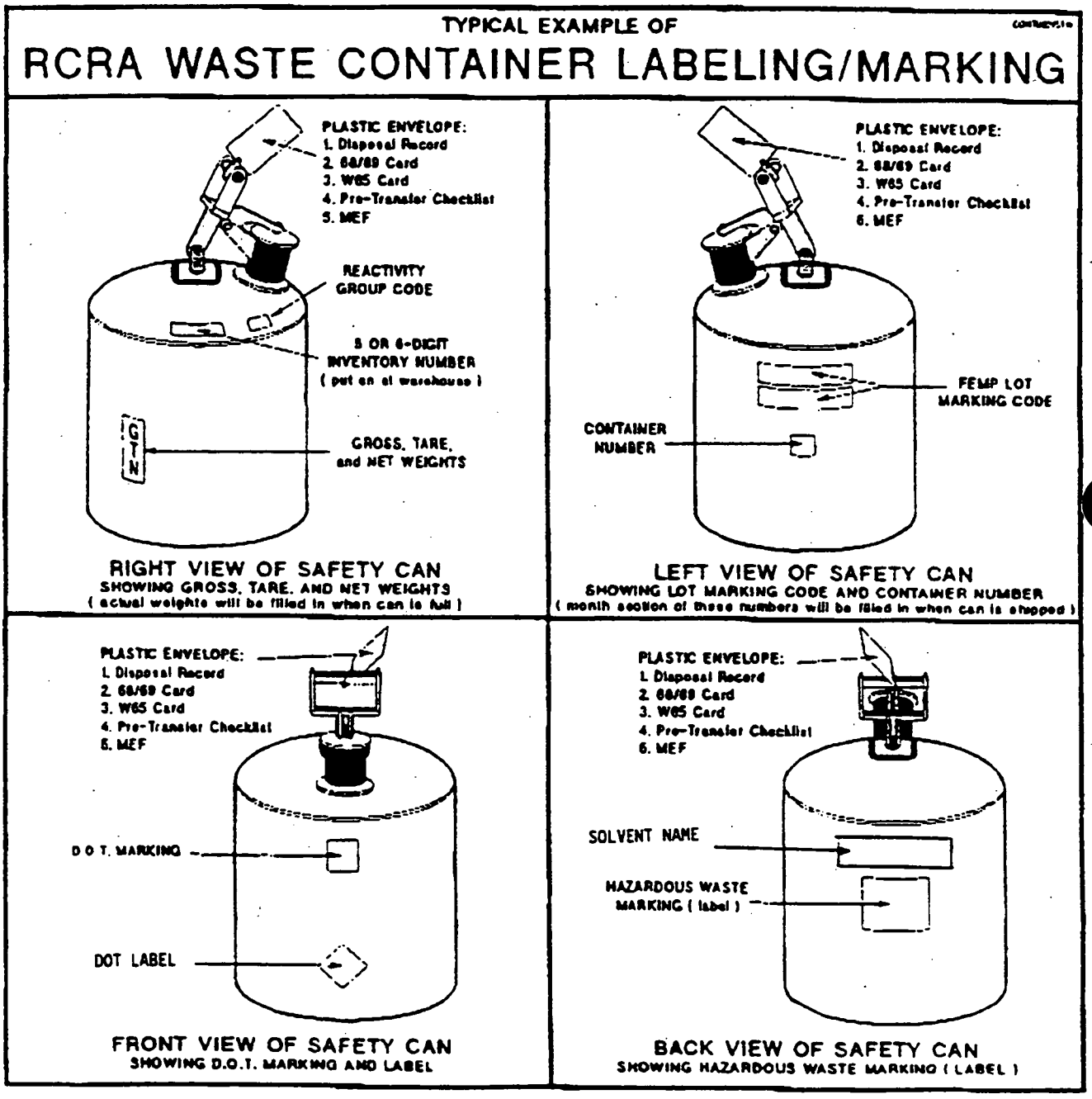
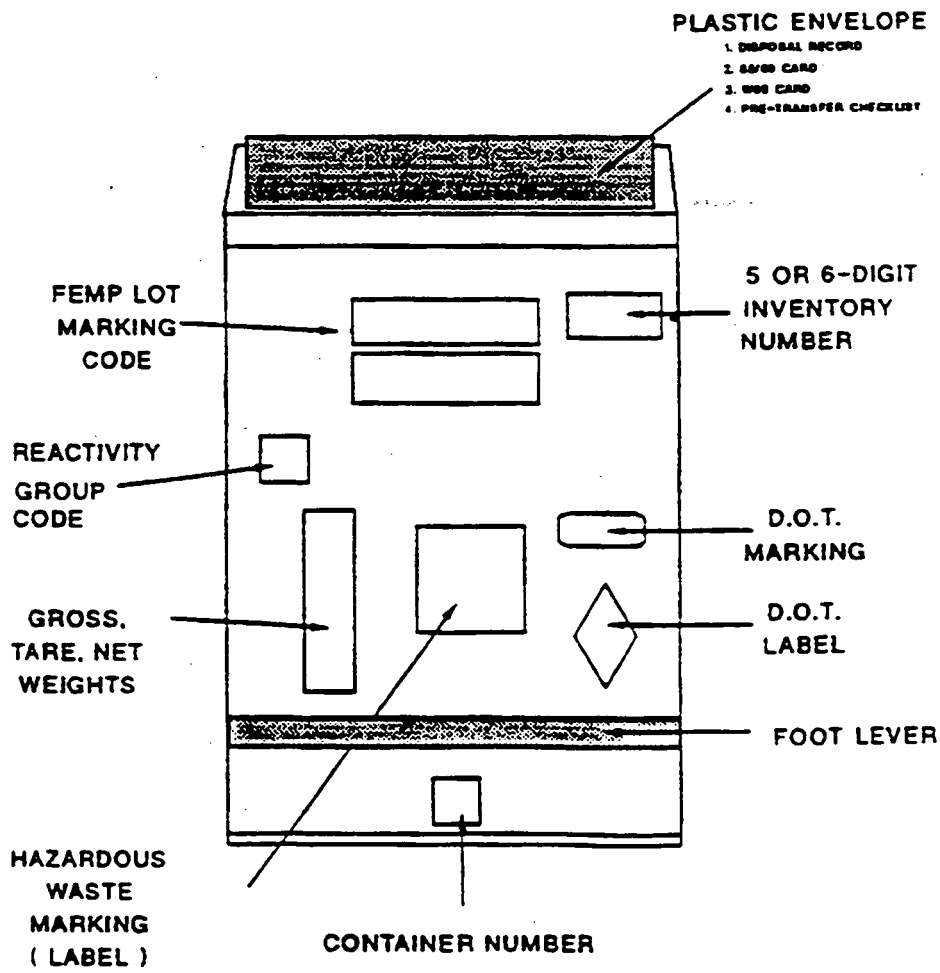


Figure 4 - Diagram of 5- or 10-Gallon Container Identification

TYPICAL EXAMPLE OF RCRA WASTE CONTAINER LABELING/MARKING



1-8-92 CAN-3Z

Figure 5 - Diagram of Five-Gallon Foot Lever Container

FEMP

HAZARDOUS WASTE DISPOSAL RECORD

SATELLITE ACCUMULATION AREA NUMBER	DOT PROPER SHIPPING NAME	MATERIAL DESCRIPTION

DATE	GENERATOR'S BADGE NO.	COMMENTS

Supervisor Signature: _____

Container Declared Full: _____ / _____
DATE TIME

FS-F-3064 (REV 7/13/92)

Figure 6 - Hazardous Waste Disposal Record, Form FS-F-3064

CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	CONT. NO	SERIAL NO

SEAL NUMBER	SEAL DATE MONTH DAY YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. SUBA	REF NO
		EMPTY CONTAINER AT START					
		RUST HOLES OR DENTS					
		MATERIAL IS AS CODED			DCAR	SURV. NO	GROSS WEIGHT
WASTE DESCRIPTION AND COMMENTS		PROHIBITED MATERIALS					
		LIQUIDS IN CONTAINER					
PACKAGE TYPE		MINIMUM OF VOID SPACE					TARE WEIGHT
PACKAGE SIZE		PACKAGE SECURED					
PROJECT		DRAIN PLUG SECURED					
		OVERPACK					
		REPACK					NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1065-1 (REV 11/20/92)

CARD 65-2 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	CONT. NO	SERIAL NO

SEAL NUMBER	SEAL DATE MONTH DAY YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. SUBA	REF NO
		EMPTY CONTAINER AT START					
		RUST HOLES OR DENTS					
		MATERIAL IS AS CODED			DCAR	SURV. NO	GROSS WEIGHT
WASTE DESCRIPTION AND COMMENTS		PROHIBITED MATERIALS					
		LIQUIDS IN CONTAINER					
PACKAGE TYPE		MINIMUM OF VOID SPACE					TARE WEIGHT
PACKAGE SIZE		PACKAGE SECURED					
PROJECT		DRAIN PLUG SECURED					
		OVERPACK					
		REPACK					NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1065-2 (REV 11/20/92)

CARD 65-3 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO

SEAL NUMBER	SEAL DATE MONTH DAY YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. SUBA	REF NO
		EMPTY CONTAINER AT START					
		RUST HOLES OR DENTS					
		MATERIAL IS AS CODED			DCAR	SURV. NO	GROSS WEIGHT
WASTE DESCRIPTION AND COMMENTS		PROHIBITED MATERIALS					
		LIQUIDS IN CONTAINER					
PACKAGE TYPE		MINIMUM OF VOID SPACE					TARE WEIGHT
PACKAGE SIZE		PACKAGE SECURED					
PROJECT		DRAIN PLUG SECURED					
		OVERPACK					
		REPACK					NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1065-3 (REV 11/20/92)

CARD 65-4 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO	CONT. NO	SERIAL NO

SEAL NUMBER	SEAL DATE MONTH DAY YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. SUBA	REF NO
		EMPTY CONTAINER AT START					
		RUST HOLES OR DENTS					
		MATERIAL IS AS CODED			DCAR	SURV. NO	GROSS WEIGHT
WASTE DESCRIPTION AND COMMENTS		PROHIBITED MATERIALS					
		LIQUIDS IN CONTAINER					
PACKAGE TYPE		MINIMUM OF VOID SPACE					TARE WEIGHT
PACKAGE SIZE		PACKAGE SECURED					
PROJECT		DRAIN PLUG SECURED					
		OVERPACK					
		REPACK					NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1065-4 (REV 11/20/92)

Figure 7 - Item Production/Certification/Identification (65 Card), Form FS-F-1065-xx

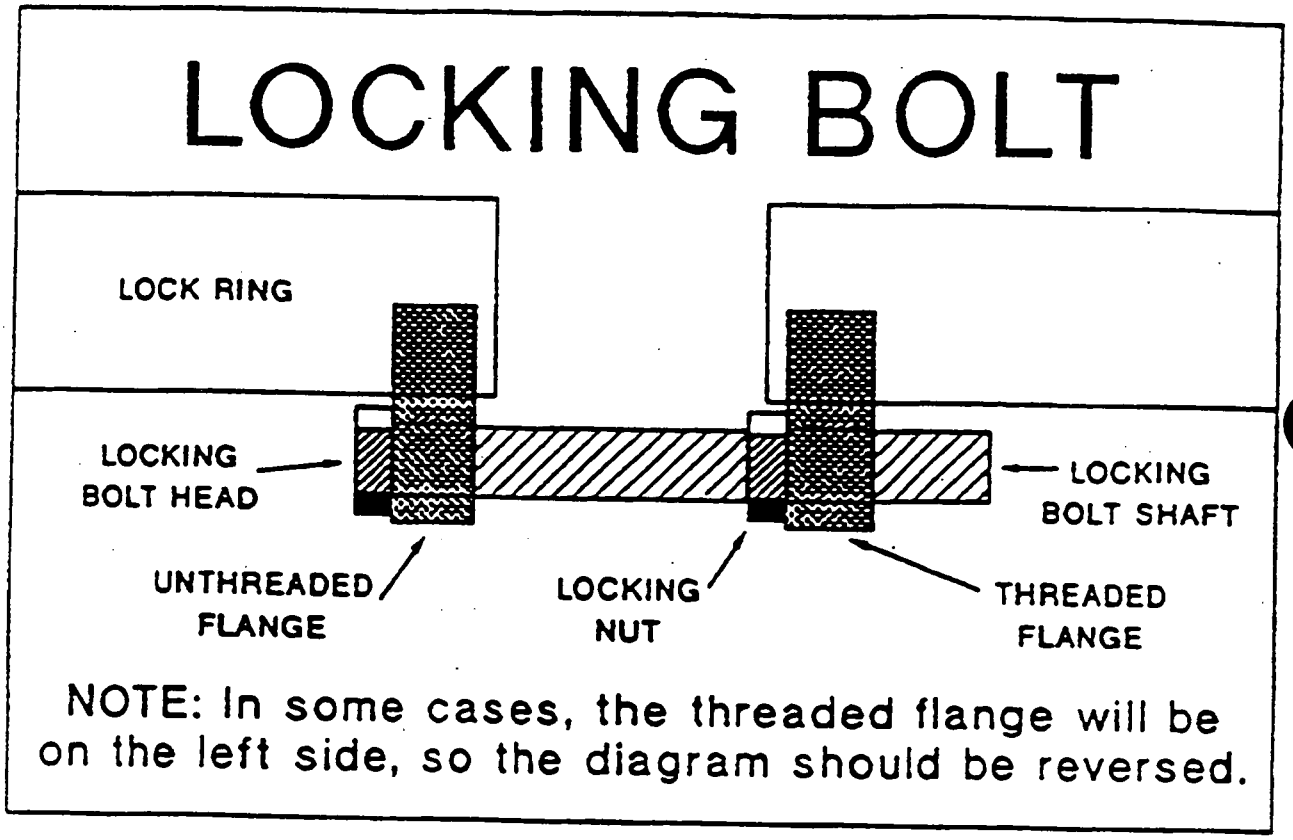


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Figure 8 - Installation of Bolt-Type Locking Ring

NUCLEAR MATERIAL TRANSFER RECORD

CARD PL. NO. 68

NEGATIVE | DATE TRANSFERRED MO. DAY YEAR | SHIFT | TRANS BY BADGE NO.

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

P.O. NO. | SOURCE
MATERIAL CLASS | MATERIAL TYPE
LOT SEQUENCE NO
MATERIAL DESCRIPTION
SHAPE CODE

MBA (FROM) | PLANT
MBA (TO) | PLANT
STORAGE LOCATION

NO. OF CONTAINERS OR ITEMS: NUMBER | DESCRIPTION
GROSS WEIGHT
TARE WEIGHT

SIGNATURES: (SHIPPER) (TRANSPORTATION) (RECEIVER)

FS-F-1990 (REV. 3/9/92)

NUCLEAR MATERIAL RECEIPT RECORD

CARD PL. NO. 69

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material

NEGATIVE | DATE TRANSFERRED MO. DAY YEAR | SHIFT | TRANS BY BADGE NO.

P.O. NO. | SOURCE
MATERIAL CLASS | MATERIAL TYPE
LOT SEQUENCE NO
MATERIAL DESCRIPTION
SHAPE CODE

MBA (FROM) | PLANT
MBA (TO) | PLANT
STORAGE LOCATION

NO. OF CONTAINERS OR ITEMS: NUMBER | DESCRIPTION
GROSS WEIGHT
TARE WEIGHT

SIGNATURES: (SHIPPER) (TRANSPORTATION) (RECEIVER)

FS-F-2220 (REV. 3/9/92)

MATERIAL IDENTIFICATION RECORD

CARD PL. NO. XX

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE | DATE TRANSFERRED MO. DAY YEAR | SHIFT | TRANS BY BADGE NO.

P.O. NO. | SOURCE
MATERIAL CLASS | MATERIAL TYPE
LOT SEQUENCE NO.
MATERIAL DESCRIPTION
SHAPE CODE

MBA (FROM) | PLANT
MBA (TO) | PLANT
STORAGE LOCATION

NO. OF CONTAINERS OR ITEMS: NUMBER | DESCRIPTION
GROSS WEIGHT
TARE WEIGHT

SIGNATURES: (SHIPPER) (TRANSPORTATION) (RECEIVER)

FS-F-2221 (REV. 3/9/92)

Figure 9 - Nuclear Material Transfer Record (68/69 Card), Form FS-F-1990

HAZARDOUS WASTE CONTAINER PRE-TRANSFER CHECKLIST

INSPECTOR NAME:		INSPECTOR BADGE NO.:	
ACCUMULATION AREA:	LOCATION:	DATE:	TIME:

ITEM NO.	INSPECTION ITEM	ACCEPTABLE		CORRECTIVE ACTION & DATE CORRECTED
		YES	NO	
1	Container label arrangement is correct per SSOP-0035			
2	Locking ring and lock bolt are secure on drum (+/- 6" from drum seam)			
3	FEMP Lot Marking Code, Drum Number, and Reactivity Code are applied			
4	Weights on the XX Card correspond to weights on drum			
5	Weights are correctly stenciled on drum			
6	XX (65 Card) and 68/69 card are complete and signed			
7	Drum full date has been recorded on the Hazardous Waste Label as Start Date (see Note 1)			
8	EPA Waste Number on Hazardous Waste Label			
9	UN or NA Number on Hazardous Waste Label			
10	Drum exterior acceptable per SSOP-0035 criteria			
11	Drum exterior and SAC container have no leaks and are clean			
12	Hazardous Waste Label completed (see Note 2)			
13	Hazardous Waste Disposal Record is complete and in envelope			
14	Material Evaluation Form (MEF) is in envelope			

NOTE 1: Date should be the same date appearing on Hazardous Waste Disposal Record sheet.
NOTE 2: Should include Generator's name and address, EPA ID No., and DOT Shipping Name and should be written in waterproof ink.

COMMENTS: _____

INSPECTOR'S SIGNATURE:	DATE:	SUPERVISOR'S SIGNATURE:	DATE:

FS-F-3133 (Rev. 7/13/93)

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Figure 10 - Hazardous Waste Container Pre-Transfer Checklist, Form FS-F-3133

HAZARDOUS WASTE SATELLITE ACCUMULATION AREA INSPECTION LOG

ACCUMULATION AREA:	LOCATION:	DATE:	TIME:

ITEM NO.	INSPECTION ITEM	ACCEPTABLE		CORRECTIVE ACTION & DATE CORRECTED
		YES	NO	
1	"Danger-No Smoking, Matches, or Open flame" sign posted			
2	"Danger–Authorized Personnel Only" sign posted			
3	"FEMP Hazardous Waste Satellite Accumulation Area" sign posted including facility owner name and phone number			
4	SAA floor free of spilled/leaked waste			
5	SAA identified and accessible			
6	SAC container free of spilled/leaked waste			
7	Container compatible with waste accumulated			
8	Drum Exterior–no dents, chipped paint, corrosion			
9	Drum Condition–no leakage, particularly at seams			
10	FEMP Lot Marking complete, stencilled, and located on the upper third of the drum side			
11	SAC Container Tare Weight Marking complete, stencilled and located properly			
12	Form FS-F-3064 initiated, inside envelope, located on top of drum			
13	Form FS-F-1945-XX initiated with lot no., container type, and size recorded			
14	Form FS-F-1945-XX inside envelope			
15	"Hazardous Waste Label" complete and affixed to drum, middle right side of drum seam			
16	Lid secure on drum (lock ring on drum, lid down on funnel)			
* 17	Container waste level (3" from the top is full)			
18	Accessibility to spill control and emergency response equipment			
19	Accessibility to two-way communication devices			

* Record the approximate waste level of container in the COMMENTS section.

COMMENTS: _____

INSPECTOR'S SIGNATURE:	DATE:	SUPERVISOR'S SIGNATURE:	DATE:

FS-F-3136 (Rev. 7/13/93)

Figure 11 - Hazardous Waste Satellite Accumulation Area Inspection Log
Form FS-F-3136

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1.0 PURPOSE

The purpose of this document is to establish the procedure for inspecting areas used for loading/unloading and staging containers of RCRA material.

2.0 APPLICABILITY

This procedure is applicable to any area, with the exception of Satellite Accumulation Areas, where RCRA material is loaded and/or unloaded (including warehouses, plant pads, and trailer staging areas) for shipping, receiving, or interplant transfer.

3.0 RESPONSIBILITIES

3.1 Supervisors shall be responsible for the following:

3.1.1 Notifying support organizations when assistance is required during inspection.

3.1.2 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.3 Specifying segregation of containers if incompatible wastes are positioned together prior to shipment or storage.

3.1.4 Proceeding per the "Minor Event Reporting System" (FMPC-0704) if a spill occurs.

3.1.5 Contacting Industrial Hygiene or Radiological Control to determine the appropriate respiratory protection for the process being performed.

3.1.6 Issuing the required respiratory protection to operators.

3.1.7 Obtaining and posting "Work Requests" when a permit is required for the task.

3.1.8 Reviewing applicable Material Safety Data Sheets with operators.

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3.0 RESPONSIBILITIES (cont.)

3.2 **Operators** shall be responsible for complying with this SOP.

3.3 **Facilities and Waste Operations** shall be responsible for the following:

3.3.1 Assisting the responsible supervisor while inspecting loading/unloading and/or staging areas.

3.3.2 Providing the inspecting supervisor with the layout of dock area.

4.0 DEFINITIONS

4.1 Hazardous Waste - A discarded material which is listed in the Environmental Protection Agency Hazardous Waste List, fails the TCLP Test, or exhibits any of the following three characteristics; ignitability, corrosivity, or reactivity. Both "listed" and "characteristics" wastes are regulated under RCRA.

4.2 Resource Conservation and Recovery Act (RCRA) - The Congressional Act which established safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control and proper management of hazardous waste.

4.3 Compatible Container - A container, usually a drum, that is approved by Waste Technology and Transportation as being compatible with the accumulated waste.

4.4 Loading/Unloading Areas - Permanent areas where RCRA material is placed on, or removed from, vehicles.

4.5 Staging Areas - Temporary area established to load/offload trailers of RCRA material.

5.0 REFERENCES

5.1 SOP 20-C-606, "Hazardous Material Spill Clean-Up".

6.0 INDUSTRIAL HEALTH & SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Safety glasses shall be worn unless other eye protection is required by ES&H.

6.3 Chemical cover goggles or a face shield, rubber apron, and neoprene rubber gloves shall be worn when handling caustic, acids, or a chemical that could cause skin damage.

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6.0 INDUSTRIAL HEALTH & SAFETY REQUIREMENTS (cont.)

6.4 Respiratory protection issued by the supervisor shall be worn when required by ES&H.

6.5 Leather-palm gloves shall be worn while handling drums or operating equipment and when handling rough, sharp-edged, or contaminated materials.

6.6 In case of contact with acid or caustic, contaminated clothing shall be removed and the affected body area flushed with water in an eye bubbler/safety shower. Injured personnel shall report to Medical Services.

6.7 A release of hazardous waste shall be reported per SOP 20-C-606.

6.8 Employees shall have reviewed, and be familiar with, MSDSs for chemicals/hazardous materials that may be used or encountered.

6.9 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

6.10 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

7.0 GENERAL

7.1 Warnings, cautions, and notes precede the Item or Step to which they apply.

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8.0 **PROCEDURE**

NOTE: Areas shall be inspected at the start of day shifts when loading/unloading material is scheduled.

8.1 Inspecting Loading/Unloading Areas

NOTE 1: Emergency equipment shall be accessible, intact, and have a current inspection or charge tag.

NOTE 2: Containers of RCRA material and Recovery Drums with rust/corrosion, dents, holes, bulges or with any other condition that could have an adverse affect on container integrity are unacceptable.

NOTE 3: Floors and curbs shall be free of debris and intact (no cracks, breaks, holes).

NOTE 4: Not Applicable (N/A) shall be entered when an item does not apply.

8.1.1 Inspect loading/unloading areas and containers per the "RCRA Waste Loading/Unloading Area Inspection Log", Form FMPC-OPR-3268 (See Figure 1).

8.2 Staging Area Inspection

NOTE: Only one inspection per day is required, before or after loading/unloading RCRA material.

8.2.1 Inspect trailer Staging Areas per the "Trailer Staging Area Pre- and Post Load/Unload (RCRA Material) Inspection Checklist", Form FMPC-OPR-3305 (See Figure 2).

8.3 Record Distribution

NOTE 1: The supervisor shall obtain "Work Requests" (if applicable) to correct unacceptable conditions listed on the form and record the "Work Request" No. and date corrected on the form.

NOTE 2: Completed inspection forms shall be distributed as required and maintained in a file for three years from the date of the inspection.

8.3.1 Turn the completed inspection forms over to the supervisor.

9.0 **APPLICABLE FORMS**

9.1 FMPC-OPR-3268, "RCRA Waste Loading/Unloading Area Inspection Log".

9.2 FMPC-OPR-3305, "Trailer Staging Area Pre- and Post Load/Unload (RCRA Material) Inspection Checksheet".

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FMPC
RCRA WASTE LOADING/UNLOADING AREA INSPECTION LOG

Area: _____ Inspected By: _____ Badge No.: _____

Date: _____ Supervisor: _____ Badge No.: _____

ITEM	DESCRIPTION	ACCEPTABLE YES	ACCEPTABLE NO	DESCRIPTION OF UNACCEPTABLE CONDITION (1)	COMMENT
1	Fire Extinguisher (2 required)				
2	EXIT sign (3 posted)				
3	DANGER—NO SMOKING, OPEN FLAME OR MATCHES sign (1 posted)				
4	DANGER—AUTHORIZED PERSONNEL ONLY sign (1 posted)				
5	Recovery drums (3 required)				
6	Absorbent pads (6 required)				
7	Spill material PIGs (6 required)				
8	Leather palm gloves (3 pair required)				
9	Rubber gloves (3 pair required)				
10	Rubber boots (3 pair required)				
11	Disposable coveralls (3 required)				
12	Respirators and cartridges (3 required)				
13	Shovels (2 required)				
14	Brooms (1 required)				
15	Spill kits accessible				
16	Emergency call number posted				
17	Curb intact				
18	Floor/liner sealed/intact				
19	Free liquid on floor/liner				
20	Condition of containers (2)				

(1) If a Work Request was issued for correction, list the Request Number, Item Number, and date corrected: _____

(2) Indicate corrosion category (I, II, or III) or leaker type (I, II, or III) in the description column.

NO.	DISTRIBUTION OF COPIES	
1	ORIGINAL	WASTE MANAGEMENT CONTROL FILES
2	COPY	FACILITY OWNER

FMPC-OPR-3268 (2/25/91)

RCRA LOADING/UNLOADING AREA INSPECTION LOG
FMPC-OPR-3268
Figure 1

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FMPC
TRAILER STAGING AREA PRE- AND POST-LOAD/UNLOAD (RCRA MATERIAL)
INSPECTION CHECKSHEET

DATE:	AREA:	INSPECTED BY:

PRE-LOAD/UNLOAD INSPECTION

INSPECT FOR	ACCEPT-ABLE		DESCRIPTION	WORK REQUEST REQUIRED		WORK REQUEST NUMBER	DATE COMPLETED
	YES	NO		YES	NO		
Spill cleanup equipment accessible (1)							
Evidence of spill (2)							
Container condition (3)							

POST-LOAD/UNLOAD INSPECTION

INSPECT FOR	ACCEPT-ABLE		DESCRIPTION	WORK REQUEST REQUIRED		WORK REQUEST NUMBER	DATE COMPLETED
	YES	NO		YES	NO		
Signs of leakage							
Container condition (4)							
Material stored in accordance with applicable SOPs							

(1) Do not load or unload unless all spill equipment is accessible.
(2) Do not unload containers until spilled material has been removed and permission granted to unload.
(3) Do not load/unload damaged containers.
(4) Do not move damaged containers into storage.

REMARKS: _____

INSPECTOR SIGNATURE:	BADGE NO.:	DATE/TIME:
SUPERVISOR SIGNATURE:	BADGE NO.:	DATE/TIME:

NO.	DISTRIBUTION OF COPIES	
1	ORIGINAL	WASTE MANAGEMENT CONTROL FILES
2	COPY	FACILITY OWNER

FMPC-OPR-3305 (2/13/91)

TRAILER STAGING AREA PRE- AND POSTLOAD/UNLOAD
(RCRA MATERIAL) INSPECTION CHECKSHEET
FMPC-OPR-3305
Figure 2

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RECORD OF ISSUE/REVISIONS

ATE	REV. NO.	DESCRIPTION AND AUTHORITY
04-14-92	0	Procedure required for inspecting RCRA Loading/Unloading and Trailer Staging Areas per request P90-357, initiated by J. W. Ogg.
08-09-93	1	Revised to incorporate CIO C93-126 per Request P93-767 and update to conform with Procedure Program requirements.

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1.0 PURPOSE

This document provides the procedure for removing residue from wet and dry systems at the FEMP.

2.0 APPLICABILITY

This procedure applies to wet or dry systems containing hazardous or contaminated residual materials.

3.0 RESPONSIBILITIES

3.1 **Supervisors** shall be responsible for the following:

3.1.1 Ensuring that systems are cleaned in accordance with this procedure.

3.1.2 Obtaining and posting required permits and documents.

3.1.3 Ensuring that operators are qualified per the established training requirements identified by the Division Manager.

3.1.4 Contacting Industrial Hygiene or Radiological Control to determine the appropriate respiratory protection for the task being performed.

3.1.5 Issuing the required respiratory protection to operators.

3.1.6 Ensuring that Material Evaluation Form (MEF) has been completed and is available at the job site.

3.1.7 Ensuring that required safety equipment is present at the job site.

3.1.8 Assisting the Radiological Controls Technician (RCT) and Industrial Hygiene (IH) in establishing an exclusion zone.

3.1.9 Ensuring that compatible containers have the required markings and labelings.

3.1.10 Ensuring that the material being removed has been characterized prior to beginning work.

3.1.11 Reviewing applicable "Material Safety Data Sheets" (MSDS) with personnel.

3.1.12 Coordinating work activities with other departments, as needed, to perform the task.

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3.0 **RESPONSIBILITIES** (cont.)

3.1.13 Ensuring that the work area is surrounded by barriers when necessary.

3.1.14 Ensuring energy isolations are performed per SSOP-0719.

3.1.15 Establishing a "Satellite Accumulation Area" (SAA) per SSOP-0035 if a temporary storage location is required for the material being removed.

3.1.16 Providing operators performing this procedure with a two-way communications device.

3.1.17 Requesting Maintenance to open system to be cleaned and to close system after cleaning.

3.2 **Operators** shall be responsible for the following:

R 3.2.1 Obtaining a final disposition sample per SOP 01-C-101 if material
R identity is unknown.

R 3.2.2 Obtaining a sample for analysis of radionuclides per SOP 01-C-101 if
R a sample was not previously obtained..

3.2.3 Complying with this procedure.

4.0 **DEFINITIONS**

R 4.1 Asbestos Label - A label applicable to containers holding National Emission
R Standard for Hazardous Air Pollutants (NESHAP) Regulated asbestos.

4.2 Compatible Container - A drum (or other container, can, bottle, pail) that has been approved by Environmental Engineering for the material to be accumulated.

4.3 Exclusion Zone - A roped-off space around the system to be cleaned to prevent the spread of contamination by controlling access to the work area.

