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**ANNUAL WORK PROCEDURES UPDATE FEMP  
SAFE SHUTDOWN REMOVAL ACTION  
NUMBER 12 JUNE, 1992**

06-01-92

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REPORT**

# F E E M P

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ANNUAL WORK PROCEDURES UPDATE  
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT  
SAFE SHUTDOWN  
REMOVAL ACTION NUMBER 12  
JUNE, 1992

## SAFE SHUTDOWN REMOVAL ACTION NUMBER 12

## PROCEDURE UPDATES

MAY 15, 1992

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

- INDEX
  - Replace all pages with new index.
- INTRODUCTORY TEXT
  - Replace all pages with new text.
- TABLE 1
  - Replace all pages with new Table 1.
- PP-0103, Site Document System
  - Section I, General Supporting Documentation
  - Replaces IN-FMPC 6007. Remove all pages of IN-FMPC 6007 and replace with PP-0103.
- SSOP-0023, Deviation and Corrective Action Reporting
  - Section I, General Supporting Documentation
  - Re-issued to update procedure. Replace current procedure with procedure dated 2/4/92.
- SSOP-0036, Quality Assurance Project Plans
  - Section I, General Supporting Documentation
  - New Document. Insert after FMPC-2139.
- FMPC-705, Operational Readiness Process
  - Section I, General Supporting Documentation
  - New Document. Insert after FMPC-2214.

- SSOP-0002, Completing The Material Evaluation Form
  - Section I, General Supporting Documentation
  - Replaces SSOP-0002, Rev. 1. Remove all copies of SSOP-0002, Rev. 1 and replace with SSOP-0002, Rev. 3.
  
- SSOP-0059, Control and Tracking of Chemical Substances
  - Section I, General Supporting Documentation
  - New Document. Insert after SSOP-0002.
  
- SSOP-0034, Nuclear Materials Disposition Order Management
  - Section I, General Supporting Documentation
  - Replaces IN-6010. Remove all copies of IN-6010 and replace with new procedure SSOP-0034.
  
- PO-D-007, Document Periodic Review Program
  - Section I, General Supporting Documentation
  - New document. Insert after PP-0125.
  
- SOP-20-C-805, Sampling Drummed Waste for Hazard Identification
  - Section II, Step 2
  - New document. Insert after SOP 1-C-101.
  
- SSOP-0044, Management of Soil, Debris, and Waste from a Project
  - Section II, Step 3
  - New Document. Insert after Step 3 tab.
  
- PO-D-035, Shipment of Low Level Radioactive Waste Requirements
  - Section II, Step 3
  - New Document. Insert after SOP PO-S-06-001.
  
- SSOP-0060, Packaging Radioactive Material for Offsite Shipment
  - Section II, Step 3
  - New Document. Insert after SOP 20-C-101.

- SOP 20-C-801, Storage of Enriched Material
  - Section II, Step 3
  - New document. Insert after SOP 1-C-608.
  
- SOP 20-C-604, Control and Utilization of Contaminated Trash Dumpsters
  - Section II, Step 3
  - Re-issued to update procedure. Replace procedure with Revision No. 2.
  
- FMPC-307, Control and Accountability of Nuclear Materials
  - Section II, Step 3
  - New document. Insert after SOP 20-C-604, Revision No. 2.
  
- SOP 2-C-923, Trash Baler Operation
  - Section II, Step 3
  - Re-issued to update procedure. Replace procedure dated 10-21-87 with procedure dated 10-14-91.
  
- PO-0712, Risk Assessment and Management (RAM) System Policy
  - Section II, Step 5
  - Replaces SOP FMPC-712. Remove all copies of SOP FMPC-712 and replace with PO-0712.
  
- SM-0001, Risk Assessment and Management (RAM) System Manual
  - Section II, Step 5
  - Also replaces SOP FMPC-712. Insert after PO-0712.
  
- PP-0518, National Environmental Policy Act (NEPA) Program
  - Section II, Step 6
  - Replaces SOP FMPC-518. Remove all copies of SOP FMPC-518 and replace with PP-0518.
  
- SSOP-0031, National Environmental Policy Act (NEPA) Document Process
  - Section II, Step 6
  - New document. Insert after PP-0518.

- SOP FMPC-515, Issuance and Implementation of Radiation Work Permits
  - Section II, Step 7
  - Document cancelled. Remove all pages of current document.
  
- PO-D-028, Preparation and Implementation of Work Package
  - Section II, Step 7
  - New document. Insert after SOP FMPC-505.
  
- SSOP-0024, Packaging Low Level Radioactive Waste (LLRW) for Offsite Disposal
  - Section II, Step 7
  - Replaces SOP 20-C-601. Remove all copies of SOP 20-C-601 and replace with SSOP-0024.
  
- PP-0314, Packaging, On-Site Movement and Off-Site Shipment of Material
  - Section II, Step 7
  - New document. Insert after SSOP-0024.
  
- SSOP-0028, Controlling Portable Ventilation Devices and Vacuum Cleaners
  - Section II, Step 7
  - New document. Insert after SOP 20-C-606.
  
- MS 8-BN/E-490-2, Disposal of Waste Filtrate and Effluents
  - Section II, Step 7
  - New document. Insert after SOP 8-C-115.
  
- SSOP-0003, Receiving, On-Site Movement and Off-Site Shipment of Nonradioactive Hazardous Material
  - Section II, Step 7
  - New document. Insert after MS 8-BN/E-490-2.

- SOP 20-C-500, Inspecting RCRA Waste Load/Unload and Staging Areas
  - Section II, Step 7
  - New document. Insert after SSOP-0003.
  
- SSOP-0008, Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area
  - Section II, Step 7
  - Re-issued to update procedure. Replace procedure dated 8/20/91 with procedure dated 1/13/92.
  
- 11-C-212, Isotopic Changeover Clean Up of the UF6/UF4 Facility
  - Section II, Step 7
  - Document cancelled. Remove all pages of current document.

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    - SSOP-0036, Quality Assurance Project Plans
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    - FMPC-2214, Environmental Restoration and Waste Management Site Specific Plan\*
    - FMPC-705, Operational Readiness Process
    - Shutdown/Facility Acceptance and Criteria Plan
    - SSOP-0002, Completing the Material Evaluation Form
    - SSOP-0059, Control and Tracking of Chemical Substances
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- MS 8-BN/E-490-2, Disposal of Waste Filtrate and Effluents
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## REMOVAL ACTION NO. 12 SAFE SHUTDOWN

### Introduction

In May 1991, the U.S. EPA, the Ohio 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 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 will be designated as number twelve (No. 12), termed Safe Shutdown, under the amended Consent Agreement.

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. This deliverable has been compiled to fulfill the terms of the agreement for Removal Action No. 12, pertaining to an October 31, 1991 deliverable for the current policies and procedures governing the activities of the Safe Shutdown Program.

Accompanying this submittal is a brief background on the history of the Safe Shutdown Program and the Consent Agreement negotiations, an overview of the FEMP Safe Shutdown Program, and a review of the policies and procedures governing the program. Also included is a compilation of significant facility documentation which will control the Safe Shutdown Program.

### Background

In July 1991, the FEMP initiated the Safe Shutdown Program 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 also assure the proper characterization, emptying, and deenergization of all existing previously-operated production-related equipment with consideration for DOE, U.S. EPA, and Ohio EPA requirements and regulations.

Although the immediate cessation of production-related operations occurred in July 1989, much of the equipment was scheduled for restart in order to prepare for continued production and to produce intermediate products for future DOE use in programs at other sites. The official termination of the FEMP production mission took place in June 1991, without the restart of the production processes or the stabilization of intermediate products.

One of the major objectives of the Safe Shutdown Program involves the transfer of materials from existing previously-operated production-related equipment. After confirmation of characterization, these materials will be transferred to appropriate containers and either stored at approved locations awaiting final disposition under  $OU_3$  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. With the transfer of material to storage containers, the potential for an incident or assault to the environment is significantly reduced. Inspections of the storage containers and storage areas will be performed per all currently-applicable procedures, including

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Background (continued)

the established Drum Management Plan. The equipment will then be decontaminated 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 close-out report for U.S. EPA/OEPA review, applicable permits will be canceled by written notification to the appropriate divisions of the Environmental Protection Agency.

Initial baseline data will be collected by performing preliminary facility surveys of the process facilities. Materials and equipment will then be characterized using process knowledge, existing RCRA determinations, applicable Material Safety Data Sheets (MSDSs) and radiological containment surveys. Information concerning each material will be recorded on a Material Evaluation Form (MEF), which provides a vehicle for the evaluation of materials in any category (raw, product, process, excess, or waste) and the characterization of the materials (hazardous, radioactive, or mixed) for proper handling and disposition. Evaluations of these materials as hazardous wastes will be conducted or performed in accordance with the provisions of the Ohio Administrative Code (OAC) 3745-52-11 and 3745-65-13 and 40 CFR 262.11 and 265.13. These environmental regulations will be considered ARARs (Applicable or Relevant and Appropriate Requirements) under CERCLA. The MEF will also identify Reactivity Group Codes of the materials for compatibility purposes, thus preventing the improper storage of containers. If the characterization of a material cannot be completed based upon information gathered for the MEF and preliminary facility surveys, analytical sampling will be performed in order to properly identify the characteristics and/or constituents of the material.

NEPA Documentation is being prepared in parallel with the disposition of uranium material products and disposition of idle equipment. This documentation is being completed prior to the activity involving the physical removal of material from formerly-operated process equipment.

Another portion of the Safe Shutdown Program is the disposition of chemicals and materials either directly or indirectly-related to the production of uranium products. Since production ceased, approximately 400,000 pounds of directly-related production materials (magnesium metal turnings) have been successfully transferred to the private sector for product-related use.

The proper disposition of uranium material products and recoverable residues will also be conducted as an integral part of the Safe Shutdown Program. After confirmation of characterization, these substances will be transferred to appropriate containers and either stored at approved locations (consistent with the Drum Management Plan) on site for disposition under OU<sub>3</sub> or disposed of consistent with requirements/criteria for Removal Action #9, Removal of Waste Inventories. Since production ceased, approximately 2.6 million pounds of uranium product have been transferred from the FEMP as part of the Safe Shutdown Program. It is estimated that 28 million pounds of uranium materials will be removed during this portion of the Safe Shutdown Program.

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Safe Shutdown Program

The FEMP Safe Shutdown Program represents 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. This approach will prepare the process facilities for either removal under independent OU<sub>3</sub> removal actions or remediation under the Approved Record of Decision (ROD) for Operable Unit 3 (OU3). Work elements are conducted and controlled through a hierarchy of site documentation. Figure 1 presents a brief summary of the hierarchy of documentation supporting site operations at the FEMP. As identified in the figure, program documentation is prepared to fulfill the driving statutory, DOE, and corporate requirements. These drivers result in a series of FEMP site and individual supporting departmental policies and procedures controlling the conduct of every aspect of program operations. The primary driving requirement of the Safe Shutdown Program is CERCLA/RCRA compliance and best management practices, along with DOE Order 5820.2A, Radioactive Waste Management, which is the implementation document that establishes the policies and guidelines for the management, decontamination, and decommissioning of radioactively-contaminated facilities.

As identified in the figure and as further described in the Attachment (see IN-FEMP 6007), management directives and supporting organization charters are established to fulfill driving regulatory or management requirements. 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.

As previously discussed, the hierarchy of documentation supports every aspect of operation at the FEMP including, but not limited to, Health and Safety, Training, Quality Control and Assurance, Laboratory Services, and Waste Management Operations. Since the focus of this submittal is on the existing documentation supporting ongoing Safe Shutdown operations, other supporting documentation such as Quality Assurance, Health and Safety, and Laboratory Services plans and procedures have not been included within this submittal. Supporting documentation other than that specifically provided in the attachment is available upon request.

Figure 2 provides a simplified logic diagram defining the interrelationship between the major components of the Safe Shutdown Program. Table 1 represents a summarization of the key site documentation supporting each of these major program components. Copies of the current version of this key site documentation, effective June 1, 1992, are provided in the Attachment except as specifically defined within Table 1.

It should be recognized that revisions to existing policies and procedures to respond to evolving program needs or unique site conditions is an integral part of a successful program. The site documentation provided in the Attachment is intended to be a living baseline, meeting current site needs while retaining the flexibility to respond to changes in an efficient manner. Frequent changes or updates to the provided documentation are expected and necessary to ensure the continuity of operations. As previously discussed, revisions or updates to the provided documentation will be provided to U.S. EPA as part of the Phase III submittal for Removal Action No. 12.

Integration With Operable Unit 3 RI/FS

The inventory of uranium and other process/raw materials that currently exists within equipment and lines in areas of formerly used process equipment in the nine production plants lies within the purview of Operable Unit 3 of the ongoing site-wide Remedial Investigation/Feasibility Study (RI/FS). Each plant's original production responsibilities are described below.

PLANT 1 operations included a sampling line for incoming uranium compounds, a roller mill to reduce the particle size of  $MgF_2$ , a safe geometry digester, a drum reconditioning system, scrap drum baler, warehouses and storage pads for drummed residues and wastes, and dust collectors.

PLANTS 2 and 3 operations included a nitric acid digestion system, a metal dissolver system, a liquid-liquid extraction system, a boildown and denitration area where purified UNH was converted to orange oxide ( $UO_3$ ), a nitric acid recovery system, a combined raffinate area, a hot raffinate building, a refinery sump system, and dust collectors.

PLANT 4 operations included reactors to convert orange oxide ( $UO_3$ ) to brown oxide ( $UO_2$ ) or black oxide ( $U_3O_8$ ) and then to green salt ( $UF_4$ ), ammonia dissociators, nitrogen generators, an HF recovery area, a tank farm, product packaging stations, and dust collectors.

PLANT 5 operations included derby manufacturing that featured jolters, F-machines, Rockwell furnaces, a breakout system, slag milling and liner preparation, and dust collectors. Also, ingot manufacturing that featured vacuum remelt casting furnaces, crucible charge and burnout areas, ingot separation, mold cleaning and painting, ingot sawing and saw blade sharpening, a Hilco oil reclaiming system, and dust collectors.

PLANT 6 operations included machining processes to heat treat ingots before shipping for extrusion, cut off extruded ingots, heat treat the blank cores, machine cores to a finished target element, a chip cleaning and briquetting system, machines for sizing and scalping pillow ingots, a rolling mill system, a waste water processing system, electrostatic precipitators, and dust collectors.

PLANT 7 is a skeletal structure used for the storage of empty cans and drums. All process equipment used for a  $UF_6$  to  $UF_4$  process was removed in the late 1950s.

PLANT 8 operations included several types of furnaces, liquid filtering systems, a halide acid metal dissolution area, a drum washer, a ball mill, and dust collectors.

PLANT 9 operations included N-Reactor vacuum remelt casting furnaces, Rockwell furnaces, ingot sawing and machining, Zirnlö decladding, a waste water processing system, an electrostatic precipitator, and dust collectors.

The PILOT PLANT operations included small-scale facilities of all the production processes for the FEMP. In the early 1980s, a production-scale  $UF_6$  to  $UF_4$  unit was installed and operated.

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Integration With Operable Unit 3 RI/FS (continued)

Consistent with the provisions of the NCP, removal actions shall be appropriately integrated with the ongoing RI/FS to assure appropriate documentation is provided for the Administrative Record to document actions taken which may affect preexisting site conditions relative to the affected Operable Unit and the known source term associated therewith; and to assure the removal action supports final remedial objectives. Within the FEMP Administrative Record, a separate file will be established for placement of supporting documentation pertaining to Safe Shutdown Removal Action No. 12. Included in the Administrative Record file will be all key program documentation, including this submittal of current Safe Shutdown work procedures, and a compilation of appropriate materials disposition records for materials removed throughout the Safe Shutdown Removal Action.

The implementation of Safe Shutdown activities clearly supports the final remedial objectives for Operable Unit 3 by providing a necessary preliminary step for preparation of the systems for subsequent remedial activities. The proposed Safe Shutdown actions are consistent with final remedial actions based on the fact that mitigation of personnel/environmental risk, and safe permanent disposition of FEMP wastes/materials are ultimate goals.

Close coordination will be maintained with the ongoing RI/FS and other removal actions for Operable Unit 3 to ensure that planned removal action program activities appropriately support RI/FS field investigations and alternative evaluations by incorporating interim cleanup of source term into baseline risk determination and Operable Unit 3 site characterizations.

STEP	REGULATION/PROCEDURE	COMMENTS
General	U.S. Department of Energy Order 5820.2A, Radioactive Waste Management	This order establishes policies, guidelines, and minimum requirements by which the Department of Energy (DOE) manages its radioactive and mixed waste and contaminated facilities.
	PP-0103, Site Documentation System	This site procedure defines the system of documents by which the FEMP is managed and details the requirements for development, preparation and control of these documents.
	SSOP-0023, Deviation and Corrective Action Reporting	This procedure identifies the assigned responsibilities and required actions for identifying, documenting, evaluating and providing dispositions and corrective action plans for deviations and corrective actions observed during audits, reviews, surveillances, inspections or tests performed at the Site by both internal and external organizations, as well as the evaluation of supplier-proposed dispositions and corrective actions plans.
	RM-FMPC-0002, Centralized Training 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. Copies of this document will be made available upon request.
	FMPC-2139, FMPC Quality Assurance Plan *	This site manual incorporates the policies for achieving or exceeding the required quality levels in the operation of the Site. The program is based on the criteria specified in ANSI/ASME NQA-1. DOE Orders 5700.6 and 5700.68 specify NQA-1 as the preferred standard for Quality Assurance. Copies of this document will be made available upon request.
	SSOP-0036, Quality Assurance Project Plans	This procedure assigns responsibilities and identifies the requirements for developing QAPJPs for WEMCO data generation activities. The Amended Consent Agreement established the need for quality assurance plans in accordance with EPA requirements.