4.4 Hazardous Waste - A discarded material that is listed in the EPA Hazardous Waste List, fails the TCLP test, or exhibits any of the following three characteristics: ignitability, corrosivity, reactivity. Both "listed" and "Characteristic" Wastes are regulated under RCRA.

R 4.5 Hazardous Waste Marking - A label applicable to containers (of < 110 gal.
R capacity) holding RCRA regulated waste.

R 4.6 HazMat Label (NFPA 704 label) A diamond-shaped label (with sections
R representing fire, health, reactivity, and specific hazards) that is
R affixed to containers of hazardous material.

R 4.7 PCB Label - A label applicable to containers of < 110 gal. capacity)
R containing TSCA - regulated polychlorinated biphends (PCBs).

R 4.8 Radioactive Material - Material composed of radioactive or radioactively -
R contaminated material in excess of safe limits for unconditional
R release.

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4.0 **DEFINITIONS** (cont.)

R 4.9 Reactivity Group Code (RGC) - A hazardous waste identification system which
R ensures that no incompatible materials are accumulated or stored in the
R same area.

4.10 Satellite Accumulation Area (SAA) - A defined area approved for RCRA waste accumulation at or near the waste generation point.

4.11 Satellite Accumulation Container (SAC) - A portable polyethylene container that holds the equivalent of a 55 gallon drum.

4.12 Three-Day-Rule - A RCRA regulation requiring the transfer of containers of RCRA Waste to an approved storage facility within three days from the date the container is declared full.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

5.1.1 PO-D-026, "Site Services Document Program"

5.1.2 "FEMP Conduct of Operations Manual"

5.1.3 RM-0012, "Quality Assurance Program Description"

5.2 References

5.2.1 SOP 01-C-101, "Sampling Residue and Waste Materials"

5.2.2 SOP 20-C-912, "Checking Scale Operation"

5.2.3 SOP 20-C-606, "Hazardous Material Spill Clean-Up"

5.2.4 SOP 20-C-904, "General Nuclear Safety Requirements"

5.2.5 RM-0005, "FEMP Lot Marking & Color Coding System"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 Dust Collectors and Fire Suppression Systems, sitewide, are safety systems to which this procedure can be applied.

6.2 Prior to cleaning a system containing hazardous waste, radioactive waste, or asbestos, an exclusion zone shall be established.

6.3 A "Radiation Work Permit" (RWP), "Site Work Permit", "Asbestos Work Permit", and/or "Confined Space Entry Permit", as required, shall be posted.

6.4 Protective clothing and respiratory equipment specified by the permit shall be worn to enter the exclusion zone/work area and removed prior to exit.

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6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.5 A face shield or goggles and a rubber apron or splash suit shall be worn when removing lids or bungs from drums containing liquids and when the possibility exists of being splashed with caustics, acids or other hazardous chemicals.

6.6 Leather-palm gloves with cotton inner gloves shall be worn while handling drums and sharp-edged or abrasive material and while cleaning a system.

6.7 Chemical resistant gloves shall be worn when handling hazardous chemicals; the type of glove shall be determined by ES&H on the work permit.

6.8 Any release of hazardous waste shall be reported to the supervisor and handled per SOP 20-C-606.

6.9 Personnel safety equipment (eyewash, fire extinguishers, safety showers) shall be operational and readily available for emergencies.

6.10 Operators shall have reviewed and be familiar with Material Safety Data Sheets (MSDS) for hazardous material/chemicals that may be used or encountered.

6.11 Plastic lined drums for clothing/equipment shall be located inside the exclusion zone/work area. There shall be a drum for each type of protective clothing and/or equipment required.

6.12 Safety equipment, drums, and cleaning equipment shall be inside the exclusion zone.

6.13 All containers of material shall be properly identified.

6.14 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.15 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

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7.0 **GENERAL**

7.1 Warnings, Cautions, and Notes precede the step or item to which they apply.

8.0 **PROCEDURE**

8.1 Preparation for Cleanout of Wet or Dry Systems

NOTE: The supervisor shall obtain and post the required permits and proceed per SSOP-0719 (isolate the system to be cleaned, lock power sources off, and tag the power sources as required).

8.1.1 Notify the supervisor that the system is ready for clean-out.

8.1.2 If required, obtain the applicable completed Material Evaluation Form (MEF) from the supervisor.

8.1.3 Check that required permits are posted.

8.1.3.1 If not, notify the supervisor.

8.1.4 Determine the space necessary to establish an exclusion zone/work area.

8.1.5 Erect barricades around the perimeter of the exclusion zone.

8.1.6 Post warning and area entry requirement signs, as required, at the barricades.

8.1.7 Obtain clean, empty, drums for use as collection containers.

8.1.8 Tare weigh the drums per SOP 20-C-912.

8.1.9 Fill out the applicable portions, including drum tare weight, of an "Item Production/Certification/Identification" card, Form FS-F-1945-XX (See Figure 1).

CAUTION

Materials of different isotopic levels are incompatible and shall not be accumulated in the same drum or the drums placed within limits specified by SOP 20-C-904.

8.1.10 Mark the container with the applicable RGC.

R **NOTE**: Containers shall be marked and labelled to identify the material
R and hazards.

R 8.1.11 Stencil the containers with the applicable identification codes
R (Refer to RM-0005).

R **NOTE** : Labels that may be used are: Asbestos Label, Hazardous Waste
R Label, HazMat (NFPA) Label, or PCB Label.

R 8.1.12 Affix the appropriate label to the container.

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8.0 **PROCEDURE** (cont.)

R 8.1.13 If material is RCRA, mark the container with the "declared full" date.

R 8.1.14 Place the labelled, identified collection containers near the entrance
R to the exclusion zone.

8.1.15 Obtain the portable pump or vacuum system to be used for clean-out.

8.1.16 Ensure the pump/vacuum intake hose is long enough to reach the bottom of the system to be cleaned.

8.1.17 Remove the lid/bung from the collection container(s).

8.1.18 Clean the system per Item 8.2 or 8.3, as applicable.

8.2 Wet System Cleaning

NOTE 1: Air flow and/or electrical specifications shall match those of the power source in order for the pump to operate properly.

NOTE 2: The pump shall be specified by hazard code or a combination of hazard codes for the material being transferred.

8.2.1 Check the hazard codes and the electric or air capacity of the pump to be used.

8.2.1.1 If the pump hazard codes or power requirements are not as specified on the pump, notify the supervisor.

8.2.2 Place the pump inside the exclusion zone/work area.

8.2.3 Connect the pump to the plant electric power source or auxiliary generator power source.

8.2.4 Connect the air hose to the plant air supply or an air compressor.

8.2.5 Connect the hoses to the pump intake and discharge.

NOTE 1: The supervisor shall contact Industrial Hygiene and request that a technician monitor for airborne contaminants.

NOTE 2: The concentration of air contaminants shall be monitored before and after the system is opened.

NOTE 3: The supervisor shall contact Maintenance and request that the system be opened.

8.2.6 Notify the supervisor that the system is ready to be opened

8.2.7 Place the end of the pump discharge hose into the collection container opening.

8.0 **PROCEDURE** (cont.)

8.2.8 Ensure that electrical and hose connections are tight.

8.2.9 Start the pump at low speed, increasing gradually to moderate operating speed to avoid splashing.

8.2.9.1 If using compressed air, open the air supply nozzle slowly until pump is primed.

WARNING

Bulging containers may rupture, creating a health hazard for personnel in the area.

NOTE: A check shall be performed after pump startup and while the container is filling.

8.2.10 Check the collection container for bulging.

8.2.10.1 If the container starts to bulge, shut off the pump.

8.2.10.2 Notify the supervisor.

8.2.11 When the system is empty, remove the intake hose from the system.

8.2.12 Drain the pump and hoses into the collection container.

8.2.13 Check the sides and bottom of the wet system for residues.

8.2.13.1 Remove any solid residue using manual tools (such as shovels and spud bars).

8.2.13.2 Place solid residue in a separate container.

8.2.14 If the system contained RCRA material, proceed as follows:

8.2.14.1 Rinse the pump with solvent specified by the supervisor.

8.2.14.2 Drain the pump into the collection container.

NOTE: The pump shall be rinsed and drained three times.

8.2.14.3 Repeat Steps 8.2.14.1 and 8.2.14.2 two more times.

NOTE 1: The supervisor shall contact Industrial Hygiene and request that a technician monitor for airborne contaminants.

NOTE 2: The supervisor shall contact Maintenance and request that the system be closed.

8.2.15 Notify the supervisor that clean-out is completed.

8.2.16 Close and identify the container per Item 8.4.

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8.0 **PROCEDURE** (cont.)

8.3 Dry System Cleaning

8.3.1 Obtain a portable vacuum cleaner equipped with a HEPA filter.

8.3.2 Check that the cl er h a current DOP test label and that the label is intact.

8.3.2.1 If the label is m ssing, out-of-date, or damaged, notify the supervisor.

8.3.3 Check the amount of material to be removed from the system.

8.3.3.1 When the cleanout operation will yield more material than the capacity of the vacuum, obtain a drum with a knockout lid.

8.3.4 Place the portable vacuum in or near the exclusion zone/work area.

8.3.5 If a knockout drum is to be used, connect a hose to the drum inlet and another to the drum outlet.

8.3.6 Connect the vacuum to the plant electric power supply, if accessible, or to an auxiliary generator.

NOTE 1: The supervisor shall contact Industrial Hygiene and request that a technician monitor for airborne contaminants.

NOTE 2: The concentration of airborne contaminants shall be monitored before the system is opened and after the system is closed.

NOTE 3: The supervisor shall contact Maintenance and request that the system be opened.

8.3.7 Notify the supervisor that the system is ready to be opened.

8.3.8 Check that the vacuum intake hose is long enough for complete removal of material from the system to be cleaned.

8.3.8.1 If not, obtain a longer hose.

8.3.9 Connect the intake hose to the vacuum or knockout drum.

8.3.9.1 If a knockout drum is being used, connect a hose between the drum and vacuum.

8.3.10 Start the vacuum cleaner and remove material from the system.

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8.0 **PROCEDURE** (cont.)

WARNING

Bulging containers may rupture creating a health hazard to personnel in the area.

NOTE: The container shall be checked after vacuum startup and while the container is filling.

8.3.11 Check the collection container for bulging.

8.3.11.1 If the container starts to bulge, shut off the vacuum.

8.3.11.2 Notify the supervisor.

8.3.12 When cleaning is completed, remove the intake hose from the system.

8.3.13 Take the vacuum to a designated area or to the dust collector residue storage drum.

8.3.14 Remove the collection bag/canister from the vacuum.

8.3.15 Empty the vacuum cleaner collection bag/residues into the collection container.

8.3.16 If the removed waste material is RCRA, replace all the vacuum cleaner filters.

NOTE: The supervisor shall contact maintenance and request HEPA filter change.

8.3.17 Notify the supervisor that the HEPA filter requires change.

8.3.18 Rinse the insides of all hoses and hose attachments (tools), completely, using a solvent specified by the supervisor (usually water).

8.3.19 Drain the rinse water or solvent into the collection container.

NOTE 1: The supervisor shall contact Industrial Hygiene and request that a technician monitor for airborne contaminants.

NOTE 2: The supervisor shall contact Maintenance and request that the system be closed.

8.3. Notify the supervisor that clean-out is completed.

8.3.21 Close and identify the container per Item 8.4.

8.4 Collection Container Identification

8.4.1 Install a lid and lock ring and/or bung plug in the collection container.

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8.0 **PROCEDURE** (cont.)

8.4.2 Complete the FS-F-1945-XX card for the material in the collection containers.

R 8.4.3 DELETED

R 8.4.3.1 DELETED

NOTE: The supervisor shall arrange to have Quality Assurance inspect the collection containers and SACs and then have the containers transferred to the applicable building, or SAA warehouse for weighing and storage.

8.4.4 Inform supervisor that cleaning is completed.

8.4.5 If no releases occurred, remove and store spill containment equipment in a specified location.

8.4.6 If a spill release has occurred, handle and clean spill containment equipment per SOP 20-C-606.

9.0 **APPLICABLE FORMS**

9.1 FS-F-1945-XX, "Item/Production/Certification/Identification"

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CARD XX **ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION**

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE

PACKAGE SIZE

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		

PLANT	PROD. MBA
PLANT TO	MBA TO

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1945-XX (REV. 3/19/92)

CARD 65 **ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION**

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE

PACKAGE SIZE

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		

PLANT	PROD. MBA
PLANT TO	MBA TO

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1945-65 (REV. 3/19/92)

CARD 66 **ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION**

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE

PACKAGE SIZE

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		

PLANT	PROD. MBA
PLANT TO	MBA TO

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1945-66 (REV. 3/19/92)

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION
FS-F-1945-xx
Figure 1

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
02-18-93	0	Requirement for new procedure for removing residue from both wet and dry systems for safe shutdown per Request No. P92-400, initiated by E.A. Evans.
12-03-93	1	Revised to incorporate CIO's C93-521 (P93-1290), C93-522 (P93-1291), and P93-523 (P93-1292) and to update to conform to current RSO Procedure Program requirements.

REMEDIATION SUPPORT OPERATIONS PROCEDURE	EIMCO Filter Operation	SOP 08-C-605 Area: Plant 8

(Signature on File) Authorization: R.L. Gardner, Facilities & Waste Operations Mgr.	Supersedes: 8-C-605 Dated: 09-01-92	Issue Date: 06-21-93

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1.0 PURPOSE

The purpose of this document is to establish the procedure for operating the EIMCO Filter System.

2.0 APPLICABILITY

This procedure is applicable to the East and West EIMCO Filters.

3.0 RESPONSIBILITIES

3.1 **Supervisors** shall be responsible for the following:

3.1.1 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.2 Contacting Radiological Safety and/or Industrial Hygiene to determine appropriate respiratory protection and personal protective equipment for the material being processed.

3.1.3 Issuing the required protective equipment to operators.

3.1.4 Contacting Maintenance when repairs are required.

3.1.5 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.1.6 Obtaining and posting a "Radiation Work Permit" when required.

3.2 **Operators** shall be responsible for complying with this procedure.

4.0 DEFINITIONS

None

MAY 1994

5.0 APPLICABLE DOCUMENTS

5.1 Drivers

5.1.1 PO-D-026, "Site Services Document Program"

5.1.2 "FEMP Conduct Of Operations Manual"

5.2 References

5.2.1 SOP 8-C-104, "Makeup of Precoat Slurry and Precoating Rotary Vacuum Filters"

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5.0 **APPLICABLE DOCUMENTS** (cont.)

5.2.2 MS 8-BN/E-490-2, "Disposal of Waste Filtrate and Effluent"

5.2.3 RM-0005, "FEMP Lot Marking and Color-Coding System"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 A defined safety system is not involved.

6.2 Leather-palm gloves shall be worn when operating equipment or while handling sharp edged or abrasive material and metal drums.

6.3 Inner gloves shall be worn when the possibility of radiological contamination exists.

6.4 Rubber gloves (NITRILE or equivalent) shall be worn while taking samples and performing pH and dimple tests.

6.5 Safety glasses shall be worn unless additional eye protection is specified by the supervisor, ES&H, or posted signs.

6.6 Chemical cover goggles or a full face shield shall be worn by operators working under the EIMCO Filter chute.

6.7 Respiratory protection issued by the supervisor shall be worn when required by ES&H.

6.8 A "weep" hole for pressure equalization shall be kept open in filter drum head.

6.9 Floor area at tanks and the filter equipment shall be clean and dry.

6.10 Spills shall be cleaned as soon as the spill occurs.

6.11 Spills outside the diked areas and/or posted radiological contamination areas shall be reported to Radiological Safety for evaluation.

6.12 A guarded, self-closing knife shall be used to open material bags. The bag shall be cut in a direction away from the body.

6.13 When work is to be performed near the knife mechanism, the filter drum shall be stopped and away from the knife.

6.14 Personnel shall have reviewed and be familiar with MSDSs for hazardous chemicals/materials that may be used or encountered.

6.15 Radiological postings, instructions, and special requirements shall be complied with.

6.16 Operators in liquid splash possibility areas shall be familiar with the location of safety shower/eye bubbler stations.

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6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.17 In case of contact with corrosive or acidic liquids, contaminated clothing shall be removed and the affected body area thoroughly flushed with water in a safety shower/eye bubbler. Injured personnel shall report to Medical Services as soon as possible.

6.18 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.19 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the Step or Item to which they apply.

8.0 PROCEDURE

8.1 Receiving Liquid for Processing

NOTE 1: The supervisor shall specify the tank(s) to be used.

NOTE 2: UNH slurry shall be received into tank 203 or 203A only.

8.1.1 Open the Inlet Valve on Tanks 203, 203A, D-101, D-102, D-103, D-104, D-105, or F-104.

NOTE: The supervisor shall ensure that transfer valving preparations are correct and that the transfer line is checked for leakage during pumping.

8.1.2 Notify the supervisor when the specified valves have been opened.

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8.0 **PROCEDURE** (cont.)

8.1.3 Notify the General Sump Operator or the Refinery Sump Operator to start pumping slurry to Plant 8.

8.1.4 Check the level of material in the tank being used.

8.1.5 Check the tank to ensure that the slurry is being received.

8.1.5.1 If slurry is not being received, ensure that valves are open between the source and the receiving tank (Refer to Step 8.1.1).

8.1.5.2 If the correct valves are open, notify the Refinery Operator or General Sump Operator to stop pumping, and that the lines are to be blown out with air.

8.1.5.3 Notify the Supervisor.

8.1.6 When the blades are covered by material, start the agitator in the tank being used.

8.1.7 Monitor the tank level using the chart indicator located in the Plant 8 control room.

8.1.8 When the tank is three-fourths full, notify the General Sump Operator to discontinue pumping slurry.

8.1.9 Using process air, blow out the transfer lines.

8.1.10 If non-UNH slurry is being filtered, proceed as follows:

8.1.10.1 Obtain a dip sample of the material to be filtered from each Digestor Tank being used.

8.1.10.2 Using a pH test unit, check the pH of the slurry.

NOTE: When the pH is between 9 and 11, the slurry is ready to be filtered.

8.1.10.3 If the slurry pH is less than 9, add bagged lime through the tank manhole.

8.1.10.4 Repeat steps 8.1.10.1 thru 8.1.10.3 until the pH is 9 or above.

8.1.11 Obtain an empty drum premarked per RM-0005 for filter cake.

8.1.12 Place the drum on the conveyor.

8.1.13 Adjust the drum position under the discharge chute of the East/West EIMCO Filter.

8.0 **PROCEDURE** (cont.)

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NOTE: UNH slurry filtrate shall be pumped to tank 25A only.

8.1.14 Check Filtrate Hold Tanks 25A, 21A, 22A, and 28A for sufficient capacity to receive filtrate.

8.1.14.1 Notify the Supervisor if a tank will not hold slurry.

8.1.15 Open the outlet valves from the East/West EIMCO filter to the selected filtrate pump(s) (G43-107, G43-108, or G43-109).

8.1.16 Open the valves from the filtrate pump (G43-107, G43-108, or G43-109) to the selected filtrate hold tank.

8.1.17 Make up filter precoat slurry and precoat East/West EIMCO Filter per SOP 8-C-104.

8.2 Vacuum Pump Cooling Water Recirculating System Operation

8.2.1 Check that the vacuum pump for the EIMCO Filter being used is operating.

8.2.2 If tanks 21A, 22A, and 28A are to be used, open Process Water Inlet Valve R3-E on the East Filter Vacuum Pump or R5-W on the West Filter Vacuum Pump.

8.2.3 If Filtrate Hold Tank 25A is to be used, check the level chart in the Control Room to determine the capacity of the Tank.

8.2.4 If the level in Tank 25A is less than 20 units, open Process Water Inlet Valve R3-E on the East Filter Vacuum Pump or R5-W on the West Filter Vacuum Pump.

8.2.5 If the level in Tank 25A is greater than 20 units, start the Vacuum Pump Cooling Water Recirculating System as follows:

8.2.5.1 Ensure that Water Inlet Valve R3-E for the East Filter Vacuum Pump or R5-W for the West Filter Vacuum Pump is closed.

8.2.5.2 Open Valve R2-E on the east pump or R4-W on the west pump.

8.2.5.3 Ensure that the Outlet Valve at the bottom of tank 25A is closed.

8.2.5.4 Open Valve R-1 at the bottom of tank 25A.

8.2.5.5 Start the Recirculating Pump.

8.2.5.6 At the tank 25A return line pipe junction, visually check for cooling water flow.

8.2.5.7 If no flow is observed, ensure that Steps 8.3.5.1 thru 8.3.5.5 were performed and then repeat Step 8.3.5.6.

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8.0 **PROCEDURE** (cont.)

8.2.5.8 If all steps were confirmed and there is no flow, shut off the pump.

8.2.5.9 Notify the supervisor.

8.3 Filtering Uranium Slurry

8.3.1 Check the weep hole at the end of the filter.

NOTE: The cleaning tool shall remain in the EIMCO Filter Area.

8.3.1.1 If the weep hole is clogged, clean the hole with the cleaning tool.

NOTE: The vacuum pump keeps the precoat layer on the filter drum.

8.3.2 Ensure that NASH vacuum pump G43-113/G43-114 is operating (Refer to 8-C-104).

8.3.3 Open the valves in the line between the tank to be filtered and the Oliver Diaphragm Slurry (ODS) Pump(s) to be used (North/South and/or East/West).

8.3.4 Open the Discharge Valve from the tank to be filtered.

8.3.5 Open the North/South or East/West ODS Pump Outlet Valve.

8.3.6 Press the Scraper Drive START button.

8.3.7 Start the timer on the ODS Pump being used.

8.3.8 When precoating is completed, adjust the filter drum speed to 0.5 RPM.

8.3.9 Observe the filter. If liquid is not flowing into the basin, proceed as follows:

8.3.9.1 Using plant air, blow out the lines from the ODS Pump to the filter.

8.3.9.2 Using plant air, blow out the lines from the Feed Tank to the ODS Pump.

8.3.9.3 Check the flow into the basin.

8.3.9.4 If there is no flow, notify the supervisor.

8.3.10 Ensure that the precoat is sealed with slurry.

8.3.11 Set the Knife Advance Mechanism on the EIMCO Filter for a light precoat cut.

8.3.12 Lock the feeder regulator hand crank for the knife advance mechanism.

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8.0 **PROCEDURE** (cont.)

8.3.13 Turn on water spray per supervisors instructions.

NOTE: Water flow rate from spray nozzles will be adjusted after nitrate concentration of the filter cake is determined.

8.3.14 Adjust the nozzle flow rate as directed by the supervisor.

8.3.15 Take a four ounce sample from the Filtrate Hold Tank.

8.3.16 Check the filtrate for uranium as follows:

NOTE: The supervisor shall obtain a dimple tray, eye dropper, and required reagents from the laboratory and provide the items to the operator.

8.3.16.1 Notify the supervisor that a dimple test for uranium is required.

8.3.16.2 Fill the eye dropper with filtrate from the four-ounce sample.

8.3.16.3 Place ten drops of filtrate into a depression in the dimple tray.

8.3.16.4 Add three drops of potassium ferrocyanide to the filtrate.

8.3.16.5 Add three drops of acetic acid.

NOTE: If the sample material turns light yellow or light green, the filtrate does not contain detectable uranium. Brown or dark green indicates the presence of uranium.

8.3.16.6 Check the color of the filtrate against the color standard to determine if uranium is present.

8.3.17 If the filtrate contains uranium, proceed as follows:

8.3.17.1 Check, as determined by the supervisor, the pH of the liquid being filtered.

8.3.17.2 Check the pH of the filtrate.

8.3.17.3 Notify the supervisor of the pH results and proceed as directed.

8.3.18 When the dimple test is negative and the Filtrate Hold Tank being filled (25A, 21A, 22A or 28A) is full, proceed as follows:

8.3.18.1 Open/close valves as required to change flow to the next hold tank.

8.3.18.2 When the tank is 3/4 full, perform Steps 8.3.15 thru 8.3.17.

8.3.19 At the supervisors direction, start the agitator in the Filtrate Hold Tank (25A, 21A, 22A, or 28A) being used.

8.3.20 Take two four-ounce dip samples from the Filtrate Hold Tank.

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8.0 **PROCEDURE** (cont.)

8.3.21 Record the date, time, sample number, and tank number on a "Sample Log Sheet", Form FMPC-OPR-1632 (See Figure 2).

8.3.22 Complete a "Site-Wide Analysis Request/Custody Record", Form No. FS-F-3361 (See Figure 3).

8.3.22.1 Record material type, account number, date, submitted by, and sample number.

8.3.22.2 Request analyses of U lb/gal, Cu ppm, and pH.

8.3.23 Send the sample and form to the Analytical Laboratory.

NOTE 1: If analyses are not received from Analytical within two hours of submission, the supervisor may direct the operator to perform a field test of the filtrate.

NOTE 2: The following step is an alternative method for determining if material in the Filtrate Hold Tank may be pumped to the General Sump and shall only be performed at the direction of the supervisor.

8.3.24 At the supervisors direction, test for U and pH as follows:

8.3.24.1 Perform Steps 8.3.15 and 8.3.16.

8.3.24.2 Using the portable pH meter and the remainder of the sample, check the pH of the filtrate.

NOTE: The supervisor shall inform the Plant 8 Area Supervisor of the results.

8.3.24.3 Inform the supervisor of the dimple test and pH check results.

NOTE 1: If the dimple test and pH check indicate that the filtrate is within specification, the Plant 8 and General Sump Area Supervisors shall agree to the transfer of material from the hold tank to the General Sump without Analytical Laboratory results and make appropriate entries in the respective logbook.

NOTE 2: The Plant 8 Area Supervisor shall inform the Shift Supervisor that filtrate may be pumped to the General Sump.

8.3.24.4 At the supervisors direction, pump the Filtrate Hold Tank content to the General Sump.

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8.0 **PROCEDURE** (cont.)

NOTE: If the lab results show that filtrate is in-specification, for U lb/gal, Cu, and pH (Refer to MS 8-BN/E-490-2), the supervisor shall direct that filtrate be pumped to the General Sump.

8.3.25 After notification by the supervisor that the filtrate is in-specification, proceed as follows:

8.3.25.1 Call the General Sump and request permission to pump filtrate.

8.3.25.2 When the General Sump Operator grants permission, pump the filtrate to the General Sump.

NOTE: If lab results show that filtrate is out-of-specification (Refer to MS 8-BN/E-490-2) the supervisor shall direct that the filtrate be sampled and pumped to a Digester tank, if necessary, after sampling.

8.3.26 After notification by the supervisor that the filtrate is out-of-specification, proceed as follows:

8.3.26.1 Take an eight ounce dip sample from the tank.

8.3.26.2 Send the sample for analyses per Steps 8.3.21 thru 8.3.23.

8.3.26.3 If sample results indicate that filtrate is out-of-specification, pump filtrate to a Digester Tank (D101, D102, D103, D104, or D105).

8.3.26.4 If results show filtrate is within limits, proceed per Step 8.3.24.

8.3.27 If the General Sump can not receive in-specification filtrate and the filtrate tank in use is full, proceed as follows:

8.3.27.1 If the Filtrate Hold Tank in use was 21A, 22A, or 28A, check to see if either of the other tanks can receive filtrate.

8.3.27.2 If capacity is available, open the required valves to transfer filtrate to another Filtrate Hold Tank.

8.3.27.3 If capacity is not available and the delay is temporary, place the system on stand-by per Item 8.5.

8.3.27.4 If the delay will be extensive, shut down the filter per Item 8.6.

8.4 Removing and Replacing the Product Drum

8.4.1 Close the Slide Valve.

8.4.2 Remove the full drum.

8.4.3 Place a color-coded, premarked drum (Refer to RM-0005) under the chute.

8.4.4 Open the Slide Valve.

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8.0 PROCEDURE (cont.)

8.4.5 Install a lid and lock ring on the filled product drum.

WARNING

If the material on the drum is dry, respiratory protection issued by the supervisor shall be worn when wiping drums.

8.4.6 Using a clean rag, remove all material from the outside of the drum.

8.4.7 Place the used rags in a drum that is color-coded for contaminated trash (Refer to RM-0005).

8.4.8 Weigh the full drum.

8.4.9 Fill out an "Item Production/Certification/Identification" card, Form FS-F-1945-XX (See Figure 4).

8.4.10 Using a handstacker or fork truck, place the filled drum on a clean skid.

8.4.11 Ensure that the drum is correctly identified with a 15-digit code per RM-0005.

8.4.12 Secure the drum to the skid with an approved strap prior to moving the skid.

8.4.13 Give the 1945-XX card to the supervisor.

8.5 Placing the Filter on Standby

8.5.1 Shut off the water spray.

8.5.2 Shut off the ODS Pump(s).

8.5.3 Close the valves from the Feed Tank.

NOTE: The rotating drum, with vacuum applied, will continue to pick up residual slurry from the filter bowl to seal the drum surface.

8.5.4 Stop the knife blade drive.

8.5.5 Release the knife from the drive.

8.5.6 Retract the knife blade.

8.5.7 Open the drain valve and empty the basin to the Digestor or floor sump as directed by the supervisor.

8.5.8 Rinse the basin with process water.

8.5.9 Close the drain valve.

8.0 **PROCEDURE** (cont.)

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8.5.10 Turn off the agitator (if on).

NOTE 1: When the Filtrate Pump is shut off, the filter will be on STANDBY.

NOTE 2: The vacuum shall remain on to keep the precoat from falling off the drum.

8.5.11 Shut off the Filtrate Pump being used (G43-107, G43-108 or G43-109).

8.6 Shutting Down Filter Operation

8.6.1 Perform Steps 8.5.1 through 8.5.7.

8.6.2 Fill the basin with water to slurry the residual solids.

8.6.3 Shut off NASH Vacuum Pump G43-118 or G43-114.

8.6.4 Open the Filter Basin Valve in the lines connected to Tank F-104.

8.6.5 Wash residual precoat and solids from the filter and filter basin into Tank F-104 until the filter and filter basin are completely clean.

CAUTION

Tank F-104 shall not be allowed to overflow.

8.6.5.1 If the liquid level in the Tank F-104 rises above the 3/4 full level, shut off the water until the tank drains.

8.6.6 Shut off the filter basin agitator.

8.6.7 Stop drum rotation.

8.6.8 Close the valves in the lines between the filter basins and Tank F-104.

8.7 Emergency Shutdown

8.7.1 Shut off the ODS Pumps.

8.7.2 Stop the knife blade drive.

9.0 **APPLICABLE FORMS**

9.1 FMPC-OPR-1632, "Sample Log"

9.2 FS-F-3361, "Site-Wide Analysis Request/Custody Record"

9.3 FS-F-1945-XX, "Item Production/Certification/Identification"

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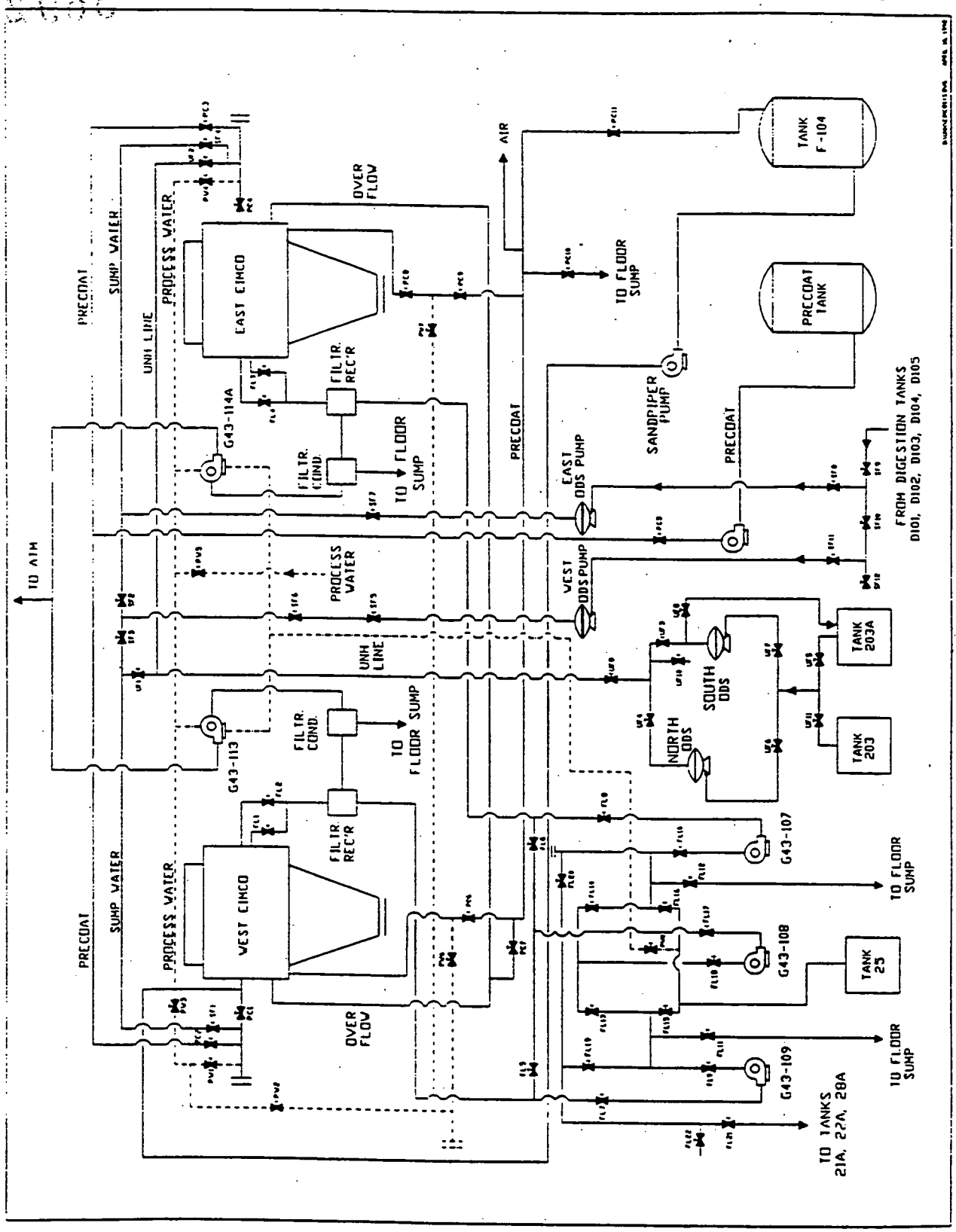

SYSTEM DIAGRAM
Figure 1

FMPC

RECOVERY PLANT - PLANT 8

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SAMPLE LOG

(For Samples Submitted to Analytical Dept.)

SAMPLE NUMBER	TIME SAMPLE TAKEN	DATE	TANK, DIGESTER OR MATERIAL	ANALYSES		TIME ANALYSES RECEIVED

NO.	DISTRIBUTION OF COPIES
1	Area Foreman - Plt. 8 (RECORD COPY)

SAMPLE LOG
FMPC-OPR-1632
Figure 2

FERNALD SITE
SITE SERVICES - ANALYTICAL

Form Number: ...

SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD

Page ... of

PROJECT:

☐ PLAN NO.: OR ☐ PROJECT NO.:

PROJECT MANAGER/ENGINEER:

FOR SAMPLE RELATED PROBLEMS, CONTACT:
ORGANIZATION:
NAME: PHONE:

SAMPLER: PHONE:

CHARGE NUMBER: LOT MARKING CODE:

SAMPLER SIGNATURE(S):

SEND RESULTS TO:

SAMPLER REMARKS:

CHECK FOR: ☐ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

ITEM NO.	SAMPLE NUMBER	CUSTOMER NUMBER	SAMPLE POINT	MATRIX CODE	COLLECTED DATE	COLLECTED TIME	CONTAINER/ VOLUME	COMPOSITE	GRAB	NO. OF CONTAINERS	ANALYTES CODE - (UNITS CODE)	REMARKS
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME	ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME

NO.	DISTRIBUTION OF COPIES
1	LABORATORY
2	REQUESTER
3	SAMPLER

SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD
FS-F-3361
Figure 3

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CARD XX ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA
				EMPTY CONTAINER AT START				
				RUST HOLES OR DENTS				
				MATERIALS AS CODED			PLANT TO	MBA TO
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS				
				LIQUIDS IN CONTAINER				
PACKAGE TYPE				MINIMUM OF VOID SPACE				
PACKAGE SIZE				PACKAGE SECURED				
				DRAIN PLUG SECURED				

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-XX (REV. 3/19/92)

CARD 65 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA
				EMPTY CONTAINER AT START				
				RUST HOLES OR DENTS				
				MATERIALS AS CODED			PLANT TO	MBA TO
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS				
				LIQUIDS IN CONTAINER				
PACKAGE TYPE				MINIMUM OF VOID SPACE				
PACKAGE SIZE				PACKAGE SECURED				
				DRAIN PLUG SECURED				

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-65 (REV. 3/19/92)

CARD 66 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA
				EMPTY CONTAINER AT START				
				RUST HOLES OR DENTS				
				MATERIALS AS CODED			PLANT TO	MBA TO
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS				
				LIQUIDS IN CONTAINER				
PACKAGE TYPE				MINIMUM OF VOID SPACE				
PACKAGE SIZE				PACKAGE SECURED				
				DRAIN PLUG SECURED				

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-66 (REV. 3/19/92)

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION
FS-F-1945-XX
Figure 4

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
09-01-92	0	Document Requirement for EIMCO Filter Operation per CIO C92-055 (Request No. P92-220), initiated by C. Glassmeyer.
06-21-93	0	Reissued to add Vacuum Pump Cooling Water Recirculating System data per Request No. P93-096, initiated by C. Glassmeyer, incorporate CIOs, C92-174 (Request No. P93-489), and C93-076 (Request P93-596), and update to conform to Procedure Program requirements.

Fernald Environmental Management Project Fernald Environmental Restoration Management Corp. REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM		Page 1 of 9 Revision No. 0 Revision Date: N/A
REMEDIATION SUPPORT OPERATIONS PROCEDURE	**Bird Carcass and Dropping Removal**	**SOP 20-C-610** Area: As Applicable
(Signature on File) Authorization: R.L. Gardner, Facilities & Waste Operations Mgr.	Supersedes: 20-C-610 Dated: 10-27-89	Issue Date: 05-18-93

NON-CONTROLLED COPY

1.0 PURPOSE

The purpose of this document is to establish the procedure for the removal and disposal of bird carcasses and droppings.

2.0 APPLICABILITY

This procedure is applicable to RSO areas where birds are currently roosting and/or carcasses/droppings are present.

3.0 RESPONSIBILITIES

3.1 Supervisors shall be responsible for the following:

3.1.1 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.2 Ensuring that involved personnel are authorized by Medical.

3.1.3 Contacting Industrial Hygiene and, if required Radiological Safety to determine the appropriate respiratory protection for the task and area.

3.1.4 Issuing the required respiratory protection to operators.

3.1.5 Contacting Industrial Hygiene to obtain a "Work Permit" prior to the start of removal/disposal.

3.1.6 Coordinating with Industrial Hygiene to inspect the work area before startup and after completion.

3.1.7 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.2 Operators shall be responsible for the complying with this SOP.

4.0 DEFINITIONS

None

5.0 APPLICABLE DOCUMENTS

5.1 Drivers

5.1.1 PO-D-026, "Remediation Support Operation Document Program"

5.1.2 "FEMP Conduct of Operations Manual"

MAY 1994

5.0 **APPLICABLE DOCUMENTS** (cont.)

5.2 References

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5.2.1 SOP 20-C-602, "Inspection & Operation of Nilfisk Portable Vacuum Units"

5.2.2 SOP 20-C-603, "Removal & Replacement of Nilfisk Portable Vacuum Unit Filters & Dust Bag"

5.2.3 PP-FMPC-0719, "Energy Control (Lockout and Tagout)"

6.0 **INDUSTRIAL HEALTH & SAFETY REQUIREMENTS**

6.1 A defined safety system is not involved.

6.2 Safety glasses shall be worn unless additional eye/face protection is specified by the supervisor, ES&H, or posted signs.

6.3 Full-face or hooded airline respiratory protection issued by the supervisor shall be worn when required by ES&H.

6.4 Operators shall have reviewed and be familiar with MSDSs for hazardous materials/chemicals that may be used or encountered.

6.5 Used respirators, with canister/cartridge removed shall be placed in polyethylene bags and tied shut.

6.6 Company issued coveralls and rubber gloves shall be worn for removing small accumulations of bird droppings and carcasses.

6.7 TYVEK vapor barrier coveralls, rubber gloves, and rubber boots shall be worn for large accumulations.

6.8 When wearing TYVEK coveralls in hot weather, a cold vest shall also be worn to control heat stress.

6.9 Leather-palm gloves shall be worn over the rubber gloves if debris must be picked up by hand.

6.10 Hands and face shall be washed prior to entering break rooms, before eating, drinking, smoking, donning respirator, after removing respirator, and at completion of job.

6.11 The condition of an employee shall be evaluated by Medical if a cut on the hand, cold, allergy, or other medical condition exist.

6.12 A NILFISK high efficiency particulate air (HEPA) filter vacuum shall be used in accordance with SOP 20-C-602 and SOP 20-C-603.

6.13 Industrial Hygiene shall inspect the area at the beginning and at the completion of work.

6.14 Industrial Hygiene shall specify the detergent/fungicide used for wetting carcasses/droppings.

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6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.15 A barricade shall be erected around the work area.

6.16 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.17 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Warnings, Cautions and Notes precede the Step to which they apply.

7.2 The supervisor shall have Industrial Hygiene inspect the bird carcass and dropping removal work area before starting the task and upon completion.

7.3 The supervisor shall have the Facility Owner shut off electrical equipment in the area and lock and tag the equipment per PP-FMPC-0719.

8.0 PROCEDURE

8.1 Removal

8.1.1 Rope off the area perimeter and access points to be cleaned.

8.1.2 Post signs per Figure 1.

8.1.3 Wet the carcasses/droppings area with a combination detergent/fungicide solution.

8.1.4 Allow detergent/fungicide solution to soak for approximately 10 minutes.

8.0 PROCEDURE (cont.)

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8.2 Disposal and Cleanup

8.2.1 Obtain a drum to be used for disposal of carcasses/droppings.

8.2.2 Install two plastic liners in the drum.

WARNING

Required protective clothing and equipment shall be utilized.

8.2.3 Pick up carcasses and large pieces by hand and place in the lined drum.

8.2.4 Using a shovel, pick up smaller pieces.

8.2.5 Sweep the area with a hard bristle broom.

8.2.6 Using a shovel and the broom, place the sweepings in the drum.

WARNING

The vacuum shall only be used for dry material.

8.2.7 Using a NILFISK vacuum per SOP 20-C-602, remove the remaining small amounts of dried material.

8.2.8 Wet the affected area with detergent/fungicide solution.

8.2.9 Remove NILFISK vacuum dust bag per SOP 20-C-603.

8.2.10 Place the dust bag in the drum.

8.2.11 Remove the bags from the drum.

8.2.12 Fold the open end of the bags and seal with vinyl tape.

8.2.13 Place the bag in a white metal box.

8.2.14 Seal the box.

8.2.15 Apply labels (Refer to Figure 2) to top and side of the box.

8.2.16 Remove rope and signs from perimeter of work area.

8.2.17 Wash brooms and shovels with hot, soapy water and rinse with detergent/fungicide solution.

8.2.18 Remove respirator and respirator cartridges.

8.2.19 Place the respirator (less canister/cartridge) in the polyethylene bag.

8.2.20 Seal and label the bag per Figure 2.

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8.0 **PROCEDURE** (cont.)

8.2.21 Place the respirator bag in the designated drum.

8.2.22 Place respirator canister in designated drum as specified by supervisor.

8.2.23 Remove protective clothing and dispose of in designated drum.

8.2.24 Complete Section 1 of a "Bird Carcass/Droppings Box Transfer" sheet, form FMPC-PRO-2030 (See Figure 3).

8.2.25 Give the form to the supervisor.

NOTE: The supervisor shall contact Transportation and arrange for the box to be moved to storage.

8.2.26 Dispose of the white metal box as directed by the supervisor.

9.0 **APPLICABLE FORMS**

None

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CAUTION

POSSIBLE BIOLOGICAL HAZARD

SPECIAL PROTECTIVE EQUIPMENT REQUIRED

AREA POSTING SIGNS
Figure 1

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CAUTION

POSSIBLE BIOLOGICAL HAZARD

HANDLE ACCORDING TO APPROVED PROCEDURES

BOX LABELS
Figure 2

BIRD CARCASS/DROPPING BOX TRANSFER

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ORIGINATING LOCATION:

1.	ORIGINATING LOCATION:			
	BY:	NAME:	BADGE NUMBER:	DATE:
		SIGNATURE:		

TRANSFER TO:

2.	TRANSFER TO:			
	TRANSPORTATION PICK UP:	NAME:	BADGE NUMBER:	DATE:
		SIGNATURE:		

STORAGE:

3.	RECEIPT OF TRANSFER:	NAME:	BADGE NUMBER:	DATE:
		SIGNATURE:		
	INCINERATION COMPLETED:	NAME:	BADGE NUMBER:	DATE:
		SIGNATURE:		

TRANSMIT COMPLETED FORM TO OPERATIONS PROJECT MANAGER.

BIRD CARCASS/DROPPINGS BOX TRANSFER
FMPC-PRO-3020
Figure 3

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
10-27-89	0	Procedure requirement for Bird Carcass and Dropping Removal per Request No. P89-426 (C89-029).
05-18-93	0	Reissued to update and reformat per Request No. P93-197, initiated by M. Hundley.

REMEDIATION SUPPORT OPERATIONS PROCEDURE	BAGHOUSE TYPE DUST COLLECTOR FILTER REMOVAL/REPLACEMENT	SGP 20-C-709 Area: As Applicable
(Signature on File) Authorization: R.L. Gardner, Facilities & Waste Operations Mgr.	Supersedes: 20-C-709 Dated: 02-16-90	Issue Date: 07-26-93

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1.0 PURPOSE

The purpose of this document is to provide the procedure for removing and replacing baghouse type dust collector filters.

2.0 APPLICABILITY

This procedure is applicable to the baghouse type dust collectors at the FEMP.

3.0 RESPONSIBILITIES

3.1 **Production Supervisors** shall be responsible for the following:

3.1.1 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.2 Ensuring that all required safety equipment is present at the jobsite.

3.1.3 Assisting Maintenance and the Radiation Control Technician in designating a roped off Exclusion Zone.

3.1.4 Ensuring that drums to contain removed filters, respirator, and protective clothing are present and that the drums have plastic liners.

3.1.5 Obtaining and posting a "Radiation Work Permit" (RWP).

3.1.6 Obtaining and posting a "Confined Space Entry Permit", if required.

3.1.7 Inspecting the cleaned dust collector, if applicable.

3.1.8 Obtaining and posting a "Work Permit" if a permit is required.

3.1.9 Coordinating work activities with the Maintenance Supervisor.

3.1.10 Shutting off power to equipment, locking the power off, and tagging equipment.

3.1.11 Contacting ES&H to determine the appropriate hazard warnings for NFPA Labels and for informing operators of the hazard warning.

3.1.12 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

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3.0 **RESPONSIBILITIES** (cont.)

3.13 Contacting Radiological Control and/or Industrial Hygiene to determine the appropriate respiratory protection for the task being performed.

3.14 Issuing the required respiratory protection to operators.

3.2 **Operators** shall be responsible for complying with this procedure.

3.3 **Radiological Control** shall be responsible for the following:

3.3.1 Issuing the RWP.

3.3.2 Testing sealed drums for contamination.

3.4 **Industrial Hygiene** shall be responsible for issuing a "Confined Space Entry Permit" when a permit is required.

3.5 **Maintenance** shall be responsible for the following:

3.5.1 Removing filter bags.

3.5.2 Assisting in designating the Exclusion Zone.

4.0 **DEFINITIONS**

4.1 Exclusion Zone - A roped-off or barricaded space around the dust collector to prevent contamination by controlling access to the work area.

4.2 Double Pack Drums - 48 gallon jughead drums for packing inside 55 gallon drums.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

5.1.1 PO-D-026, "Site Services Document Program"

5.1.2 "FEMP Conduct of Operations Manual"

5.1.3 RM-0012, "Quality Assurance Program Description"

5.2 References

5.2.1 SOP 20-C-602, "Inspection and Operation of Nilfisk Portable Vacuum Units"

5.2.2 SOP 20-C-701, "Operation of Hoffman Portable Dust Collectors"

5.2.3 SOP 20-C-708, "Inspecting/Troubleshooting Baghouse Type Dust Collectors and Precipitrons"

5.2.4 SOP 20-C-904, "General Nuclear Safety Requirements"

5.2.5 RM-0005, "FEMP Lot Marking and Color Coding System"

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6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

.1 A defined safety system is not involved, except for the Pilot Plant collectors.

6.2 Nuclear safety requirements of SOP 20-C-904 and the applicable Manufacturing Specification shall apply for material removed from dust collectors.

6.3 A roped-off Exclusion Zone shall be established prior to starting work requiring entry into the dust collectors.

6.4 A "Radiation Work Permit", "Work Permit", and if necessary, a "Confined Spaced Entry Permit" shall be posted outside the dust collector.

6.5 Eye protection, protective clothing, and respiratory equipment specified by the RWP shall be put on prior to entering the Exclusion Zone and removed prior to leaving the zone.

6.6 Respiratory protection issued by the supervisor shall be worn when required by ES&H.

6.7 Leather-palm gloves with cotton inner gloves shall be worn while handling drums and sharp edged or abrasive material, while cleaning the dust collector, and when working with dust collector equipment.

6.8 Plastic lined drums for each type of protective clothing or equipment shall be located inside the Exclusion Zone.

6.9 Safety equipment, drums, and vacuum cleaners shall be located inside the Exclusion Zone.

6.10 Safety helmets shall be worn by personnel working around and inside the dust collectors.

6.11 Finger dosimeters shall be worn while inside the Pilot Plant and Plant 5 dust collectors where an Exclusion Zone is required by the RWP.

6.12 Before entering the filter housing, the dust collector power shall be shut off, locked, and tagged OUT-OF-SERVICE.

6.13 Filters shall be contained in plastic bags prior to removal from the baghouse.

6.14 Spills of dust collector residue shall be removed with a HEPA filtered vacuum as soon as the spill occurs.

6.15 Residues spills or loose material shall not be allowed outside of the dust collector.

6.16 The In-Place Test Label on HEPA filtered vacuums shall be intact and current (tested within one year).

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS** (cont.)

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6.17 Protective clothing shall be vacuumed and anti-contamination clothing removed prior to removal of respiratory equipment.

6.18 Portable lights shall be available when entering the dust collector, while work is being performed inside the collector, and when exiting the collector.

6.19 Personnel and equipment shall be frisked prior to leaving the Exclusion Zone.

6.20 All containers of residues shall be identified with an NFPA Label.

6.21 Two-way communications devices and emergency response equipment shall be available to personnel performing this procedure.

6.22 Operators shall have reviewed and be familiar with MSDSs for hazardous materials/chemicals that may be used or encountered.

6.23 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.24 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 **GENERAL**

7.1 Warnings, Cautions, and Notes precede the Step or Item to which they apply.

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8.0 PROCEDURE

CAUTION

Dust collectors that are classified as excess, abandoned-in-place, or standby, shall not be started or operated.

8.1 Preparing for Exclusion Zone Establishment

NOTE: Repeatedly strike the plenum for two to three minutes.

8.1.1 If the dust collector has an overhead contaminated air plenum and no access doors, use a rubber mallet and gently tap the plenum walls to dislodge particles.

8.1.2 If the dust collector has an overhead contaminated air plenum and an access door, proceed as follows:

8.1.2.1 Check that the required permits are posted.

8.1.2.2 Notify the Supervisor if the permits are not posted.

8.1.2.3 Open the plenum access doors.

NOTE: If necessary, a Hi-Vac or a HEPA equipped vacuum can be used to remove residues.

8.1.2.4 Without entering the plenum, push residues into bag openings.

8.1.2.5 When the plenum is clean, close the access doors.

8.1.3 If the dust collector is equipped with a shaker type filter cleaning system, proceed as follows:

CAUTION

Do not operate the cleaning mechanism while the dust collector is off.

NOTE: Do not operate pulse jets or blowring blowers.

8.1.3.1 Start and operate the shaker mechanism for five minutes.

8.1.4 Remove residues from dust collection hoppers per the applicable dust collector SOP.

8.1.5 If not already done, notify operators of serviced equipment/areas of dust collector shutdown.

8.0 **PROCEDURE** (cont.)

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8.1.6 Shut off the dust collector.

NOTE: The supervisor shall shut off power to the dust collector, associated Hi-Vac, and filter cleaning systems, lock the power off, and tag the power sources DANGER - DO NOT OPERATE per "Energy Control (Lockout and Tagout)" PP-FMPC-0719.

8.1.7 Notify the supervisor that the dust collector is ready for filter removal and cleaning.

8.2 Exclusion Zone Establishment

NOTE: The supervisor shall specify drum sizes, the number of drums required, and hazard warnings.

8.2.1 Obtain the following items and place the items near the dust collector:

(A) empty plastic lined double pack drums to contain contaminated waste.

NOTE: A hose, with a knockout drum, may be connected to an operating Hi-Vac and used instead of the vacuum.

(B) HEPA filtered portable vacuum approved for radionuclides.

(C) cart or table for storage of safety equipment and supplies, such as respirators, anti-contamination clothing, tape, and drum liners.

(D) plastic lined drums to hold contaminated safety equipment and clothing.

8.2.2 Ensure that the drums are marked and color coded per RM-0005.

8.2.3 Affix an NFPA Label (See Figure 1) with appropriate hazard warnings to the inner and outer drums.

8.2.3.1 If the hazard warning to be used is unclear or unknown, contact the supervisor.

NOTE: Position the air hoses according to job function served, manpower required, necessary freedom of movement, and pedestrian safety.

8.2.4 Run, position, and tag airline respirator hoses.

NOTE 1: The F&WO Supervisor, Maintenance Supervisor, and RST shall coordinate to establish the Exclusion Zone.

NOTE 2: When the Exclusion Zone is completed, the supervisor shall post the required permits at the entry/exit point.

8.2.5 Notify the supervisor that the area is ready for Exclusion Zone establishment.

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8.0 **PROCEDURE** (cont.)

.2.6 After the Exclusion Zone area has been identified, check that the necessary equipment (Refer to Step 8.2.1) is inside the area.

8.2.6.1 If not, notify the supervisor.

8.3 Cleaning the Collector for Filter Removal

8.3.1 Check to ensure that an "RWP", "Work Permit", and "Confined Space Entry Permit" are posted at the Exclusion Zone entrance.

8.3.1.1 If not, notify the supervisor.

NOTE: The supervisor shall notify ES&H before personnel enter a confined space.

8.3.2 Inform the supervisor that the dust collector is ready to be entered.

CAUTION

Enter the Exclusion Zone only at the designated entry point.

8.3.3 Put on the safety equipment specified by the permits and enter the Exclusion Zone.

8.3.4 Open the access door and enter the baghouse.

.3.5 Cover the Main Exhaust opening with a sheet of plastic.

8.3.6 Using the portable vacuum or the Hi-Vac hose, clean the floors, walls, top and bottom of the blowrings, and/or exhaust duct.

8.3.6.1 If required by conditions, wipe down the areas with a cloth.

8.3.7 Exit the baghouse.

8.3.8 Notify the supervisor that the collector is ready for filter removal.

8.4 Removing/Replacing Filters

8.4.1 For blowring collectors, proceed as follows:

8.4.1.1 Open a large plastic bag.

WARNING

Do not stand under blowrings.

CAUTION

Do not remove unbagged filters from the collector.

.4.1.2 Hold the bag under the filter that is being removed by Maintenance.

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8.0 PROCEDURE (cont.)

8.4.2 For collectors other than blowrings, proceed as follows:

CAUTION

If the collector does not have access, avoid spilling residue while removing the filter from the collector.

NOTE: Maintenance shall remove the filters from the connections and place the filters on the baghouse floor or in the collection hopper.

8.4.2.1 Lift and place each of the filters in a plastic bag.

NOTE: One bag can contain two to five large filters.

8.4.3 When the plastic bag is full, proceed as follows:

8.4.3.1 Gently press on the bag to remove trapped air.

8.4.3.2 Twist the end of the bag.

8.4.3.3 Tape the bag shut.

8.4.4 Remove the bagged filters from the collector, if applicable.

NOTE 1: If a double-pack drum is not available, the bag from blowring units shall be left in the baghouse until a double-pack drum is obtained.

NOTE 2: If double-pack drums are not available, plastic bags containing filters from non-blowring units may be stored outside the unit if entrance to the unit is not possible.

8.4.5 Place the bag in a double-pack drum.

8.4.6 If residues are spilled outside of the baghouse, use vacuum and clean up the material as soon as possible.

8.4.7 When the double-pack drum is full, lid the drum.

8.4.8 Secure the lid with a lock ring.

8.5 Post-Maintenance Cleaning

8.5.1 If there is any spilled residues, use the portable vacuum unit and remove the material.

8.0 **PROCEDURE** (cont.)

CAUTION

Unwired drive chains could move when stepped on.

8.5.2 When cleaning blowring type collectors, check to ensure that the blowring drive chains are tied off or wired in position to prevent movement.

8.5.2.1 Secure loose chains.

8.5.3 For blowring type collectors, use an oily rag to wipe down the inside of the overhead contaminated air plenum.

NOTE: Always start to clean at the top of the baghouse.

8.5.4 On the uncontaminated side of the filter bags, use an oily rag to wipe the top half of the baghouse walls, the top of the blowrings (if applicable), connectors, thimbles, and cleaning mechanisms.

8.5.5 Clean the bottom half of the blowrings (if applicable), the lower half of the walls, outside of thimbles, and baghouse floor.

8.5.6 Remove the plastic sheets from the exhauster openings.

8.5.7 Dispose of the plastic sheet in the appropriate container for contaminated material.

NOTE: The supervisor shall notify Maintenance that the collector is ready for new filter bags.

8.5.8 Inform the supervisor that the dust collector is ready for filter bag installation.

8.6 Exiting the Exclusion Zone

8.6.1 Using the HEPA filtered vacuum, clean hands and anti-c clothing.

NOTE: Do not remove plastic and cloth gloves.

8.6.2 Remove leather-palm gloves.

8.6.3 Place the gloves in the appropriate drum.

8.6.4 Remove tape and anti-c clothing.

8.6.5 Place the anti-c clothing in the appropriate drum.

8.6.6 Remove the respirator.

8.6.7 Place the respirator in the appropriate drum.

8.6.8 Remove plastic and cloth gloves.

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8.0 **PROCEDURE** (cont.)

8.6.9 Place the gloves in the appropriate drum.

8.6.10 Proceed to the entry/exit point and frisk hands, clothing, and head.

8.6.11 If no contamination is found, exit the Exclusion Zone.

CAUTION

Do not exit without permission.

NOTE: The supervisor shall notify the RST of the situation.

8.6.11.1 If contamination is found, contact the supervisor.

8.6.11.2 Proceed as directed by the supervisor/RST.

NOTE: An RST shall be present before removing tools/drums.

8.7 Removing Work Materials/Drums from the Exclusion Zone

8.7.1 Put on the protective clothing for entering the Exclusion Zone.

8.7.2 Move tools and drums to the Exclusion Zone entry/exit point.

8.7.3 Frisk the tools.

8.7.4 Place uncontaminated tools outside of the Exclusion Zone.

8.7.4.1 If the tool is contaminated, clean the tool and repeat the frisk.

NOTE 1: The RST shall smear test all drums, empty or full, and ensure that the drums are uncontaminated and sealed.

NOTE 2: The supervisor shall designate the exit point for drums. The exit point may be different than the personnel exit point.

8.7.4.2 Clean the tools as directed by the RST.

8.7.5 At the supervisors direction, remove drums certified as uncontaminated by the RST.

8.7.5.1 If smear test reveals contamination, clean the drum and request the RST to repeat the smear test.

8.7.5.2 If necessary, clean the drum as directed by the RST.

8.7.6 When all drums and tools have been removed, proceed per Item 8.5.

9.0 **APPLICABLE FORMS**

None

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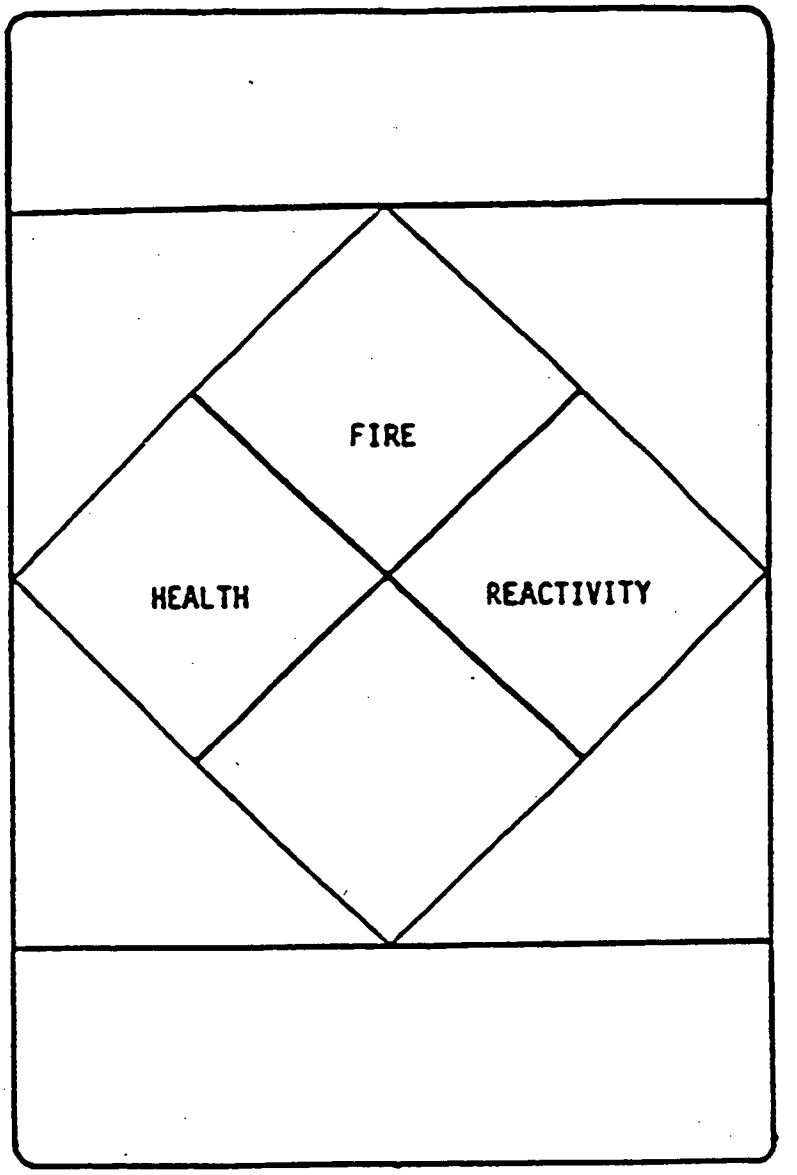

NFPA LABEL
Figure 1

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
02-16-90	0	Procedure for changing baghouse type dust collector filters required per CIO C89- 042 (P90-144).
12-21-92	1	Revised to incorporate CIOs C92-030 (P92-240), C92-031 (P92-241), C92-032 (P92-239), C92-033 (P92-242), C92-035 (P92-243), C92-036 (P92-244), and C92-042 (P92-245) and to update to conform to procedure program requirements. Note preceding Step 7.2.6 changed editorially to correct HVAC, should be Hi-Vac.
07-26-93	0	Reissued to update technical content per Request No. P93-137, initiated by C. Glassmeyer.