STEP	REGULATION/PROCEDURE	COMMENTS
General Continued	FMPC Site Health and Safety Plan *	This site plan provides the overall means for planning and implementing the job site characterization, health, and safety training and job orientation for personnel. Copies of this document will be made available upon request.
	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. Copies of this document will be made available upon request.
	FMPC-705, Operational Readiness Process	This procedure is to delineate the necessary resources, responsibilities, and activities required to implement the operational readiness process. The operational readiness review is determined by the readiness review level as determined by the staff manager and the Readiness Review Board.
	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.
	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-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 Fernald Environmental Management Project (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.
	FMPC-503, FMPC Spill Incident Reporting and Cleanup	This procedure describes actions and responsibilities for initial reporting, clean-up operations, and follow-up actions for spill incidents at the FEMP.

STEP	REGULATION/PROCEDURE	COMMENTS
General Continued	PP-0125, Emergency Management	This document states the emergency management policy and establishes the responsibilities for the development, coordination, and direction of FEMP planning, preparedness, and readiness assurance for emergencies at the FEMP or requiring FEMP assistance.
	PO-D-007, Document Periodic Review Program	This procedure defines the document periodic review program for Operations documents.

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

STEP	REGULATION/PROCEDURE	COMMENTS
<p>Step 1 Preliminary Assessment of Process Facilities - refer to Activity 1</p>	<p>U.S. Department of Energy Order 5820.2A</p>	<p>Chapter V, "Decommissioning of Radioactively Contaminated Facilities", Section 3d, requires baseline data including the type, form, quantity and location of hazardous chemical and radioactive materials and information on factors that could influence the selection of decommissioning alternatives.</p>
<p>Step 2 Characterize Process Equipment and Hold Up Materials - refer to Activities 2, 3, 4, and 5</p>	<p>Amended Consent Decree</p>	<p>Provision to evaluate all other materials located at the FEMP as of the date of this amendment that are not located in appropriate hazardous waste storage units to determine if such materials are hazardous or mixed wastes by reason of the criteria established in 40 CFR 262.11.</p>
	<p>SOP 1-C-101, Sampling Residual and Waste Materials</p>	<p>The purpose of this document is to establish the procedure for taking representative samples of residues and waste at Plant 1 and Resource Conservation and Recovery Act (RCRA) Storage facilities.</p>
	<p>SOP 20-C-805, Sampling Drummed Waste for Hazard Identification</p>	<p>The purpose of this document is to establish the procedure for sampling drummed waste.</p>
<p>Step 3 Transfer Existing Inventories of Chemicals, Materials, and Uranium Materials from Process Buildings to Approved Storage Locations - refer to Activities 9, 10, 11, and 12</p>	<p>SSOP-0044, Controlling the Generation of Construction/Maintenance Waste</p>	<p>To provide the procedure for controlling and minimizing construction and maintenance waste while maintaining worker safety standards and environmental protection requirements.</p>
	<p>PO-S-06-001, Movement of Hazardous Waste</p>	<p>The purpose of this procedure is to establish a set of guidelines and practices that are to be used by motor vehicle operator personnel when transporting RCRA and other hazardous wastes.</p>
	<p>PO-D-035, Shipment of Low Level Radioactive Waste Requirements</p>	<p>This document defines the requirements for the shipment of Low Level Radioactive waste.</p>

STEP	REGULATION/PROCEDURE	COMMENTS
Step 3 Continued	SOP-20-C-101, Moving and Storing Nuclear Materials On-Site at the FMPC	This procedure describes the process of transferring nuclear materials from one plant or storage area to another, vehicle load limits, material and container identification requirements and nuclear safety limitations.
	SSOP-0060, Packaging Radioactive Material For Offsite Shipment	This document provides the procedure for packaging radioactive material for offsite shipment.
	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-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-604, Control and Utilization of Contaminated Trash Dumpsters	This procedure provides instructions to waste generators for filling specially marked dumpsters with contaminated trash that is in compliance with governing regulations.
	FMPC-307, Control and Accountability of Nuclear Materials	Westinghouse Environmental Management Company of Ohio (WEMCO) shall maintain control and accountability of nuclear materials at the Fernald Environmental Management Project (FEMP) in accordance with DOE orders.
	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.

STEP	REGULATION/PROCEDURE	COMMENTS
<p>Step 4 Isolate, Lock &amp; Tag Out Process Equipment, Piping Systems, &amp; Associated Utilities - refer to Activity 8</p>	<p>SOP-FMPC-0715, FMPC Work Request System</p> <p>SOP-PP-FMPC-0719, Energy Control (Lockout and Tagout)</p>	<p>This site procedure establishes a system for initiating, performing and controlling maintenance and service work at the FEMP.</p> <p>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.</p>
<p>Step 5 Prepare Safety Documentation - refer to Activity 6</p>	<p>SOP-FMPC-508, Safety Analysis Documentation Program</p>	<p>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.</p>
	<p>PO-0712, Risk Assessment and Management (RAM) System Policy</p>	<p>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.</p>
	<p>SM-0001, Risk Assessment and Management (RAM) System Manual</p>	<p>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). This procedure is used in conjunction with IN-6034, "Risk Assessment and Management (RAM) System."</p>
<p>Step 6 Prepare NEPA Documentation - refer to Activity 7</p> <p>22 22</p>	<p>PP-0518, National Environmental Policy Act (NEPA) Program</p>	<p>Westinghouse Environmental Management Company of Ohio (WEMCO) shall ensure that all actions/projects at the Fernald Environmental Management Project (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.</p>

STEP	REGULATION/PROCEDURE	COMMENTS
Step 6 Prepare NEPA Documentation (Continued) - refer to Activity 7	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 NEPA Program at the FEMP (refer to Site Policy and Procedure PP-0518 for information on the NEPA Program).
Step 7 Transfer Substances from Process Equipment and Associated Support Systems - refer to Activities 11 and 12	SOP-FMPC-505, Radiation Control	This procedure identifies the safety requirements and assigns the responsibilities for the control of radioactive materials and personnel radiation exposure and contamination at the FEMP.
	PO-D-028, Preparation and Implementation of Work Package	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.
	SOP-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 WEMCO employees, subcontractor personnel, and/or others involved with any of the following activities: working with asbestos; working on a chemically-hazardous system; open flame and/or welding activities; working with a radioactive material; and entering or working in a confined space.
	SOP-FMPC-5010, Management of Low Level Waste (LLW)	This procedure establishes the policy to manage and control the generation of low level waste to minimize waste production in a manner that is consistent with established environmental standards.
	SSOP-0024, Packaging Low Level Radioactive Waste (LLRW) for Offsite Disposal	This document provides the procedure for packaging low level radioactive waste (LLRW) for offsite disposal.

STEP	REGULATION/PROCEDURE	COMMENTS
<p>Step 7 Transfer Substances (continued) - refer to Activities 11 and 12</p>	<p>PP-0314, Packaging, On-Site Movement, and Off-Site Shipment of Material</p>	<p>It is the policy of the Westinghouse Environmental Management Company of Ohio (WEMCO) 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 WEMCO policies and procedures.</p>
	<p>SOP-20-C-605, Establishment and Control of Satellite Accumulation Areas</p>	<p>The purpose of this procedure is to provide the requirements for establishing and maintaining a Satellite Accumulation Area (SAA) and container, accumulating hazardous waste, and preparing a full accumulation container for transfer to storage.</p>
	<p>SOP-20-C-606, Hazardous Material Spill Clean-Up</p>	<p>This procedure defines the requirements for reporting, containing, controlling, and cleaning hazardous material leaks and spills.</p>
	<p>SSOP-0028, Controlling Portable Ventilation Devices and Vacuum Cleaners</p>	<p>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).</p>
	<p>SOP-20-C-700, Norclean Portable Vacuum Operation</p>	<p>The purpose of this document is to establish the procedure for operating Norclean vacuum units.</p>
	<p>SOP-20-C-701, Operation of Spencer &amp; Hoffman Portable Dust Collectors</p>	<p>The purpose of this document is to establish the procedure for operating the Spencer &amp; Hoffman portable dust collectors.</p>
	<p>SOP-2-C-601, Refinery Sump</p>	<p>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.</p>

STEP	REGULATION/PROCEDURE	COMMENTS
Step 7 Transfer Substances (continued) - refer to Activities 11 and 12	SOP-8-C-116, Filtering Refinery Thickener Underflow	This procedure is applicable to the Plant 8 filters and associated equipment used to process Refinery Thickener Underflow received from the Refinery Sump System.
	SOP-8-C-115, Filtration of Uranium Bearing Slops	The purpose of this document is to provide the procedure for precipitating and filtering uranium from the Process Plants waste water streams.
	MS 8-BN/E-490-2, Disposal of Waste Filtrate and Effluents	
	SSOP-0003, Receiving, On-Site Movement and Off-Site Shipment of Nonradioactive Hazardous Material	This document defines the procedure for receiving, on-site movement, and off-site shipment of nonradioactive hazardous material.
	SOP 20-C-500, Inspecting RCRA Waste Loan/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.
	SOP-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.
	SOP-1-C-903, 2-C-904, 4-C-903, 5-C-911, 6-C-902, 8-C-504, 9-C-903, 11-C-215, and 20-C-709	These procedures provide general guidelines for removing nuclear materials from the process equipment. * Additional detail for specific tasks to be provided by Shift Orders and the work controlled by the issuance of work permits.

STEP	REGULATION/PROCEDURE	COMMENTS
Step 8 Control of Loose Contamination - refer to Activity 13	Task Specific Health & 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.
Step 9 Disposition of Surplus Property - refer to Activities 14 through 24	SP-P-35-010, Unrestricted Release of Materials from FMPC  FMPC-303, Management of Government Property	This safety procedure establishes the radiation levels for unrestricted release of materials from the site.  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.

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## 1.0 POLICY

Westinghouse Environmental Management Company of Ohio (WEMCO) shall operate the Fernald Environmental Management Project (FEMP) in compliance with Department of Energy (DOE) contractual requirements, Westinghouse Corporate Directives, and state and federal laws/regulations. An integrated system of documents shall implement these identified requirements.

## 2.0 SCOPE

This procedure defines the system of documents by which the FEMP is managed and details the requirements for development, preparation, and control of these documents.

## 3.0 DEFINITIONS

- 3.1 Site Document System - The system of procedural documents governing the performance of administrative, technical, and operational activities at the FEMP. The document hierarchy is described in Figure 1.
- 3.2 Site Document Program - The document program by which all site applicable documents are issued except department and library documents.
- 3.3 Drivers - Operational and administrative requirements imposed on WEMCO by agreement, law, contract, DOE Directives, or Corporate Directives.
- 3.4 Policy and Management Directives - Documents by which the WEMCO President delegates responsibility for implementing requirements imposed by the drivers.
- 3.5 Site Operating and Interfacing Documents - Detailed instructions or requirements necessary to manage operations requiring participation by two or more departments.
- 3.6 Department Document - A document providing administrative, technical, or operating instructions to personnel within that department.
- 3.7 Interim Document - A document issued to satisfy an urgent need as identified by the WEMCO President or Staff Manager. Any site document may be selected for issue as an Interim document with an expiration date of sixty days from issue.

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### 3.0 DEFINITIONS (cont.)

- 3.8 Temporary Revision - A document issued to satisfy an urgent need as identified by the document owner and having an expiration date of 90 days from issue.
- 3.9 Document Owner - The Staff Manager having primary responsibility for sitewide implementation of a driver or a manager other than a Staff Manager having a need for the document to permit safe and effective operation of activities for which they have primary responsibility. This manager may be the Staff Manager or manager designated by the responsible Staff Manager.
- 3.10 Procedure Technical Representative (PTR) - An individual that prepares the technical content of a site or department document at the request of the document owner.
- 3.11 Significant Review Comment (SRC) - A review comment that is considered by the approver to require satisfactory resolution before the document is acceptable for issue. SRC comments are only based on technical inaccuracies, noncompliance, or inconsistencies with established requirements, laws, regulations, and/or procedures. A significant review comment shall be concurred with by the staff manager (approver) if reviewed by an individual other than the approver.
- 3.12 Documentation Control (DC) - An organization within the Performance Assessment & Communications Department charged with developing, maintaining, and implementing a site document system.

### 4.0 RESPONSIBILITIES

- 4.1 Document Owner - Responsible for preparing, revising, and approving a document for area of responsibility.
- 4.2 Staff Manager - Responsible for preparing, approving, and maintaining current department charter and those site documents which implement their chartered responsibilities, and identifying those documents which require mandatory training or which require trained, qualified, and certified employees. Coordinates the required department review for site documents which affect their department by evaluating and consolidating comments to reflect a single department position and concurring with significant review comments.
- 4.3 WEMCO President - Responsible for authorizing the issue of documents which define and establish WEMCO Policies and Management Directives.

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#### 4.0 RESPONSIBILITIES (cont.)

- 4.4 WEMCO Management - Responsible for reviewing issued site documents for applicability to their operation, assuring affected personnel are informed and trained to applicable documents, and ensuring implementation of issued document(s).
- 4.5 Documentation Control (DC) - A group within the Performance Assessment & Communications Department having responsibility for establishing and maintaining a controlled centralized document system translating external and internal customer requirements, and facilitating the development or update of the required procedures necessary to accomplish the WEMCO mission.

#### 5.0 GENERAL

##### 5.1 Site Document System Description

- 5.1.1 The Site Document System consists of all the actions necessary to control and record the following: review of drivers, development of documents, document reviews, document approvals, issue and distribution, and cancellation. The types of documents in this system and their relationships are shown in Figure 1.
- 5.1.2 A Site Policy and Procedure shall identify how a particular driver will be implemented by describing the necessary actions and identifying the position and/or organization(s) responsible for those actions. Detailed instructions, when necessary, shall be implemented through other site documents or department procedures.
- 5.1.3 Topical Manuals which have site applicability and were previously issued through the FEMP Library Report System shall be considered a site document. As Site Topical Manuals are revised, new manuals will be issued through the Site Document Program.
- 5.1.4 Technical reports and papers shall be issued through the FEMP Library Report System per FMPC-608 and FMPC-2070.

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## 5.0 GENERAL (cont.)

### 5.2 Document Initiation

5.2.1 Drivers enter the Site Document System by formal transmittal of a driver to the WEMCO President, formal transmittal of DOE Directives through the DOE Directives Administrator (Refer to FMPC-605), laws and regulations, or direct communication with a staff manager having responsibility for the implementing actions. Regardless of the route that the driver enters, a staff manager evaluates the driver for applicability to WEMCO operations and initiates actions to implement the driver.

5.2.2 A department charter shall be prepared and kept current by each staff manager as directed by the WEMCO President and shall follow the guidelines provided in this procedure.

### 5.3 Document Preparation, Approval and Authorization

5.3.1 The document owner or PTR shall identify document needs to DC and prepare a preliminary draft of the document.

5.3.2 The document owner/PTR is responsible for determining the required approvers. DC shall concur with the determination.

5.3.3 Approvers shall review the document and indicate comments on the Document Review Comment Sheet. Comments should be marked as SRC (Significant Review Comment) only when based on technical inaccuracies, noncompliance, or inconsistencies with established requirements, laws, regulations, and/or procedures. Significant review comments require an approval signature by the owner/approver if the SRC is not incorporated as verbatim as on the document review comment sheet. The owner/approver shall sign the document approval record as follows: (Signature)/with comments or no comments. DC shall be responsible to ensure signatures are obtained by the owner/PTR before document issue.

5.3.4 The document owner or the PTR is responsible for resolving and documenting on the document review comment sheet resolution of review comments. At the request of the document owner or PTR, DC will facilitate or resolve comments and document comment resolution.

5.3.5 A procedure development team may be formed for development, review or approval of documents.

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## 5.0 GENERAL (cont.)

- 5.3.6 Unless a document requires extensive (50% or more) revision, changes shall be identified with an "R" in the left margin of each line revised.
- 5.3.7 Plans and Information Documents have no established format unless required by a driver.
- 5.3.8 Document format and content guideline requirements are identified in Figures 2, 3, and 4. Draft word processing for all documents shall be completed using one inch left and right margins.
- 5.3.9 Required document approval/authorization is identified in Table 1.
- 5.3.10 A record of issue/revisions shall be a part of each document.

### 5.4 Temporary Revision (TR) Preparation and Approval (See Figure 5)

- 5.4.1 A TR shall be written for each affected page or complete section of a document.
- 5.4.2 Permanently bound documents are excluded from the Temporary Revision System.
- 5.4.3 The document owner shall determine the need for a TR.
- 5.4.4 The document owner shall approve and authorize the TR.
- 5.4.5 Affected staff managers shall be identified by the document owner on the TR and shall review and submit comments within 30 days of TR issue to the document owner.
- 5.4.6 The affected staff manager(s) are responsible for reviewing the TR per "TR Review Requirements" as listed on TR.
- 5.4.7 The owner of the document shall evaluate TR comments and identify required TR changes within 60 days, if no change, DC shall incorporate TR in affected document before the expiration date. If there are no comments after 30 days, the owner may identify the TR for incorporation.
- 5.4.8 A maximum of 6 TRs may exist for a document before a revision is initiated by DC to incorporate the TRs.

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## 5.0 GENERAL (cont.)

5.4.9 The TR shall be a controlled document.

5.4.10 All pages of the TR shall be printed on blue paper.

5.4.11 The document owner may initiate a request to cancel the TR until the date of expiration or date of incorporation.

## 5.5 Document Issue and Control

5.5.1 Full compliance with the requirements of site documents is required. Site documents are effective on the date they are issued. If a manager cannot comply with the requirements of the document as of the document issue date, the manager must take whatever actions are necessary to bring their organization into compliance as expeditiously as possible.

5.5.2 DC has the authority, without site review, to identify and correct minor editorial changes or corrections which do not impact technical content. These changes shall be completed by a document revision and be transmitted by controlled distribution.

5.5.3 Cancellation of a document shall require the same review and approval authority as an issued document. DC shall cancel existing documents when a document is assigned a new number, superseded by another document, or required strictly for records management purposes.

5.5.4 Each site document shall be reviewed at least annually by the document owner and reissued if applicable as determined by the document owner. DC shall notify the responsible staff manager when an annual review is required.

5.5.5 A Site Document Index shall be issued each month to include site and department documents. The index shall include only current documents.

5.5.6 Documents are authorized for issue by individuals identified in Table 2.

5.5.7 DC shall maintain approval, issue, control, and history records for documents issued through the Site Document Program.

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## 5.0 GENERAL (cont.)

5.5.8 Holders of controlled documents are responsible for maintaining the current issue of the documents in their possession.

### 5.6 Department Documents

5.6.1 Department documents shall be prepared in accordance with a department document program authorized by the department manager and shall contain the elements listed in Table 2.

5.6.2 If requested by a department to administer a Department Document Program, DC may assist in document development and approval.

5.6.3 Department documents shall be formally reviewed at minimum every two years by the department manager and a record of the review maintained.

5.6.4 The first day of each month, a list of new or revised department documents for the month shall be transmitted by each department to DC for inclusion in the Site Document Index.

5.6.5 Department procedures shall not assign responsibilities to other departments.

### 5.7 Control Of Documents to Subcontractors

5.7.1 A document issued and controlled through the Site Document Program, the FEMP Library, or a Department Document Program, shall be transmitted by Documentation Control to a subcontractor by request of the contract administrator. The transmitted document may be controlled or non-controlled.

## 6.0 PROCEDURE

### 6.1 Review Applicability of Drivers

#### STAFF MANAGER

6.1.1 Review the driver for applicability in functional area of responsibility.

**NOTE:** DOE Directives are reviewed in accordance with FMPC-605, DOE Directives Administration.

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## 6.0 PROCEDURE (cont.)

6.1.2 Take appropriate implementation actions and maintain records of the implementation actions.

### 6.2 Preparation, Approval, and Issue or Revision of a Site Document

#### DOCUMENT OWNER

6.2.1 Develop method or process for preparation of new or revision to document. Provide informal reviews for document development.

6.2.2 Identify the need for, or a change to, a site document and provide a draft to DC.

#### DOCUMENT OWNER/DC

6.2.3 Jointly develop an action plan for development, preparation, review/approval, and issue of a document.

#### DC

6.2.4 Formal document preparation by a technical writer shall be completed with concurrence of owner/PTR.

6.2.5 Facilitate document review/approval.

6.2.6 Assist the PTR as identified in the action plan in resolving review comments.

6.2.7 Prepare final document.

6.2.8 Obtain authorization.

6.2.9 Issue and control the document.

### 6.3 Preparation and Issue of a Temporary Revision (TR)

#### DOCUMENT OWNER

6.3.1 Identify the need for a TR and provide a draft to DC.

#### DC

6.3.2 Formal document preparation by a technical writer shall be completed with concurrence of owner/PTR.

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## 6.0 PROCEDURE (cont.)

DC

6.3.3 Obtain authorization.

6.3.4 Issue and control the document.

## 7.0 APPLICABLE DOCUMENTS

### 7.1 Drivers

7.1.2 DOE Order 5700.6B, Quality Assurance

### 7.2 Reference Documents

7.2.1 FMPC-605, "DOE Directives Administration"

7.2.2 FMPC-608, "Preparation and Release of Technical Information"

7.2.3 FMPC-2070, "Style and Format Guide for Scientific and Technical Reports, Correspondence and other Presentations"

## 8.0 APPLICABLE FORMS

None

## 9.0 ATTACHMENTS

None

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TABLE 1  
DOCUMENT APPROVAL AND AUTHORIZATION

Document Type	Approval	Authorization
Interim Document	Staff Manager responsible for area of subject document	WEMCO President
Policy and Procedure	Affected Staff Managers	WEMCO President
Charter	Affected Staff Managers	WEMCO President
Plan	Affected Staff Managers	WEMCO President
Information Documents	Staff Manager responsible for area of subject document	Staff Manager responsible for area of subject document
Requirements Documents	Affected Staff Managers	WEMCO President
Site Operating Documents	Affected Staff Managers	WEMCO President
Temporary Revision (TR)	Document Owner	Document Owner
Department Documents	As identified by department document program	Department Mgr. or as identified by department program
Scientific and technical reports, correspondence and other presentations through the FEMP Library	Per FMPC-608 FMPC-2070	Per FMPC-608 FMPC-2070

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TABLE 2

## DEPARTMENT DOCUMENT PROGRAM ELEMENTS

1. Program description
2. Initiation of a new document or revision to an existing document
3. Identification of format for each type of document
4. Processing and review/approval for new or changes to documents
5. Identification of documents
6. Temporary Changes
7. Required approvals
8. Cancellation of Documents
9. Issuing authority
10. Document control
11. Records maintenance

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WEMCO DOCUMENT HIERARCHY

- DRIVERS**
- . DOE ORDERS
  - . STATE & FEDERAL LAWS
  - . W CORPORATE DIRECTIVES
  - . CONTRACTUAL AGREEMENTS

- POLICY & MANAGEMENT DIRECTIVES**
- . DEPARTMENT & COMMITTEE CHARTERS
  - . POLICY & PROCEDURES

- SITE OPERATING & INTERFACING DOCUMENTS**
- . PLANS
  - . INFORMATION DOCUMENTS
  - . REQUIREMENTS DOCUMENTS
  - . SITE OPERATING DOCUMENTS

- DEPARTMENT DOCUMENTS**
- . DEPARTMENT PROCEDURES
  - . PLANS
  - . MANUALS

**CHARTER** - A DOCUMENT DEFINING THE WORK SCOPE & RESPONSIBILITIES OF A DEPARTMENT, COMMITTEE, COUNCIL, BOARD OR FUNCTION.

**POLICY & PROCEDURE** - A STATEMENT OF MANAGEMENT POLICY FOLLOWED BY A SERIES OF ADMINISTRATIVE INSTRUCTIONS, INCLUDING RESPONSIBILITIES & PRINCIPAL ACTIONS AFFECTING TWO OR MORE DEPARTMENTS.

**PLAN** - A DOCUMENT IDENTIFIED AS REQUIRED BY A DRIVER OR INFORMATION DEFINING ACTIONS TO BE TAKEN TO MEET A REQUIREMENT.

**INFORMATION DOCUMENT** - INFORMATION COMPILED ON A SUBJECT AND PRESENTED TO BE INFORMATIVE FOR PERSONNEL OF THE FEMP OR AS REQUIRED BY EXTERNAL ORGANIZATIONS.

**REQUIREMENTS DOCUMENT** - A DOCUMENT DEFINING REQUIREMENTS FOR AN ACTIVITY AFFECTING TWO OR MORE WEMCO ORGANIZATIONS.

**SITE STANDARD OPERATING DOCUMENT** - A PROCEDURE THAT PROVIDES DETAILED OPERATING INSTRUCTIONS FOR AN ACTIVITY TO TWO OR MORE WEMCO ORGANIZATIONS.

**DEPARTMENT PROCEDURE** - A PROCEDURE THAT PROVIDES INSTRUCTIONS TO ONLY ONE WEMCO ORGANIZATION.

**PLAN** - A DOCUMENT IDENTIFIED AS REQUIRED BY A DRIVER FOR ONLY ONE WEMCO ORGANIZATION IN ORDER TO MEET A REQUIREMENT.

**MANUAL** - A DOCUMENT THAT PROVIDES DETAILED REQUIREMENTS/INSTRUCTIONS AFFECTING ONLY ONE WEMCO ORGANIZATION.

SITE DOCUMENT PROGRAM HIERARCHY  
Figure 1

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ORGANIZATION CHARTER FORMAT AND CONTENT GUIDELINES

1.0 PURPOSE

Identify the overall function of the organization.

2.0 ORGANIZATION

List subgroups and functions within the organization to describe purpose and goals. Describe interrelationships with other organizations.

3.0 RESPONSIBILITIES

List specific responsibilities of organization. If responsibilities are shared with other organizations, ensure shared organizations agree with established responsibilities.

4.0 APPLICABLE DOCUMENTS

Include in this section the specific documents that are applicable to the organization. If no documents exist, state "NONE."

4.1 Drivers - Administrative requirements creating need for the charter.

4.2 Reference Documents - Documents required to complete actions or portions of actions identified in the charter. Reference only documents issued through the Site Document Program. Department and Library Documents are not acceptable.

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### MEMBERSHIP CHARTER FORMAT AND CONTENT GUIDELINES

#### 1.0 PURPOSE

Develop a statement of the purpose for the committee, council, or board.

#### 2.0 MEMBERSHIP

List by title those individuals who serve as members and describe briefly how and whom members are chosen.

#### 3.0 RESPONSIBILITIES

Include the responsibilities of the committee, council, or board, and, if appropriate, the unique responsibilities of the members. State the authority of the committee, council or board. Do not include responsibilities that are standard for any organization, such as the chairperson "chairs", the committee or the members participate in the meetings.

#### 4.0 APPLICABLE DOCUMENTS

Include in this section the specific documents that are applicable to the particular committee, council, or board. If no documents exist, state "NONE."

4.1 Drivers - Administrative requirements creating the need for the charter.

4.2 Reference Documents - Documents required to complete actions or portions of actions identified in the charter. Reference only documents issued through the Site Document Program. Department and Library Documents are not acceptable.

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POLICY AND PROCEDURE FORMAT AND CONTENT GUIDELINES

1.0 POLICY

Provide a precise statement of the action(s) necessary to meet DOE Orders, Westinghouse Corporate Management Directives, or other identified requirements.

2.0 SCOPE

Describe briefly the purpose of the document and the functions, tasks, or situations that the procedure would be applicable.

3.0 DEFINITIONS

Define those unique terms used in the document that are important to the understanding of the document. Exclude from this section acronyms and abbreviations if the intent of inclusion is only identification and not definition.

4.0 RESPONSIBILITIES

Identify, by title, the individual or group responsible for the required action. This section shall provide an overview of the individual/organization actions and activities which, in a procedure, are presented in greater detail in Section 6.0.

5.0 GENERAL

Include explanatory information that is not specific to the procedure section but is necessary for the clarity and understanding of the document. If there are no general items, indicate by "None." Include figures and tables and locate as placed in this procedure.

6.0 PROCEDURE

6.1 Subsection Title Describing Following Series of Actions

WEMCO EMPLOYEE (Title of WEMCO employee or group responsible for completing the accompanying action steps)

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POLICY AND PROCEDURE FORMAT AND CONTENT GUIDELINES (cont.)

6.0 PROCEDURE (cont.)

6.1.1 Indicate employee or group action in progressive order.

NOTE: Notes place emphasis on the continuity and logical sequence of actions. The use of notes within Section 6.0 shall be restricted to information necessary for user understanding of a particular procedural step. Notes shall not contain action steps.

7.0 APPLICABLE DOCUMENTS

7.1 Drivers - Administrative requirements creating need for the document.

7.2 Reference Documents - Documents required to complete actions or portions of actions identified in the document. Reference only documents issued through the Site Document Program. Department and Library Documents are not acceptable.

8.0 APPLICABLE FORMS

List forms and form numbers used in the Policy and Procedure.

9.0 ATTACHMENTS

Attachments should only supplement information contained in the procedure. The attachment shall not be used to direct procedure activities. Information in the attachment shall be within the borders of the formatted page and be identified at the bottom.

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### SSOP FORMAT AND CONTENT GUIDELINES

#### 1.0 PURPOSE

This section shall give a clear, concise statement explaining the intent of the procedure.

#### 2.0 APPLICABILITY

This section shall summarize the reason and the specific case or circumstance for which the procedure applies and each organization to whom the procedure applies.

#### 3.0 RESPONSIBILITIES

This section shall specify the responsibility and authority of the persons and/or organizations involved in the activity for which the procedure is written.

#### 4.0 DEFINITIONS

This section shall include those terms and statements contained in the body of the document which require definition for uniform understanding.

#### 5.0 GENERAL

Include explanatory information that is not specific to the procedure section but is necessary for the clarity and understanding of the document. If there are no general items, indicate by "NONE." Include figures and tables and locate as placed in this procedure.

#### 6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (IF APPLICABLE)

This section shall contain statements and requirements regarding the environment, safety, and health of the activity. If there are no Industrial Health and Safety Requirements, indicate by "None".

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SSOP FORMAT AND CONTENT GUIDELINES (cont.)

7.0 PROCEDURE

This section shall contain in detail all steps required to accomplish the activity.

7.1 Figures, tables, and guides shall be included at the end of the text and numbered consecutively.

NOTE: Forms shall be referenced in the text.

7.2 Note, Caution, Warning

7.2.1 A NOTE shall be incorporated in the text of a procedure to clearly define a condition or step of a procedure or present information that may be helpful in completing a task.

Example:

NOTE: A level below 500 gal. will cause pump shutdown.

7.2.2 A CAUTION shall be included in a procedure text when a condition will cause equipment/material damage or personnel injury.

Example:

CAUTION: VALVE NO. 241 SHALL REMAIN OPEN. VALVE CLOSURE WILL CAUSE CUTTING HEAD DAMAGE AND PERSONAL INJURY.

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SSOP FORMAT AND CONTENT GUIDELINES (cont.)

- 7.2.3 A WARNING shall be used only for conditions that will cause equipment/material equipment failure and/or result in serious injury or death.

Example:

<p><b>WARNING:</b> THE IDENTIFIED HOLDING FIXTURE SHALL BE USED WHEN REMOVING THE DERBY FROM THE BREAKOUT AREA. USING A FIXTURE OTHER THAN IDENTIFIED, WILL RESULT IN DERBY BREAKAGE/CRANE FAILURE AND MAY RESULT IN SERIOUS INJURY.</p>
--

- 7.2.4 Photos may be included and shall be identified as a figure.

7.3 Subsection Title Describing Following Series of Actions

WEMCO Employee (Title of WEMCO employee or group responsible for completing the accompanying action steps)

- 7.3.1 Indicate employee or group action in progressive order.

8.0 APPLICABLE DOCUMENTS

- 8.1 Drivers - Administrative requirements creating need for the document.
- 8.2 Reference Documents - Documents required to complete actions or portions of actions identified in the document. Reference only documents issued through the Site Document Program. Department and Library Documents are not acceptable.

9.0 APPLICABLE FORMS

List form number and title used in the document.

10.0 FIGURES

- 10.1 List figure number and title of figures in the document.

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CONTROL NO. \_\_\_\_\_

### TEMPORARY REVISION SITE DOCUMENT PROGRAM

Page 1 of

AFFECTED DOCUMENT NO. _____	TR NO. _____
TITLE:	ISSUE DATE: _____
	EXPIRATION DATE: _____

FILING INSTRUCTIONS: File facing Page \_\_\_\_\_ of document \_\_\_\_\_, Rev. \_\_\_\_\_,  
Dated \_\_\_\_\_.

Owner/Staff Manager Authorization \_\_\_\_\_ Date \_\_\_\_\_

#### AFFECTED STAFF MANAGERS

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

#### TR REVIEW REQUIREMENTS

##### AFFECTED STAFF MANAGER REVIEW/COMMENT REQUIREMENTS:

1. Within 30 days of TR issue date review TR. If there are comments, transmit document review comment sheet to owner.

##### OWNER/STAFF MANAGER TR REVIEW COMMENT EVALUATION:

1. Review and determine applicability of affected manager TR review comments.
2. If TR review comments require change of TR as written, submit a request to revise affected document to Documentation Control within 60 days of TR issue date.

##### DOCUMENTATION CONTROL (DC)

1. DC shall incorporate TR in affected document as issued if no request has been submitted by document owner.

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RECORD OF ISSUE/REVISIONS

<u>Date</u>	<u>REV. NO.</u>	<u>DESCRIPTION AND AUTHORITY</u>
08-28-91	0	New procedure required to define the FEMP Site Document System per Request No. P91-157, initiated by N. K. Weichold.

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Authorization: <i>W. H. Britton</i> W. H. Britton, President	Supersedes: None	Effective Date: 02-04-92

### 1.0 POLICY

Westinghouse Environmental Management Company of Ohio (WEMCO) shall document, disposition and, where appropriate, identify root cause and take action to prevent the recurrence of deviations discovered in materials, processes and related documentation at the Site or at supplier facilities.

### 2.0 SCOPE

This procedure identifies the assigned responsibilities and required actions for identifying, documenting, evaluating and providing dispositions and corrective action plans for deviations and corrective actions observed during audits, reviews, surveillances, inspections or tests performed at the Site both internal and external organizations, as well as the evaluation of supplier-proposed dispositions and corrective actions plans.

### 3.0 DEFINITIONS

- 3.1 Condition Adverse to Quality (CAQ) - An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, violation of regulatory requirement or nonconformances.
- 3.2 Corrective Action - Measures taken to rectify significant conditions adverse to quality or violation of regulatory requirement and, where necessary, to preclude repetition.
- 3.3 Corrective Action Report (CAR) - A form used to document the corrective action process for significant conditions adverse to quality or violation of regulatory requirements discovered during audits, reviews, surveillances, inspections or tests performed by both internal and external organizations. This form can be either the CAR form shown in Attachment D or a computer generated form which contains the same information.
- 3.4 Deviation - As used in this procedure, "deviation" means a departure from a specified requirement discovered during an audit, review, surveillance, inspection or test. A deviation can be a condition in which characteristics of an item or service do not conform to prescribed limits; a required document is not available or is inadequate; a regulatory requirement was violated; or a procedure does not yield the desired results. These conditions can occur at any point in the fabrication, handling, shipment, storage, installation, or operation of an item; the performance of a service; or the execution of quality assurance activities.

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### 3.0 DEFINITIONS (cont.)

- 3.5 Deviation Report (DR) - A form used to document deviations, their disposition, verification and closure. This form can be either the DR form shown in Attachment A or a computer generated form which contains the same information.
- 3.6 Disposition - The action necessary to correct or resolve a specific deviation. Disposition involves the following:
- 3.6.1 Accept-as-is - item is acceptable for use when supported with technical justification.
  - 3.6.2 Rework - item is processed further to conform to specified requirements.
  - 3.6.3 Repair - item is processed to become acceptable for use but does not conform to specified requirements.
  - 3.6.4 Reject - a decision that a nonconforming item cannot be accepted-as-is, reworked, or repaired. Rejected items shall be scrapped, identified and altered so as to be inapplicable for their original use, or returned to the supplier, as appropriate.
  - 3.6.5 Other - describe in space provided on DR form the specific actions taken or to be taken such as revise procedure, develop procedure, provide training, etc.
- 3.7 External Corrective Action Report (XCAR) - A term used to signify the Corrective Action Report Form used to document findings discovered during external reviews by organizations other than WEMCO and the corrective action process for addressing the findings.
- 3.8 Requisitioner - The individual who authorizes and/or initiates a purchase request.
- 3.9 Root Cause - The most basic reason for an effect, which, if corrected, will prevent recurrence of that effect. The correction must be achievable by WEMCO and it cannot interfere with WEMCO's goals and objectives. Most negative effects of interest will have a root cause that falls into one of three categories: Personnel Error, Procedural Error, or Equipment Failure.
- 3.10 Senior Management - Management reporting directly to the President of WEMCO.