REMEDIATION SUPPORT OPERATIONS PROCEDURE	Overpacking Defective Containers	SOP 20-C-600 Area: As Applicable

(Signature on File) Authorization: H. Bailey Materials Management Mgr.	Supersedes: 01-C-804 Dated 06-10-88	Issue Date: 03-06-91

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1.0 **PURPOSE**

The purpose of this document is to establish the procedure for overpacking defective containers.

2.0 **APPLICABILITY**

This procedure shall apply to material containers which are defective or unacceptable for storage.

3.0 **RESPONSIBILITY**

3.1 Supervisors shall be responsible for the following:

3.1.1 Ensuring that personnel are qualified per the existing training requirements identified by the Division Manager.

3.1.2 Making the final determination to overpack a container.

3.1.3 Ensuring that defective containers hold compatible materials when multiple containers are to be overpacked into a single overpack drum.

3.1.4 Designating appropriate lifting device.

3.1.5 Supplying the Materials Control and Accountability (MC&A) Specialist with recorded information taken from container(s), including forms.

3.1.6 Contacting Industrial Hygiene or Radiological Control to determine the appropriate respiratory protection for the process being performed.

3.1.7 Issuing the required respiratory protection to operators.

3.1.8 Immediately notifying the Assistant Emergency Duty Officer (AEDO) in the event of a hazardous material spill or abnormal event.

3.1.9 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.2 Operators shall be responsible for complying with this procedure.

MAY 1994

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4.0 DEFINITIONS

4.1 Overpack Drum - A drum into which one or more smaller defective containers are placed.

4.2 Defective Container - A box, can, or drum with holes, dents, bulges and/or corrosion which is unacceptable for storage of material.

4.3 Overpack Tare Weight - The sum of the empty weight(s) from the defective container(s) plus the empty weight of the overpack drum.

4.4 Overpack Net Weight - The weight of the content of the container.

4.5 Overpack Gross Weight - The total weight of the completed overpack.

5.0 APPLICABLE DOCUMENTS

5.1 Drivers

5.1.1 PO-D-026, "Site Services Document Program"

5.1.2 FEMP Conduct of Operations Manual

5.2 References

5.2.1 SOP 20-C-602, "Inspection and Operation of Nilfisk Portable Vacuum Units"

5.2.2 SOP 20-C-904, "General Nuclear Safety Requirements"

5.2.3 FMPC-2178, "Lot Marking and Color Coding System"

5.2.4 SOP 20-C-606, "Hazardous Material Spill Cleanup"

5.2.5 SOP 20-C-912, "Checking Scale Operation"

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Safety glasses with side shields shall be worn unless other eye protection is specified by ES&H.

6.3 Respiratory protection issued by the supervisor shall be worn when required by ES&H.

6.4 Leather-palm gloves shall be worn to protect the hands from rough or sharp edged material and possible contamination.

6.5 A NILFISK HEPA type filter vacuum cleaner shall be used in accordance with SOP 20-C-602, or a vacuum system approved by ES&H, when cleanup is required.

6.6 As applicable, nuclear safety requirements of SOP 20-C-904 shall be followed in the handling of depleted, normal, and/or enriched material.

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6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.7 Any release of hazardous material shall be reported immediately per SOP 20-C-606.

6.8 Operators shall have reviewed and be familiar with MSDSs for hazardous materials/chemicals that may be used or encountered.

6.9 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.10 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the Item or Step to which they apply.

8.0 PROCEDURE

8.1 Overpacking into Drums

8.1.1 Place a tarpaulin, plastic sheet, or other equivalent material on the ground in the loading area.

NOTE 1: If multiple containers are to be overpacked into a single overpack drum, the supervisor shall ensure that defective containers contain compatible materials.

NOTE 2: If defective containers are vented, the supervisor shall ensure overpack drums are vented.

8.1.2 Select defective containers to be overpacked.

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8.0 **PROCEDURE** (cont.)

8.1.3 Inspect the area around the defective container(s).

NOTE 1: Leaking container(s) shall be overpacked within 24 hours from time of discovery.

NOTE 2: The supervisor shall report the spill and direct spill cleanup per SOP 20-C-606.

8.1.3.1 If material is visible around the container(s), notify the supervisor.

NOTE: Containers loaded on a pallet for transport shall be strapped.

8.1.4 Strap the defective drums to a pallet for transport.

CAUTION

Carefully move the defective containers(s) to prevent further damage.

8.1.5 Move defective containers to loading area.

NOTE: HEPA filtered vacuum systems shall not be used if the HEPA test has expired or test sticker is broken.

8.1.6 Using a vacuum, remove the spilled material.

8.1.7 Complete "Container Overpack Information" sheet, Form FMPC-PRO-2987 (See Figure 1) with data from defective container(s).

NOTE: Supervisor shall contact ES&H, Transportation or MC&A as applicable for assistance in identifying material/container markings.

8.1.7.1 If the information which appears on the defective drum(s) is illegible and/or non-existent, contact supervisor.

8.1.8 Prepare new markings/labels for the overpack drum by using the identification from the markings/labels on the defective container(s).

8.1.9 Transmit overpack form to the MC&A Specialist's Office for verification.

8.1.9.1 If the form is not acceptable, correct any discrepancies with assistance from MC&A.

8.1.9.2 Notify supervisor as necessary.

8.1.10 Obtain required overpack drum according to material compatibility and defective container size.

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8.0 PROCEDURE (cont.)

8.1.11 Inspect the overpack drum for damage per Tables 1, 2, and 3.

R 8.1.11.1 DELETED

8.1.12 Ensure scale to be used has been inspected and calibrated per SOP 20-C-912.

8.1.13 Tare weigh the empty overpack drum.

8.1.14 Record the overpack drum tare weight on Form FMPC-PRO-2987.

8.1.15 Move the empty overpack drum to the loading area.

8.1.16 Remove the gasket, locking ring, and lid.

8.1.17 Ensure that the forklift or hoist/lifting device specified by supervisor has been checked per the applicable SOP.

WARNING

Keep fingers out of pinch points while lowering defective container(s) into overpack.

NOTE: Other lifting equipment may be utilized with the approval of the immediate supervisor and ES&H.

8.1.18 Using the specified forklift/or hoist and lifting device, place defective container(s) into the overpack drum. (See Figure 2)

8.1.19 Check condition of gasket, lock ring, and drum lid.

8.1.19.1 Replace damaged items.

8.1.20 Seat lid and gasket evenly on overpack drum.

NOTE: Locking bolt shall be positioned no more than six inches from the seam of the drum.

8.1.21 Place locking bolt ring, with the flanges point downward from the lock ring, around the drum lid.

8.1.22 Install locking bolt shaft through the unthreaded flange, locking nut, and threaded flange (See Figure 3) so that the locking bolt head rests against unthreaded flange.

8.1.23 Tighten the locking bolt or latch lever lock.

8.1.24 Manually tighten the locking nut against the threaded flange.

8.1.25 Using a wrench, tighten the locking nut against the threaded flange an additional 1/4 turn.

R - MATERIAL REVISED, ADDED, OR DELETED.

8.0 **PROCEDURE** (cont.)

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8.1.26 Weigh the completed overpack and record the overpack gross weight on Form FMPC-PRO-2987 (See Figure 1).

NOTE 1: Overpack tare weight shall be determined by adding of the tare weight(s) of the defective container(s) to the tare weight of the overpack drum.

NOTE 2: Overpack net weight shall be determined by subtracting the overpack gross weight from the overpack tare weight.

8.1.27 Calculate overpack tare and net weights.

8.1.28 Record the overpack tare weight and the overpack net weight on Form FMPC-PRO-2987.

R **NOTE** 1: Full and partially full containers shall be labelled with the
R identity of the content.

NOTE 2: Paint sticks may be used until proper stenciling can be performed.

NOTE 3: Stencil or marking shall be legible block letters 1½-inches in height (minimum).

NOTE 4: The drum labeling arrangement in Figure 4 is effective upon date of issue of this procedure. Drums labeled prior to this date shall not require relabeling.

8.1.29 Using information from Form FMPC-PRO-2987, stencil/paint the required identification per Figure 4, using applicable section number.

8.1.29.1 If the overpack drum contains non-RCRA material or uncharacterized material, stencil/paint the FEMP Lot Marking Code followed by the drum number using two lines (See Figure 4, Section 1).

8.1.29.2 If the overpack drum contains RCRA material, stencil/paint the FMPC Lot Marking Code followed by the drum number using one line as shown in Figure 4, Section 2.

8.1.30 Affix all markings/labels previously prepared to the overpack drum per Figure 4.

8.1.31 Transmit the overpack form to the supervisor or the MC&A Specialist.

NOTE: Containers loaded on a pallet for transport shall be strapped.

8.1.32 Move the overpack as instructed by the supervisor.

8.1.33 Record location on the "Permanent Inventory Record", Form FMPC-CONT-367 (See Figure 5) and transmit to MC&A.

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8.0 **PROCEDURE** (cont.)

8.2 Overpacking into Double Lid Drums

8.2.1 Complete Steps 8.1.1 thru 8.1.14.

8.2.2 Stencil TOP on side of the overpack drum, left of center, and near top bolt ring.

8.2.3 Stencil BOTTOM on side of the overpack drum, left of center, and near the bottom bolt ring (See Figure 4, Section 6).

8.2.4 Remove the bolt ring, gasket, and lid from drum end marked BOTTOM.

8.2.5 Place a pallet in the loading area.

8.2.6 Place a 24-inch x 1½-inch plywood disk on top of the pallet.

8.2.7 Check condition of gasket, bolt ring and drum lid.

8.2.7.1 Replace damaged items.

8.2.8 Place the overpack drum bottom lid on top of the plywood disk with the inside of the lid facing up.

NOTE: Locking bolt shall be positioned no more than six inches from the seam of the drum.

8.2.9 Place locking bolt ring around the lid of the overpack drum ensuring the flanges point upward from the lock ring (See Figure 4).

CAUTION

Carefully move the defective container(s) to prevent further damage.

8.2.10 Using the specified forklift/or hoist and lifting device, center the defective container(s) on the disk/lid.

8.2.11 Using the lifting device, place the overpack drum with a lid assembly on the end of the drum marked TOP, over the defective container(s).

8.2.12 Seat overpack drum evenly on lid and gasket.

8.2.13 Complete steps 8.1.22 thru 8.1.25.

8.2.14 Remove the bolt ring, gasket, and lid from drum end marked TOP.

8.2.15 Complete steps 8.1.19 thru 8.1.33.

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8.0 **PROCEDURE** (cont.)

8.3 Overpacking into Vented Single Lidded Drums

NOTE: Supervisor shall specify the method used to make the vent holes in the overpack drum.

8.3.1 Complete step 8.1.1 thru 8.1.16.

8.3.2 Using the method specified by supervisor, make two ¼-inch to 1-inch holes (180 degrees apart) in the side of the drum approximately 1-inch below the top rim of the overpack drum ensuring vent holes do not interfere with the lock ring (See Figure 4, Section 3).

NOTE: The word VENT shall be 1½-to 2-inches high and located under the bottom chime at the drum seam (drum centerline) (See Figure 4, Section 3).

8.3.3 Using a stencil and white paint, mark the side of the drum with the word VENT to indicate the drum has been vented.

8.3.4 Record the required data on the "Drum Venting Record", Form FMPC-OPR-3228 (See Figure 6).

8.3.5 Complete steps 8.1.17 thru 8.1.33.

8.4 Overpacking into Vented, Double Lidded Drums

8.4.1 Complete steps 8.1.1 thru 8.1.15.

8.4.2 Stencil TOP on the side of the overpack drum, near bolt rings.

8.4.3 Stencil BOTTOM on the other side of drum near bolt rings.

8.4.4 Position drum with TOP end up (See Figure 4).

8.4.5 Remove the bolt ring, gasket, and lid from drum end marked TOP.

8.4.6 Complete steps 8.3.2 thru 8.3.4.

8.4.7 Complete steps 8.2.5 thru 8.2.12.

8.4.8 Complete Steps 8.1.22 thru 8.1.25.

8.4.9 Complete steps 8.1.19 thru 8.1.33.

9.0 **APPLICABLE FORMS**

9.1 FMPC-PRO-2987, "Container Overpack Information"

9.2 FMPC-CONT-367, "Permanent Inventory Record"

9.3 FMPC-OPR-3228, "Drum Venting Record"

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TABLE 1
CORROSION INSPECTION CATEGORIES

CATEGORY	CHARACTERISTIC	COULD CAUSE LOSS OF DRUM INTEGRITY		CORRECTIVE ACTION
		YES	NO	
A	Severe corrosion with deep pitting and/or metal flaking	X		1. Notify supervisor. **NOTE**: The drum requires disposition as directed by supervision within 24 hours.
B	Corrosion with shallow pitting and/or mild metal flaking		X	1. Notify supervisor. **NOTE**: Dispostion shall be determined by the supervisor following review of completed inspection form.
C	Surface rust with no pitting and mild paint flaking which exposes bare metal		X	1. Notify supervisor. **NOTE**: Repainting shall be scheduled by supervisor.

R R

TABLE 2
LEAKER INSPECTION CATEGORIES

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TYPE	CHARACTERISTIC	CORRECTIVE ACTION
I	Material flowing from container and accumulation on pallet or pad.	1. Notify supervisor. **NOTE** 1: Supervisor shall notify the AEDO. **NOTE** 2: Supervisor shall initiate an Occurrence Report. 2. Immediately stop or contain leak. 3. Record on inspection form that the container requires mitigation within 24 hours. 4. Complete additional cleanup as necessary.
II	Material on drum exterior only; no material on pallet or pad.	1. Record leak on inspection form. 2. Notify supervisor. **NOTE** 1: Supervisor shall initiate an Occurrence Report and notify the AEDO and Utilities Engineer. **NOTE** 2: Supervisor shall review the completion inspection forms to prioritize containers for transfer to overpack staging area and subsequent mitigation.
III	Container exterior discolored/visible contamination; no material release.	1. Record condition on inspection form. **NOTE** 1: Supervisor shall schedule container for overpacking. **NOTE** 2: Supervisor shall initiate an Occurrence Report.

R
R

TABLE 3
DENT/BULGE CRITERIA

5692

R

TYPE	CHARACTERISTIC	CORRECTIVE ACTION
1	Dents and/or bulges affect container to degree of potential or actual release.	Overpack or transfer to new container.
2	Dents and/or bulges not affecting container integrity.	Continue to monitor.
3	No visible dents and/or bulges on the container.	No action necessary.

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CONTAINER OVERPACK INFORMATION

DATE: _____ BADGE: _____

LOT NUMBER	DEFECTIVE CONTAINER WEIGHTS				OVERPACK WEIGHTS				ADDED INFORMATION				DRUM FROM			OVER-PACK SIZE IN GALLONS	VISUAL LOSS OF MATERIAL	LIQUID MATERIAL
	DRUM NO.	GROSS	TARE	NET	DRUM NO.	GROSS	TARE	NET	GAIN	LOSS	WET	DRY	AREA	ROW	STACK		X = YES	
TOTALS																		

FS-F-2987 (REV 9-3/91)

CONTAINER OVERPACK INFORMATION
FORM FMPC-PRO-2987
Figure 1

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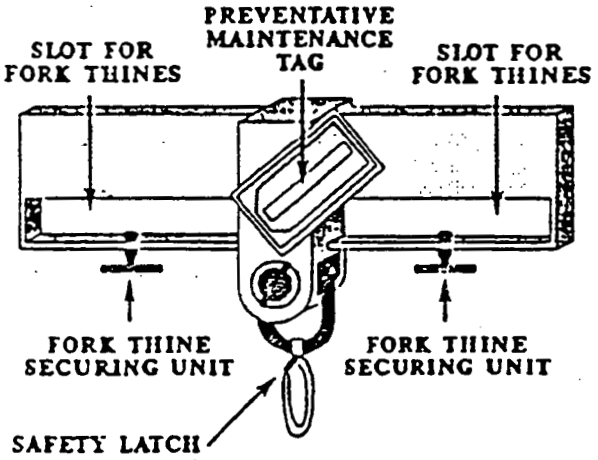
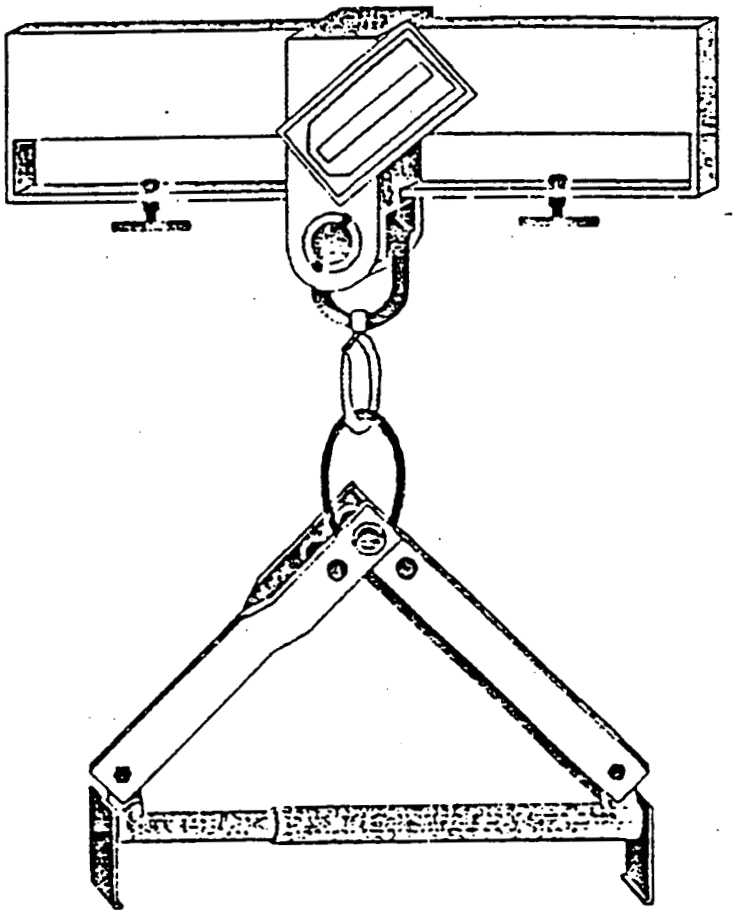
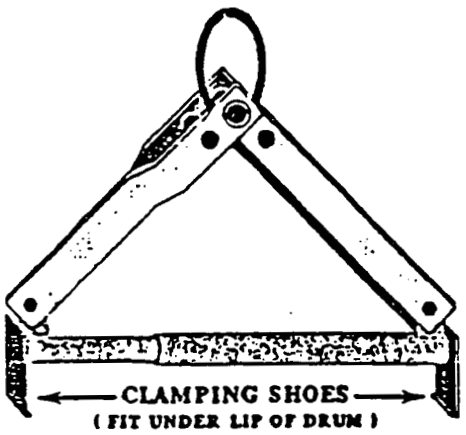
LIFTING/HANDLING FIXTURE



LIFTING/HANDLING SETUP FOR FORK TRUCK/HAND STACKER



'RUM LIFTING DEVICE



TYPICAL LIFTING/HANDLING EQUIPMENT
Figure 2

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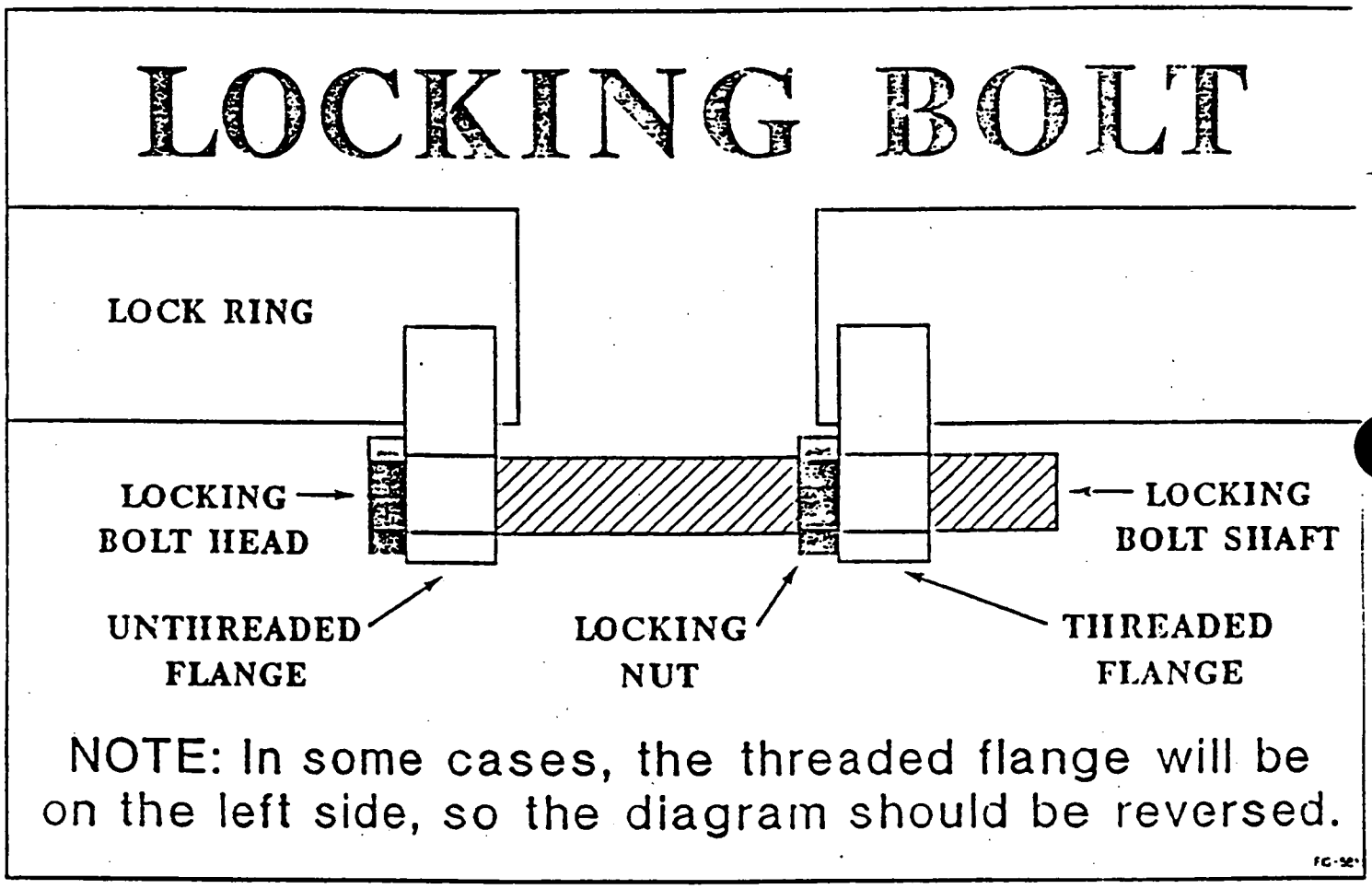

INSTALLATION OF BOLT-TYPE LOCKING RING
Figure 3

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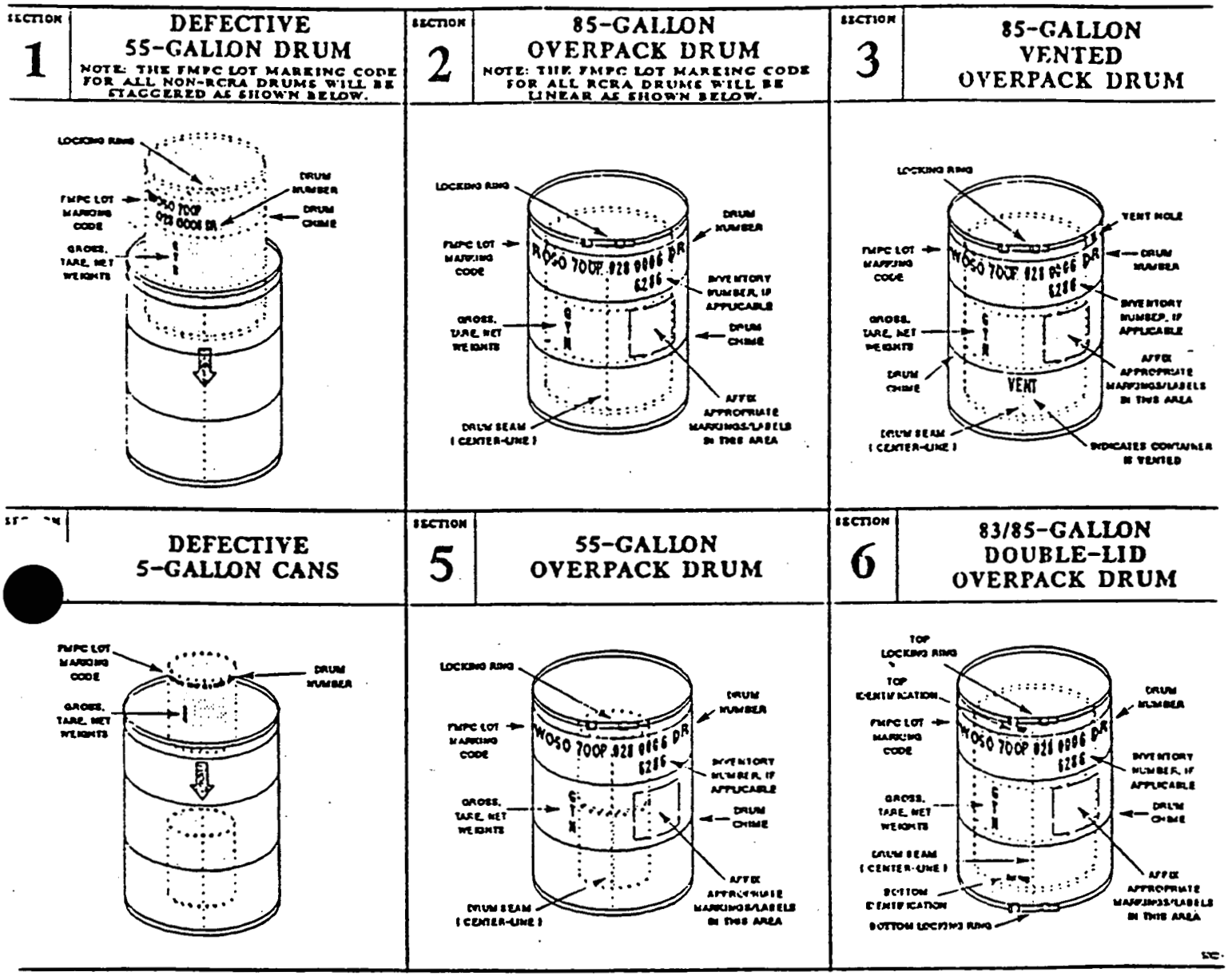

DIAGRAM OF OVERPACK/DEFECTIVE CONTAINER IDENTIFICATION
Figure 4

5692

FMPC
CONTROLLER'S ORGANIZATION - MATERIALS CONTROL AND ACCOUNTABILITY
PERMANENT INVENTORY RECORD

DATE:	INVENTORY SHEET NUMBER:
PLANT:	AREA:	NUCLEAR MATERIAL:

LINE NO	BADGE NUMBER	INVENTORY NUMBER	LOT NUMBER					DRUM NO	GROSS WEIGHT POUNDS	TARE WEIGHT POUNDS	NET WEIGHT POUNDS	MBA	LOCATION			DRUM SIZE	YES
			P O NUMBER	SOURCE	CLASS	MATERIAL	SEQUENCE						ROW	STACK	LEVEL		OP POOS
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
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14																	
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16																	
17																	
18																	
19																	
20																	

PERMANENT INVENTORY RECORD
FORM FMPC-CONT-367
Figure 5

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FMPC
DRUM VENTING RECORD

Plant: _____

DRUM NUMBER	LOT NUMBER	MTC/SRC	DAMAGED/ DEFORMED		DRUM VENTED		DATE	OPERATOR NAME AND BADGE NUMBER	OVERPACK	
			YES	NO	YES	NO			YES	NO

REMARKS: _____

FMPC-OPR-3228 (2-2-91)

DRUM VENTING RECORD
FORM FMPC-OPR-3228
Figure 6

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
03-06-91	0	Requirement for a new procedure for overpacking defective containers per Request No. P91-058 initiated by J. W. Ogg.
09-11-91	1	Revised to replace Figure 1 with current form per Request No. P91-404, initiated by J. Ogg.
08-09-93	2	Revised to incorporate CIOs C93-129 (P93-768), C93-525 (P93-817), C93-526 (P93-818), C93-528 (P93-819), and update to conform with Procedure Program requirements. Supersedes 01-C-804, dated 06-10-88.

REMEDIATION SUPPORT OPERATIONS PROCEDURE	Cleaning Sump Systems	SOP 20-C-916 Area: As Applicable
(Signature on File) Authorization: R.L. Gardner Facilities & Waste Operations Mgr.	Supersedes: None	Issue Date: 07-09-92

NON-CONTROLLED COPY

1.0 PURPOSE

The purpose of this document is to provide the procedure for cleaning sumps and sump systems.

2.0 APPLICABILITY

This procedure is applicable to all sump systems located at the FEMP.

3.0 RESPONSIBILITIES

3.1 Supervisors shall be responsible for the following:

3.1.1 Coordinating with support organizations when assistance is required.

3.1.2 Ensuring that sump systems are emptied in accordance with this procedure.

3.1.3 Ensuring that material removed from sumps and sump systems is disposed of in accordance with this procedure.

3.1.4 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.5 Obtaining material and equipment required to clean sumps and dispose of removed material.