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### 3.0 DEFINITIONS (cont.)

- 3.11 Significant Condition Adverse to Quality (SCAQ) - A condition which, if uncorrected, could have a impact on safety of employees and general public or operability, or violate a regulatory requirement.

### 4.0 RESPONSIBILITIES

- 4.1 WEMCO Personnel/Preparer - Every WEMCO employee is responsible for notifying Environmental Compliance/Quality Assurance of potential deviations by completing sections 1 and 2, as appropriate, of the Deviation Report (DR) form Attachment A.
- 4.2 Environmental Compliance and Quality Assurance - Is responsible for the following actions associated with deviations from reviews, surveillances, inspections and tests conducted at the Site and supplier facilities:
- 4.2.1 Identifying, documenting, issuing and requesting disposition of deviations on a DR form. Also assures clear description of deviation is provided.
  - 4.2.2 Evaluating deviations and requesting root cause determination and corrective action where warranted.
  - 4.2.3 Evaluating proposed disposition, root cause and corrective actions.
  - 4.2.4 Verifying disposition/corrective actions are complete and acceptable, and closes DRs and CARs.
  - 4.2.5 Retaining official records and files related to the documentation of deviations and their disposition and/or corrective action.
  - 4.2.6 Tracking of the status of deviations.
- 4.3 Performance Assessment and Communications - Is responsible for the following actions associated with deviations from QA Program audits, trend analysis programs and external review findings:
- 4.3.1 Identifying, documenting, issuing and requesting disposition of deviations on a CAR form. Also assures clear description of deviation is provided.
  - 4.3.2 Evaluating deviations and requesting root cause determination and corrective action where warranted.

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#### 4.0 RESPONSIBILITIES (cont.)

- 4.3.3 Evaluating proposed disposition, root cause and corrective actions.
- 4.3.4 Conducting actions to verify disposition/corrective actions are complete and acceptable.
- 4.3.5 Issuing final closure upon verification of corrective action.
- 4.3.6 Performing trend analysis of deviations.
- 4.3.7 Retaining official records and files related to the documentation of deviations and their disposition and/or corrective action.
- 4.3.8 Tracking of the status of deviations.
- 4.4 Senior Management/Activity Manager/Cognizant Engineer - Evaluates and determines root cause for the deviation. Proposes and accomplishes disposition/corrective actions. Approves Supplier Disposition Requests.
- 4.5 Procurement - Coordinates Supplier Disposition Requests for disposition/corrective action approval.
- 4.6 Evaluator - A person from Environmental Compliance and Quality Assurance or Performance Assessment and Communications, who is responsible to perform the following steps in processing a DR or CAR:
  - 4.6.1 Determine whether a DR or CAR will be issued.
  - 4.6.2 Accept the proposed disposition, root cause and corrective action.
  - 4.6.3 Perform verification of disposition or corrective action.
  - 4.6.4 Closeout the DR or CAR.

#### 5.0 GENERAL

- 5.1 Deviations may or may not adversely affect the quality of the item or service involved, depending on the severity of the condition. Those deviations determined to be significant conditions adverse to quality require corrective action in accordance with this procedure. Deviations shall be evaluated for root cause determinations.

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5.0 GENERAL (cont.)

- 5.2 Repetitive non-significant deviations of the same kind noted over a short period of time require corrective action in accordance with the requirements of this procedure.
- 5.3 A trend analysis of DRs, CARs and XCARs is performed by Performance Assessment to identify chronic problem areas. Results of this trend analysis are reported to responsible management, who review the data to determine root causes and develop corrective action(s) to prevent recurrence.

6.0 PROCEDURE

6.1 Deviation Reports

**WEMCO PERSONNEL/PREPARER**

- 6.1.1 Identify and document potential deviations, as outlined in Attachment A, in Sections 1 and 2 of the Deviation Report (DR) form.
- 6.1.2 Verbally notify the responsible management of the potential deviation the same day it was discovered.
- 6.1.3 Sign and date the Prepared By block in section 2.
- 6.1.4 Forward the DR to Environmental Compliance/Quality Assurance for evaluation.

**EVALUATOR**

- 6.1.5 Evaluate the potential deviation for actual violation of requirements/specifications and assures clear description of deviation is provided. If an actual DR is not required notify preparer a DR is not required. If a DR is required proceed with step 6.1.6.
- 6.1.6 Obtain and enter a DR number from the computer DR data base or from the Administrator, Deviation and Corrective Action Control on the DR form. The unique number is composed of the current year and a three digit number (Example 89-001)

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## 6.0 PROCEDURE (cont.)

### EVALUATOR

6.1.7 When a nonconforming item (hardware or material) is discovered, ensure that a Quality Nonconformance Tag, Form FMPC-QA-2708 (Attachment B) is attached to it, where practical. If not practical to affix Nonconformance Tag, ensure other precautions are taken to preclude inadvertent use or further processing.

**NOTE:** Quality Nonconformance Tags shall be removed only after completion of the disposition action identified on the DR by the evaluator.

6.1.8 Evaluate deviations for Significant Conditions Adverse to Quality (SCAQ). See Attachment C for criteria and examples for determining the need for a Corrective Action Report. For those deviations determined to be SCAQ complete a Corrective Action Report in accordance with 6.2, if DR is no longer required close it out based upon the issue of a CAR.

6.1.9 Request disposition from the activity manager/cognizant engineer of the organization responsible for item or activity in which the deviation was discovered.

**NOTE:** When a deviation is identified at receiving inspection, the disposition shall be determined by the requisitioner/cognizant engineer.

### ACTIVITY MANAGERS/COGNIZANT ENGINEER

6.1.10 Segregate hardware items in designated hold areas or implement other precautions to preclude inadvertent use, as appropriate.

6.1.11 Evaluate deviations for reportability under the occurrence reporting system. See PR-FMPC-4006, Occurrence Reports (OR). If an Occurrence Report is required, enter this as the proposed disposition and the DR will be closed-out based upon the issue of an OR.

6.1.12 Enter the proposed disposition by checking the appropriate block in Section 3 of the DR. For non-hardware deviations check the "Other" block and enter the disposition in the space provided. Include the scheduled completion date for dispositioning action.

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## 6.0 PROCEDURE (cont.)

### ACTIVITY MANAGERS/COGNIZANT ENGINEER

6.1.13 Provide a technical justification for items which are dispositioned "Accept-As-Is" or "Repair". This justification must identify specific engineering calculations or higher tier documents which provide evidence that the item will function reliably and safely even though it does not conform to the original requirement. An unsupported belief, opinion, or recommendation is not an acceptable technical justification.

NOTE: When "accept-as-is" or "repair" are used for the disposition, configuration control records shall be updated to reflect changes.

6.1.14 Return the disposition for the DR to the Evaluator within the requested time frame.

### EVALUATOR

6.1.15 Evaluate proposed disposition action(s) and notify the activity manager/cognizant engineer of the responsible organization of the results by signing the "Evaluation of Disposition" section of the DR form.

6.1.16 Obtain customer approval of proposed dispositions for deviations associated with accountability of nuclear materials and for products that do not conform to customer specification requirements.

### ACTIVITY MANAGERS/COGNIZANT ENGINEER

6.1.17 Accomplish disposition action(s) as scheduled.

R 6.1.18 Notify the evaluator when disposition action(s) is completed.

### EVALUATOR

6.1.19 Monitor accomplishment of disposition action(s) and verify completeness and acceptability.

R  
R 6.1.20 Close DR by signing the "Verification of Disposition Action Completion" section of the DR form. Notify the activity/cognizant engineer, of the organization responsible for disposition action, of closure.

6.1.21 Ensure Nonconformance tags are removed and release any hardware items involved from hold status.

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## 6.0 PROCEDURE (cont.)

### 6.2 Corrective Action Reports

#### EVALUATOR

- 6.2.1 Evaluate deviations for Significant Conditions Adverse to Quality (SCAQ). See Attachment C for criteria and examples for determining the need for a Corrective Action Report (CAR).
- 6.2.2 Evaluate the need to issue the CAR to Senior Management in accordance with Attachment C. If a CAR is required obtain a CAR number from the computer CAR data base or from the Administrator, Deviation and Corrective Action Control. The unique number is composed of the current year and a three digit number (Example 89-001)
- 6.2.3 Verbally notify the responsible management the same day as identified.
- 6.2.4 Identify and document the request for corrective actions, as outlined in Attachment D, in sections 1 and 2 of the CAR form.
- 6.2.5 Obtain the concurrence of the Evaluator's manager.
- 6.2.6 Issue the Corrective Action Report to the senior management/activity manager of the organization responsible for the deviation.

#### ACTIVITY MANAGER

- 6.2.7 Evaluate deviations for reportability under the occurrences reporting system. See PR-FMPC-4006, Occurrence Report (OR).
- 6.2.8 Determine the underlying (root) cause of the problem and document it in Section 3A of the CAR form.
- 6.2.9 If necessary, perform an investigation to determine if any similar work is affected by the problem and, if so, identify the action taken/proposed and the schedule to correct it in Section 3B of the CAR form.
- 6.2.10 Describe the action taken/proposed to correct the root cause and to prevent recurrence of the problem in Section 3C of the DCAR form. Enter the scheduled completion date for corrective action in Section 3D.

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## 6.0 PROCEDURE (cont.)

### ACTIVITY MANAGER

6.2.11 Provide response to the CAR to the Evaluator within the time frame requested.

### EVALUATOR

6.2.12 Evaluate proposed corrective action(s), obtain the evaluating manager's approval, sign block 4 of CAR form and notify the activity manager of the responsible organization of the results.

### ACTIVITY MANAGERS

6.2.13 Accomplish corrective action(s) as scheduled.

6.2.14 Notify the evaluator when corrective action(s) is completed.

### EVALUATOR

6.2.15 Monitor accomplishment of corrective action(s) and verify completeness and acceptability.

6.2.16 Close CAR, by signing block 5 of the CAR form, and notify the activity manager of the organization responsible for disposition action of closure.

## 6.3 External Corrective Action Reports (XCARs)

### PERFORMANCE ASSESSMENT

6.3.1 Receive external findings from external organization (such as Tiger Teams, Technical Safety Appraisal, Westinghouse Corporate, etc.).

6.3.2 Obtain and enter an XCAR number from the computer XCAR data base or from the Administrator, External Corrective Action Control on the CAR form. Enter the XCAR data into the Commitment System. The unique number is composed of an X, the current year and a three digit number (Example X89-001).

6.3.3 Process the finding in accordance with 6.2 except the use of an XCAR number instead of a CAR number.

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6.0 PROCEDURE (cont.)

6.4 Responding to Supplier Request for Disposition/Corrective Action Approval

**BUYER**

- 6.4.1 Receive Supplier Disposition Requests (SDR), Attachment E, with proposed dispositions.
- 6.4.2 Forward the SDR with proposed disposition to requisitioning department and a copy to Environmental Compliance and Quality Assurance for review and concurrence.

**REQUISITIONER**

- 6.4.3 Evaluate the supplier's proposed disposition, obtain concurrence from Environmental Compliance and Quality Assurance concerning its acceptability and if appropriate, approve the disposition action in an approval memorandum.

**NOTE:** If disposition action is unacceptable, the Requisitioner initiates correspondence through the Buyer back to the supplier until resolution is reached.

**REQUISITIONER**

- 6.4.4 Forward the approval memorandum and supporting documentation to the Buyer.

**BUYER**

- 6.4.5 Issue disposition approval memorandum to supplier.
- 6.4.6 File a copy of disposition approval memorandum, completed SDR and supporting documentation in the purchase order file.

6.5 Trend Analysis

**PERFORMANCE ASSESSMENT AND COMMUNICATIONS**

- 6.5.1 Maintain a trend analysis program for the Deviation Reports, Corrective Action Reports and External Corrective Action Reports.

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6.0 PROCEDURE (cont.)

6.6 Tracking of Deviations

**ENVIRONMENTAL COMPLIANCE AND QUALITY ASSURANCE**

6.6.1 Maintain a computer tracking/history system on open and closed Deviation Reports and Corrective Action Reports.

**PERFORMANCE ASSESSMENT AND COMMUNICATIONS**

6.6.2 Maintain a computer tracking/history system on open and closed External Corrective Action Reports.

6.7 Records

**ENVIRONMENTAL COMPLIANCE AND QUALITY ASSURANCE**

6.7.1 Maintain completed Deviation Reports and Corrective Action Reports as Quality Records.

**PERFORMANCE ASSESSMENT AND COMMUNICATIONS**

6.7.2 Maintain completed External Corrective Action Reports as Quality Records.

7.0 APPLICABLE DOCUMENTS

7.1 PR-FMPC-4006, Occurrence Reports (OR)

8.0 APPLICABLE FORMS

8.1 Form FMPC-EC&QA-2909 Deviation Report (DR)

8.2 Form FMPC-Q-2708, Quality Nonconformance Tag

8.3 Form FMPC-EC&QA-2909-1, Corrective Action Report (CAR)

8.4 Form FMPC-QA-2642, Supplier Disposition Request

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## 9.0 ATTACHMENTS

- 9.1 Attachment A - Deviation Report (DR).
- 9.2 Attachment B - Quality Nonconformance Tag.
- 9.3 Attachment C - Criteria for Determining If a Corrective Action Report Is Required - Criteria for Determining If a Corrective Action Report Is Required To Be Issued To Senior Management
- 9.4 Attachment D - Corrective Action Report Form (CAR)
- 9.5 Attachment E - Supplier Disposition Request (SDR)

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DR NO:	<b>DEVIATION REPORT</b>	REVISION:
<b>1</b> Date of Discovery: _____ Responsible Organization: _____ Responsible Organization Representative: _____ Activity: _____ Location: _____		
<b>2</b> Requirement(s): _____ _____ _____ Deviation: _____ _____ _____ _____ Verbally Notified Management: _____ Prepared by: _____ <small>(DATE) (DATE)</small> Is Corrective Action Report Required? <input type="checkbox"/> Yes <input type="checkbox"/> No Provide Disposition by: _____ <small>(DATE)</small> Evaluator: _____ Date: _____		
<b>3</b> Is the Deviation Reportable under OR? <input type="checkbox"/> *Yes (OR No. _____) <input type="checkbox"/> No <i>*If yes, proceed in accordance with PR-FMPC-4006 and close this DR.</i> Disposition: <input type="checkbox"/> Accept-As-Is <input type="checkbox"/> Rework <input type="checkbox"/> Repair <input type="checkbox"/> Reject <input type="checkbox"/> Other _____ _____ Accept-As-Is/Repair Justification: _____ _____ _____ Scheduled Completion Date: _____ Responsible Organization's Representative: _____ Date: _____		
<b>4</b> Evaluation of Disposition: _____ Evaluator: _____ Date: _____		
<b>5</b> Verification of Disposition Action Completion: _____ Evaluator: _____ Date: _____		

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**DEVIATION REPORT (DR) - INSTRUCTIONS**

PREPARER - COMPLETE SECTION 1 AND 2 AS FOLLOWS	
ITEM	INSTRUCTIONS
DATE OF DISCOVERY	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. (Example Audit 189-1)
LOCATION	Location of the activity (Example Plant 6)
REQUIREMENTS	Identify the procedure, instruction, standard, or code which establishes the acceptance criteria for the activity or item being evaluated.
DEVIATION	Fully describe the deviation as it relates to the requirements.
VERBALLY NOTIFIED MANAGEMENT	List the date that the responsible organization's management was verbally notified of the potential deviation.
PREPARED BY	The preparer signs and dates for Section 2.

EVALUATOR - COMPLETE SECTION 2 AND HEADING AS FOLLOWS	
IS CORRECTIVE ACTION REPORT REQUIRED	Evaluate deviation for issue of a Corrective Action Report, Check "Yes" if required, or "No" if not required.
DR NO.	Obtain and enter on the DR Form a DR Number from the Computer DR Data Base or from the Administrator, Deviation Control and Corrective Action.
REVISION	Enter the current revision number 0, 1, etc.
PROVIDE DISPOSITION BY DATE	Request the organization deemed responsible to provide dispositioning action by a certain date outlining steps taken or planned to correct immediate problem.
EVALUATOR	Sign and date Section 2 of the DR form.

RESPONSIBLE ORGANIZATION REPRESENTATIVE - COMPLETION OF DISPOSITION ACTION SECTION 3	
IS DEVIATION REPORTABLE UNDER OR	Evaluate the deviation in accordance with PR-FMPC-4006 for Occurrence Reporting and check the appropriate block. If an OR is required, sign off Section 3 as complete and forward back to Evaluator.
DISPOSITION	For DRs not reportable as an OR, 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.

EVALUATOR - COMPLETION OF THE RECEIPT AND EVALUATION OF PROPOSED DISPOSITIONS SECTION 4	
Receive and evaluate the proposed corrective action to determine its adequacy for solving the specific problem identified in the deviation report, which includes verification that a decision has been made, by the Manager of the organization responsible, as to whether the deviation is reportable in accordance with PR-FMPC-4006 for Occurrence Report (OR). If the "Yes" box is checked, the responsible organization proceeds with the reportability process in accordance with PR-FMPC-4006 and the DR can be closed based upon the issue of a OR.	
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.	

EVALUATOR - COMPLETION OF THE VERIFICATION AND CLOSURE OF DISPOSITION ACTION SECTION 5	
Monitor the disposition and verify that the actions taken to correct the deviation have been completed satisfactorily.	
Approve acceptance of verified disposition in Section 5 by signature and date.	
Ensure the removal of nonconforming item tag(s) only after verifying satisfactory completion of all dispositioning actions.	
Forward the closed out deviation report (DR) to the Administrator, Deviation Control and Corrective Action with a copy to responsible organization management.	

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Attachment B

# QUALITY NONCONFORMANCE

P.O./SHIPMENT/LOT/PACKAGE/CONTAINER I.D. No.: \_\_\_\_\_

RECEIVING REPORT NO.: \_\_\_\_\_ INSPECTION REPORT NO.: \_\_\_\_\_

DESCRIPTION OF NONCONFORMANCE: \_\_\_\_\_

\_\_\_\_\_

NAME: \_\_\_\_\_ BADGE No \_\_\_\_\_ PHONE No \_\_\_\_\_

**TO BE REMOVED BY AUTHORIZED PERSONNEL ONLY**  
FMPC-O-2708 (REV 8-29-90)



DCAR No.: \_\_\_\_\_

DATE: \_\_\_\_\_

# QUALITY NONCONFORMANCE

**TO BE REMOVED BY AUTHORIZED PERSONNEL ONLY**  
FMPC-O-2708 (REV 8-29-90)

TAG IS WHITE WITH RED LETTERS

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Attachment C

CRITERIA FOR DETERMINING IF A CORRECTIVE ACTION REPORT IS REQUIRED

A Corrective Action Report shall be issued for deviations with:

- o Significance - Deviations which have, or may have, serious effect on safety, health, operability, environment or reliability.
- o Quantity/Frequency - Repetitive deviations or similar deviations resulting from activities or conditions which are common to the deviations.
- o Ineffective Implementation of Dispositions - Deviations which have not been properly or promptly dispositioned or resolved and which if uncorrected could result in other deviations or significant conditions adverse to quality.

The following are examples of significant conditions adverse to quality and shall be processed in accordance with this procedure:

- o Approved and released documents such as design documents, procurement documents, procedures, instructions, reports, and data found to contain significant errors or to be inadequate for their intended function.
- o In-process checks that indicate process or test limits may be exceeded and may have serious effect on safety, operability, or reliability.
- o Out-of-calibration standards or instruments used to verify process limits and may have serious effect on safety, operability, or reliability.
- o Significant Adverse trend analysis results.

CRITERIA FOR DETERMINING IF A CORRECTIVE ACTION REPORT IS REQUIRED TO BE ISSUED TO SENIOR MANAGEMENT

An evaluation shall be performed of each CAR for issue to Senior Management. If the CAR meets the following criteria, it shall be issued to Senior Management:

- a) Significant and repetitive trends in deviation documents, audit/surveillance findings, and other inspections for which corrective action measures have proven ineffective or inadequate.
- b) Delinquent Corrective Action that cannot be resolved at a lower level of Management.
- c) Significant conditions adverse to quality which require more than a routine evaluation, analysis and corrective action.

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CAR NO.:	<b>CORRECTIVE ACTION REPORT</b>	REVISION:
<b>1</b> Date of Discovery: _____ Responsible Organization: _____ Responsible Organization Representative: _____ Activity: _____ Location: _____		
<b>2</b> Requirement(s): _____ _____ _____ Deviation: _____ _____ _____ Verbally Notified Management: _____ (DATE) Evaluator: _____ (DATE) Provide Disposition by: _____ (DATE) Evaluating Manager: _____ (DATE)		
<b>3</b> Response to the Request for Corrective Action: Is the Deviation Reportable under OR? <input type="checkbox"/> *Yes (OR No. _____) <input type="checkbox"/> No <i>*If yes, proceed in accordance with PR-FMPC-4006 and close this CAR.</i> A. Reason for the Deviation (Root Cause): _____ _____ B. Action Taken/Proposed to Investigate and Correct Similar Work: _____ _____ C. Action Taken to Prevent Recurrence: _____ _____ D. Date(s) Action(s) will be Complete: _____ Responsible Organization's Representative: _____ Date: _____		
<b>4</b> Evaluation of Corrective Action Response: Evaluator: _____ Date: _____ Evaluating Manager: _____ Date: _____		
<b>5</b> Verification of Corrective Action Completion: Evaluator: _____ Date: _____		

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08.78

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**CORRECTIVE ACTION REPORT (CAR) - INSTRUCTIONS**

EVALUATOR - COMPLETE SECTION 1 AND 2 AS FOLLOWS	
ITEM	INSTRUCTIONS
DATE OF DISCOVERY	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 representative responsible for corrective action.
ACTIVITY	Enter activity performed. (Example Audit 189-1)
LOCATION	Location of the activity (Example Plant 6)
REQUIREMENTS	Identify the procedure, instruction, standard, or code which establishes the acceptance criteria for the activity or item being evaluated.
DEVIATION	Fully describe the deviation as it relates to the requirements.
VERBALLY NOTIFIED MANAGEMENT	List the date that the responsible organization's management was verbally notified of the potential deviation.
CAR NO.	Obtain and enter on the CAR Form a CAR Number from the Computer CAR Data Base or from the Administrator, Deviation Control and Corrective Action.
REVISION	Enter the current revision number 0, 1, etc.
PROVIDE DISPOSITION BY DATE	Request the organization deemed responsible to provide dispositioning action by a certain date outlining steps taken or planned to correct immediate problem.
EVALUATOR	Sign and date Section 2 of the CAR form.
EVALUATING MANAGER	Obtain the concurrence of the Evaluator's Manager.

RESPONSIBLE ORGANIZATION REPRESENTATIVE - COMPLETION OF DISPOSITION ACTION SECTION 3	
Evaluate deviations for reportability under the occurrences reporting system. See PR-FMPC-4006, Occurrence Reporting (OR)	
A. REASON FOR THE DEVIATION (ROOT CAUSE)	Determine the underlying (root) cause of the problem and document it in Section 3A of the CAR form.
B. ACTION TAKEN/PROPOSED TO INVESTIGATE AND CORRECT SIMILAR WORK	If necessary, perform an investigation to determine if any similar work is affected by the problem and, if so, identify the action taken/proposed and the schedule to correct it in Section 3B of the CAR form.
C. ACTION TAKEN TO PREVENT RECURRENCE	Describe action taken/proposed to correct the root cause and to prevent recurrence of the problem in Section 3C of the CAR form.
D. DATE(S) ACTION(S) WILL BE COMPLETE	Enter the scheduled completion date for corrective action in Section 3D.

EVALUATOR - COMPLETION OF THE EVALUATION OF CORRECTIVE ACTION RESPONSE SECTION 4	
Receive and evaluate the proposed corrective action to determine its adequacy for solving the specific problem identified in the deviation report, which includes verification that a decision has been made, by the Manager of the organization responsible, as to whether the deviation is reportable in accordance with PR-FMPC-4006 for Occurrence Report (OR). If the "Yes" box is checked, the responsible organization proceeds with the reportability process in accordance with PR-FMPC-4006 and the CAR can be closed based upon the issue of an OR.	
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.	

EVALUATOR - COMPLETION OF THE VERIFICATION AND CLOSURE OF DISPOSITION ACTION SECTION 5	
Monitor the disposition and verify that the actions taken to correct the deviation have been completed satisfactorily.	
Approve acceptance of verified disposition in Section 5 by signature and date.	
Ensure the removal of nonconforming item tag(s) only after verifying satisfactory completion of all dispositioning actions.	
Forward the closed out corrective action report (CAR) to the Administrator, Deviation Control and Corrective Action with a copy to responsible organization management.	

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**SUPPLIER DISPOSITION REQUEST**

SDR SERIAL NUMBER: \_\_\_\_\_  
SUBCONTRACT NUMBER: \_\_\_\_\_

**TO BE COMPLETED BY SUPPLIER**

<p>1 Waiver <input type="checkbox"/> (W) Non Conformance <input type="checkbox"/> (N)</p> <p>Attn: _____ SUBCONTRACT ADMINISTRATOR</p>	<p>2 FROM: (SUPPLIER NAME &amp; ADDRESS) _____</p>
	<p>3 DRAWING NUMBER &amp; REVISION: _____</p>
	<p>4 COMPONENT AND SERIAL NUMBER: _____</p>
	<p>5 PART NAME AND SERIAL NUMBER: _____</p>
	<p>6 DESCRIPTION OF SPECIFICATION OR DRAWING REQUIREMENT TO BE WAIVED, OR INTERPRETATION REQUIRED: (W) OR DEFICIENT CONDITION: (N) _____</p>
<p>7 SDR'S PREVIOUSLY ISSUED ON THIS PART: _____</p>	<p>8 OTHER PARTS AFFECTED: <input type="checkbox"/> YES <input type="checkbox"/> SDR NO _____ (N) <input type="checkbox"/> NO <input type="checkbox"/> Quantity _____ (N)</p>
<p>9 (A) SUPPLIER'S RECOMMENDED DISPOSITION (WAIVER), (B) JUSTIFICATION FOR WAIVER (W) (A) SUPPLIER'S RECOMMENDED DISPOSITION, (B) JUSTIFICATION, (C) CORRECTIVE ACTION BEING TAKEN TO PREVENT RECURRENCE (N) _____</p>	
<p>10 THIS DISPOSITION WOULD AFFECT: INTERCHANGEABILITY <input type="checkbox"/> YES <input type="checkbox"/> NO      OPERATION <input type="checkbox"/> YES <input type="checkbox"/> NO      REPAIR PARTS <input type="checkbox"/> YES <input type="checkbox"/> NO</p>	
<p>11 LIST ATTACHMENTS: _____</p>	<p>12 SIGNATURE OF SUPPLIER'S AUTHORIZED REPRESENTATIVE DATE _____ _____</p>

**TO BE COMPLETED BY WMCO**

<p>13 BASELINE ENGR. DOCUMENTS AFFECTED (ECR REQUIRED): <input type="checkbox"/> YES <input type="checkbox"/> NO      <input type="checkbox"/> MAJOR SCOPE CHANGE    <input type="checkbox"/> CLASS I CHANGE    <input type="checkbox"/> CLASS II CHANGE    (ECR NO)</p>	
<p>14 DISPOSITION ACTION: APPROVED AS RECOMMENDED <input type="checkbox"/>      DISAPPROVED <input type="checkbox"/>      OR AS BELOW <input type="checkbox"/></p>	
<p>15 THIS REQUEST AFFECTS INSPECTION OR INSTALLATION AT SITE <input type="checkbox"/> YES <input type="checkbox"/> NO</p>	
<p>16 SIGNATURES &amp; APPROVALS: ENGINEERING APPROVAL: _____ DATE: _____ QUALITY ASSURANCE _____ DATE: _____ SUBCONTRACT ADMINISTRATOR/BUYER: _____ DATE: _____ DATE: _____ (S REQUIRED) _____ DATE: _____</p>	<p>17 DISTRIBUTION</p>
<p>Subcontract Consideration Required <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	

The supplier accepts full responsibility for the accuracy and completeness of the information above. The issuance and acceptance of this request in no way limits or affects the warranty provisions of the order. This request shall not establish a precedent or obligation to accept similar conditions in the future.

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### INSTRUCTIONS FOR PREPARATION OF SUPPLIER DISPOSITION REQUEST

#### GENERAL

It shall be the responsibility of the Supplier to initiate an SDR (Form FMPC-QA-2642) for each waiver or nonconforming condition and submit it to WMCO for approval prior to implementing the supplier's recommended disposition. Attach all supplemental sheets as necessary to provide detailed explanations for those factors that cannot be fully explained in the space provided on the SDR form. Reports and dispositions via telephone or FAX are not prohibited, however, the supplier is responsible to execute an SDR on ALL deviations from drawing, specifications, or contract requirements. Any work done before receipt of written approval of the recommended disposition shall be at supplier's risk. Items shall not be released for shipment before approval of the recommended disposition.

The supplier shall maintain an SDR log and record a sequential, numerical identification number on each SDR submitted. The subcontract or purchase order number, and the serial number shall be entered on the top of each SDR submitted.

#### PROCEDURE

##### Supplier Responsibility

- Box 1 — Record the name of the cognizant Subcontract Administrator and check Box W or Box N.  
Box W (Waiver) shall be used to identify a design change which will produce a better or less expensive product or improve the delivery schedule but requires waiving one or more requirements of the procurement document.  
Box W shall also be checked if a clarification of specified requirements is requested.  
Box N (Nonconformance) shall be used to identify a deviation from procurement document requirements which has occurred unintentionally during fabrication.
- Box 2 — Record the mailing address as stated on the purchase order.
- Box 3 — Record the drawing number and revision for the affected parts.
- Box 4 — Record name of article as described in purchase order including serial number if applicable.
- Box 5 — Record name of the affected part as shown on the drawing recorded in block 3, including serial number if applicable.
- Box 6 — (W) For waiver or clarification request: Describe the problem or question, identifying specification section for which the waiver is requested.  
(N) For nonconformance: Record the condition, including specification section violated.  
(Both) Include sufficient detail to allow complete evaluation. Describe in detail those conditions not characterized by numerical variables.
- Box 7 — List by serial number all previous SDR's submitted on the material defined by the information in blocks 5 and 6.
- Box 8 — Evaluate and record whether other parts are influenced by the condition in block 6.  
(W) For waiver or clarification request: Enter number of associated SDR.  
(N) For nonconformance: Record the quantity of parts which are part of the same lot having the same attributes as described in block 6 for which disposition has not been requested.
- Box 9 — Record the recommended disposition, the justification for such disposition and the corrective action to be taken to prevent recurrence (if applicable).
- Box 10 — Record what effect the recommended disposition would have on interchangeability, operation and repair parts insofar as the Supplier can determine. Attach supplemental sheets explaining in detail what the effects are, if any of the blocks are checked "yes".
- Box 12 — Signature and title of the Supplier's authorized representative.

Mail to the cognizant Subcontract Administrator

##### WMCO Responsibility

- Box 13 — Responsible WMCO Engineer shall indicate if Baseline Engineering Documents are affected. If an ECR is required, process and obtain required reviews and approvals prior to obtaining the required signatures in Box 16.
- Box 14 — The WMCO Engineer shall record the disposition action after coordination with Quality and Procurement. Reason for disapproval shall be stated.
- Box 15 — The WMCO Engineer shall check the appropriate box after coordination with Quality. The affected superintendent or manager shall be notified immediately.
- Box 16 — The Representatives of Engineering, Quality, and Subcontracts will endorse the disposition by their signature.
- Box 17 — Distribute copies of completed form to signers: Receiving Inspection, and QA Records.

NOTE: The Subcontract Administrator will record in the SDR log the date of transmittal of the disposition to the supplier.

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
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, reviews, initiated by M. A. Malone per Request No. P91-220.
02-04-92	1	Incorporation of temporary revisions T91-021 thru T91-025 per Request Nos. S92-012 thru S92-016, initiated by M. Malone.

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Title: QUALITY ASSURANCE PROJECT PLANS		DOCUMENT NO: SSOP-0036 REVISION NO: 0
Authorization: <i>W. H. Britton</i> W. H. Britton, President	Supersedes: IN-6014, Dated 9-12-91	Issue Date: 11-14-91

## 1.0 POLICY

Westinghouse Environmental Management Company of Ohio (WEMCO) will operate the Fernald Environmental Management Project (FEMP) data generation activities in accordance with Environmental Protection Agency (EPA) Guidelines and applicable federal and state laws and regulations, and will prepare Quality Assurance Project Plans (QAPjPs) to describe how requirements will be satisfied by WEMCO.

## 2.0 SCOPE

This procedure assigns responsibilities and identifies the requirements for developing QAPjPs for WEMCO data generation activities. The Amended Consent Agreement established the need for quality assurance plans in accordance with EPA requirements.

## 3.0 DEFINITIONS

- 3.1 Quality Assurance Project Plans (QAPjPs) - An orderly assembly of detailed and specific procedures describing how quality data are produced for a specific project or measurement method. A QAPjP shall be developed for each data generation activity or program (a group of activities using the same measurement methods).
- 3.2 Staff Manager - A manager who reports directly to the Office of the President.

## 4.0 RESPONSIBILITIES

- 4.1 Manager, Environmental Compliance & Quality Assurance (EC&QA) - Reviews and approves the initial issue of and any revisions to QAPjPs.
- 4.2 Staff Managers - Manage their operations in compliance with the requirements and criteria of those QAPjPs that affect their operations. Staff managers will review and concur with the initial issue and any revisions to these QAPjPs. Staff managers responsible for data generation activities are to develop, approve and implement QAPjPs for those activities.
- 4.3 WEMCO Employees - Perform data generation activities in compliance with the requirements described in the appropriate QAPjP.

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## 5.0 GENERAL

- 5.1 QAPjPs are developed in accordance with appropriate requirements of the WEMCO QA Program Plan (PL-3014). A QAPjP is the governing document of project QA practices to be implemented and includes the data quality objectives, requirements for work performance to meet the objectives, and the means for verifying that the objectives have been met.
- 5.2 The purpose of QAPjPs is to describe activities that assure the quality of work performed, specifically for environmentally-related activities in which data are generated. Moreover, QAPjPs are formally written documents that interface with and are related to WEMCO Site Policies and Procedures, as well as other QAPjPs. For EPA projects/activities, all QAPjP criteria must be considered.

## 6.0 PROCEDURE

### 6.1 Preparation and Issue of QAPjPs

#### STAFF MANAGER

- 6.1.1 Prepare the QAPjP, or revision thereto, in accordance with the content and format of Attachment A.
- 6.1.2 Obtain and resolve the affected staff managers' and EC&QA Manager's review comments.
- 6.1.3 Prepare final draft and submit to the EC&QA Manager for approval.

#### MANAGER, EC&QA

- 6.1.4 Review and approve the QAPjP and return to the responsible staff manager.

#### STAFF MANAGER

- 6.1.5 Coordinate distribution of copies of the approved QAPjP to affected managers and supervisors.
- 6.1.6 Review and update the QAPjP periodically to reflect significant project changes.