3.1.6 Contacting Industrial Hygiene or Radiological Control to determine the appropriate respiratory protection and/or protective clothing/equipment required for the process being performed.

3.1.7 Issuing the required respiratory protection to operators.

3.1.8 Ensuring that empty rinse drums are cleaned and stored for reuse or disposition.

3.1.9 Obtaining and posting "Radiation Work Permits" and "Confined Space Entry Permits" when required.

3.1.10 Ensuring that work areas are surrounded by barriers when necessary.

3.1.11 Reviewing applicable "Material Safety Data Sheets" (MSDS) with operators.

3.1.12 Ensuring that sump liquid and sludge characterization has been performed prior to starting work.

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3.0 RESPONSIBILITIES (cont.)

3.1.13 Establishing a "Satellite Accumulation Area" if a temporary storage location is required for the material removed from the sump.

3.2 **Remediation Support Operations (RSO)** shall be responsible for the following:

3.2.1 Obtaining a final disposition sample.

3.2.2 Obtaining a sample for analysis of radionuclides.

3.2.3 Moving containers and SACs to and from pumping operations per section procedure PO-S-06-001.

3.2.4 Complying with applicable regulations, including requirements specified by the Environmental Protection Agency, Ohio State Fire Marshal, Department of Energy, and the FEMP.

3.2.5 Obtaining EPA and UN numbers.

3.3 **Industrial Hygiene** shall be responsible for the following:

3.3.1 Monitoring air contaminant concentration while material is being removed from the sump systems.

3.3.2 Issuing "Confined Space Entry" permits when required.

3.4 **Radiological Control** shall be responsible for the following:

3.5.1 Radiological surveys.

3.5.2 Issuing "Radiation Work Permits" (RWP) when required.

3.5.3 Specifying personnel protective equipment before operators work in or around a radiologically contaminated area.

4.0 DEFINITIONS

4.1 Compatible Container - A drum that has been approved for the material to be accumulated.

4.2 Hazardous Waste - A material which is listed on the EPA Hazardous Waste List or exhibits ignitability, corrosivity, reactivity, or exceeds Toxicity Characteristic Leaching Procedure (TCLP) limits. Both "listed" and "characteristic" wastes are regulated under RCRA.

4.3 Collection Container - A drum that is used to transfer material from a sump system to a designated location.

4.4 Release - Any unplanned event that allows hazardous waste to enter the ground, water, or the air, within or beyond the boundaries of the FEMP.

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4.0 **DEFINITIONS** (cont.)

4.5 Resource Conservation and Recovery Act (RCRA) - The Congressional Act which establishes safe and environmentally acceptable management practices for specific wastes.

4.6 Satellite Accumulation Area (SAA) - A defined area approved for waste accumulation at or near the waste generation point.

4.7 Satellite Accumulation Container (SAC) - A portable polyethylene container that holds one 55-gallon drum and contains material that may be released.

4.8 Three-Day Rule - A RCRA regulation requiring the transfer of containers in an SAC are transferred to an approved storage facility within three days from the date the container is filled.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

5.1.1 PO-D-026, "Site Services Document Program"

5.1.2 "FEMP Conduct of Operations Manual"

5.1.3 RM-0012, "Quality Assurance Program Description"

5.2 References

5.2.1 SOP 1-C-101, "Sampling Residue and Waste Material"

5.2.2 SOP 20-C-605, "Control of Satellite Accumulation Areas"

5.2.3 SOP 20-C-606, "Hazardous Material Spill Cleanup"

5.2.4 RM-0005, "FEMP Lot Marking and Color Coding System"

5.2.5 PO-S-06-001, "Movement of Hazardous Waste"

5.2.6 SSOP-0002, "Completing the Material Evaluation Form"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 A defined safety system is not involved.

6.2 Safety glasses shall be worn unless other eye protection is specified by the supervisor, ES&H, or posted signs.

6.3 Respiratory protection issued by the supervisor shall be worn when required by ES&H.

6.4 Face shields and goggles shall be worn when removing lids or bungs from drums containing liquids and when a possibility exists of being splashed with liquids.

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6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.5 A rubber apron or splash suit shall be worn if there is a possibility of being splashed with caustic, acids, or other hazardous chemical.

6.6 Leather-palm gloves shall be worn when handling containers, operating equipment, and when handling rough, sharp-edged, or contaminated materials.

6.7 Neoprene rubber gloves shall be worn when handling hazardous chemical material.

6.8 Any release of hazardous waste shall be reported to the supervisor and handled per SOP 20-C-606.

6.9 Personnel safety equipment (eyewash, fire extinguishers, safety showers) shall be operational and readily available for emergencies.

6.10 Operators shall have reviewed, and be familiar with, MSDSs for hazardous material/chemicals that may be used or encountered.

6.11 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.12 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the Item or Step to which they apply.

8.0 **PROCEDURE**

8.1 Emptying Sump Systems

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8.1.1 If not already done, prepare a "Material Evaluation Form" per SSOP-0002 for the material in the sump to be cleaned.

8.1.1.1 If sampling is required, proceed per SOP 1-C-101.

NOTE: The supervisor shall complete a "System Content Removal Checklist - Supervisors Daily Startup Checklist."

8.1.2 Complete the following forms:
- (A) "Daily Sump System Activity Verification Checklist," (See Figure 1)
- (B) "Sump System Content Removal - Equipment Checklist," (See Figure 2)
- (C) "Sump System Content Removal - Drumming Area Checklist," (See Figure 3)
- (D) "Sump System Content Removal - Drum Activity Completed Checklist," (See Figure 4)

8.1.3 Erect barricades around the work area.

8.1.4 Post warning and area entry requirement signs at the barricades.

NOTE: Before delivery to removal site, containers shall be tare weighed, and the weight recorded on a Form FS-F-1945-XX, "Item Production/ Certification/Identification."

8.1.5 Check to ensure that drums have been tare weighed.

NOTE: The supervisor shall arrange to have the drums weighed and the weight recorded.

8.1.5.1 If not, notify the supervisor.

8.1.6 Contact the supervisor to ensure that the flash point of the sump liquid has been determined.

NOTE: The dike area shall be established so that the pump intake hose can reach the bottom of the sump.

8.1.7 Using a metal trough or Herculite material, construct a dike for the collection container and pumping equipment.

8.1.8 Place a SAC inside the diked area.

8.1.9 Install a collection container in the SAC.

8.1.10 Remove the lid/bung from the container.

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8.0 **PROCEDURE** (cont.)

> **CAUTION**
>
> The pump shall be specified (by hazard code or a combination of hazardous codes) for the material being transferred.

NOTE: Each pump shall be labeled with the hazard code for which the pump is used.

8.1.11 Check the pump to be used.

8.1.11.1 If the pump is not acceptable (due to the hazard code or a combination of hazard codes) for the material to be transferred, notify supervisor.

> **CAUTION**
>
> The power source shall not exceed the rated air or electric capacity of the pump.

8.1.12 Check the pump electric or air rating.

NOTE: The supervisor shall obtain a pump that is rated for the power supply.

8.1.12.1 If the power supply exceeds the rating, notify the supervisor.

8.1.13 Place the pump inside the diked area.

NOTE: Plant electric or air supply may be used if in close proximity to pumping operation. A generator or air compressor will be needed if a remote operation is performed.

8.1.14 Connect the pump to the power source.

8.1.15 Connect hoses to the pump intake and discharge.

NOTE: Industrial Hygiene shall monitor for air contaminant concentrations prior to and after the sump is opened.

8.1.16 Remove or open the sump cap/cover.

8.1.17 Place pump intake hose into the sump and ensure that the hose reaches the sump bottom.

8.1.18 Place the pump discharge hose into the collection drum bung opening.

8.1.19 Ensure that air or electrical connections and hose connections are tight.

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8.0 **PROCEDURE** (cont.)

> **CAUTION**
>
> The pump shall be operated at a moderate speed to avoid splashing. If compressed air operation is used, the air supply nozzle shall be opened slowly until pump is primed.

8.1.20 Start the pump.

> **CAUTION**
>
> Containers that start to bulge shall not be filled.

8.1.21 Check the drum while filling.

NOTE: Bulging containers shall be handled under direct supervision of the Area Supervisor and ES&H.

8.1.21.1 If the drum starts to bulge, shut off the pump and notify the supervisor.

8.1.22 When the sump is empty or material in the drum reaches three inches from the top, shut off the pump.

8.1.23 When the sump is empty, remove the intake hose from the sump.

8.1.24 Check the sides and bottom of the sump for solid residues.

NOTE: Solids shall be removed using manual tools (such as shovels and spud bars).

8.1.24.1 If solids remain, remove and drum the material.

8.1.25 Close the sump.

8.1.26 Drain the pump and both hoses into the receiving drum.

8.1.27 Install the bung plug in the receiving container.

8.1.28 Clean and store pump and hoses per Item 8.2.

8.1.29 Complete "Item Production/Certification/Identification" cards, form FS-F-1945-XX (See Figure 5) for the material in the receiving and wastewater containers.

NOTE: The label/stencil shall include the "Declared Full" date.

8.1.30 Label and/or stencil the collection and rinse containers per RM-0005.

8.1.31 Complete forms that are required by SOP 20-C-605.

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8.0 **PROCEDURE** (cont.)

NOTE 1: The supervisor shall arrange to have the collection and rinse containers/SACs transferred to the applicable building or warehouse for weighing and storage.

NOTE 2: The "Three-Day Rule" is applicable to RCRA material.

NOTE 3: If material being pumped is declared RCRA, dispose of cleaning substances in same fashion as pumped material.

8.1.32 Inform the supervisor that cleaning is completed.

8.1.33 Dispose of spill containment equipment as follows:

8.1.33.1 If no release occurred, remove and store spill containment equipment in the specified location.

8.1.33.2 If a release has occurred, handle and clean spill containment equipment per SOP 20-C-606.

8.2 Cleaning and Storing the Pump

NOTE: The supervisor shall have a drum of rinse solution and a collection drum moved into the diked area and placed in SACs.

8.2.1 Inform the supervisor that the pump is ready for cleaning.

8.2.2 Remove the bung plugs from the drums.

8.2.3 Place the pump intake hose into rinse drum below the liquid level.

8.2.4 Place the pump discharge hose into the collection drum.

CAUTION

The pump and hoses shall be cleaned at a moderate speed to prevent the detergent from splashing or bubbling. If air operation is performed, the air supply nozzle shall be opened slowly until pump is primed.

8.2.5 Start the pump.

8.2.6 When the rinse container is empty, shut off the pump.

8.2.7 Drain the hoses and pump into collection drum.

8.2.8 Disconnect the pump from the power source.

8.2.9 Carefully remove hoses from rinse and collection drums.

8.2.10 Install caps on the ends of the hoses.

8.2.11 Disconnect the hoses from the pump.

8.0 **PROCEDURE** (cont.)

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8.2.12 Cap the hose ends.

8.2.13 Install bung plugs in the rinse and collection drum.

8.2.14 Remove pump/hoses from the diked area.

8.2.15 Store the pump/hoses in the specified location.

9.0 **APPLICABLE FORMS**

9.1 "Daily Sump System Activity Verification Checklist"

9.2 "Sump System Content Removal - Equipment Checklist"

9.3 "Sump System Content Removal - Drumming Area Checklist"

9.4 "Sump System Content Removal - Drum Activity Completed Checklist"

9.5 FS-F-1945-XX, "Item Production/Certification/Identification"

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DAILY SUMP SYSTEM ACTIVITY VERIFICATION CHECKLIST

This set of checksheets comprise a document to provide daily verification of Procedural and Task or Project Specific Health and Safety Plan & SOP Compliance.

Work Location: _____ **Sump System:** _____ **Date:** _____

Activity of Day:

Content Removal _____ Purging _____

Closure _____ Dismantling _____

Work Crew Members:

Name:	Badge Number:

Cognizant Supervisor: _____ **Badge No.:** _____

Comments or Additions:

_____

_____

DAILY SUMP SYSTEM ACTIVITY VERIFICATION CHECKLIST
FIGURE 1

SUMP SYSTEM CONTENT REMOVAL -- EQUIPMENT CHECKLIST

5692

Work Location: _____ Sump System: _____ Date: _____

Items to Check:	Verifier's Badge No.:
1. Air Compressor Checksheet/OPR 2414	_____
2. Pneumatic Pump and Hoses	_____
3. Safety Equipment:	
Pigs	_____
Absorbent Pads	_____
Respirators	_____
Eye Wash	_____
Gloves	_____
PPE	_____
-	_____
4. Forklift - Checksheet/OPR 2414	_____

5. List of Materials Requiring Restocking:

_____

_____

_____

SUMP SYSTEM CONTENT REMOVAL - EQUIPMENT CHECKLIST
FIGURE 2

SUMP SYSTEM CONTENT REMOVAL - DRUMMING AREA CHECKLIST

5692

Work Location: _____ Sump System: _____ Date: _____

Items to Check:	Verifier's Badge No.:
1. Condition of Sump System	_____
2. Presence of Absorbent Pads	_____
3. Area Barrier in Place (Tarp)	_____
4. Drums Available and Coded	_____

Comments: _____

_____

_____

SUMP SYSTEM CONTENT REMOVAL - DRUMMING AREA CHECKLIST
FIGURE 3

SUMP SYSTEM CONTENT REMOVAL - DRUM ACTIVITY COMPLETED CHECKLIST 5692

Work Location: _____ Sump System: _____ Date: _____

Items to Check:	Verifier's Badge No.:
1. Material characterize	_____
2. Drums Generated	_____
3. Coding Checked	_____
4. Number of Drums Transferred	_____
Filled	_____
Transferred	_____
Weighed	_____
Stored	_____
5. Checklist of Pneumatic Pump and Storage of Equipment.	_____

Comments: _____

_____

_____

SUMP SYSTEM CONTENT REMOVAL - DRUM ACTIVITY COMPLETED CHECKLIST
FIGURE 4

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CARD XX ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA
				EMPTY CONTAINER AT START				
				RUST HOLES OR DENTS				
				MATERIAL IS AS CODED			PLANT TO	MBA TO
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS				
				LIQUIDS IN CONTAINER				
PACKAGE TYPE				MINIMUM OF VOID SPACE				
PACKAGE SIZE				PACKAGE SECURED				
				DRAIN PLUG SECURED				

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-XX (REV. 3/19/92)

CARD 65 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA
				EMPTY CONTAINER AT START				
				RUST HOLES OR DENTS				
				MATERIAL IS AS CODED			PLANT TO	MBA TO
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS				
				LIQUIDS IN CONTAINER				
PACKAGE TYPE				MINIMUM OF VOID SPACE				
PACKAGE SIZE				PACKAGE SECURED				
				DRAIN PLUG SECURED				

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-65 (REV. 3/19/92)

CARD 66 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA
				EMPTY CONTAINER AT START				
				RUST HOLES OR DENTS				
				MATERIAL IS AS CODED			PLANT TO	MBA TO
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS				
				LIQUIDS IN CONTAINER				
PACKAGE TYPE				MINIMUM OF VOID SPACE				
PACKAGE SIZE				PACKAGE SECURED				
				DRAIN PLUG SECURED				

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-66 (REV. 3/19/92)

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION
FS-F-1945-XX
FIGURE 5

RECORD OF ISSUE/REVISIONS

5692

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
07-09-92	0	Procedure for cleaning sump systems required per Request P92-143 initiated by J. Ogg.
08-09-93	1	Revised to incorporate CIO C93-164 per Request No. P93-776 and update to conform with current Procedure Program requirements.

CONTROL NO. NON-CONTROLLED COPY
SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-1044
REVISION NO. 1

5692

MANAGEMENT OF GOVERNMENT PROPERTY

SSOP-1044

Effective Date: 03-24-94

AUTHORIZED BY: _____ _____
J. A. Rasile, Executive Vice President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

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TBS - To be supplied

RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
09-30-93	0	New document required by DOE to establish a site procedure on the Management of Government Property per Request No. S93-216, initiated by Steve Klemko. This procedure supersedes FMPC-0303, Management of Government Property, dated 02-15-89.
03-24-94	1	Addition to the document required by DOE per Request No. S93-312, initiated by Steve Klemko. This section of the document supersedes PP-0309, Management of WEMCO Site Precious Metals, dated 05-19-92, Rev. 0.

1.0 PURPOSE

This document provides procedures for Fernald Environmental Restoration Management Corporation (FERMCO) personnel to adhere to in the disposition of Government property. This procedure does not supersede contract specified procedures approved by the contracting officer.

2.0 SCOPE

These procedures apply to all FERMCO personnel.

3.0 DEFINITIONS

Abandoned-In-Place Property - Property that has no commercial material value, or the estimated cost of its continued care and handling would exceed the estimated proceeds from its sale. This classification requires DOE approval.

Administratively Controlled Items - Plant Equipment with an acquisition value less than $5000.00 and not classified as a sensitive item.

Capital Equipment - As defined by DEAR 945.101, personal property items having a unit acquisition cost of $5,000 or more and an anticipated service life in excess of 2 years, regardless of type of funding, and having the potential for maintaining their integrity as capital items; i.e., not expendable due to use.

CFR - Code of Federal Regulations

Contractor Acquired Property (CAP) - Property procured by or otherwise provided by FERMCO and/or FERMCO subcontractors for the performance of the prime contract, title to which under terms of the contract is vested in the government. This type of property would be the normal day-to-day non-expendable and consumable property processed through the system for accountability purposes.

CPPM - Computer Protection Program Manager

DEAR - Department of Energy Acquisition Regulation

ESD - Electrostatic Discharge

Excess - Government property no longer required for the performance of the prime contract.

3.0 DEFINITIONS (cont.)

FAR - Federal Acquisition Regulation

FEMP - Fernald Environmental Management Project

FERMCO - Fernald Environmental Restoration Management Corporation

FERMCO Property - Property procured/owned by FERMCO for use other than in support of the prime contract.

FN - Fernald

FPMR - Federal Property Management Regulation

Government Furnished Property (GFP) - Property in the possession of, acquired directly by the Government and subsequently delivered or otherwise made available to, FERMCO in support of the prime contract. Accountability, not ownership, is transferred to FERMCO. This type of property is not accompanied by a FERMCO purchase order, but would be supported by a Transfer Order Excess Personal Property form, SF122, equivalent form upon delivery. The project property administrator will control this type of property through the use of Equipment Custodian accounts.

IC&W - Inventory Control and Warehousing

Major Item of Equipment - Any equipment project costing one million dollars or more (acquisition plus installation) that is funded from the capital-equipment-not-related-to-construction portion of the plant and capital equipment budget and that involves installation costs of over $250,000.

Material - As defined in FAR 45.301, property that may be incorporated into or attached to a deliverable end item or that may be consumed or expended in performing a contract. It includes assemblies, components, parts, raw and processed materials, and small tools and supplies that may be consumed in normal use in performing a contract.

MMICS - Maintenance Management Inventory Control System.

MSO - Miscellaneous Shipping Order.

Nuclear Materials - At the Fernald Site this refers to uranium and thorium.

3.0 **DEFINITIONS** (cont.)

PAC - Property Account Custodian

Personal Property - As defined by DEAR 945.101, property of any kind or interest therein, except real property, records of the Federal Government, atomic weapons, and by-product materials.

Plant and Equipment Classified as Held for Future Projects - All personal property that is retained for a known future project or for a potential use based on approved economic or programmatic justification. Justification is to be documented specifying the future project and approved by the appropriate department manager.

Plant and Equipment Classified as In-Standby - Personal property including capital equipment as well as stores items which is neither currently in use nor declared excess and for which there is a potential for future use. Property to be declared as in-standby should be identified as significant segments of Plant and Equipment, such as a complete plant or section of a plant.

Property Disposal Request (Form FS-F-563) - The form required whenever Government property is to be disposed of as excess, salvage, or scrap.

PMR - Property Management Regulation

Real Property - Buildings, land, and land improvements.

REAPS - Reportable Excess Automated Property System

Salvage - Property that, because of its worn, damaged, deteriorated, or incomplete condition or specialized nature, has no reasonable prospect of sale or use as serviceable property without major repairs, but has some value in excess of its scrap value.

Scrap - Personal property that has no value except for its basic material content.

Sensitive Items - DOE PMR 109-1.5101 defines sensitive items as those items of property, regardless of value, which are considered to be susceptible to being appropriated for personal use or which can be readily converted to cash, for example: firearms, portable photographic equipment, binoculars, portable tape recorders, portable calculators, and portable power tools.

4.0 RESPONSIBILITIES

Property Management is responsible for accountability of Government property, both Government furnished (GFP) and contractor acquired (CAP) in accordance with Federal Acquisition Regulations (FAR) and prime contract requirements. In addition, Property Management maintains the required property records in accordance with internal procedures and contract requirements.

For specific responsibilities, see the information included in each attachment.

5.0 GENERAL

Property management is the focal point for all property matters relating to the prime contract. Basic property management functions include acquisition, receiving, property records, storage and movement, consumption, utilization, maintenance, physical inventories, subcontractor control, disposition, and reports.

5.1 PROTECTION OF GOVERNMENT PROPERTY

For information pertaining to the protection of property see Attachment A.

5.2 ACQUISITION OF PROPERTY

For information pertaining to the acquisition of property see Attachment B.

5.3 RECEIVING

For information pertaining to the receipt of property see Attachment C.

5.4 PROPERTY RECORDS

For information pertaining to maintaining property records see Attachment D.

5.0 **GENERAL** (cont.)

5.5 STORAGE AND MOVEMENT

For information pertaining to storing and moving property, see Attachment E.

5.6 CONSUMPTION

For information pertaining to the consumption of property, see Attachment F.

5.7 UTILIZATION

For information pertaining to the utilization of property, see Attachment G.

5.8 MAINTENANCE

For information pertaining to the maintenance of property, see Attachment H.

5.9 PHYSICAL INVENTORIES

For information pertaining to taking physical inventories, see Attachment I.

5.10 SUBCONTRACTOR CONTROL

For information pertaining to the control of property being used by subcontractor, see Attachment J.

5.11 DISPOSITION

For information pertaining to the disposition of property, including Property Condition Codes, see Attachment K.

5.12 REPORTS

For information pertaining to required property reports, see Attachment L.

5.13 SENSITIVE ITEMS OF PROPERTY

For information pertaining to the control of items of property identified as sensitive by DOE PMR 109-1.5106.4, see Attachment M.

5.0 **GENERAL** (cont.)

5.14 MANAGEMENT ASSISTANCE REVIEWS

For information pertaining to management assistance reviews of property management areas, see Attachment N.

5.15 MANAGEMENT OF PRECIOUS METALS

For information pertaining to management of precious metals, see Attachment O.

6.0 **PREREQUISITES**

None

7.0 **PROCEDURE**

The procedures are contained within the specific attachments.

8.0 **APPLICABLE DOCUMENTS**

8.1 DRIVERS

- FAR 45.5/DEAR 945.5, Management of Government Property in the Possession of Contractors
- FAR 45.6/DEAR 945.6, Reporting, Redistribution, and Disposal of Contractor Inventory
- Federal Property Management Regulation (41 CFR 101)
- DOE Property Management Regulation (41 CFR 109)

8.2 REFERENCES

- FAR 14.4/DEAR 914.4, Opening of Bids and Award of Contract
- FAR 4.7, Contractor Records Retention

ATTACHMENT A
Sheet 1 of 3

PROTECTION OF GOVERNMENT PROPERTY

1.0 GENERAL

Property protection shall be accomplished by implementation of measures to guard against accidental damage, vandalism, sabotage, theft, and loss. The degree of control or effort expended to afford protection shall depend upon sensitivity, value, and susceptibility to loss or damage.

RESPONSIBILITY	ACTION
PROPERTY CONTROL	A. Periodically issues a site-wide guideline which lists items that are to be considered sensitive. Responds to questions from FERMCO managers about questionable items that should be considered for possible inclusion in the site list.
DEPARTMENT MANAGER	B. Appoints a Property Account Custodian for the department.
	C. Ensures that employees are informed of their responsibility to protect Government property.
	D. Provides facilities for safekeeping sensitive items.
	E. Authorizes select individuals to acquire items from IC&W.
	F. Approves (or disapproves) purchase gives this authority to a designee.

ATTACHMENT A
Sheet 2 of 3

RESPONSIBILITY	ACTION
PROPERTY ACCOUNT CUSTODIAN	G. Prepares Property Addition/Change/Relocation Request form, FS-F-3126, as a record of the sensitive property and who has custody of the item(s). Maintains property records.
	H. Monitors usage rates of sensitive items to ensure usage is consistent with operating requirements and to detect indications of misappropriation.
	I. Upon notification by Property Control, performs physical inventories to verify that all capital and/or sensitive property items, for which he or she is responsible, are accounted for. Determines if inventory items are listed on the Property Account Custodian's listing and in the possession of the employees to whom the item(s) was assigned.
	J. Reports and records any lost, damaged, or stolen item(s); reports findings to staff manager; and reports the missing items to Security, Property, and Internal Audit. Contacts the CPPM if computer equipment/software is involved.
	K. Writes a letter to the Manager, Property Control, verifying taking of the physical inventories and reporting any missing, damaged or stolen item(s).

ATTACHMENT A
Sheet 3 of 3

RESPONSIBILITY	ACTION
FERMCO PROPERTY ADMINISTRATOR	L. Requests a site-wide review by Property Account Custodians for any items that are reported missing.
	M. Reports to the DOE any missing, damaged, or lost property items.
	N. Upon termination of employment of a person possessing Government property, recalls and accounts for all items issued to the terminating employee. Upon verification of these items, approves Clearance For Final Pay form.
SECURITY	O. Displays signs in various areas onsite to keep employees informed of the seriousness of taking or abusing Government property.
	P. Conducts periodic inspections of lunch boxes, briefcases, and other packages removed from the site to make employees aware of the ongoing efforts to control Government property.

ATTACHMENT B
Sheet 1 of 2

ACQUISITION OF PROPERTY

1.0 **GENERAL**

All direct charge property purchased by FERMCO in support of the prime contract will be supported by a FERMCO purchase order initiated by the Purchasing Department.

2.0 **CONTRACTOR ACQUIRED PROPERTY**

2.1 To ensure that all direct charge property is properly screened, controlled, and accounted for, all purchased requests will be processed through the Warehouse Manager.

2.2 Property Control will screen the receiving copy of the purchase order generated by the Acquisition Department. If equipment is ordered that meets the barcoding requirements of Attachment C, Paragraph 2, the item will be flagged and a copy of the purchase order placed in the equipment due-in file.

3.0 **GOVERNMENT FURNISHED PROPERTY**

3.1 Receipt of GFP will be in accordance with the requirements outlined in Attachment C of this procedure.

3.2 Property Control will ensure that GFP pricing data is accurate. If the pricing data is omitted from the SF122, Property Control will request the price data from the Government Property Administrator.

4.0 **ACQUISITION OF GOVERNMENT PROPERTY**

4.1 Items of property are required for many reasons, e.g., to support newly authorized programs or projects, to expand existing activities, to replace worn-out or obsolete facilities and equipment, or to replenish consumable items.

4.2 Government property can be obtained from many sources. Some of the potential sources are: IC&W, storage, idle equipment, FEMP Excess, Reportable Excess Automated Property System (REAPS) for transfers from other facilities or Government sources, loans, leases, rentals, or purchases.

4.3 Managers and Property Custodians have a responsibility to ensure that reviews aimed at acquiring needed property from alternative sources are conducted prior to resorting to new purchases.

ATTACHMENT B
Sheet 2 of 2

RESPONSIBILITY	ACTION
REQUESTOR	A. Identifies the need for facilities, equipment, materials, spare parts, or supplies.
	B. Determines if item(s) is available at this site, in inventory or excess, or, with the help of Property Management, can be obtained from DOE or from another Government facility.
	C. Arranges with Property Management personnel to acquire available Government-owned facilities, equipment, or materials.
	D. Considers renting or leasing equipment as an alternative to purchasing. Discusses the alternatives with Purchasing.
	E. Prepares a Requisition for Material and Service form, FS-F-2126. Obtains Staff Manager's and, if renting or leasing, the Controller's written approval.
	F. Takes actions accordingly to acquire excess property or to purchase item(s), depending on cost.

ATTACHMENT C
Sheet 1 of 2

RECEIVING

1.0 **GENERAL**

1.1 The Receiving Section is responsible for verifying the physical condition of property and the quantities delivered/shipped by vendors as authorized by the FERMCO Acquisition Department. A determination will be made as to which items require technical inspection, warranty, hazardous, sensitive/pilferage, electrostatic and classified material processing, property ownership, and distribution.

1.2 Basic receiving functions are unpacking material, checking material against the corresponding purchase order and invoice/packing list, ensuring the necessary inspections are performed, completing appropriate receiving and inspection reports, making the necessary data entry inputs, and ensuring materials are distributed to the responsible sections.

2.0 **BARCODING CONTRACTOR ACQUIRED PROPERTY**

2.1 Property Control will notify the Receiving Section of items on order that are required to be barcoded upon receipt.

2.2 Property Control will furnish the barcoding information to the Receiving Section for the barcoding of equipment.

2.3 The Receiving Section will affix the appropriate barcode to equipment in a location where it can readily be seen, record the barcode number on the receiving/inspection report, and forward a copy of the form to Property Control.

3.0 **BARCODING GOVERNMENT FURNISHED PROPERTY**

3.1 Government furnished property will be received and barcoded. The Government representative will coordinate delivery of GFP with the FERMCO Property Management Representative.

3.2 The Government representative will provide a copy of the Transfer Order Excess Personal Property form, SF122, (or equivalent form) for all deliveries of GFP. The project property management representative will:

ATTACHMENT C
Sheet 2 of 2

3.2.1 Verify quantities, national stock number and condition of GFP.

3.2.2 Store the GFP in a secure area until barcoding and issue is complete.

3.2.3 Barcode the GFP with the appropriate barcode (Capital, OPE, or Sensitive).

3.2.4 Document barcode numbers used in the GFP barcode log.

3.2.5 Prepare the Government accountable property record.

3.2.6 Document the automated property management records.

ATTACHMENT D
Sheet 1 of 4

PROPERTY RECORDS

1.0 GENERAL

Property Control is responsible for the preparation and maintenance of property records for the prime contract. Property records consist of the Government accountable property record.

2.0 GOVERNMENT ACCOUNTABLE PROPERTY RECORD

Property Control is responsible for preparing a Government accountable property record form for each direct charge equipment item that is received and barcoded. Upon receipt of the receiving/inspection report from the Receiving Section, Property Control will:

2.1 Enter the barcode number used in the appropriate barcode log, i.e., GFE, CAP, or FERMCO.

2.2 Prepare the Government accountable property record Property Addition/Change/Relocation Request form, FS-F-3126, per the following instructions:

2.2.1 Line number: Enter the appropriate line item number as the form is designed for multiple entries from the purchase order.

2.2.2 Transaction Date: The current date (month, day, and year).

2.2.3 Noun, Item Description and Part/Model Number and Serial Number: Obtain the appropriate data from the purchase order and receiving report.