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## 7.0 APPLICABLE DOCUMENTS

### 7.1 Drivers

- 7.1.1 EPA QAMS-005/80, "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans"
- 7.1.2 The Amended Consent Agreement, September 1991
- 7.1.3 PL-3014, WEMCO Quality Assurance Program Plan
- 7.1.4 PP-0710, Quality Assurance Plans

### 7.2 Reference Documents

- 7.2.1 PL-3014, WEMCO Quality Assurance Program Plan
- 7.2.2 EPA QAMS-005/80, "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans"

## 8.0 APPLICABLE FORMS

None

## 9.0 ATTACHMENTS

- 9.1 Attachment A - Guidelines for the Preparation of Quality Assurance Project Plans

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Authorization: W. H. Britton, President	Supersedes: IN-6014, Dated 9-12-91	Issue Date: 11-14-91

Quality Assurance Project Plan Format: The following is the Quality Assurance Project Plan (QAPjP) format for data generation activities, specifically the documenting and reporting the precision, accuracy, representativeness, comparability, completeness and data validation of environmental measurements.

The QAPjPs implement the sixteen criteria indicated in QAMS-005/80. QAPjPs must, at a minimum:

- Be prepared in document control format, with provision for revision, as needed, and with a record of official distribution. An example of EPA document control header format is provided in Figure 1. The top line of the header providing the site name or document control number is optional.
- Justify the exclusion of any component. (Item 14.0 shall not be excluded.)
- Reference applicable implementation procedures which are required.
- Cover activities which directly or indirectly influence data quality.
- Delineate training requirements.

Site I.D.: _____
Section No.: _____
Revision: _____
Date: _____
Page: _____ of _____

Figure 1. Example of EPA Document Control Header Format

1.0 Title Page - At the bottom of each title page, provisions must be made for the signature of approving personnel. As a minimum, QAPjPs shall be:

1.1 Reviewed by all interfacing organizations.

1.2 Approved by:

1.2.1 Responsible Staff/Project Manager

1.2.2 Manager, EC&QA

2.0 Table of Contents - An example of the Table of Contents for a QAPjP is presented in Figure 2. The Table of Contents should address each of the following:

2.1 Introduction

2.2 A serial listing of each of the quality assurance project components. (Note: Sampling procedures, calibration and frequency procedures, and analytical procedures for field analytical measurements may be combined for writing convenience.) Laboratory analytical procedures should be included in a separate section from field procedures.

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2.0 Table of Contents (cont.)

2.3 A listing of any appendices, tables, and/or figures which are required to augment the QAPjP as presented. (i.e., implementing procedures, flow charts, and maps.) Examples of List of Tables and List of Figures for QAPjPs are presented in Figures 3 and 4.

2.4 A listing of all individuals receiving official copies of the QAPjP and any subsequent revisions. (This should be placed at the end of the Table of Contents.)

TABLE OF CONTENTS			
<u>Section</u>	<u>Page</u>	<u>Revision</u>	<u>Date</u>
1.0 Project Description	1 of 10	0	1/04/91
1.1 Scope			
1.2 Applicability			
2.0 Organization and Responsibilities	1 of 5	1	6/17/91

Figure 2. An Example of a QAPjP Table of Contents

LIST OF TABLES			
<u>Title</u>	<u>Table Number</u>	<u>Revision</u>	<u>Page</u>
Analytical Methods and Procedures	5-1	1	2 of 20
Internal Quality Control	7-1	1	2 of 60

Figure 3. An Example of a QAPjP List of Tables

LIST OF FIGURES			
<u>Title</u>	<u>Figure Number</u>	<u>Revision</u>	<u>Page</u>
Organization Chart	2-1	1	2 of 5

Figure 4. An Example of a QAPjP List of Figures

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- 3.0 Project Description - Provide a general description of the project including the experimental design and specific project objectives in terms of individual tasks or phases of work.
  - 3.1 Include the experimental design and sufficient detail to allow those individuals responsible for review and approval of the QAPJP to perform their task. Where appropriate, include the following:
    - 3.1.1 Flow diagrams, tables, drawings, specifications and charts.
    - 3.1.2 Dates anticipated for start and completion.
    - 3.1.3 Intended end use of acquired data including any data generated from field screening and/or field measurements.
- 4.0 Project Organization and Responsibility and Training
  - 4.1 Include an organizational table or chart showing the project organization and line authority.
  - 4.2 List titles of personnel responsible for ensuring the collection of valid measurement data and the routine assessment of measurement systems for precision and accuracy.
  - 4.3 Identify titles of personnel to be indoctrinated and trained in specific project requirements and work activities, as well as the requirements for the qualification and/or certification of inspection, test, and sampling personnel.
  - 4.4 Provide for a documented training program to assure adequate identification and documentation of training requirements.
- 5.0 QA Objectives for Measurement Data in Terms of Precision, Accuracy, Completeness, Comparability, and Representativeness
  - 5.1 These measurement objectives should be summarized in a table format or similar graphic.
  - 5.2 Make all measurements so that the results are representative of the media, as example, air and water, and conditions being measured.
  - 5.3 Calculate and report data measurements in units consistent with other organizations reporting similar data to allow comparability of data bases among organizations.
  - 5.4 Delineate the data quality objective for the data collection. The data quality objective is to include the establishment of precision and accuracy of measurement, QA/QC samples, and data validation requirements.

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6.0 Sampling Procedures - For each measurement parameter(s), including all pollutant measurement systems, reference the applicable implementing procedures or provide a written description of the procedure. Where applicable, include the following:

6.1 A description of techniques or guidelines used to select sampling sites.

6.2 Specific sampling procedure(s) to be used by reference, in the case of standard procedures, and an actual description of the entire procedure(s), in the case of non-standard procedures.

6.3 Charts, flow diagrams or tables delineating sampling program operations.

6.4 A description of, as example, containers, procedures, and reagents used for sample collection, preservation, transport, and storage.

6.5 Special conditions for the preparation of sampling equipment and containers to avoid sample contamination (e.g., containers for organics should be solvent-rinsed; containers for trace metals should be acid-rinsed).

6.6 Sample preservation methods and holding times.

6.7 Time consideration for shipping samples promptly to the laboratory.

6.8 Sample custody or chain-of-custody procedures (described in Section 7.0 of the QAPjP format).

6.9 Forms, notebooks and procedures to be used to record sample history, sampling conditions and analyses to be performed.

7.0 Sample Custody and Control of Measuring Test Equipment - Sample custody is part of good laboratory or field procedure and consists of three major elements; the chain-of-custody procedure for field sampling and measurements, the chain-of-custody procedure for laboratory analysis, and the final evidence file.

7.1 Use "chain-of-custody" procedures for samples, as required.

7.2 As a minimum, use the following sample custody procedures for Field Sampling Operations:

7.2.1 Document procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters, and absorbing reagents).

7.2.2 Include actual procedures and forms used in recording the exact location and specific considerations associated with sample acquisition.

7.2.3 Document specific sample preservation method(s).

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7.0 Sample Custody and Control of Measuring Test Equipment (cont.)

7.2.4 Use pre-prepared sample labels containing all information necessary for effective sample tracking.

7.2.5 All documentation should be kept in non-erasable waterproof black ink.

7.3 As a minimum, use the following sample custody procedures for Laboratory Operations:

7.3.1 Identify responsible party to act as sample custodian at the laboratory facility. This person will sign for incoming field samples, obtain documents of shipment, track custodial transfer during sample preparation and analysis, and verify the data entered onto the sample custody records.

7.3.2 Maintain a Laboratory Sample Custody Log consisting of serially numbered standard lab-tracking report sheets.

8.0 Calibration Procedures and Frequency - For each measurement parameter(s), including all pollutant measurement systems, reference the applicable implementing procedure or provide a written description of the procedure. Where applicable include the following information:

8.1 A list which identifies the routine frequency schedule for recalibration, conditions to initiate recalibration, and acceptable control limits.

8.2 A list which indicates the calibration standards used and their source(s), including traceability procedures. Include the initial calibration for each instrument to determine the useable range.

9.0 Analytical Procedures - For each measurement parameter(s), include all pollutant measurement systems, their detection limits or sensitivity of measurement systems required for project data, reference the applicable implementing procedure or provide a written description of the procedure. Include a sample preparation procedure.

10.0 Data Reduction, Validation and Reporting - For each measurement parameter(s), including all pollutant measurement systems, briefly describe/state the following:

10.1 The data reduction scheme planned on both field and laboratory collected data, including all equations used to calculate the concentration or value of the measured parameter and reporting units. Describe the data reporting format to be used and the listing of data package contents.

10.2 The principal criteria that will be used to validate data integrity during collection and reporting of data.

10.3 The methods used to identify and treat data outliers.

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10.0 Data Reduction, Validation and Reporting (cont.)

10.4 The data flow or reporting scheme from collection of raw data through storage of validated concentrations in flow chart format.

10.5 The data reporting package which the laboratories will submit with their results.

10.6 The titles of key individuals who will handle the data in this reporting scheme if not already specified in Section 4.0, "Project Organization and Responsibility and Training" of the QAPjP.

11.0 Internal Quality Control Checks - Describe and/or reference all specific internal quality control ("Internal" refers to both laboratory and field activities) methods to be followed.

11.1 Items which may be considered include:

- Replicates
- Spiked samples
- Split samples
- Control charts
- Blanks
- Internal Standards
- Zero and span gases
- Quality control samples
- Surrogate samples
- Calibration standards and devices
- Continuing calibration checks
- Reagent checks

12.0 Performance and System Audits - The audit system which includes systems and performance audits and which is required to monitor the capability and performance of the total measurement system(s) and/or non-measurement system(s) is performed in accordance with the WEMCO Quality Assurance Program Plan (PL-3014).

12.1 The systems audit consists of evaluation of various components of the measurement systems or non-measurement systems to determine their proper selection and use.

12.2 The systems audit carefully evaluates both field and laboratory quality control procedures.

13.0 Preventive Maintenance

13.1 Schedule and document important preventative maintenance tasks that must be carried out to minimize downtime of the measurement or non-measurement systems and equipment of measurement and non-measurement systems.

13.2 Include a list of any critical spare parts that should be on hand to minimize downtime.

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14.0 Specific Routine Procedures Used to Assess Data Precision, Accuracy, and Completeness

14.1 Describe specific procedures to assess precision, accuracy, and completeness on a routine basis for the specific project.

14.1.1 Address each measurement parameter, including all pollutant measurement systems, and describe the routine procedures used to assess the precision, accuracy, and completeness of the measurement data.

14.1.2 Include the equations used to calculate precision, accuracy, and completeness.

14.1.3 State the methods used to gather data for the precision and accuracy calculations.

14.2 Examples of statistical procedures which may be applicable to environmental projects are as follows:

14.2.1 Central tendency and dispersion

- Arithmetic mean
- Range
- Standard deviation
- Relative Standard Deviation
- Pooled Standard Deviation
- Geometric mean

14.2.2 Assessing data quality

- Accuracy/bias
- Precision; within laboratory and between laboratories
- Representativeness
- Comparability
- Completeness

14.2.3 Significance test

- u-test
- t-test
- F-test
- Chi-squared test

14.2.4 Confidence limits

14.2.5 Testing for outliers

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15.0 Corrective Action - Corrective Action procedures must be described for each project and shall be used whenever any corrective actions are made during the project.

15.1 Include the mechanism for initiating corrective actions.

15.2 Include the predetermined limits for data acceptability beyond which corrective action is required.

15.3 Document the procedures for corrective actions.

15.4 For each measurement system, identify the responsible individual for initiating the corrective action and also the individual responsible for approving the corrective action.

16.0 QA Reports to Management

16.1 QAPjPs provide a mechanism for periodic reporting on the performance of measurement systems and data quality to ensure that problems, if any, are investigated, and corrective actions are taken. The report should include a time frame for measurement, as a minimum the following:

16.1.1 Periodic assessment of measurement data accuracy, precision and completeness.

16.1.2 Results of assessments/audits.

✓ 16.1.3 Results of surveillance.

16.1.4 Significant QA problems and recommended solutions.

16.2 Identify the individual(s) responsible for preparing the periodic reports.

16.3 Include in the final report for each project a separate QA section which summarizes data quality information contained in the periodic reports.

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
11-14-91	0	Procedure requirement for Quality Assurance Project Plans per Request No. P91-595, initiated by K. Merriman.

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### 1.0 POLICY

It is the policy of Westinghouse Environmental Management Company of Ohio (WEMCO) to implement an Operational Readiness Process which provides a systematic, documented approach for accomplishing planned actions to assure and demonstrate progress toward an achievement of a state of readiness.

### 2.0 SCOPE

The Operational Readiness Process is applied to programs/projects/activities that define processes, systems, facilities, or activities which are any of the following:

- New or significantly modified
- Being reactivated after a prolonged outage, resulting from planned standby/shutdown or shutdown for cause
- Planned for operation in a new or significantly different mode
- To be shutdown for a prolonged period or decommissioned
- Designated for the operational readiness process by the Department of Energy and/or WEMCO management.

The scope of this procedure is to delineate the necessary resources, responsibilities, and activities required to implement the operational readiness process. The scope of the operational readiness review is determined by the readiness review level as determined by the staff manager and the Readiness Review Board.

### 3.0 DEFINITIONS

- 3.1 Readiness - When the plant, equipment, personnel, procedures, and administrative systems are in place and verified to be at the required state to support operation or to proceed to the next program/project/activity phase.
- 3.2 Operational Readiness Process - A process to provide a systematic, documented approach for accomplishing planned actions to assure and demonstrate progress toward and achievement of a state of readiness. The process demonstrated the actions have been accomplished to show that the program/project/activity will adequately perform the function for which it was designed in a safe and environmentally acceptable matter.

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### 3.0 DEFINITIONS (cont.)

- 3.3 Operational Readiness Review - A step in the operational readiness process is to review information on plant, equipment, personnel, procedures, and administrative systems to determine the state of readiness to operate or proceed to the next program/project/activity phase.
- 3.4 Operational Readiness Team - A team consisting of selected individuals who perform the major activities that implements the operational readiness process. In many cases, it will consist of the Project Engineer/Manager and supporting personnel. The Operational Readiness Team is a generic term, and these activities would be appropriate for a "project management team".
- 3.5 Prolonged Outage - A shutdown or standby condition, greater than a six month duration.
- 3.6 Readiness Review Board - A multi-discipline group that conducts operational readiness review and judges the readiness to operate or proceed to the next program/project/activity phase. It is intended that appointees having no direct involvement in the process or facility being reviewed. The Readiness Review Board is a standing board and consists of appointed personnel (or their alternates) from Industrial Radiological Safety and Training, Quality, Environmental Compliance, Operations, the staff manager for the individual operational readiness review that the manager has requested, and a representative designated by that staff manager.
- 3.7 Readiness Review Level - A graded implementation of the review process to allow an additional and independent review of the program/project/activity for those activities which the potential or identified complexity requires additional scrutiny.
- 3.8 Staff Manager - A manager who reports directly to the WEMCO office of the President. A manager having staff level responsibility for ownership or operation of the process, system, facility, or activity which is the focus of an operational readiness review.

### 4.0 RESPONSIBILITIES

- 4.1 Budget and Resource Director - Authorized and approves funding for operational readiness reviews.
- 4.2 Executive Vice President - Designates the chair, members, and alternates to the permanent Readiness Review Board. Resolves readiness review level conflicts.

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#### 4.0 RESPONSIBILITIES (cont.)

4.3 WEMCO President - Approves the authorization to proceed for the program/project/activity based upon the Readiness Review Board or Operational Readiness Team recommendations for low hazard entities, and requests DOE authorization to proceed for moderate or high hazard entities.

4.4 Staff Manager - The Staff Manager is responsible for:

- Initially assessing, with the Facility Owner/Program Manager, the operational readiness review level
- Participating on the Readiness Review Board
- Assuring all required processes, systems, facilities, or activities under his/her cognizance are assessed for operational readiness review action
- Ensuring resources and funding for operational readiness review activity is identified and allocated to the item. A twenty four month look ahead for budget and resource use should be accomplished.

NOTE: The decision for an operational readiness review should be considered as early in the program/project/activity life as possible. The conceptual design or development stage is not too early to consider the operational readiness review requirements.

- Provide schedule of readiness reviews to the Readiness Review Board.

4.5 Operational Readiness Team - The group or team of individuals with direct involvement in the item to be reviewed. Responsibilities of this group are:

- Developing readiness criteria or elements for approval by the Readiness Review Board
- Identify and/or generating the information required for the Readiness Review Board to make judgements and perform readiness reviews
- Assuring that actions are taken to correct deficiencies identified during the review process
- Developing the preliminary recommendation for authorization to proceed

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#### 4.0 RESPONSIBILITIES (cont.)

4.6 Project/Program Manager - Request the staff manager to initiate review process and provide the staff manager with information to be used in the operational readiness process determination. Incorporate readiness resource needs into the program/project/activity schedules and budgets.

4.7 Readiness Review Board - Overview and evaluation of the operational readiness review by:

- Concurring with the level of readiness review required for program/project/activities.
- Assisting in the development and approving readiness criteria or elements developed by the operational readiness team
- Reviewing and evaluating the process or facility per criteria or elements developed above
- Rejecting or approving the program/project/activity authorization to proceed
- Completing the facility authorization to proceed based upon the completion or readiness criteria or element
- - Providing the WEMCO President with a biannual schedule of proposed processes, systems, facilities, or activities which will have readiness reviews, in addition to the status of readiness reviews in progress
- Maintaining a database on all operational readiness process activities

#### 5.0 GENERAL

5.1 The operational readiness process provides additional assurance that a program/project/activity will perform the function for which it was designed, that the risk associated with operation and the potential environmental damage have been identified, and that the risk is acceptable.

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## 5.0 GENERAL (cont.)

5.2 The purpose of the operational readiness process is to determine:

- That a process, system, or facility is constructed as designed
- That it can be operated safely and without environmental damage
- That it will perform as designed
- That it is functional
- That it will be operated by competent people
- That all the above is properly and adequately documented.

5.3 The operational readiness review is a structured examination of a proposed facility/process start-up or a review for concurrence to proceed and provides a comprehensive overview of safety and operational aspects. The review is not intended to provide a detailed or exhaustive technical analysis. Facility and process operational readiness reviews consider all aspects of the user organization's readiness (e.g., facility procedures, support elements, equipment, training, safety preparations, personnel qualifications, and management control) to operate a plant facility of process. The Independent Safety Review (ISR) Committee (if necessary) will interface with the readiness review board by providing copies of its findings on reviews of safety documentation and reviews for configuration control and preoperational readiness (for safety).