2.2.4 Manufacturer or Vendor: Obtain from the purchase order or receiving report.

2.2.5 National Stock Number: Obtain from the Warehouse Manager, if required.

2.2.6 Quantity: Obtain from the purchase order and receiving report.

2.2.7 Unit of Issue: Obtain from the purchase order and receiving report.

2.2.8 Acquisition or Transaction Document: Normally the purchase order number.

2.2.9 Transaction Date: Date of last transaction.

2.2.10 Barcode Number: Obtain from the receiving report.

2.2.11 Location: Enter the name of the Equipment Custodian and account number based on the requester block in the purchase order.

2.2.12 Acquisition Cost: Normally the unit price on the Purchase Order. However, depending on the value, may include the installation and freight costs.

2.3 File the Property Addition/Change/Relocation Request form, FS-F-3126, in the designated file in purchase order sequence.

3.0 PROPERTY ACCOUNT CUSTODIANS (PAC)

3.1 It is FERMCO policy that all property, including Government furnished property (GFP), or contractor acquired property (CAP) purchased as a direct charge to the contract be assigned to a designated Property Account Custodian. Each department/functional manager is responsible for the appointment of Property Account Custodians to manage and control accountable property within their areas of responsibility. Appointments will be made in writing. Specific duties of the designated Property Account Custodians are:

3.1.1 Protecting the equipment under their control from loss, theft, or destruction. Ensure that the equipment is used in such a manner to preclude damage or deterioration, other than normal fair wear and tear.

3.1.2 Ensuring that the property administration section is notified upon the transfer of, or relocation of, property so the accountable records may be adjusted. Provide Property Management with a completed Property Account Custodian Transfer Request. Upon receipt of a completed and signed Property Account Custodian Transfer Request, Property Management will move the item(s) to the gaining Custodian's account within Property Management. Both custodians will be notified of completed action and furnished copies of supporting documentation.

ATTACHMENT D
Sheet 3 of 4

3.1.3 Assist in the performance of annual inventories and, as required, utilization reviews of equipment assigned to their account. Excess or unserviceable equipment will be reported to Property Management by submittal of a property disposal request.

3.1.4 Ensuring that all required inspections, maintenance, and calibration of Government property is performed and the appropriate records are maintained.

3.1.5 Preparing and submitting statements/reports regarding any loss, theft, or damage of property which is under their control.

3.1.6 Approves final clearance on terminated employees. Ensures all property assigned to or on Property Pass to the employee is physically accounted for prior to approval of final termination clearance.

3.1.7 Responsible for maintenance of the Property Pass System for items assigned on the Property Account Custodian records. (See Attachment E, paragraph 5.1).

3.2 Department managers are responsible for ensuring that the property administration function is notified of any changes in Property Account Custodians as a result of employee transfer, resignation, or termination. Replacement Property Account Custodians must be designated in writing and a inventory transfer between the old and new custodian accomplished.

4.0 RECORDS OF MATERIAL

Material records are a part of the MMICS and as such, detailed procedures relating to acquisition, receipt, issue, storage, turn-in, consumption, and utilization are contained in the receiving, warehouse and stock control procedures.

5.0 RECORDS OF SCRAP AND SALVAGE

A Property Disposal Request form, FS-F-563, is prepared for scrap/salvage processed through the Contracting Officer and/or Government Property Administrator for disposal instructions. A copy of the Property Disposal Request will be filed in the scrap and salvage files by calendar year.

ATTACHMENT D
Sheet 4 of 4

6.0 RESPONSIBILITIES FOR PROPERTY CONTROL

The FERMCO Property Administrator is charged with the overall responsibility for the establishment and maintenance of property controls. In addition, the FERMCO Property Administrator serves as the liaison with the Government Property Administrator to ensure that the procedures and controls prescribed herein are adequate and properly implemented.

7.0 RECORDS RETENTION

7.1 Records pertaining to the acquisition, receipt, fabrication, shipment, or disposal of Government furnished or contractor acquired property will be filed, stored and safeguarded as specified in the FAR, Subpart 4.7.

7.2 Accountable property records for the prime contract will be retained for 4 years from the end of the fiscal year in which the last transaction was posted to the records.

ATTACHMENT E
Sheet 1 of 7

STORAGE AND MOVEMENT

1.0 GENERAL

Storage is the accumulation of supplies, materials and/or equipment, broadly classified as property, in a designated area. Normally, it is the activity that takes place between receiving acceptance and issue for consumption, modification, use, or disposition. This may include anything from material waiting to be issued to individually identified items of equipment which are being held for future requirements. The primary characteristics of storage are the preservation, location, costs, and periodic evaluations or justification for further need.

Movement of property must be predicated on proper authorization and move orders generated to direct this activity. Move orders will include shipping documents and various internal material release documents. The move order must be posted to the property records and retained in file as backup documentation.

2.0 STORAGE AND ISSUE

Detailed procedures relating to the warehouse storage plan, warehouse location system, protection of assets, shelf life, flammable storage, general safety precautions, electrostatic discharge (ESD), sensitive/pilferage items, and serialized items are contained in the warehouse procedures.

3.0 MOVEMENT OF PROPERTY

Property procedures must be followed in order to maintain adequate documentation and control over the movement, relocation, and shipment of Government property as required by the prime contract. These procedures are applicable to the control of Government property involving any of the following transactions:

3.1 Internal movements within the FERMCO work locations or storage areas.

The Miscellaneous Shipping Order (MSO) form, FS-F-871, is used to ship Government property from the site. MSOs shall include the following information: description of item(s), barcode number, serial/model number, manufacturer's name, estimated value of property, expected return date, applicable purchase order or subcontract number, reason for shipment, etc.

ATTACHMENT E
Sheet 2 of 7

RESPONSIBILITY	ACTION
INITIATOR	A. Prepares MSO, obtains management approval, and delivers form to Property Control.
PROPERTY CONTROL	B. Reviews and approves form insuring the information, relative to the property, is complete. Returns form to Initiator.
INITIATOR	C. Delivers form to Purchasing.
PURCHASING	D. Reviews and approves form, ensuring that the purchase order/subcontract agree with the information on the MSO. Return the form to the Initiator.
INITIATOR	E. Takes MSO and property to Receiving.
RECEIVING	F. Assigns MSO number to the form.
	G. Makes distribution of copies of MSO. Gives two copies to the shipper to be used for security verification upon exit from the plant.
SECURITY	H. Checks vehicle exiting the plant to ensure that only equipment documented with an approved MSO is being taken.
	I. Signs pink copy of MSO and forwards it to Property Control.

ATTACHMENT E
Sheet 3 of 7

3.2 Shipments to Government installations and/or destinations provided by the Government and/or FERMCO.

Use the Transfer Order Excess Personal Property form, SF122, for shipments to government installations and/or destinations provided by the Government and/or FERMCO. See DOE and Federal Property Management Regulations for process requirements for these shipments.

4.0 STORAGE OF GOVERNMENT PROPERTY

Equipment assigned to FERMCO which does not have immediate application may be retained in storage, under controlled conditions, in anticipation of future project use. Materials and supplies are also to be stored and controlled considering the potential urgency of demand, ordering/usage pattern economics, scarcity of supply, availability from surplus at reduced costs, etc.

RESPONSIBILITY	ACTION
IC&W	A. Requires that all stored items are adequately protected and accounted for to maintain them in good condition and ready for use when required.
	B. Periodically reviews IC&W inventory to avoid accumulation of items for which retention cannot be justified.
PROPERTY ACCOUNT CUSTODIAN	C. Identifies property items in his or her custody which are not in current use and determines if retention can be justified.
	D. Provides Property Control with details of unused items to be retained in storage for which disposition shall be changed.

ATTACHMENT E
Sheet 4 of 7

RESPONSIBILITY	ACTION
PROPERTY CONTROL	E. Reviews justification of item retention.
	F. Retains records of items in storage and provides listings for management review and rejustification for retention of items classified as Standby and Equipment Held for Future Use.
PROPERTY ACCOUNT CUSTODIAN	G. Ensures compliance with safe storage practices in areas under their cognizance.
PROPERTY CONTROL	H. Observes operation of storage facilities during walk-throughs and storage reviews to confirm compliance with DOE regulations. Reports results to FERMCO management.
	I. Updates information to FERMCO property records to correctly reflect the location and status of stored items.

5.0 MOVEMENT AND REMOVAL OF GOVERNMENT PROPERTY

All movements, either onsite or offsite, shall require documentation and be reported to Property Control. Government-owned property shall be removed from the site by employees or subcontractors, for official use only, upon receipt of the proper approvals.

5.1 In order to obtain a FERMCO Recurring Removal Pass, FS-F-3014, to remove U.S. Government Property from onsite or offsite access points and offsite FERMCO locations, a FERMCO employee must complete an Employee Property Pass Request, FS-F-3013 (Rev 5-11-93). The pass request requires the approvals of management personnel of the employee's department and the employees department Property Account Custodian (PAC). The removal of computer equipment/software also requires the approval of the Computer Protection Program Manager (CPPM).

ATTACHMENT E
Sheet 5 of 7

5.2 Red colored property Recurring Removal Passes, FS-F-3014, are issued by the Property Account Custodian to employees for equipment necessary to perform the employees day to day work duties. Such equipment includes two-way radios, cellular phones, radiation monitoring, and training equipment. This pass is usually laminated and issued in the name of the department responsible for the equipment.

5.3 Green colored property Recurring Removal Passes are issued by the Property Account Custodian to requesting department employees for equipment being borrowed for specific periods. If the borrowing period exceeds 14 days, the FERMCO Property Administrator must approve both the Employee Property Pass Request, FS-F-3013, and the green colored Property Recurring Pass. Portable computers are a example of the equipment listed in the requests for passes.

RESPONSIBILITY		ACTION
BORROWER	A.	Completes form FS-F-3013 and obtains the indicated necessary signatures of approval.
	B.	Sends approved form to Property Account Custodian.
PROPERTY ACCOUNT CUSTODIAN	C.	Reviews request for recurring pass. If acceptable, prepares pass and returns the request to the borrower. If denied, notifies the employee and provides the reason for denial.
BORROWER	D.	Shows pass, along with property being removed or returned, to the Security Officer.

To remove Government property from areas outside the FEMP Security perimeter, such as the Showcase Center, Springdale Center, Joint Information Center, etc., and in the absence of a Security Officer, the authorized FERMCO manager who approves the pass and the Property Account Custodian shall be responsible for property removed and returned, and for signing and distributing copies of the pass.

5.4 Miscellaneous Shipping Orders (MSO) are not necessary when passes are used to remove Government property from FERMCO.

5.5 Terminating FERMCO employees and DOE personnel who have possession of Government property shall be responsible for returning all property and Property Passes to the responsible Property Account Custodian prior to termination. Property Account Custodians will verify that all passes for equipment are returned by approving the Clearance for Final Pay form.

6.0 REMOVAL OF GOVERNMENT PROPERTY TO VENDORS, SUBCONTRACTORS, OTHER DOE INSTALLATIONS, AND GOVERNMENT AGENCIES

The Loaned Personal Property form, FS-F-17, is required for all property on loan to a vendor/subcontractor and for all loans to other DOE installations or Government Agencies.

RESPONSIBILITY		ACTION
PROPERTY ACCOUNT CUSTODIAN	A.	Completes form FS-F-17 and obtains all necessary approvals, including DOE approval if the loan is not covered under a purchase order or subcontract.
PURCHASING	B.	Ensures that, for each purchase order or subcontract that agrees to the loan of Government property, there is an approved Loaned Personal Property Agreement. Forwards a copy of the completed form to Property Control.
PROPERTY CONTROL	C.	Notifies the vendor/ subcontractor of the need to conduct an annual inventory of the Government property in their possession and to submit the inventory list to FERMCO.

ATTACHMENT E
Sheet 7 of 7

RESPONSIBILITY	ACTION
PROPERTY CONTROL	D. Verifies the inventory list against FERMCO Property records to ensure all items are accounted for.
PURCHASING	E. Ensures, with Property Control, that all Government Property is returned prior to the close-out of the purchase order/ subcontract.

ATTACHMENT F

CONSUMPTION

1.0 GENERAL

In Government contracting, consumption is, by definition, limited to material. The Federal Acquisition Regulation (FAR) defines consumption as property that may be incorporated into or attached to an end item, or that may be consumed in the performance of a contract. It is the responsibility of FERMCO to ensure reasonable quantities of material and supplies are requested for the work required under the contract and associated subcontracts. Accountable records of consumption will be maintained. Directors, managers, and supervisory personnel are responsible for ensuring the following:

1.1 Requirements records are prepared and kept on file in advance or concurrent with, the receipt and use of material and supplies for a given work requirement under the prime contract.

1.2 Consumption by project or work order reference number are maintained to provide an audit trail and to substantiate authorized use.

1.3 All serviceable excess material and supplies left over from a task or work order are returned to material management for restocking and reissue as required.

1.4 General records of scrap.

ATTACHMENT G
Sheet 1 of 3

UTILIZATION

1.0 GENERAL

FERMCO and its subcontractors shall endeavor to ensure that optimum and economic use of Government property in its possession and control is realized and that the tenets of contractually authorized use are not violated.

2.0 UTILIZATION OF GOVERNMENT PROPERTY

2.1 Government property is to be used only to the extent, and within the limits, authorized in the performance of the contract. For use on a contract other than the one covering the use of the equipment, a request for deviation will be formally submitted to the FERMCO Contracts Department for transmittal to the cognizant contracting officer for approval. Copies of the request are to be provided to the Property Management section. The requests should be in sufficient detail to permit evaluation and determination of the requirement.

Pending the approval of such requests, operating departments or other organizational activities will not permit unauthorized use of the property involved.

2.2 Coordinated surveillance of Government property by all individuals concerned will assure that items of material and equipment are utilized to the maximum extent possible. Each director, department head, manager and supervisor shall review equipment usage on a quarterly basis. Equipment not needed will be processed for turn-in according to the procedures in Attachment K.

3.0 UTILIZATION OF GOVERNMENT PROPERTY

Maximum asset utilization at a minimum investment is an objective of FERMCO management. Each FERMCO organization is responsible for carrying out the Property Management function to maximize equipment utilization.

ATTACHMENT G
Sheet 2 of 3

RESPONSIBILITY	ACTION
PROPERTY ACCOUNT CUSTODIAN	A. Returns unused items to Inventory Control and Warehousing (IC&W) and excesses unused equipment to the Excess and Disposal section.
	B. Reports intra-plant transfers of equipment between areas, buildings, or departments.
	C. Reports to the FERMCO Property Administrator the occurrences of loss, damage, or destruction of equipment.
	D. Forecasts needs for replacement and/or additional equipment.
	E. Keeps accurate property records, using listings supplied by Property Control.
	F. Promotes the use of Government property for official use only.
	G. Reports all occurrences of improper use, alteration, unauthorized disclosure, or other improper acts to any computer equipment and software to the CPPM and FERMCO Property Administrator.
	H. Optimizes property utilization.

ATTACHMENT G
Sheet 3 of 3

RESPONSIBILITY	ACTION
RESPONSIBLE MANAGER	I. Performs inspection tours or walk-throughs at least once a year (usually in April) to promote better use of equipment and to identify property that should be considered for reassignment or removed for disposal (excess).
	J. Shall promote the reuse of equipment by allowing redistribution of assets throughout the facility.

ATTACHMENT H
Sheet 1 of 2

MAINTENANCE

1.0 GENERAL

To provide adequate procedures and general guidelines for corrective and preventive maintenance of Government-owned property furnished to or acquired by FERMCO. It is the policy of FERMCO that Government property will be maintained in accordance with sound industrial practice and/or appropriate Government technical publications.

2.0 MAINTENANCE OF EQUIPMENT

Maintenance of equipment will be in accordance with the manufacturer's suggested procedures and other technical data that is available. The maintenance management program shall include, but not be limited to, the following:

2.1 Scheduled regular maintenance, cleaning, calibration, and repair.

2.2 Records reflecting maintenance and work accomplished and in sufficient detail to disclose the need for replacement.

3.0 MAINTENANCE OF GOVERNMENT PROPERTY

Government-owned facilities and equipment shall be maintained in good operating condition in order to effectively perform their intended functions in accordance with Federal and DOE Property Management Regulations and sound business practices. Government equipment shall be kept in good condition through a program of preventive maintenance, calibration, or by other means as is applicable to each particular item.

RESPONSIBILITY	ACTION
RECEIVING	A. Forwards manufacturer's recommendations and specifications to Maintenance so that maintenance schedules can be established.

ATTACHMENT H
Sheet 2 of 2

RESPONSIBILITY	ACTION
MAINTENANCE	B. Identifies item(s) requiring preventative maintenance and/or calibration and establishes service frequencies.
	C. Services the property, and documents the actions taken in the MMICS, where cost are accumulated for each unit. The system will be reviewed periodically to identify high cost maintenance items.
	D. Maintains a computerized preventative maintenance schedule and a maintenance history of equipment included in the program.
	E. Attaches special barcodes to the equipment for identification and maintenance purposes.
PROPERTY ACCOUNT CUSTODIAN	F. Arranges for repairs to Government property including items under warranty, and items for which maintenance policies have been purchased. NOTE: Exceptions may be made with the approval of the FERMCO Property Manager.
INFORMATION SYSTEMS	G. Arranges for maintenance and repairs of computer equipment.

ATTACHMENT I
Sheet 1 of 6

PHYSICAL INVENTORIES

1.0 GENERAL

1.1 FERMCO and its subcontractors will perform periodic physical inventories of Government property acquired or assigned to the prime contract consistent with inventory schedules coordinated with the cognizant Contracting Officer and/or Government Property Administrator.

1.2 Physical inventories consist of sighting, barcoding or marking, describing, recording, reporting, and reconciling the property with the records.

2.0 INVENTORY SCHEDULES

On September 30 of each year, Property Management will prepare a schedule of property to be inventoried. Inventory requirements will be coordinated with the Warehouse Manager and the Contracting Officer and/or Government Property Administrator. When the schedule is complete, a copy will be submitted to the Contracting Officer and/or Government Property Administrator.

3.0 TYPES OF INVENTORIES

The following types of inventories will be accomplished on the prime program:

3.1 **Complete:** Property stored in the warehouse will be completely inventoried utilizing the procedures in the warehouse procedures. A warehouse validation will be accomplished prior to the start of inventory of each type property.

3.2 **In-Use Equipment:** Equipment assigned to, and in the possession of, a designated Property Equipment Custodian will be inventoried on an annual basis. Inventory of Equipment Custodian accounts will be spread over the entire year.

3.3 **Termination/Completion:** Immediately upon termination or completion of a contract, Property Administration will arrange for a physical inventory adequate for disposal purposes of all Government property applicable to the terminated or completed contract.

ATTACHMENT I
Sheet 2 of 6

3.4 **Special:** The situation may arise to perform special inventories of particular types of property on an as-required basis. Requests for special inventories will be submitted to the Property Management and provide the type property to be inventoried and the reason for inventory.

4.0 INVENTORIES OF GOVERNMENT PROPERTY

FERMCO is responsible under its prime contract with DOE to manage Government-owned property assigned to the FEMP. This includes physically inventorying equipment and facilities assigned to the site. This procedure does not cover the inventorying of stores or expense items (MMICS provides control over these items).

RESPONSIBILITY	ACTION
PROPERTY CONTROL	A. Sends inventory letter of instructions to Property Account Custodians specifying what is to be inventoried and the date by which the inventory is to be completed.
PROPERTY ACCOUNT CUSTODIAN	B. Takes physical inventories as required.
PROPERTY CONTROL	C. Reviews inventory listings and test checks at least ten percent of the units and dollar value of items inventoried.
	D. Organizes a plant-wide search for missing items. Searches may include physical searches, e-mail notices, etc.
	E. Reconciles the inventory with records. Missing items are listed as write-ons.

ATTACHMENT I
Sheet 3 of 6

RESPONSIBILITY	ACTION
FERMCO PROPERTY ADMINISTRATOR	F. Reports to the Contracting Officer and/or Government Property Administrator the results of the inventories.

4.1 Physical Inventory Frequency

The frequency of physical inventories shall be as follows:

a. Permanently Affixed Plant: All items which are installed in a rigid or permanent manner such as buildings, utilities, fences, etc. Not less frequent than every 10 years.

b. Installed Process Equipment: All items which are affixed in such a way that movement from place to place is difficult or items whose size or other characteristics made movement difficult. (Restricted to DOE asset Type 735.) Not less frequently than every 5 years.

c. Moveable Capital Equipment: All items with an acquisition value of $5,000.00 or more which are self-contained and operate as complete units and can be readily moved from place to place. For example, those attached only by power supply. Not less frequently than every 2 years.

d. Administratively Controlled Items: Same as subparagraph c above except items which are not sensitive and have an acquisition value less than $5000.00. There is no formal DOE-wide requirement for the performance of physical inventories of administratively controlled items of personal property.

e. Sensitive Items: Not less frequently than every 12 months.

f. Stores Inventories: Not less frequently than every 12 months.

g. Precious Metals: Not less frequently than every 6 months.

5.0 **INVENTORY PROCEDURES**

The following procedures apply to the various types of inventories performed:

5.1 **Complete Inventories:**

5.1.1 The Warehouse Supervisor will schedule the inventory of all assets stored in the warehouses.

ATTACHMENT I
Sheet 4 of 6

5.1.2 Inventory of property will be performed by storage and issue personnel.

5.1.3 The inventory count will be annotated on the listing, along with the initials of the person performing the inventory.

5.1.4 Upon completion of the inventory, the Warehouse Supervisor will sign the inventory listing and forward to stock control for processing in accordance with the warehouse procedures.

5.1.5 Upon resolution of discrepancies, submit results of the inventory to the Manager, Property Control.

5.2 **In-Use Equipment:**

5.2.1 By September 30 of each year, the Property Control Section will schedule inventories to be conducted during the course of the next year.

5.2.2 Property Control will provide the equipment inventory listing which will be used to perform the inventory.

NOTE: Federal Acquisition Regulations normally prohibit FERMCO Property Administration personnel or property custodians from performing equipment inventories.

5.2.3 If possible, disinterested third-party personnel will be selected to perform the inventory. The designated Property Account Custodian will be available during the course of the inventory effort to assist in locating equipment. The inventory effort will be supervised by FERMCO Property Management personnel.

5.2.4 Upon completion of the inventory, the Property Account Custodian will sign and date the listing in the space provided and return two copies of the listing to the Property Control Section.

5.2.5 Property Control will update the master property records.

5.2.6 Property Control will file the original copy of the signed equipment inventory listing in the Property Account Custodian account file.

ATTACHMENT I
Sheet 5 of 6

5.3 **Termination/Completion:**

5.3.1 The FERMCO Contracts Department will notify the Property Administration Section of termination inventory requirements.

5.3.2 Termination inventories will be conducted in accordance with the requirements of the FAR, Parts 45 and 49, and DEAR 945 and 949.

5.3.3 Contract completion inventory requirements will be coordinated with the Contracting Officer and/or Government Property Administrator prior to contract completion.

5.4 **Special Inventories:**

Special inventory procedures will be provided by the Property Control Section depending on the type of inventory required and the property to be inventoried.

6.0 **INVENTORY DISCREPANCIES**

The following actions will be taken to research/resolve inventory discrepancies:

6.1 **Complete Inventories:**

6.1.1 Stock control will notify the Warehouse Supervisor of those assets that the inventory count and serviceable balance are not in agreement.

6.1.2 The warehouse supervisor will perform a recount of out-of-balance assets.

6.2 **In Use Equipment:**

The Property Custodian will notify the Property Management in the event of loss, destruction or damage involving Government property. Depending on the circumstances, the Property Account Custodian may be required to prepare a report describing the discrepancy in accordance with the requirements of Attachment L, Paragraph 2.0.

ATTACHMENT I
Sheet 6 of 6

6.3 **Substores:**

Inventory discrepancies will be researched and resolved by the Stock Control Section.

6.4 **Termination/Completion:**

Inventory discrepancies will be processed in accordance with the requirements of the FAR, Parts 45, and DEAR 945.

6.5 **Special Inventories:**

Special inventory discrepancies will be researched and resolved by the Property Administration Section and other personnel as necessary depending on the type property inventoried.

7.0 INVENTORY REPORTS

The Property Control Section will prepare the inventory results in accordance with the FAR, Part 45, Sub-part 45.5, Paragraph 45.508-2. A copy of the report will be forwarded to the Contracting Officer and/or Government Property Administrator.

ATTACHMENT J
Sheet 1 of 3

SUBCONTRACTOR CONTROL

1.0 FERMCO SPECIFIC RESPONSIBILITIES

The following responsibilities will be accomplished by the functional departments so designated:

1.1 **FERMCO** through the FERMCO Property Management function is responsible for maintaining effective control of the acquisition, transfer, inventory, and disposition of accountable Government property assigned to the prime contract in the possession of subcontractors/vendors.

1.2 **The FERMCO Subcontracts Administrator** shall furnish the Property Control Section with copies of subcontracts, agreements, and changes thereto that include the use or assignment of Government property. The terms of the subcontract must be written to ensure compliance with the Government property control system of the contract.

1.3 **The Property Control Section** will conduct periodic examinations of subcontractors property records when this effort is not performed by a secondary Contracting Officer and/or Government Property Administrator, or when the subcontractor does not have a property system approved by the Government. Records of the periodic examinations will be maintained by the Property Control Section.

2.0 RECORDS AND PROCEDURES

2.1 Accountable property records, procedures, and requirements shall be the same for FERMCO subcontractors as that of the prime contract. If the subcontractor's property records are to be utilized as the official property records, the cognizant Contracting Officer and/or Government Property Administrator will be so advised.

2.2 Subcontractors having possession of Government property under the cognizance of the prime contract shall be required to maintain an approved Government Property Control System in conformity with the FAR Part 45.5 and 45.6, DEAR 945.5 and 949.6.

ATTACHMENT J
Sheet 2 of 3

3.0 SUBCONTRACTOR/VENDOR CONTROL

Government-owned property acquired or furnished by FERMCO but in the possession of subcontractors or vendors, both onsite and offsite shall be protected and controlled in the best interest of the Government. FERMCO is responsible for ensuring that this property is managed in accordance with Federal and DOE Property Management Regulations.

RESPONSIBILITY	ACTION
ACQUISITION	A. Places contracts with subcontractors and vendors to provide materials, equipment and services for FERMCO in support of FEMP projects and programs.
	B. Ensures that contracts are written to identify Government-owned property to be provided and dates when property is the responsibility of the subcontractor or vendor.
	C. When Government property is loaned to subcontractors /vendors on a purchase order/subcontract, ensures that a Miscellaneous Shipping Order (MSO) form, FS-F-871; and/or a Loaned Personal Property Agreement form, FS-F-17; is completed, approved, and a copy given to Property Control prior to the equipment being shipped to the subcontractor/vendor.

ATTACHMENT J
Sheet 3 of 3

RESPONSIBILITY	ACTION
PROPERTY CONTROL	D. Requires subcontractor/vendor to keep Government property separate from supplier owned property and to protect and maintain Government-owned property in their possession. Requires subcontractor/vendor to appoint a Property Administrator in writing to the FERMCO Property Control Section. Require subcontractors to report missing, stolen, and damaged property to the FERMCO Property Administrator so he/she may notify the Government Property Administrator.

NOTE: Depending on the length of possession, subcontractors and/or vendors may be required to supply physical inventory data and verification that they still have the Government equipment assigned to them.

E. Requires a final inventory of property in conjunction with contract close out. Determine if the property that has been returned is deteriorated beyond normal wear and tear. Coordinate any required financial adjustments with the Subcontract Administrator.

F. Maintains property records of items purchased for or provided subcontractor/vendor by FERMCO.

G. Reviews and approves subcontractor/vendor performance in management of Government-owned property in their possession.

ATTACHMENT K
Sheet 1 of 20

DISPOSITION

1.0 **POLICY**

The disposition of Government property will be in conformance with the FAR 45.6, Reporting, Redistribution and Disposal of Contractor Inventory, FPMR, DOE, PMR, or as directed by the Contracting Officer and/or Government Property Administrator.

2.0 **DEFINITIONS**

The following terms will be used throughout the section:

2.1 **Plant Clearance** - Actions relating to the screening, redistribution and disposal of contractor inventory.

2.2 **Plant Clearance Officer** - An authorized representative of the Contracting Officer who is assigned the responsibility for plant clearance.

2.3 **Plant Clearance Period** - The period beginning on the effective date of contract completion or termination and ending 90 days (or such longer period as may be agreed to) after receipt by the Contracting Officer of acceptable inventory schedules for each property classification.

2.4 **Reportable Property** - Contractor inventory that must be reported for screening in accordance with FAR, Sub-part 45.6. and DOE PMR 109-43.311-1-50.

2.5 **Surplus Property** - Contractor inventory not required by any Federal Agency.

2.6 **Contractor Inventory** -

2.6.1 Any property acquired by and in the possession of FERMCO or a subcontractor under the prime contract for which title is vested in the Government and which exceeds the amounts needed to complete full performance under the entire contract.

2.6.2 Any property that the Government is obligated or has the option to take over under any type of contract as a result either of any changes in the specifications or plans thereunder or of the termination of the contract (or subcontract thereunder), before completion of work, for the convenience or at the option of the Government.

2.6.3 Government-furnished property that exceeds the amounts needed to complete full performance under the entire contract.

2.7 **Salvage** - Property that, because of its worn, damaged, deteriorated, or incomplete condition or specialized nature, has no reasonable prospect of sale or use as serviceable property without major repairs, but has some value in excess of its scrap value.

2.8 **Scrap** - Personal property that has no value except for its basic material content.

2.9 **Personal Property** - Property of any kind, or interest in it, except real property.

2.10 **Nonconforming Material** - Any item, part, or product with one or more characteristics which depart from contract requirements, specifications, standards, drawings, or other approved product description.

2.11 **Excess** - Government property no longer required for the performance of the instant primary contract.

3.0 DISPOSAL REQUIREMENTS

Government property assigned to, but not required for performance of the prime contract, must be reported to the cognizant Contracting Officer and/or Government Property Administrator for disposition consistent with disposal requirements set forth in the prime contract. The FAR and DEAR referenced in the prime contract prescribe the general methodology for disposition of excess and surplus property, including salvage and scrap. The disposal methods described as follows are consistent with the FAR and DEAR requirements related to excess and surplus property and will be used for property disposal under the prime contract.

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Sheet 3 of 20

3.1 Disposal Methods

3.1.1 Excess and Surplus Property

Property Management will arrange for accomplishing disposal of excess and surplus property by selecting one or a combination (if feasible and practical) of the following methods in order of descending priority shown. In selecting the method(s) of disposal, the lot sizes and the composition of property groups will be adjusted to reflect the condition and desirability of the property in order to realize the maximum benefit of any sale. Method G will not be used until every effort is made to dispose of the property by another method or by a combination of Methods A through F.

Method A: Purchase or retention at cost by FERMCO or FERMCO subcontractors of property acquired under the prime contract.

Method B: Return of property acquired under the prime contract to suppliers for credit of at least 75% of acquisition costs including restocking charges.

Method C: Transfer to other Federal agencies.

Method D: Donation to eligible State or local Government agencies.

Method E: Public sales of property and/or retention by FERMCO or FERMCO subcontractors at less than acquisition cost of the property.