5.4 The scope and rigor of the operational readiness process applied to a program/project/activity and if the process is applied, depends upon such factors as item complexity and economics, and the safety and environmental risks posed by operation. The operational readiness process for multiple turnover or partial acceptance of project/programs should consider partial reviews of each acceptance. Table 1 provides an overview of readiness review level requirements. Each review may be at a level lower than the overall readiness review level. For example, a review process may have two reviews at Level 3 for partial turnover or acceptance and a final review at Level 2.

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5.0 GENERAL (cont.)

Level No.	Requirements of Level for Low Level Hazards
1*	<p>Readiness Review Board overview and coordination of readiness preparations using Management Oversight and Risk Tree (or equivalent) Techniques which are implemented by the operational Readiness Team.</p> <p>A progressive or incremental series of complementary review actions is to be completed as necessary to indicate an achievement of a state of readiness. Typical steps of series include:</p> <ol style="list-style-type: none"> <li>1. At the initiation of the work or activity, indicate the methods, procedures, resources, and actions ready to proceed.</li> <li>2. At established milestones during the progress of work or activity, indicate the readiness to proceed with further activity.</li> <li>3. Prior to preoperational activities which involve initial testing, operation, or activation of processes, systems, facilities, or activities.</li> <li>4. Prior to operational or production sequence initiation.</li> </ol>
2	<p>Readiness Review Board overview and evaluation of readiness criteria or elements developed and implemented by the Operational Readiness Team. Review activity is typically at one or two operational steps of the program/project/activity. Typical steps include:</p> <ol style="list-style-type: none"> <li>1. Prior to operation or production sequence initiation.</li> <li>2. Prior to preoperational activities.</li> <li>3. Prior to the continuation of a sequential activity.</li> </ol>
3	<p>Operational Readiness Team completion of a prerequisite checklist of readiness criteria, which has received approval by the Readiness Review Board. This activity is completed prior to operation or production sequence initiation.</p>

\* An example of the detail for a level one review would be to take one criteria from Attachment B and list the supporting functions. See Attachment D.

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## 5.0 GENERAL (cont.)

Readiness review levels reflect the extent of implementation of the readiness process and is determined prior to initiation of the operational readiness review by the Program/Project Manager, Staff Manager, and Readiness Review Board. The safety documentation prepared by Nuclear and System Safety per FMPC-508, "Safety Analysis Documentation Program", should be considered in determining the operational readiness review level.

R The risk assessment performed by the cognizant technical organization per IN-6034, "Vulnerability and Risk Assessment and Management" shall be considered in determining the operational readiness review level.

- 5.5 Planning is an integral part of the operational readiness process and should begin as early in the program/project/activity as possible. A periodic review of on-going activities including corrective action programs to identify needed readiness reviews, should be completed by the staff manager. Readiness reviews shall be scheduled as program/project/activity milestones by Project Manager/Program Manager/Project Engineer.
- 5.6 The operational readiness process includes establishing Operational readiness teams and the permanent Readiness Review Board, defining readiness criteria, developing readiness trees (or equivalent), identifying sources of information for assessing criteria, collecting this information, scheduling and conducting readiness reviews, and formulating the recommendations for management.
- 5.7 The operational readiness process should fully utilize any existing management tools and practices, such as: design review and verification; logistics and operations planning; quality assurance planning; configuration management; and quantitative safety, risk, reliability, availability, maintainability, and economic analyses.
- 5.8 Operational readiness reviews, at all levels, shall be documented as to the nature, extent, and findings of the review recorded. Depending on the complexity of the undertaking, progressive or several full operational readiness reviews may be conducted. Documentation shall be thorough enough to support any conclusions reached by either the operational readiness team or the Readiness Review Board and become part of the program/project/activity record.

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5.0 GENERAL (cont.)

- 5.9 Attachment A provides guidance for determining readiness review levels for activities with various types of facilities or processes. The level is determined by hazards and risks from the operation of facilities or processes where the effects of failures involve hazardous conditions from radioactive, hazardous, or toxic materials, or result in significant economic impact. The risks and hazards of operating are determined by the Nuclear and System Safety Section via safety assessments, safety analysis reports, and safety studies. Operational actions to mitigate these risks are provided by the operating group in an Operational Safety Requirement (OSR) document for that system or facility/activity.
- 5.10 All levels of readiness reviews will make use of analytical techniques to ensure a methodical identification of circumstances or considerations which could affect the program/project/activity. Level 1 reviews shall make use of MORT (Management Oversight and Risk Tree) techniques or the equivalent, to provide objective results for the review.
- 5.11 The meaning of signatures, which sign-off an activity for the tree or checklist analysis, must be documented (e.g., 100% complete, complete with waiver, etc.)
- 5.12 Meaningful documentation must exist behind each signature, (e.g., audit report, surveillance report, letter, training sheet, test results, etc.)
- 5.13 Portions of each checklist which are considered NA or waived, should be technically justified and documented (e.g., no consequence, consequence is acceptable risk as judged by qualified individual).

6.0 PROCEDURE

6.1 Operational Readiness Review Process Level Determination

RESPONSIBILITY

ACTION

PROJECT/PROGRAM  
MANAGER

- A. Initiate the operational readiness review process by requesting a staff manager's review of the program/project/activity.

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6.0 PROCEDURE (cont.)RESPONSIBILITYACTION

## STAFF MANAGER

- B. Review and evaluate proposed, ongoing, or planned activities for the need of an evaluation under the operational readiness process.
- C. Identifies the Operational Readiness Team responsible for each activity.
- D. Submits identified activities and an initial level assessment (determined with the Facility Owner/Program Manager) to the readiness review board for operational readiness review level concurrence.
- E. Performs a quarterly review of activities to revise or reissue the submitted operational readiness review activity plan.
- F. Determines the operational readiness review milestones for incorporation into project schedules.
- G. Provides operational readiness review milestones to the operational readiness team.
- H. Reviews the initial assessments and concurs with the readiness review level to activities identified by the staff manager.

READINESS REVIEW  
BOARD CHAIRMAN

NOTE: Resolution of readiness review level conflict(s) is made by the Executive Vice President.

- I. Issues a biannual schedule indicating proposed processes, systems, facilities, or activities which will have readiness reviews, the level of review, and the status of readiness reviews in progress.

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6.0 PROCEDURE (cont.)RESPONSIBILITYACTION6.2 Operational Readiness Review Process at Level 1 and 2

- |  |    |   |
|--|----|---|
| OPERATIONAL<br>READINESS TEAM                                | A. | Incorporates the required operational readiness review milestones in the project/activity/program schedule.   |
| OPERATIONAL<br>READINESS TEAM<br>& READINESS<br>REVIEW BOARD | B. | Prepares readiness criteria or elements for the program/project/activity. (Attachment B provides a listing of items for consideration as criteria).   |
| READINESS<br>REVIEW BOARD                                    | C. | Review and approve of the readiness criteria or elements jointly developed with the Operational Readiness Team.   |
| OPERATIONAL<br>READINESS TEAM                                | D. | Prepares a summary of completed work which objectively demonstrates compliance to the readiness criteria or element established by the readiness review board. Attachment C provides a sample readiness work sheet which may be utilized for item tracking. |
| READINESS<br>REVIEW BOARD                                    | E. | Reviews and evaluates presented information, conducts interviews, and tours the facility to evaluate the state of readiness.  |
| READINESS<br>REVIEW BOARD                                    | F. | Issues readiness status assessments to the operational readiness team, describing items needing additional verification data for specific criteria, elements, or deficiencies identified in the review.   |
| OPERATIONAL<br>READINESS TEAM                                | G. | Completes the readiness criteria work sheet or check list based upon Readiness Review Board acceptance of evidence. Tracks and provides open item status for resolution with the Readiness Review Board.  |
|  | H. | Resolves the identified Readiness Review Board concerns.  |
|  | I. | Maintains established readiness criteria pending approval to proceed.   |

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6.0 PROCEDURE (cont.)

RESPONSIBILITY

ACTION

READINESS  
REVIEW BOARD

J. Conducts a final evaluation of the operational readiness review criteria.

READINESS  
REVIEW BOARD  
CHAIRMAN

K. Compiles a final report which evaluates the process/activity/program readiness to proceed to to the next sequence.

L. Submits a written recommendation regarding the readiness to the WEMCO President.

WEMCO  
PRESIDENT

M. Takes approval action based upon readiness review board recommendation for low hazard projects.

N. Requests DOE authorization to proceed when moderate or high hazard levels have been identified for the process/activity/program.

6.3 Operational Readiness Review Process at Level 3

OPERATIONAL  
READINESS TEAM

A. Incorporates required operational readiness review milestones in project/activity/program schedule.

B. Prepares readiness criteria or elements for Readiness Review Board review and approval. (Attachment B provides a listing of items for consideration as criteria).

READINESS  
REVIEW BOARD

C. Reviews and approves readiness criteria or elements.

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## 6.0 PROCEDURE (cont.)

### RESPONSIBILITY

### ACTION

#### OPERATIONAL READINESS TEAM

- D. Prepares a summary of completed work to objectively demonstrate compliance to the readiness criteria or elements established by the Readiness Review Board.
- E. Completes the readiness review board approved readiness criteria checklist. Attachment C provides a sample readiness work sheet which may be used for item tracking. Tracks and provides open item status for resolution.

**NOTE:** Readiness Review Level 3 documentation must fully support all determinations and conclusions of fact.

- F. Conducts a final evaluation of the operational readiness review and compiles a final report which evaluates the process/activity/program readiness to proceed to the next sequence.
- G. Maintains established readiness criteria pending approval to proceed.
- H. Submits a written recommendation regarding the readiness to the WEMCO President.

#### WEMCO PRESIDENT

- I. Takes approval action based upon the operational readiness teams recommendation.

## 7.0 APPLICABLE DOCUMENTS

- R DOE Order 6430.1A, "General Design Criteria"
- DOE Order 4700.1, "Project Management System"
- DOE Order 5480.5, "Safety of Nuclear Facilities"
- DOE Order 5480.6, "Safety of Department of Energy Owned Nuclear Reactors"
- R DOE Order 5481.1B, "Safety Analysis and Review System"
- OR 5481.1B, "Safety Analysis and Review System"
- DOE/OR 548X.1, "Operational Readiness" (Draft)
- DOE OR-879, "Operational Readiness Evaluation and Recommendations"
- R OR 5700.6B, "Quality Assurance"
- ERDA-76-45-1 (SSDC-1), "Occupancy - Use Readiness Manual"
- DOE-76-454 (SSDC-4), "MORT User's Manual"
- DOE-76-45/11 (SSDC-11), "Risk Management Guide"

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#### 7.0 APPLICABLE DOCUMENTS (cont.)

DOE 76-14/15 (SSDC-15), "Work Process Control Guide"  
 DOE-76-45/39 (SSDC-39), "Process Operational Readiness and Operational  
 Readiness Follow On"  
 FMPC-508, "Safety Analysis Documentation Program"  
 IN-6034, "Risk Assessment and Management System"  
 FMPC-2116, "Topical Manual for Implementing FMPC Policies and Procedures  
 for System Safety Analysis"  
 PMP-325, "Engineering Change Proposal"

#### 8.0 FORMS USED

None

#### 9.0 ATTACHMENTS

Attachment A - Guidelines for Operational Readiness Review Level  
 Determination  
 Attachment B - Operational Readiness Review - Checklist Items  
 Attachment C - Operational Readiness Review Work Sheet  
 Attachment D - MORT Tree Example

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Attachment A

GUIDELINES FOR OPERATIONAL READINESS REVIEW LEVEL DETERMINATION  
LOW HAZARD ACTIVITIES

Pre-Operation Activity	Operational Risk	Readiness Review Level					
		Radioactive Mat'l		Hazardous or toxic Materials		Economic Impact	
		Hazard	Nonhazard (A)	Hazard	Nonhazard (B)	Significant (C)	Nonsignificant
• Construction of New Facility		1	2	1	2	1	2
• Major Modification to Existing Facilities		1	2	1	2	1	2
• Start-up of New Facility operations or process		1	2	1	2	2	3
• Restart After Shutdown for Cause or Effluent Release in Excess of Requirements		2	3	2	3	2	3
• Restart After Prolong outage or Standby		2	3	2	3	2	3
• Initiation of New Type Activity which presents an identifiable hazard to employees, public, or the environment		2	2	2	2	2	3
• Initiation of dismantling, decommissioning or permanent shutdown		2	3	2	3	2	3

Initiation of a program/project/activity for which no undue risk or loss potential has been identified and is not identified by the above examples, but readiness review is warranted due to entity complexity or management request.	Management Discretion
---	-----------------------

(A) Failure is not expected to result in radiation exposures exceeding maximum permissible DOE Levels.  
 (B) Failure is not expected to result in concentrations of materials exceeding maximum permissible DOE Levels.  
 (C) Significant impacts ≥ \$50,000.

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**OPERATIONAL READINESS REVIEW - READINESS CRITERIA ITEMS**

**NOTE:** The checklists in this attachment are intended to be used as an example of items which may be appropriate for an operational readiness review Checklist. This list should not be construed as limiting or restricting the scope of the Operational Readiness Review. Additional guidance may be found in DOE-76-454 (SSDC-4), "MORT User's Manual" and DOE-76-45/11 (SSDC-11), "Risk Management Guide".

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.
3. Required nuclear safety evaluations completed and reviewed.
4. Necessary safety analyses, environmental assessments, air and water permits, 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.
13. Material handling equipment installed.
14. Sampling equipment installed.

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OPERATIONAL READINESS REVIEW - READINESS CRITERIA ITEMS (cont.)

15. Quality Assurance 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 operable.
23. Safety signs and barriers in place.
24. Appropriate protective clothing and respiratory protection equipment on hand. 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 filter (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.
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.

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OPERATIONAL READINESS REVIEW - READINESS CRITERIA ITEMS (cont.)

HARDWARE (cont.)

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 evaluated and tested as required.
43. Review and acceptance by the project manager completed.

PERSONNEL

1. Operating personnel indoctrinated to:
  - Manufacturing Specifications (MS) and Standard Operating Procedures (SOP) and changes.
  - Importance of correct entries in logs.
  - Emergency responses to process abnormalities.
  - Technical support available.
  - Importance of operational constraints.
  - Operational irregularity reporting procedure.
  - Emergency notification lists (back shifts).
  - Hazards of materials associated with operation (Material Safety Data Sheets) reviewed.
  - Terms and conditions or limits and conditions of applicable air and water permits or safety requirements.

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OPERATIONAL READINESS REVIEW - READINESS CRITERIA ITEMS (cont.)

PERSONNEL (cont.)

2. Facility, process and safety training complete (current) and documented for:
  - Supervisors/foremen
  - Operators
  - ERM and IH technicians
  - Quality Department Personnel
  - Fire brigade
  - Maintenance craft
  - 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).

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 update 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 implemented.
7. Workability and completeness of all SOPs verified in plant.
8. Maintenance Standards, Standard Operating Procedures, and current forms distributed and available to operating crews.

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OPERATIONAL READINESS REVIEW - READINESS CRITERIA ITEMS (cont.)

ADMINISTRATIVE (cont.)

9. Emergency plan prepared and approved.
10. Evacuation plan prepared.
11. ALARA analysis of anticipated personnel exposure complete.
12. QA Program complete and approved.
13. Quality Assurance Plan complete and approved.
14. All expendable equipment parts (seals, bearings, sensors, etc.) have been set up as stores items to minimize down time and hazards.
15. Housekeeping evaluation of area.
16. Configuration Management safety systems and design features for safety systems identified and established to prevent unauthorized modification.
17. All necessary federal and state permits (Air/Water PTI/PTO, NESHAP, etc.) are in place.
18. Relevant Training programs have approved lesson plans and documentation.
19. Notification of regulatory agencies for startup or initiation has been completed as required by the applicable PTI/PTO/permit.
20. Organization is in place to ensure safe and proper operation of the facility/activity.
21. Activity/program environment has been evaluated for weather or adverse conditions impact and appropriate procedural guidance provided to mitigate.
22. Human Factors applications have been evaluated for incorporation into procedures and administrative policies.
23. All Operational Readiness Review open items are complete or have documentation to provide tracking of item to be completed.