Method F: Donation to public bodies.

Method G: Destruction or abandonment.

3.1.2 Scrap and Salvage

Excess property classified as scrap and salvage property will be processed through Property Management to the DOE Contracting Officer and/or Government Property Administrator. Scrap metal processed for turn in must be segregated into the following categories (or as required by specific agency's requirements):

A. **Light Steel** - Under one-eighth inch thick, any dimension.

B. **Short Heavy Steel** - At least one-eighth inch thick, under 36 inches in length.

C. **Heavy Steel** - At least one-eighth inch thick, 3 feet or more in length.

D. **Aluminum** - Any size.

E. **Copper Wire**

F. **Copper and Steel Wire**

G. **Stainless Steel** - Any size.

3.1.3 **Precious Metal Recovery**

It is the responsibility of the individual/department declaring property excess to notify Property Control if property contains precious metals that may be recovered. Property Control will indicate on the Property Disposal Request form, SF120 or FS-F-563, that the property being disposed of contains precious metals.

3.2 Disposition Procedures

3.2.1 **Excess property reporting**

FERMCO organizations are responsible for reviewing equipment and other property items under their control for utilization and need. Items no longer needed or suitable for performance of contract requirements will be reported as excess on the Report of Excess Personal Property form, SF120, or other approved form. The report must contain a description of the property and be forwarded to the Property Excess and Disposal Section for processing. Excess personal property groups and classes must be reported and screened by entering items onto the Reportable Excess Automated Property System (Reportable Excess Automated Property System (REAPS)) in accordance with DOE PMR 109-43.311-1-50 DOE utilization screening.

3.2.2 Excess property storage

Property reported as excess will normally be directed to a designated excess property storage area if available. However, if the property requires special equipment for movement or requires special handling devices used by the operating department for maintenance, repairs, or if removal of the property is not considered advisable or feasible, it may be designated by the FERMCO Property Administrator to be stored in place until disposition action is completed. All property designated for disposition, except for items excess and stored in place, will be stored apart from active FERMCO inventories until disposition has been accomplished.

3.2.3 Scrap and salvage storage

Scrap will be sorted and stored separately from other excess or surplus property pending disposition instructions which will be provided by the Property Excess and Disposal Section.

3.2.4 Internal handling procedure (excess material)

A. When it is determined that personal property is no longer of any use for current operational requirements, a Property Disposal Request form, SF120 or FS-F-563, is initiated and processed.

B. All material is required to be checked by a Radiological Technician. The Radiological Technician will note the readings, if any, on the Radiation Monitoring Record.

C. After the Radiation Monitoring Record has been completed, one copy will be attached to the Property Disposal Request form and remain on file for future reference.

D. If the material was found to be contaminated and it is later decided by the Property Excess and Disposal Section that the material does have an economical value, i.e., transfer to other Government agencies or public sale, the material would be moved to Decontamination where it would be decontaminated. After completion of the decontamination, the Radiological Technician should be asked to monitor the material and complete the second stage (Approve for Disposal) of the Radiation Monitoring Record. If no contamination is found, disposal should be made as indicated above.

E. Contaminated personal property can be disposed of as directed by the Waste Operations Section after all other methods have been considered for disposal and notification by the Property Excess and Disposition Section.

F. Before removal from the originating area, the material is inspected and classified into type (Excess, Salvage, Scrap) and proper classification per condition code (Attachment K, Sheet 20).

G. After the material has been received at the storage location, the Property Excess and Disposal Section prepares a Report of Excess Personal Property form, SF120, and sends a copy to all Division managers concerned for the purpose of ascertaining if the material is still required at this installation in some place other than the originating Division.

H. If material listed on Report of Excess Personal Property is still required at this installation, a transfer of material is effected by initiating a Property Reclassification Request giving all applicable information. Items transferred are then deleted from the Property Disposal Request and the transfer authority. Property Addition/Change/ Relocation Request form, FS-F-3126, is filed with the Property Disposal Request form to support the deletion. A memorandum is sent to the Property Control Section by the Excess Clerk listing all withdrawals. The Property Excess and Disposal Section arranges for the transportation, handling, and delivery of materials issued from the excess-disposal area.

I. If no response is received within a reasonable amount of time (10-12 working days) after the Report of Excess Personal Property is circulated plant wide, the forms are mailed to all installations specified by the Contracting Officer and/or Government Property Administrator.

J. Requirements for formal circularization with DOE are outlined in the DOE Property Management and Procurement Instructions, Subchapter H, Utilization and Disposal. Excess items will be placed on circularization lists normally within 30 days after an item is declared as excess.

K. Certain classes of personal property require only informal circularization before disposal and are not required to be listed for formal circularization or reported as outlined in the DOE Property Management and Procurement Instructions, Subchapter H, Utilization and Disposal.

1. Circularization Procedure

a. The Federal Property Management Regulations, Part 101-43, sets guidelines for classifying approximately ninety-nine excess items.

b. The Federal Supply Classification Schedule indicates which items are reportable to GSA according to the disposal condition.

c. Formal Circularization: Consists of items worth over $1,000.00 and entered into the Reportable Excess Automated Property System (REAPS) ($500 for furniture items).

d. Items to be circularized are submitted on a Property Disposal Request form, SF120, to Washington, D.C. Catalogs of available items are generated monthly.

e. Informal Circularization: Consists of items totaling less than $1000.00. These lists are submitted to the Limited Distribution addresses (various DOE facilities).

f. Vehicles - All vehicles excess to our needs onsite are to be reported through DOE - Fernald Property Management to Oak Ridge, Fleet Management. Oak Ridge will report all vehicles to the General Services Administration (GSA). (Reference 41 CFR, Part 101-43.4801.)

2. Informal circularization:

Items of small cost, obsolete or special made, that are declared excess to our requirements, will be subject to the following procedure:

a. Informal lists will be prepared listing quantity, brief description, unit cost, and total value. The Excess Section will provide copies of these informal lists to Acquisition of excess equipment to include automatic data processing equipment and other equipment to enhance onsite screening.

b. Circularization will be to known DOE Contractors in a geographical area where freight factors will not be a consideration.

c. After 15 days, items remaining will be included in circularizations to the General Services Administration.

d. Items then remaining from the above circularization will be offered for public sale to the highest bidder in accordance with established DOE procedures.

L. If any authorized DOE installation is interested in the transfer of property listed on the Report of Excess Personal Property during the authorized circularization period, a copy of the purchase order is mailed to Property Control.

M. FERMCO is authorized to transfer any material listed on an approved Report of Excess Personal Property to any installation.

N. The Excess Clerk is responsible for the preparation of Shipping Orders and Job Orders for packing.

O. All transfer data are filed with the Property Control Section, together with shipping orders and supporting data.

P. Material which has been processed through formal channels of disposal and not transferred to DOE and/or Federal agencies may be:

(1) donated for purposes of education, public health, and civil defense

(2) donated to public agencies

(3) offered for public sale

(4) abandoned or destroyed after release from DOE.

3.2.5 **Internal handling procedure (scrap metal - uncontaminated)**

A. Uncontaminated scrap metal is accumulated in a prescribed area.

B. As required, the Property Excess and Disposal Section estimates the amount of scrap and arranges disposition by competitive bidding in accordance with the DOE Property Management and Procurement Instructions, Subchapter H, Utilization and Disposal.

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4.0 INVENTORY SCHEDULE REQUIREMENTS

Excess or surplus property being disposed of by methods A or B (retention by FERMCO or its subcontractors at cost), or method B (by returning the property to suppliers for credit if the supplier's restocking charges do not exceed 25% of the acquisition cost) will not be listed on inventory schedules. All other excess property will be listed on the appropriate inventory schedules for subsequent transmittal to the Contracting Officer and/or Government Property Administrator for approval and establishment of the Plant Clearance cycle.

4.1 Inventory Schedule Guideline

4.1.1 The following guidelines will be adhered to in the preparation of inventory schedules. Separate schedules will be prepared and submitted for the following types of property:

A. Serviceable Property (Condition Codes 1, 2, 4, 5, 7, and 8)

B. Material

C. Property bearing a security classification regardless of condition or cost

4.1.2 The condition codes to be utilized in reporting excess property are included on Attachment K, Sheet 20, and will be indicated on the Property Disposal Request and inventory schedules for each line item entry.

4.2 Submission of Inventory Schedules

Line items of excess property will be grouped and listed on inventory schedule forms for submission to the Contracting Officer and/or Government Property Administrator as follows:

4.2.1 **Classified Property:** This category includes all property bearing a security classification, regardless of acquisition cost.

4.2.2 **Government-Furnished Property:** This category should be subdivided into the same categories as unclassified property.

4.2.3 **Unclassified Property:** Unclassified property will be subdivided as follows:

A. Scrap, regardless of acquisition cost.

B. Salvage, regardless of acquisition cost.

4.3 **Plant Clearance Period**

Upon notice of acceptance of the applicable inventory schedules by the Plant Clearance Officer, a plant clearance action will begin for the normal 90-day period for disposition of the property to other activities. This 90-day period does not include local onsite screening.

5.0 **SHIPMENTS OF PLANT CLEARED PROPERTY**

5.1 Property being acquired by Government agencies or donnee will be shipped in accordance with instructions issued by the Plant Clearance Officer.

5.2 Costs of packing, crating and shipping plant clearance items will be charged to the respective contract or subcontract.

6.0 **PROPERTY DISPOSITION RECORDS**

Property Management will maintain disposition records for all categories of excess property. Records of disposal of property will contain the following information and be filed by contract and plant clearance case(s) as applicable.

6.1 **Excess and Surplus Property**

6.1.1 Plant clearance case number/control number

6.1.2 Method of disposal

6.1.3 Bid list/bidders

6.1.4 Inventory schedules

6.1.5 Plant clearance disposition instructions

6.1.6 Shipping/transfer documents

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6.2 **Salvage and Scrap**

6.2.1 Contract number

6.2.2 Description of salvage items

6.2.3 Description of scrap items

6.2.4 Quantities

6.2.5 Listing of bidders (if applicable)

6.2.6 Sales records and dates of transactions (if applicable)

6.2.7 Disposition (agencies documents)

7.0 SALES OF GOVERNMENT PROPERTY

7.1 **Disposal of Government Property Via Public Sale**

7.1.1 Upon release from GSA and with the approval of the DOE Contracting Officer and/or Government Property Administrator material may be considered available for sale to the public in accordance with the provisions of the FPMR 101-45.304.

7.1.2 Factors for Determination of Sale Method:

A. The Upset Price value of the material.

B. The homogeneous nature of the material to be sold.

C. The relative cost of selling the material versus the expected return.

D. The physical condition of the material.

7.1.3 After the selection of a method for disposal has been reached, the details leading to the selection require the approval of the DOE Contracting Officer and/or Government Property Administrator. In the event formal advertising is utilized as a supplement to bid solicitation or in lieu of a bid mailing, prior approval must be obtained from the DOE Contracting Officer and/or Government Property Administrator.

7.1.4 The procedures established in FAR 14.4 and DEAR 914.4 shall be complied with and applicable to execution, receipt, safeguarding, opening, abstracting, and evaluation of bids, and awarding contracts, disposal under conditions most advantageous to the Government based on high bids received shall be the determining factor. For mistakes in bids, in addition to the above references see FPMR 101-45.8.

7.2 **Competitive Bid Sales**

7.2.1 Except as provided in FPMR 101-45.304-2, property shall be sold by competitive bid sales after advertising, in at least one newspaper, in accordance with FPMR 101-45.304-1. Competitive bid sales include Sealed bid sales, Spot bid sales, and Auction sales.

7.2.2 Competitive Process

A. For the purpose of maintaining fair competition and deriving the maximum possible return from material available to be sold, the Excess and Disposal Section will maintain a bid list of interested firms and individuals.

B. Upset Prices (Fair Market Value)

1. The following yardstick will be used to determine a fair and reasonable amount of return on sales:

PROPERTY CONDITION CODE	% OF ACQUISITION PRICE
Unused Good	50%
Unused Fair	40%
Unused Poor	20%
Used Good	35%
Used Fair	20%
Used Poor	10%
Repairs Required Good	20%
Repairs Required Fair	15%
Repairs Required Poor	5%

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2. These percentages are guidelines only and other factors must be considered when available. Upset Prices are not to be released outside FERMCO. The Upset Price will be used to determine reasonableness of bids and fair market value. The Upset prices will be posted to the bid abstract as the in-house estimate.

C. Names for the bid list will be obtained from voluntary requests by potential buyers and published lists of trade magazines, directories, and responses from newspaper advertisements.

D. Bid will be mailed to potential buyers on the appropriate Sale of Government Property - Bid and Award form, SF114, complete with Sale Terms and Conditions. Any changes to the solicitation must be approved by the DOE Contracting officer and/or Government Property Administrator.

E. Interested bidders must fill out a SF114 and return the completed copies to FERMCO with a 20 percent deposit enclosed in check or money order, payable to the U. S. Treasury. The net proceeds may be authorized contractually to be credited to the cost of the work. If the Contracting Officer authorized credit to the work, checks will be made payable to FERMCO instead of the U. S. Treasury.

F. Provisions for the bid opening and removal of material are contained on the SF114.

1. All bids received will be date stamped upon receipt and opened on the date, time, and place specified in the solicitation for bid.

2. A representative from the FERMCO Finance Department will witness bid openings.

3. The finance representative will gather all deposits. These deposits will be prelisted and a copy maintained in the solicitation file.

4. In the event deposit is made in currency, the finance and property representatives will jointly count and record the dominations received. Each representative will sign as to the exact amount received.

5. All money and checks will be delivered to the Finance in a money pouch. Checks made payable to the US Treasury will be held in secure file.

6. All such funds will be transmitted to Fluor Daniel, Inc., Irvine, California, by the Finance Department for deposit in the usual way (cash will be deposited in the Credit Union in return for a cashier's check). Deposits will be booked by debiting the Fluor Daniel, Inc., Inter-Company account for cash and crediting deposits payable. There will be a manual subsidiary ledger of all deposits payable maintained, which will be balanced and checked to agree with the general ledger control account at the end of each month.

7. The Property Management Department will determine the successful bidder and will advise the Finance Department. Once the Finance Department is aware of the unsuccessful bidders, then FERMCO company checks will be prepared as return of the deposit, the corresponding journal entry will be to debit the deposits payable account and credit the related Fluor Daniel, Inc., Inter-Company account.

   Checks made payable to the U.S. Treasury will be returned to sender upon notification by Property Management.

8. For the successful bidder, the Finance Department will prepare an invoice that will be used to journalize the sale, a copy will be given to the successful bidder, and a copy will be given to Property Management. If checks are payable to the U.S. Treasury, it be delivered to the Contracting Officer. If the check is made payable to FERMCO the sale will be entered into the journal as follows:

FERMCO will credit the proper stores cost account if it is an operating item, and will credit the appropriate program if it is capital based on FERMCO's November 30, 1992 Property Records. The corresponding debit will be to Miscellaneous Receivables.

9. The successful bidder will be instructed to send the balance of the bid to the Finance Department prior to possession of Property. The Finance representative will transmit this amount for deposit as before and provide a receipt to the successful bidder. The amount will be entered into the journal as follows: debit the Inter-Company account for the amount of proceeds received; debit Deposit is Payable for the initial deposit; and credit Miscellaneous Accounts Receivable.

G. Bids will be numbered consecutively with the prefix "SD" and remain sealed until the time of opening.

H. Employees wishing to bid on surplus property are required to sign Sale of Surplus Government Property form, PUR-813.

I. After bid opening, bids are abstracted and the complete file and documentation is forwarded to the DOE Contracting Officer and/or Government Property Administrator for signature and award approval.

J. Upon approval the successful bidder or bidders will be formally notified.

K. Deposits received from successful bidders will be applied against the total price of the material purchased; deposits from unsuccessful bidders will be returned via certified mail.

L. Upon notification by the successful bidder(s) as to removal of the material, the Excess and Disposal Section will issue a Miscellaneous Shipping Order on the basis of where-is and as-is shipment. The successful bidder is responsible for all cost to remove the material.

M. Successful bidders will have a maximum of 10 days to remove material from FERMCO unless otherwise stipulated. Failure to remove the material in the allowed time is covered in the Terms and Conditions of the Sale. Payment must be made in full prior to material being removed.

7.3 **Auction Sales**

7.3.1 Public auctioneers shall be utilized to conduct auction sales.

7.3.2 Terms and conditions of sale shall be announced prior to commencement of the sale and will be made available in written form to all prospective bidders.

7.3.3 Such offerings shall reserve the right to accept or reject any or all bids and shall include a requirement for appropriate bid deposit at the time of award.,

7.3.4 Lots for which all offers have been rejected may be re-offered later at the same sale to secure acceptable bids.

7.3.5 Newspaper advertising procured in accordance with the FPMR shall be used in addition to other written notice if deemed appropriate and approved by the DOE Contracting Officer and/or Government Property Administrator. Final payment shall be made before removal of the material from FERMCO.

7.3.6 Since auction sales are usually employed in disposing of relatively large amounts of property, every practicable means of notifying a maximum number of prospective bidders shall be used and adequate safeguards, designed to insure accurate accounting for all property sold and for the proceeds of sale, shall be maintained.

7.3.7 Proceeds from auction sales will be sent directly to the FERMCO Finance Department.

7.4 **Negotiated Sales**

7.4.1 All sales via negotiation will be handled on a, Sale of Government Property Negotiated Sales Contract form, SF114E.

7.4.2 When competitive bidding has failed to yield a bidder or price above the Upset Price or when there is a reason to believe there is no other known method of disposal that will yield a greater return, the above method would be used.

7.5 **State Sales Tax**

State sales tax will be collected as prescribed by the State of Ohio on all sales if applicable.

7.6 **Documentation**

7.6.1 The disposal file must contain the following if applicable:

A. Authorization for disposal
B. Justification for negotiation
C. Copy of Invitation to Bid
D. Authorization of sale
E. Copies of offers by bidder or bidders
F. Statement of advertising, including cost
G. Statement of the number of bids solicited
H. Shipping reference
I. Copy of Auctioneer's brochure and catalogue
J. Original acquisition cost of each item or "lot" sold other than salvage and scrap
K. Gross revenue of each item or "lot" sold
L. Copy of Abstract of Bids, including the names and addresses of responding bidders.
M. Copy of Negotiated Sales Contract

7.6.2 The above information will be provided to the DOE Contracting Officer and/or Government Property Administrator for approval prior to notifying successful bidder.

7.7 **Utilization of Excess Property from other Government Agencies**

7.7.1 It is FERMCO policy to utilize Government excess property, to the extent practicable, as the first source of supply in fulfilling property requirements.

7.7.2 Requestors will submit current and future requirements for personal property (i.e., office equipment and furniture) to the Manager, Excess and Disposal Section, for review prior to procurement to assure that the material is not available through Government excess channels.

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REQUISITIONING EXCESS PROPERTY

RESPONSIBILITY	ACTION
REQUISITIONER/BUYER	A. Requests the Excess and Disposal Section to screen REAPS for the type equipment needed.
EXCESS PROPERTY SECTION	B. Screens for item(s) requested.
	C. Investigates whether item(s) available from excess are economical to requisition.
	D. Advises the requisitioner if the item(s) appear to meet requirements.
	E. Determines availability, places on "hold" item(s) required, and advises requisitioner of item(s) on hold. The maximum hold period is 30 days.
REQUISITIONER/BUYER	F. Determines feasibility of use of excess property.

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PROPERTY CONDITION CODES

CODE 1. UNUSED-GOOD
Unused property that is unusable without repairs and identical or interchangeable with new items from normal supply sources.

CODE 2. UNUSED-FAIR
Unused property that is usable without repairs, but is deteriorated or damaged to the extent that utility is somewhat impaired.

CODE 3. UNUSED-POOR
Used property that is usable without repairs, but is considerably deteriorated or damaged. Enough utility remains to classify the property better than salvage.

CODE 4. USED-GOOD
Used property that is usable without repairs and most of its useful life remains.

CODE 5. USED-FAIR
Used property that is usable without repairs, but is somewhat worn or deteriorated and may soon require repairs.

CODE 6. USED-POOR
Used property that may be used without repairs, but is considerably worn or deteriorated to the degree that remaining utility is limited or major repairs will soon be required.

CODE 7. REPAIRS REQUIRED-GOOD
Required repairs are minor and should not exceed 15% of the original acquisition cost.

CODE 8. REPAIRS REQUIRED-FAIR
Required repairs are considerable and are estimated to range from 16% to 40% of original acquisition cost.

CODE 9. REPAIRS REQUIRED-POOR
Required repairs are major because property is badly damaged, worn, or deteriorated, and are estimated to range from 41% to 65% of original acquisition cost.

CODE X. SALVAGE
Property that has some value in excess of its basic material content, but repair or rehabilitation to use for the originally intended purpose is clearly impractical. Repair for any use would exceed 65% of the acquisition cost.

CODE S. SCRAP
Material that has no value except for its basic material content.

ATTACHMENT L
Sheet 1 of 2

REPORTS

1.0 REPORTS OF GOVERNMENT PROPERTY

1.1 FERMCO shall provide annually (or as directed by the contract) the total acquisition cost of property in the following categories:

1.1.1 Capital Equipment

1.1.2 Administratively Controlled Items

A. Government-Furnished Equipment

B. Contractor-Acquired Property

1.1.3 Government Material (Government Furnished)

1.1.4 Government Material (Contractor Acquired)

1.1.5 Real Property

1.2 The report shall be prepared or as specified by contract and furnished to the Contracting Officer and/or Government Property Administrator.

2.0 LOST, DAMAGED OR DESTROYED PROPERTY

2.1 Lost, damaged, or destroyed property shall be reported immediately to the Property Administration Section. When Government property is lost, damaged, or destroyed by causes other than fair wear and tear, the Property Administration Section shall take the administrative actions necessary to determine the facts concerning the loss and amount of the loss to the Government. An investigating officer may be assigned to ascertain the liability for the loss, damage, or destruction of the property.

2.2 The Property Administration Section shall prepare all reports surrounding the loss, damage, or destruction of Government property and forward them to the Contracting Officer and/or Government Property Administrator. Reports shall contain the following information as a minimum:

2.2.1 Date of report

2.2.2 Date of incident

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2.2.3 Contract number and type

2.2.4 Description of property

2.2.5 Location of property

2.2.6 Acquisition cost

2.2.7 Estimated scrap proceeds (when applicable)

2.2.8 Repair direct labor hours and material costs

2.2.9 Estimated cost to repair (when applicable)

2.2.10 Total cost of incident

2.2.11 Identification of the contract provision under which relief is sought. Identify the peril causing the loss, damage, or destruction. Provide a short narrative of the incident.

2.2.12 Corrective action taken or to be taken to prevent recurrence.

2.2.13 Copies of any supporting documentation such as investigation reports.

2.2.14 Copies of any Police Report(s) that may be required.

3.0 REPORT OF RESULTS OF INVENTORIES

Property Administration will prepare and submit to the Contracting Officer and/or Government Property Administrator reports outlining results of inventories (overages/shortages) as required by the FAR, Part 45, Sub-part 45.5, Paragraph 45.508-2).

ATTACHMENT M
Sheet 1 of 2

SENSITIVE ITEMS OF PROPERTY

1.0 POLICY

The Property Control Manager will maintain custodial records for the control and accountability of all items of property identified as sensitive in accordance with DOE Property Management Regulation 109-1.5106-4. All sensitive items will be signed for by the Property Account Custodian (PAC) who assumes responsibility for the control, protection, and security of the property.

2.0 DEFINITION

DOE PMR 109-1.5101 defines sensitive items as those items of property, regardless of value, which are considered to be susceptible to being appropriated for personal use or which can be readily converted to cash, for example: firearms, portable photographic equipment, binoculars, portable tape recorders, portable calculators, and portable power tools.

3.0 RESPONSIBILITY

3.1 The Property Control Section will coordinate with Property Account Custodians to establish, maintain, and verify custodial property records for all sensitive items.

3.2 Items of Capital Equipment or administratively controlled items which are also designated as sensitive items will be controlled as sensitive items and as Capital or administratively controlled items.

3.3 Property identified as sensitive items will be barcoded with a barcode assigned to a Property Account Custodian and recorded in the Master Project Record. All procedures for controlled property shall apply to these items.

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4.0 LIST OF SENSITIVE ITEMS

Portable computers including lap tops/modems (if accessible)
Binoculars
Calculators (with an acquisition value of more than $25.00*)
Cameras (movie, still, television, and accessories)
Cellular phones
Chain Saws
Edgers (gas and electric)
Generators, portable
Portable Power Tools (with an acquisition value of more than $25.00*)
Lawn Mowers
Microwave Ovens
Monitors/Terminals
Printers
Personal Computers (peripherals, including Keyboard)
Power Supplies
Players, audio and Video cassette
Projectors, slide/motion picture
Radios, Receivers, Transmitters and Transceivers (Walkie-Talkies)
Recorders, audio/video
Telescopes, portable
Television
Weedeaters (gasoline and electric)

NOTE: Additional items may be added to the list as required.

* This dollar amount is a guide only.

5.0 CLEARANCE

The Human Resources will obtain written clearance from the Property Account Custodian to ensure that all sensitive property items are turned in, reassigned, or otherwise accounted for before a FERMCO Employee is transferred or terminated.

ATTACHMENT N
Sheet 1 of 2

MANAGEMENT ASSISTANCE REVIEWS

1.0 PURPOSE

The purpose of this section is to establish a policy for periodic management reviews of property management areas and supply activities to be conducted to assist management in evaluating and maintaining a more efficient operation.

2.0 RESPONSIBILITY

2.1 FERMCO Managers who have Property Account Custodians shall monitor all phases of property control. This includes checks for prompt declaration of excess property surveillance to ensure that property is properly maintained and is used for authorized purposes only, and that all receipts, movement and excess actions are authorized and properly documented.

2.2 FERMCO Internal Audit shall provide personnel to conduct audits, inspections, surveys,and reviews of supply activities and the Property Control System.

3.0 PROPERTY SURVEY SCHEDULE

3.1 All aspects of the FERMCO Property Control System shall be reviewed, tested, analyzed, and evaluated at least once each year. The FERMCO Property Administrator will schedule surveys and notify the affected managers of the dates and areas to be covered.

3.2 Use of random sampling techniques will provide a basis for performing audits and advising management of the status of material received, stored, and issued or shipped.

3.3 Between annual surveys, spot checks will be conducted during property compliance reviews.

3.4 This Management of Government Property manual will be the controlling document for audits.

4.0 AUDITING AND INSPECTING

4.1 During reviews of specific property control activities, a team will spot check balances on hand against property records. The locator system and general condition of the storage area will also be reviewed.

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4.2 Upon completion of the review, the Manager, Property Control, will prepare a comprehensive report of the findings which will be sent to the FERMCO Property Administrator. The Manager, Property Control, will be responsible for ensuring that any required corrective action is completed in a timely manner.

4.3 The Manager, Property Control, will maintain a complete file of all audits, reviews, work sheets, memoranda, and corrective action completed. Copies will be routed to the FERMCO Property Administrator and the Manager of the area audited.

4.4 Periodic audits, on a consumption analysis basis, will be performed, addressing non-accountable/consumable items.

5.0 CATEGORIES

Categories of property activities that will be examined during reviews and audits are listed below:

5.1 Records
5.2 Storage and movement
5.3 Consumption
5.4 Utilization
5.5 Maintenance
5.6 Physical records

6.0 ANNUAL SUMMARY

At the conclusion of all scheduled surveys, the Manager, Property Control, will prepare a summary report, based on the surveys, of the effectiveness of the Property Control System. The report will be submitted to the FERMCO Property Administrator for distribution.

ATTACHMENT 0
Sheet 1 of 6

MANAGEMENT OF PRECIOUS METALS

1.0 PURPOSE

The purpose of this attachment is to provide policies, principles, and guidelines to be used in the management of DOE-owned precious metals by FERMCO.

2.0 DEFINITION

DOE PMR 109-27-5301 defines precious metals as uncommon and highly valuable metals characterized by their superior resistance to corrosion and oxidation. Included are gold, silver, and the platinum group metals; platinum, palladium, rhodium, iridium, ruthenium, and osmium.

3.0 RESPONSIBILITY

3.1 In accordance with DOE PMR 109-27.5303, the FERMCO Senior Manager of Material Management assigned to the Remediation Support Operation Division is responsible for assigning a FERMCO Precious Metals Control Officer. This individual shall be functionally responsible to the FERMCO Property Administrator and will be FERMCO's primary point of contact concerning precious metals control and management.

3.2 The FERMCO Precious Metals Control Officer is responsible for the following:

3.2.1 Assure that FERMCO precious metals activities are conducted in accordance with the requirements of this attachment, the FPMR, and DOE PMR.

3.2.2 Maintain an accurate list of the names of Precious Metals Custodians as they are designated by the Department Managers.

3.2.3 Provide instructions and training to Precious Metals Custodians and/or users, as necessary, to assure compliance with regulatory responsibilities.

3.2.4 Assist the Property Management Department to ensure that physical inventories are performed as required by, and in accordance with, the DOE PMR.

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3.2.5 Witness physical inventories.

3.2.6 Assist the Property Management Department in the performance of periodic unannounced inspections of custodians' precious metals inventories and records.

3.2.7 Conduct an annual review of precious metals holdings to determine excess quantities, if any.

3.2.8 Prepare and submit the annual forecast of anticipated withdrawals from, and returns to, the DOE precious metals pool.

3.2.9 Conduct a program for the recovery of silver from used hypo solution and scrap film in accordance with FPMR 101-42.3 and DOE PMR 109-42.3.

3.2.10 Prepare and submit the annual report on recovery of silver from used hypo solution and scrap film as required by DOE PMR 109-42.301-1.

3.2.11 Develop, maintain, and issue current authorization lists of persons authorized by management to withdraw precious metal from stock.

3.2.12 Approve all requisitions for precious metals and obtain the DOE Precious Metals Control Officer's approval prior to the requisition being submitted to the Acquisitions Department.

4.0 PROCEDURE

4.1 ACQUISITION OF PRECIOUS METALS

RESPONSIBILITY	ACTION
REQUISITIONERS	A. Contact the Precious Metals Control Officer to determine availability of precious metals from the DOE Precious Metals Pool.
PRECIOUS METALS CONTROL OFFICER	B. Contact the Acquisitions Department to determine the availability of the necessary precious metals from the DOE Precious Metals Pool.

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RESPONSIBILITY		ACTION
FERMCO PRECIOUS METALS BUYER	C.	Contact the DOE Precious Metals Pool Manager to determine the availability of precious metals prior to acquisition on the open market.
REQUISITIONER	D.	With information provided by the Precious Metals Control Officer on availability and DOE recommended fabricator, shall prepare a Purchase Requisition. A second requisition shall be prepared for the fabrication of the items (such as platinum crucibles with lids or wire), if necessary.
PRECIOUS METALS CONTROL OFFICER	E.	Review the requisition(s) to ensure the correct account is charged, approve the requisition, and obtain approval of the DOE Precious Metals Control Officer prior to submission to Acquisitions.

4.2 **TRAINING**

RESPONSIBILITY		ACTION
PRECIOUS METALS CONTROL OFFICER	A.	Develop and provide training that complies with DOE PMR 109-27.53.

4.3 **SILVER RECOVERY PROGRAM**

RESPONSIBILITY		ACTION
PRECIOUS METALS CONTROL OFFICER	A.	Develop and implement a silver recovery program per DOE PMR 109-27.5303 (i) that is in accordance with FPMR 101-42.3 and DOE PMR 109-4.2.3.
	B.	Prepare and submit an annual report per DOE PMR 104-27.5303 (j).

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Sheet 4 of 6

4.4 ANNUAL REVIEW AND FORECAST FOR PRECIOUS METALS

RESPONSIBILITY	ACTION
PRECIOUS METALS CONTROL OFFICER	A. Conduct an annual review of precious metal holdings per DOE PMR 109-27.5303 (g).
	B. Complete an annual forecast of precious metal withdrawals and returns per DOE PMR 109-27.5303 (j).

5.0 DESIGNATION OF CUSTODIANS

Division Manager shall designate responsible individuals in writing as precious metals custodians. Letters of designation will be sent to the FERMCO Precious Metals Control Officer with a copy to the Property Management Department. Custodians shall be responsible for proper control and safeguarding of the precious metals when issued for use.

6.0 PHYSICAL PROTECTION AND STORAGE

Precious metals shall be afforded physical protection from time of receipt until disposition. In accordance with DOE PMR 109-27.5304-3, precious metals not in use shall be stored in a noncombustible, combination locked repository with access limited to the custodian and an alternate. When there is a change of custodian or alternate having access to the repository, the combination shall be changed immediately.

7.0 PHYSICAL INVENTORIES

7.1 Physical inventories shall be conducted semiannually as scheduled by the Property Management Department and shall be witnessed by the Precious Metals Control Officer.

7.2 Precious metals not in use shall be inspected and weighed on calibrated scales. The inventoried weight and form shall be recorded on the physical inventory sheets by class of metal. Metals in use in an experimental process, or which are contaminated and therefore cannot be weighed, shall be listed on the physical inventory sheet as observed and/or not observed as applicable.

7.3 Any idle or damaged metals should be recorded during the physical inventory. Justification for further retention of idle materials shall be required from the custodian or disposed of in accordance with this section.

7.4 Inventory discrepancies shall be documented and shall identify the total grams over or short and the dollar value based on average cost per gram. Any adjustment shall be supported by an appropriate adjustment report and approved by the Manager, Property Management.

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8.0 STOCK ISSUES

8.1 Metals in stock are metals held in a central location and later issued to authorized individuals when authorized requests are received. The Inventory custodian is responsible for maintaining metals in stock. The following control procedures shall be followed for such metals.

8.1.1 Stocks shall be held to a minimum consistent with effective and economical support for requirements.

8.1.2 The name and organization of each individual authorized to withdraw precious metals and the type(s) and form(s) of metal that may be withdrawn shall be prominently maintained in the stock control location. This authorization shall be issued by the Precious Metals Control Officer and updated semiannually. The Inventory Custodian shall issue precious metals only to authorized persons.

8.1.3 Accurate records of all movements (receipts, issues, returns, and disposal) shall be developed by, and maintained in, the central stock control location.

8.1.4 Receipts for metal issues and returns to stock shall be provided to users. Such receipts, signed by the authorized requesting individual and the Inventory Custodian, shall list the requesting organization, type and form of metal, quantity, and date of transaction.

8.2 Control by Using Organization

8.2.1 After receipt, the using organization shall provide the necessary controls for the precious metal. Materials shall be stored in a locked repository at all times except for small quantities at the actual point of use.

8.2.2 Each using organization shall maintain a log showing the individual user, type and form of metal, and the time, place, and purpose of each use. The log shall be kept in a locked repository when not in use.

8.2.3 The logs, which must be maintained in a securely locked storage facility, are subject to review by the Precious Metals Control Officer, Management Review Team Members, and other audit or review staffs as required.

8.2.4 Cognizant Department Managers are responsible for assuring that minimum quantities of precious metals are withdrawn consistent with work requirements and that quantities in excess of requirements are promptly returned to the Inventory Custodian.

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8.0 **STOCK ISSUES** (cont.)

8.2.5 Employee termination procedures shall include clearance for precious metals possession by the cognizant Property Account Manager.

9.0 **DISPOSITION**

9.1 All precious metals which have become excess to the needs of FERMCO shall be reported to the DOE Precious Metals Pool for recovery and subsequent redistribution within DOE.

9.2 All precious metals in their pure form are accepted for deposit to the DOE Pool Account. With the exception of silver, all precious metals in a scrap form which for all practical purposes are unusable and unserviceable, are accepted into the pool in their current state and are rehabilitated for redistribution within DOE. Only high grade nonradioactively contaminated silver will be included.

9.3 The custodian will gather information on specific quantities of precious metals being excessed and, therefore, are available for turn-in. The custodian will complete and submit to the Precious Metals Control Officer, a Form UNC-17368, Application for Disposal of Precious Metals and Scrap Having Predominant Precious Metals Content, in original and two copies. In the event that the precious metals contain elements that may be environmentally hazardous, the custodian must complete and forward a Material Safety Data Sheet (MSDS) with the Form UNC-17368.

9.4 The Precious Metals Control Officer will transmit the Form UNC-17368(s) to the DOE Property Administrator for signature. After obtaining the DOE Property Administrators signature, the Form UNC-17368(s) will be sent to the FERMCO Property Administrator to be forwarded to the DOE Precious Metals Pool Manager at Oak Ridge.

10.0 **LOST, DAMAGED, MISSING PROPERTY REPORTING**

10.1 If any item of or containing precious metal(s) is lost, damaged, or missing, the custodian shall contact the Precious Metals Control Officer, Property Management Department, and Security **IMMEDIATELY**.

Safety Procedures	Title: Unrestricted Release of Materials from the FEMP	SP-P-35-010
		Department: IRS&T Section: RS

Authorization: S.L. Hunnefield
Supersedes: None
Revision Date: 8/07/92

1.0 PURPOSE

To assign responsibility and establish the procedure for the unrestricted release of materials from the FEMP.

2.0 SCOPE

This procedure establishes the requirements necessary for the unrestricted release of materials from the FEMP. This procedure does not apply to the release of liquids or bulk material such as soil and concrete.

3.0 DEFINITIONS

3.1 Material - An all inclusive term used to refer to building materials, tools, office equipment, etc.

4.0 RESPONSIBILITIES

4.1 The Manager(s) of personnel required to perform work per this procedure shall ensure that affected personnel are informed or trained to the extent necessary, prior to the initiation of that work.

4.2 Radiological Safety Technicians are responsible for performing all surveys required by this procedure.

5.0 GENERAL

5.1 The predominant radionuclides of concern at the FEMP are natural and low-enriched Uranium and their short-lived decay products. Contamination with thorium and radium is also possible in some areas such as the waste storage area and the Thorium storage warehouses.

5.0 GENERAL (continued)

5.2 Acceptable surface contamination levels for known radionuclides are set forth in Attachment A, "Surface Contamination Limits".

5.3 Surveys for removable contamination need not be performed when direct survey indicates contamination levels are below the removable contamination limits.

5.4 When U-238 is the isotope of concern direct beta surveys alone are acceptable for determining unrestricted release limits.

5.5 Contamination surveys may be performed with hand held instruments or automated equipment provided that the contamination limits given in Attachment A can be detected.

5.6 Liquids and bulk materials such as concrete and rubble can not be released as unrestricted per this procedure.

5.7 The Manager of Radiological Safety shall be contacted for "special case" items such as radium dial watches, thoriated camera lenses, etc..

6.0 PROCEDURE

6.1 Verify that survey equipment is in calibration and has been successfully source checked for the day.

6.2 Perform surveys per SP-P-35-023, "Radiological Contamination Surveys" or use automated contamination monitoring instruments such as tool monitors.

6.3 Materials with inaccessible surfaces which are likely to be contaminated but are of such size, construction, or location as to make them inaccessible for survey shall be assumed to exceed the limits for unrestricted release.

6.4 When material is surveyed for unrestricted release at locations other than Controlled area exits and meets applicable criteria, material identification and control shall be maintained as follows:

6.4.1 An Article Surveyed Tag, Attachment B, containing the following information shall be attached to the article or lot of articles surveyed.

6.4.1.1 Description of article(s).

6.4.1.2 Contamination levels.

6.4.1.3 Area from which the article was moved.

6.0 PROCEDURE (continued)

6.4.1.4 Name, printed and signature, of the RST performing the survey.

6.4.1.5 Date and time of survey.

6.5 If material is found to have removable contamination the following steps shall be taken:

6.5.1 Materials shall be bagged to minimize the potential of spreading contamination.

6.5.2 A tag with the words "Caution - Radioactive Material" (Attachment C) shall be secured to the bag indicating the type and level of contamination detected.

6.5.3 Material shall be transported to an appropriate area for decontamination or storage.

6.6 Materials shall be released from the FEMP only after survey results adequately demonstrate compliance with the release limits.

6.6.1 Material not released within eight hours or one work shift of the time of the previous survey shall be resurveyed unless the following conditions are met:

6.6.1.1 The material or articles must be placed in radiologically clean containers after the survey.

6.6.1.2 The containers must be sealed using a tamper proof seal with a unique identification number. Containers may be anything that prevents contamination such as drums, sealands etc..

6.6.1.3 The seal identification number shall be recorded on the survey form.

6.6.1.4 If the container is to be released with the materials inside, its external surface must be surveyed prior to release.

6.6.2 The RST stationed at the control point through which material is released may choose to resurvey material even though it has been previously surveyed within the prescribed time.

6.6.3 The control point RST shall remove any Article Surveyed Tags prior to release

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7.0 APPLICABLE DOCUMENTS

7.1 SP-P-35-023, "Radiological Contamination Surveys".

7.2 DOE Order 5400.5, "Radiation Protection of the Public and Environment".

8.0 FORMS USED

8.1 Article Surveyed Tag, FMPC-IRS&T-1545.

8.2 "Caution - Radioactive Material" Tag.

9.0 ATTACHMENTS

9.1 Attachment A, "Surface Contamination Limits".

9.2 Attachment B, "Article Surveyed Tag".

9.3 Attachment C, "Caution - Radioactive Material" Tag.

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Attachment A

SURFACE CONTAMINATION LIMITS[a]

NUCLIDE	FIXED PLUS REMOVABLE		REMOVABLE[b,e]
	AVERAGE[b,c]	MAXIMUM[b,d]	
U-nat, U-235, U-238, and associated decay products, alpha emitters.	5,000 dpm /100 cm^2	15,000 dpm /100 cm^2	1,000 dpm/100 cm^2
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100 dpm/100 cm^2	300 dpm/100 cm^2	20 dpm/100 cm^2
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1,000 dpm/100 cm^2	3,000 dpm/100 cm^2	200 dpm/100 cm^2
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.	5,000 dpm /100 cm^2	15,000 dpm /100 cm^2	1,000 dpm /100 cm^2

[a] Where surface contamination by both alpha and beta-gamma emitting nuclides exists, the limits established for alpha and beta-gamma emitting nuclides should apply independently.

[b] As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

[c] Measurements of average contaminant should not be averaged over more than one square meter. For objects of less surface area, the average should be derived for each object.

[d] The maximum contamination level applies to an area of not more than 100 cm^2.

[e] The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

Attachment B

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ARTICLE SURVEYED TAG

Fernald Site
IRS&T

Article Surveyed

DESCRIPTION:

ALPHA	BETA-GAMMA
Fixed & Removable: dpm/frisk	Fixed & Removable: dpm/frisk
Removable: dpm/100 cm²	Removable: dpm/100 cm²

COMMENTS:

DATE: TIME:

RST (PRINTED):

RST (SIGNATURE):

FS-F-1545 (REV. 3 ' ' 92)

Attachment C

"CAUTION - RADIOACTIVE MATERIAL" TAG

CAUTION

RADIOACTIVE MATERIAL

ACCOUNTABILITY NO.

OR ☐ NONE REQUIRED

DESCRIPTION OF MATERIAL

CONTAMINATION DATA

SURFACE CONTAMINATION ON MATERIAL

Beta-Gamma _____ DPM/100 cm2

Alpha _____ DPM/100 cm2

RADIATION DATA

SURFACE DOSE RATE

mrem/hr

ESTIMATED CURIE CONTENT

millicuries

SPECIAL INSTRUCTIONS

SIGNED | DATE

EXAMPLE , "CAUTION RADIOACTIVE MATERIAL" TAG

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ISSUE AND REVISION RECORD

DATE OF CHANGE	REVISION NUMBER	AFFECTED PAGES	REASON FOR REVISION
10/25/88	0	ALL	Original issue of procedure
11/17/88	1	1,2	To correct limits for unrestricted release.
03/13/90	2	All	To assign limits for unrestricted release based on radioisotopic data.
08/07/92	3	All	To allow for direct beta survey techniques to determine unrestricted release criteria when U-238 is the isotope of concern and to provide for the use of automated monitoring equipment.

FERMCO	PROCEDURE CHANGE NOTICE	ES&H PROCEDURE
PCN NUMBER: PCN-SP-P-35-023 3-01	PROCEDURE TITLE: SP-P-35-023, ROUTINE RADIOLOGICAL CONTAMINATION SURVEYS	EFFECTIVE DATE: 11/15/93
AUTHORIZING MANAGER'S SIGNATURE:	DATE: 11/01/93	PAGE 1 OF 2

PREVIOUS REQUIREMENTS:

6.8.2 Daily Surveys

6.8.2.1 Approved Drinking and/or Smoking areas within Controlled Areas and Radiological Buffer Areas.

6.8.2.2 Lunch rooms or approved eating areas near Radiological Buffer Areas.

6.8.2.3 Contamination Area control points, Controlled Area control points, and step-off pads.

6.8.3 Weekly Surveys

6.8.3.1 Outside of Contamination Area boundaries.

6.8.3.2 Water fountains/coolers inside Controlled Areas.

6.8.3 Monthly Surveys

6.8.3.4 Routinely occupied Radiological Buffer Areas. An example would be offices within the Controlled Area that are not designated Drinking and/or Smoking areas

6.8.4 Quarterly Surveys

6.8.4.1 Radioactive Material Storage Areas (or upon entry if entries are less frequent).

NEW REQUIREMENTS:

DELETE THE SCHEDULING REQUIREMENTS AS SPECIFIED IN STEP 6.8.2 TO STEP 6.8.4

change 6.8.2 Perform routine contamination surveys at frequencies specified in Attachment B, Routine Contamination Survey Frequencies.

add 9.2 Attachment B, Routine Contamination Survey Frequencies.

nclude Attachment B, Routine Contamination Survey Frequencies.

Change Issue and Revision Record to Page 12 of 12

ATTACHMENT B
ROUTINE SURVEY FREQUENCIES

DAILY

- Contamination area control points, change areas at contamination area control points, or step off pads when in use.
- Office space in radiological buffer areas.
- Approved drinking and/or smoking areas within controlled areas and radiological buffer areas.

WEEKLY

- Cafeterias, in uncontrolled areas, that cater to radiological workers.
- Water fountains/coolers inside controlled areas.

MONTHLY

- Monthly or upon entry, if entries are less frequent, in areas where radioactive materials are stored.
- Contamination areas that are active.
- Contamination area boundaries around contamination areas that are active.

QUARTERLY

- Contamination areas that are inactive.
- Contamination area boundaries around contamination areas that are inactive.
- Fixed contamination areas in uncontrolled areas.

SEMI ANNUAL

- Uncontrolled areas (Other than above).
- Fixed contamination areas in controlled areas (Hard surface and roadways).

ANNUAL

- Buildings in controlled areas that are not surveyed in one of the above surveys.

OTHER

- Radiological buffer areas are surveyed when used.

UNCONTROLLED Control Number

FERMCO

Revision: 3

Safety Procedures	Title: Routine Radiological Contamination Surveys	SP-P-35-023
		Department: ES&H Section: RC

Authorization: [illegible]

Supersedes: None
Revision Date: 3/31/93

1.0 PURPOSE

Assign responsibilities and establish the procedure for performing radiological contamination surveys.

2.0 SCOPE

This procedure defines the method to schedule, perform, and document contamination surveys.

3.0 DEFINITIONS

3.1 Contamination - Radioactive material that is not contained or is present where it is unwanted. Classified as:

3.1.1 Removable - Radioactive material that can be removed from surfaces by nondestructive means, such as casual contact, wiping, brushing or washing. Refer to SD-ES&H-BAS-3011 for further description.

3.1.2 Fixed - Radioactive material that cannot be removed from surfaces by nondestructive means, such as casual contact, wiping, brushing or washing.

3.2 Frequency - The time frame in which a scheduled survey shall be completed.

3.2.1 Daily - Shall be completed each calendar day, with the exception of weekends and holidays.

3.2.2 Weekly - Shall be completed between 0000 hours Monday and 2400 hours the following Sunday.

3.0 DEFINITIONS (continued)

3.2.3 Quarterly - Shall be completed four times per year, once in each calendar quarter. The calendar quarters are:

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1st - January 1 to March 31.
2nd - April 1 to June 30
3rd - July 1 to September 30
4th - October 1 to December 31

3.2.4 Semi-Annual - Shall be completed two times per year; once between January 1 and June 30, and the other between July 1 and December 31 each calendar year.

3.2.5 Annual - Shall be completed during the calendar year.

3.3 Minimum Detectable Activity (MDA) - The smallest amount of activity that can be detected at a given confidence level.

3.3.1 The MDA for Geiger-Mueller (G-M) pancake probes is considered to be:

3.3.1.1 1000 dpm/100 cm^2 (100 cpm above background) for direct frisk techniques. This corresponds to a correction factor of 10 if reporting activity per 100 cm^2.

3.3.1.2 400 dpm/probe area (100 cpm above background) for smear techniques. This correspond to a correction factor of 4.

3.3.2 The MDA for alpha-scintillator type probes is considered to be:

3.3.2.1 200 dpm/100 cm^2 (20 cpm above background) for direct frisk techniques.

3.3.2.2 200 dpm/probe area (20 cpm above background) for smear techniques.

3.4 Gross Area Smears - Large area smears taken as an indication of the presence or absence of contamination.

4.0 RESPONSIBILITIES

4.1 The Manager(s) of personnel required to perform work per this procedure shall ensure that affected personnel are informed and/or trained to the extent necessary prior to initiation of that work.

4.2 The Radiological Assessment Manager shall ensure the performance and recording of all surveys within the specified frequencies:

4.0 RESPONSIBILITIES (continued)

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4.3 The Radiological Dosimetry Manager shall ensure the electronic storage (as applicable) and retention of all radiological survey records.

4.4 The Radiological Compliance Manager shall ensure timely review of contamination survey data by a member of the Radiological Compliance group in order to establish, confirm, and update site radiological postings.

4.5 RCT Supervisor(s) shall be responsible for scheduling and reviewing all surveys as prescribed by this procedure. RCT Supervisor(s) are also responsible for informing RCTs of follow-up survey requirements.

4.6 Radiological Control Technician(s), (RCTs), shall be responsible for performing and documenting surveys in accordance with the requirements of this procedure. RCTs are also responsible for notification of survey results.

5.0 GENERAL

5.1 The purposes of contamination surveys are:

5.1.1 Characterize the levels of contamination in an area.

5.1.2 Provide documentation of radiological conditions.

5.1.3 Detect trends and build-up of contamination in areas.

5.1.4 Provide a base for contamination control.

5.2 Frequencies of surveys in areas not stated in this procedure shall be determined by the responsible RCT Supervisor. Frequency is based on:

5.2.1 Changes in work routine.

5.2.2 Changes in the occupancy of the area.

5.2.3 Changes in personnel access to the area

5.2.4 Construction, demolition or decommissioning work that requires a Radiation Work Permit.

5.2.5 History of area contamination.

6.0 PROCEDURE

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6.1 For fixed contamination surveys for depleted or natural uranium beta-gamma instruments alone may be used for activity determination.

6.2 Dry smears shall be taken whenever direct frisk indicates activity exceeding applicable limits for removable activity.

6.3 For direct survey techniques the instrument audio shall be turned "ON".

6.4 Direct frisk with a G-M pancake probe

6.4.1 If the background exceeds 300 cpm, the item being surveyed should be moved to an area where the background is <300 cpm if possible. If this is not possible the background should be noted on the survey form.

6.4.2 The probe shall not be moved faster than 3 inches per second to detect 100 cpm above background.

6.4.3 The beta-gamma probe window shall be within 1/2" of the surface that is being monitored.

6.4.4 Frisk the desired area and determine the average reading in cpm.

6.4.5 Subtract the background cpm and multiply the result by ten (10) to determine dpm per 100 cm^2.

6.4.6 Record the contamination level in the "Fixed Plus Removable" column of the Radiological Survey Report (RSR) (Attachments A and B).

6.5 Direct survey with an alpha instrument

6.5.1 If the background exceeds 50 cpm, attempt to decontaminate the probe. If background cannot be lowered, tag the instrument out of service in accordance with procedure SP-P-35-028.

6.5.2 The probe shall be held stationary for 5 seconds. If an audible signal or meter movement is detected, hold the probe stationary for an additional 15 seconds.

6.5.3 The alpha probe window shall be within 1/8" of the surface being frisked.

6.5.4 Frisk the desired area and determine the average reading in cpm.

6.5.5 Subtract the background cpm, and multiply the result by ten (10) to determine dpm per probe area. For alpha scintillator probes dpm per 100 cm^2 shall be considered equal to dpm per probe area.

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6.0 PROCEDURE (continued)

6.5.6 Record the contamination level in the "Fixed Plus Removable" column of the RSR.

6.6 Smears

6.6.1 Protective gloves should be worn when taking smears.

6.6.2 Dry Smooth Surface Smears

6.6.2.1 Using dry paper or cloth smears, trace approximately a 40 cm (16") long "s" figure or approximately a 100 cm^2 area unless otherwise required by a specific procedure.

6.6.2.2 Apply moderate pressure with at least two fingers.

6.6.2.3 Analyze smears as outlined in step 6.6.5.

6.6.2.4 Record analysis data for the area smeared in the appropriate "Removable" column of the RSR. For areas where it is not feasible to smear 100 cm^2 a comment shall be included indicating the approximate area smeared.

6.6.3 Gross-area Smears

6.6.3.1 Gross-area smears are encouraged and should be used to supplement routine smear surveys in areas generally assumed to be not contaminated.

6.6.3.2 Wipe a large area, several hundred square centimeters or greater, with a standard smear or a large absorbent cloth, such as masslin.

6.6.3.3 Frisk the smear directly with a portable alpha or beta/gamma survey instrument for indication of the presence of contamination. Removable contamination detected should be averaged over the area smeared.

6.6.3.4 Gross-area smears that indicate activity below the MDA per probe area of the instrument used to count the smear shall be reported as "<MDA" in the appropriate "Removable" column of the RSR for the item or area smeared.

6.6.3.5 If gross-area smears indicate activity above the MDA per probe area of the instrument used to count the smear, a 100-cm2 dry smear survey shall be performed on the item or area as detailed in section 6.6.2.

6.0 PROCEDURE (continued)

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6.6.4 Smears on other surfaces

6.6.4.1 Conduct surveys as described in step 6.6.2. except cloth smears shall be used when the material to be smeared is too coarse to adhere to smear paper. the surface is rough and porous. or the contamination loosely adheres to the surface.

6.6.4.2 It is permitted to smear wet areas. inside spill-area boundaries, or areas where loose surface contamination is expected but is not detectable using dry smears. Wet smears shall be allowed to dry before counting.

6.6.5 Smear Sample Analysis

6.6.5.1 Smears taken to detect activities above the portable instrument MDA may be counted with field survey instruments as outlined in procedure SP-P-35-046 "Counting Smears with Field Survey Instruments".

6.6.5.2 Smears taken to detect activities less than the MDA of the portable survey instrument shall be counted on a low background counting system (see SP-P-35-37 "Operation of the Tennelec Automatic Low Background Counting Systems (LB5100 Series II/III and LB5100/5500.)").

6.7 Documentation

6.7.1 Radiological contamination surveys shall be documented using the RSR or equivalent.

6.7.2 Any unusual events or conditions that may influence the survey results shall be noted in the "Reason for Survey" block of the survey report (i.e., porous surface, wet smears). Include any applicable I.D. numbers or document control numbers. An example would be the Radiation Work Permit identification number should be recorded in the "Reason for Survey" block if the performance of the survey was in support of the permit.

6.7.3 One of the RCTs performing the survey shall complete the "RCT", "Badge" and "Signature" blocks of the survey report.

6.7.4 Maps should be used wherever possible so that survey locations can be accurately documented. Computer generated maps including grid coordinates should be used whenever possible for characterization surveys. Each map page shall be included in the total pages of the "Page" block.

6.7.5 Standard building/area numbers and designations should be used in completing the "Location" block.

6.0 PROCEDURE (continued) 5602

6.7.6 Floor levels, room numbers, sub-process area designations or functions and/or directions should be used in completing the "Level" block.

6.7.7 The "Reason for Survey" block shall include the following, as applicable:

6.7.7.1 Frequency of routine survey

6.7.7.2 Reference to a specific Radiological Work Permit (i.e. RWP Number)

6.7.8 All instruments used in performing the survey shall be recorded on the Radiological Survey Report. Documentation of the inspection and performance test of the instruments may be recorded on the survey report in accordance with procedure SP-P-35-028 "Inspection and Performance Testing of Portable Radiation Survey Instruments." Instrument model numbers shall be listed in accordance with Appendix A of SP-P-35-028.

6.7.9 Completion of the "Count Time" block is only required for scaler-type instruments, such as automatic counting systems or data loggers. "N/A" (not applicable) shall be specified for ratemeter-type instruments, such as friskers.

6.7.10 An entry in the "Inspection & Performance Test Satisfactory?" field for low background automatic counting systems shall signify whether the Daily Checks for that system were completed, in accordance with procedure SP-P-35-019 "Quality Control of Radioactivity Counting Systems."

6.7.11 All reported readings shall be clearly specified as dpm/probe area, dpm/100 cm^2 or dpm/area smeared for gross-area smears.

6.7.12 Readings less than MDA shall be recorded as "< MDA". The value(s) for MDA for each instrument used shall be recorded on the survey report.

6.7.13 Height values are required for characterization surveys only. Height values shall be recorded as the distance above the floor of the current level. A height of 0 feet shall be used to indicate samples taken on floor or ground surfaces.

6.7.14 Unused lines or blocks shall be left blank unless otherwise instructed by this procedure. Ditto marks or duplication symbols for readings or derived values shall be prohibited.

6.7.15 All analysis data printouts shall be attached to the RSR if analysis data was transcribed from the printout to the RSR.

6.7.16 Completed Radiological Survey Reports shall be reviewed, dated and initialed in the provided blocks by the responsible RCT supervisor.

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6.0 PROCEDURE (continued)

6.7.16.1 The RCT Supervisor shall inform the RCT of follow-up requirements and/or surveys when required. Follow-up surveys shall be cross-referenced to the original survey.

6.6.16.2 The RCT shall notify the facility supervisor, RCT Supervisor, and Radiological Assessment promptly of any areas requiring decontamination.

6.7.17 A copy of all survey reports shall be on file for one quarter in the custody of the RCT Supervisor. All reports exceeding one quarter of date of the survey shall be removed from the files and prepared for long term storage in the vault.

6.7.18 Copies of the completed RSR shall be distributed per the distribution list at the bottom of the pre-printed form or as directed by the responsible RCT Supervisor.

6.8 Schedule

6.8.1 Unless otherwise specified by this procedure, all scheduled surveys shall be for removable contamination only. More frequent surveys or performing fixed plus removable surveys may be specified by the responsible RCT supervisor or Radiological Engineer through the RCT supervisor.

6.8.2 Daily Surveys

6.8.2.1 Approved Drinking and/or Smoking areas within Controlled Areas and Radiological Buffer Areas.

6.8.2.2 Lunch rooms or approved eating areas near Radiological Buffer Areas.

6.8.2.3 Contamination Area control points, Controlled Area control points, and step-off pads.

6.8.3 Weekly Surveys

6.8.3.1 Outside of Contamination Area boundaries.

6.8.3.2 Water fountains/coolers inside Controlled Areas.

6.0 PROCEDURE (continued)

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6.8.3 Monthly Surveys

6.8.3.4 Routinely occupied Radiological Buffer Areas. An example would be offices within the Controlled Area that are not designated Drinking and/or Smoking areas

6.8.4 Quarterly Surveys

6.8.4.1 Radioactive Material Storage Areas (or upon entry if entries are less frequent).

7.0 APPLICABLE DOCUMENTS

7.1 SP-P-35-046, "Counting Smears with Field Survey Instruments".

7.2 SP-P-35-028, "Inspection and Performance Testing of Portable Radiation Survey Instruments".

7.3 SP-P-35-037, "Operation of the Tennelec Automatic Low Background Counting Systems (LB5100 Series II/III and LB5100/5500.)".

7.4 SP-P-35-019, "Quality Control of Radioactive Counting Systems".

7.5 SP-ES&H-BAS-3011 "Statement of Clarification for Removable Contamination".

8.0 FORMS USED

8.1 FS-F-1993-1, Radiological Survey Report

9.0 ATTACHMENTS

9.1 Attachment A, Radiological Survey Report

ATTACHMENT A

RADIOLOGICAL SURVEY REPORT 5692

FEMP
RADIOLOGICAL SURVEY REPORT

DATE	LOCATION	RCT:	BADGE	PAGE
TIME	LEVEL	SIGNATURE:		1 of ___

REASON FOR SURVEY

INSTRUMENTS

MODEL	SERIAL NUMBER	TYPE (α, β, γ)	CALIBRATION-DUE DATE	BKGD. (cpm)	EFF./CF	COUNT TIME (min)	MDA (dpm)	RESP./PERFORMANCE TEST SAT? YES	NO

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (ft.)	DPM/100cm² ALPHA REMOVABLE	DPM/100cm² ALPHA FIXED PLUS REMOVABLE	DPM/100cm² BETA-GAMMA REMOVABLE	DPM/100cm² BETA-GAMMA FIXED PLUS REMOVABLE	CORRECTED DOSE RATE (MREM/HR) γ CONTACT	β CONTACT	γ AT ___ FT.	β AT ___ FT.

NO.	DISTRIBUTION OF COPIES
1	RCT Supervisor
2	Facility Supervisor
3	CRU Manager

NOTIFICATION OF SURVEY RESULTS

SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE

FS-F-1993-1 (REV. 12/21/93)

FS-F-1993-1

ISSUE AND REVISION RECORD 5692

DATE OF CHANGE	REVISION NUMBER	AFFECTED PAGES	REASON FOR REVISION
01/02/91	0	ALL	Original issue of procedure
06/21/91	1	ALL	To include procedure for performing Gross-area smears and to recommend field counting smears wherever applicable.
1/22/92	2	ALL	To denote that the MDA for direct frisk is different than the MDA of smear counting when using portable instrumentation, to allow direct frisks in higher background provided it is documented, to reformat schedule to be based on area classification, and to update Radiological Survey Report Form.
03/31/93	3	ALL	To change survey frequencies in accordance with DOE Radiological Controls Manual. Also to clarify and expand instructions for Documentation of surveys.