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Attachment C

ATTACHMENT C  
OPERATIONAL READINESS WORK SHEET

Project/Program \_\_\_\_\_ Date \_\_\_\_\_

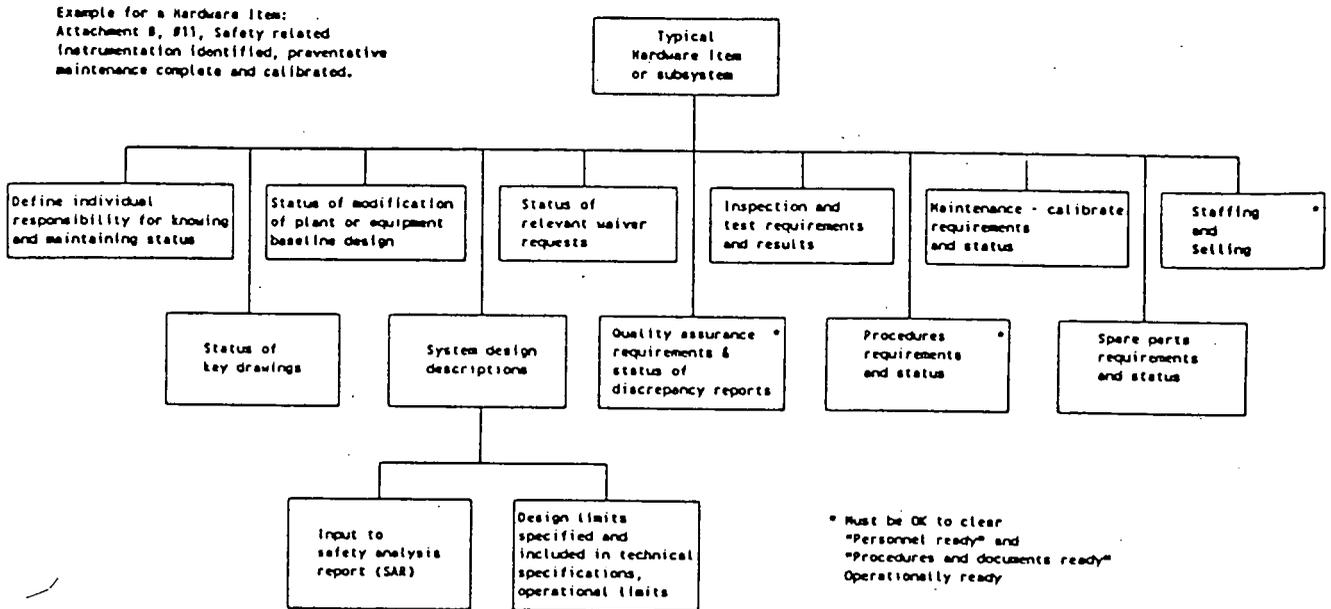
(1) Job No.	(2) Job Descrip.	(3) Check List Number	(4) Responsible Person	(5) Congif. Control System	(6) Installation Work Request	(7) Required Maint. & Calibration	(8) Spare Parts	(9) Key Drawings	(10) Quality Assurance	(11) Required Procedures	(12) Personnel	(13) Final Status & Required Completion Date
1	Radiation	1.40	Conners	1	2000	1	1	1	N/A	1	U	80% - 3/6/85

- (1) Number assigned by Review Committee
- (2) Brief job description
- (3) Check list number from Review Committee check list(s)
- (4) Individual who knows when the job was done, what was done, and the final status
- (5) Status of as-built verification of installation process
- (6) Status of work, including as-built verification of installation process
- (7) Status of maintenance requirements and calibration processes
- (8) Status of required spare parts
- (9) Status of drawings designated as specific for a particular job
- (10) Status of nonconformance documented and controlled by Quality Assurance
- (11) Status of procedures (i.e., standard operating procedures, maintenance, calibration and testing procedures)
- (12) Status of the personnel, selection, training, qualification, and testing
- (13) % complete with sign-off date

C = Complete      I = Incomplete      U = Unknown status at this time      N/A = Not Applicable

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Attachment D



Other items for consideration:

- o Physical tagging of instrument reflects safety status
- o Physical configuration of instrument matches design and drawing
- o Physical configuration to support on-line operation is described in SOPs or MS and configurations agree
- o Drawings identify safety related instrumentation
- o SOPs reflect safety related requirements
- o Power and/or support systems for the safety function identified
- o Operator actions for on-line system operations identified
- o Off normal events for the instrument reflected in alarm or emergency procedures
- o MS's reflect the calibration requirements to assure operation
- o MICS numbering complete.

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
01-12-87	0	New procedure. H. A. Clawson, cognizant manager.
12-02-88	1	Revised to include safety analysis documentation and risk assessment reports. H. A. Clawson, cognizant manager.
05-14-90	2	Revised to reflect current organizational structure per J. A. Loerch.
01-21-92	3	Revision required to incorporate T91-028 per Request No. S92-038, initiated by G. Voyles.

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**1.0 PURPOSE**

NON-CONTROLLED COPY

The purpose of this document is to provide the procedure for completing the Material Evaluation Form (MEF) to classify material as RCRA or NON-RCRA.

**2.0 APPLICABILITY**

This procedure shall apply to the classification of raw, process, excess, and waste material.

**3.0 RESPONSIBILITIES**

3.1 The Material Generator shall be responsible for the following:

3.1.1 Completing Section I, with input from IRS&T, of the Material Evaluation Form.

3.1.2 Maintaining a copy of the completed MEF for each generated stream.

3.1.3 Determining if a prior MEF has been submitted.

3.1.4 Completing a new MEF if changes occur to a previously evaluated material stream.

3.2 Facilities and Materials Evaluation (F&ME) shall be responsible for the following:

3.2.1 Completing Section II of the MEF per this procedure.

3.2.2 Determining that sufficient information exists to classify material as RCRA or NON-RCRA.

3.2.3 Recommending to Environmental Monitoring additional information that is required to complete a RCRA determination.

3.2.4 Maintaining the original of the completed form on file.

3.2.5 Establishing a primary and alternate contact within F&ME responsible for replying to inquiries on the completing and utilization of the Material Evaluation Form.

3.3 Environmental Engineering shall be responsible for the following:

3.3.1 Completing Section III of the MEF per this procedure.

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**3.0 RESPONSIBILITIES (cont.)**

3.3.2 Maintaining a record of the completed form.

3.4 Material Control and Accountability (MC&A) shall be responsible for the following:

3.4.1 Retaining a record copy of Section IV for each Material Evaluation Number.

3.4.2 Maintaining a listing that relates inventory numbers to the Material Evaluation Number.

3.4.3 Assisting Material Generator in maintenance of Material Evaluation files and tracking the Material Evaluation form.

3.5 Facilities & Warehousing (F&W) shall be responsible for the following:

3.5.1 Providing a Material Evaluation Number to generator upon request.

3.5.2 Maintaining a log of Material Evaluation Numbers.

3.5.3 Retaining a record copy of Section IV for each Material Evaluation Number.

3.6 Industrial, Radiological Safety, and Training (IRS&T) shall be responsible for the following:

3.6.1 Reviewing data provided by the Material Generator to establish the Health & Safety requirements applicable to the sampling, handling, packaging processing or transportation of material.

3.6.2 Reviewing, after completion of Section I and II of the MEF, the additional information and identifying additional personnel safety requirements.

3.7 Toxic and Solid Waste Programs (TSWP) shall be responsible for the following:

3.7.1 Providing the Department of Transportation (DOT) shipping name.

3.7.2 Providing the DOT hazard class.

3.7.3 Specifying required labels.

3.7.4 Providing DOT identification No.

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### 3.0 RESPONSIBILITIES (cont.)

- 3.7.5 Providing EPA waste No.
- 3.7.6 Providing applicable reactivity group codes.
- 3.7.7 Filling out Section IV of the MEF.

### 4.0 DEFINITIONS

- 4.1 Material Generator - a person at the originating facility who is authorized to prepare raw material, process material, and waste material for transfer.
- 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 Hazardous Waste - A discarded material which is listed in the Environmental Protection Agency Hazardous Waste List which exhibits characteristics of ignitability, corrosivity, or reactivity. Both "listed" and "characteristic" wastes are regulated under RCRA.
- 4.4 Ignitable - Liquid waste with closed-cup flash points < 60°C (140°F), or non-liquid waste capable of causing fire through friction, absorption of moisture, or spontaneous chemical changes.
- 4.5 Corrosive - Aqueous (water based) wastes with a pH ≤ 2 or ≥ 12.5.
- 4.6 Reactive - Waste that exhibits properties such as reacting violently, forming potentially explosive mixtures or generating toxic gases when mixed with water, generating toxic gases (cyanide or sulfid) at pH between 2 and 12.5, or detonating or exploding at standard temperature and pressure or when heated under confinement.
- 4.7 Authorized Personnel - Personnel who have successfully completed all training requirements to perform work related to this procedure and have been authorized by the Facility Owner to perform the work.
- 4.8 Controlled Holding Area - The area designated for holding uncharacterized material and staging characterized material (excluding backlog material and material generated from a soil boring activity) for a maximum period of 90 calendar days.

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#### 4.0 DEFINITIONS (cont.)

- 4.9 Fingerprint Analysis - An analytical process providing a brief description of material parameters as listed in Table 5.
- 4.10 Raw Material - A non-manufactured substance at the FEMP.
- 4.11 Process Material - A substance which has gone through a physical state of change.
- 4.12 Excess Material - A substance which has exceeded its recommended shelf life or intended use.
- 4.13 Waste Material - A substance which has expended its usefulness, non-recyclable and non-recoverable.

#### 5.0 GENERAL

##### 5.1 General Instructions for Completing the Material Evaluation

- 5.1.1 Fill in all items of each section. If an item cannot be answered, enter "NOT KNOWN".
- 5.1.1.1 If an item is not applicable to the material stream being evaluated, indicate as "N/A".
- 5.1.2 If there is not enough space on the form to record the required data, proceed as follows:
- 5.1.2.1 Prepare an attachment sheet with the MEF number (and Revision Number, if applicable) and date.
- 5.1.2.2 Enter the Item Number that corresponds to the Item Number on the MEF.
- 5.1.2.3 Enter the required data on the attachment sheet.
- 5.1.2.4 Sign the attachment sheet.
- 5.1.2.5 In the item block on the MEF, enter "See attachment".
- 5.1.2.6 Fasten the attachment sheet to the MEF.
- 5.1.3 Refer questions regarding the form to F&ME.

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## 6.0 PROCEDURE

### 6.1 Identification of Material

#### MATERIAL GENERATOR

- 6.1.1 If no information is known on the material and the container has no identification, contact F&ME and IRS&T for direction.
- 6.1.2 Obtain a Material Evaluation Number from F&W.
- 6.1.3 Record the Material Evaluation Number at the top of each sheet of the Material Evaluation, Form FMPC-OPR-3252 (See Figure 1).
- 6.1.4 Complete Section I, Items 1 thru 16b, of the Material Evaluation Form per Table 1.
- 6.1.5 When Section I (Items 1 thru 16b) is completed, forward the form to IRS&T.

**NOTE:** The material being evaluated shall remain in the generator area until direction is received from F&ME for disposition.

### 6.2 Establish Safety Requirements

#### IRS&T

- 6.2.1 Review the data provided in Section I of the MEF.
- 6.2.2 Determine potential health or safety concerns that may be encountered while sampling, handling, or processing the material.
- 6.2.3 In Item 16c specify protective gear that must be used while sampling, handling, or processing material (such as protective clothing, respirator, gloves).
- 6.2.4 Sign Item 16d and return the MEF to the Material Generator.

### 6.3 Identification of Material

#### MATERIAL GENERATOR

- 6.3.1 Complete Section I of the MEF and forward the form to F&ME.

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## 6.0 PROCEDURE (cont.)

### 6.4 Evaluation of Material

#### F&ME

6.4.1 Ensure an evaluation has not been previously completed for this material type per the source and material type code (Item 1 of Section I). F&ME may use entire lot codes to designate a waste stream.

6.4.2 Complete Section II of the Material Evaluation form per Table 2.

6.4.3 When Section II is complete, proceed as follows:

6.4.3.1 If the material is classified RCRA or additional information is required for the classification (refer to Item 7 of Section IV), forward the form to Environmental Engineering and Material Generator.

6.4.3.2 If the material is classified as NON-RCRA or exempt (refer to Item 7 of Section II), retain the original form on file and transmit copies to distribution.

**NOTE:** The Material Generator shall respond by moving the drum to the designated storage area.

### 6.5 Material Analysis/Disposition Determination

#### F&ME

6.5.1 Refer to Section II and complete the following applicable substep.

6.5.1.1 If the material had been classified, proceed to Item 6.8.

6.5.1.2 If additional information is required to classify the material, complete items 13 and 14 of Section II.

6.5.1.3 Forward MEF to IRS&T to determine any additional safety requirements.

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6.0 PROCEDURE (cont.)

6.6 Establish Safety Requirements

IRS&T

6.6.1 Review additional information for safety concerns and identify any additional safety requirements.

6.6.2 Sign and forward the MEF to F&ME.

6.7 Additional Requirements

F&ME

6.7.1 Forward a copy of Section II to the Material Generator as authorization to prepare uncharacterized material for transfer to the Controlled Holding Area and a copy to Environmental Monitoring to identify and authorize sampling requirements.

NOTE: The original form shall be retained until the required information is received.

6.7.2 When additional information is received, proceed as follows:

6.7.2.1 Fill in the completion date (Item 15 of Section II).

6.7.2.2 Ensure that Section II is complete.

6.7.2.3 Initial and date each revision of Section II.

6.7.2.4 Briefly explain any corrections made (Item 2 of Section II) to the information contained in Section II.

6.7.2.5 Forward the Material Evaluation and analysis results to Environmental Engineering.

6.8 Classified Material

ENVIRONMENTAL ENGINEERING

NOTE: Refer to Item 7 of Section II for material classification.

6.8.1 If the material is classified as NON-RCRA, proceed as follows:

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6.0 PROCEDURE (cont.)

6.8.1.1 For material in storage, transmit the original Material Evaluation form to F&ME, a copy to the Facility Owner of the Controlled Holding Area, and a copy to the material generator.

6.8.1.2 For material being held at the generator area, forward the original Material Evaluation form to F&ME and a copy to the material generator.

6.8.2 If the material is classified as RCRA, proceed as follows:

6.8.2.1 Complete Section III per Table 3.

6.8.2.2 Forward the Material Evaluation Form to Toxic & Solid Waste Programs.

6.9 Material Identification

TSWP

NOTE: DELETED

6.9.1 Complete Section IV per Table 4.

6.9.2 Review section IV and confirm container information is correct.

6.9.3 Forward the MEF to FM&E.

6.10 Revising the Material Evaluation

MATERIAL GENERATOR, F&ME, OR ENVIRONMENTAL ENGINEERING

6.10.1 Determine a revision to the MEF is required.

6.10.2 Notify the appropriate departments of the numbered MEF requiring change and the revision required.

MATERIAL GENERATOR

6.10.3 Obtain file copy of the specified MEF and a new MEF.

6.10.4 Obtain a revision number from Waste Management.

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6.0 PROCEDURE (cont.)

6.10.5 Record the original MEF number and the revision number on the new MEF.

6.10.6 Complete Section I of the new MEF incorporating the necessary revisions and submit to F&ME.

6.10.6.1 If the revision requested is not applicable to Section I, complete Section I per the original MEF and forward to F&ME.

F&ME/ENV. ENG./TSWP/IRS&T

6.10.7 If the revision is applicable to Section II, III, or IV, complete the new MEF incorporating the revision.

7.0 APPLICABLE DOCUMENTS

7.1 Drivers

None

7.2 Reference Documents

None

8.0 APPLICABLE FORMS

8.1 FS-F-3252, "Material Evaluation Form"

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TABLE 1  
INSTRUCTIONS FOR COMPLETING MATERIAL EVALUATION FORM - (SECTION I)

ITEM NO	DESCRIPTION
1	Record the FEMP Source Code (SRC), Material Type Code (MTC), and the 15 digit Lot Code.
2	Designate the Plant/Building/Site location where material was generated.
3	Specify the process/building area which generates the material.
4	Provide the name of equipment generating the material.
5	Record the approximate date of generation (year, month, day) as specifically as possible.
6	Indicate the physical state of the material.
7	Estimate net weight of the material.
8	Indicate whether the material contains more than one substance (such as contaminated gloves, coveralls, booties, or other contaminated items).
9	Indicate whether the material is a waste.
10	Provide common names of the material.
11	Provide chemical names associated with the material.
12	Indicate sources of the common and chemical names.
13	Specify alternate material name (For example, identical material generated by different equipment).
14	Record alternate codes (source or material codes) used for material which is chemically identical to this material.
15	Indicate any substance, such as pesticides, solvents, or heavy metals, which is contained or suspected to be contained in the material.
16	a) Specify the reason for suspecting the substance indicated and quantity of suspect material <sup>(1)</sup> . b) List sources of information utilized for identifying the suspect substances indicated.

<sup>(1)</sup> Attach a copy of the MSDS as applicable.

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TABLE 1 (cont.)  
INSTRUCTIONS FOR COMPLETING MATERIAL EVALUATION FORM - (SECTION I)

ITEM NO	DESCRIPTION
16 (cont.)	c) Identify safety concerns & special safety requirements. d) Sign and date the form
17	If a fingerprint visual inspection (Table 5) of the material was completed, attach to the Material Evaluation Form.
18	Record and describe the number of solid/liquid/gas layers within the material.
19	Record the pH of liquid material or liquid phase of material <sup>(2)</sup> .
20	Record the flashpoint of liquid material or liquid phase <sup>(2)</sup> .
21	If the material is a wet solid (sludge) and a paint filter test has been completed, specify test results (solid or liquid) <sup>(2)</sup> .
22	Indicate if material is considered reactive. Include an explanation.
23	If the material is not a liquid, indicate if material is ignitable. Include an explanation. <sup>(2)</sup>
	DELETED
24	Provide additional information that may be used to evaluate the material.
25	List additional sources (such as phone call, specification, procedures, or other input) of information used to complete this form.
26	a) Provide the name and extension number of the individual responsible for responding to questions regarding Section I. b) Record the date Section I is completed.

<sup>(2)</sup> Attach results if available. Identify source, such as a sample plan.

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TABLE 2  
INSTRUCTIONS FOR COMPLETING MATERIAL EVALUATION FORM - (SECTION II)

ITEM NO	DESCRIPTION
1	Indicate if material is waste (discarded, used, by- product).
2	Indicate if waste is excluded under 261.4(a) (CWA pointsource discharge, irrigation return flow, AEC source, special nuclear or by-product material, insitu mining waste).
3	Indicate if waste excluded from regulation under 264.1(b).
4	If the waste is listed in 261 Subpart D, or material contains a waste listed in subpart D, indicate the list and the waste number.
5	Indicate if waste exhibits characteristics specified in 261 Subpart C. List the characteristic exhibited.
6	Indicate if the material is a possible RQ hazardous substance. If yes, list the RQ amount in Lbs.
7	Indicate material classification. If material can not be classified indicate that the material needs further action and provide recommendations regarding information required.
8	Indicate if classification was based on data from Section I or an evaluation of an identical waste stream. If based on previous evaluation, list the Material Evaluation # and lot code of stream.
9	Indicate whether or not the material is subject to land ban restrictions and the effective date if applicable.
10	Distribute to the Departments listed in Section IV (Item 9).
11	List additional sources of information (phone calls, manufacturing specification, reference) used in this evaluation.
12	Provide the name and phone extension of the individual responsible for responding to questions regarding Section II and the date that Section II was completed.(books).
13	Indicate if sampling is required (Refer to Section II Item 7).
14	Indicate if amount of time necessary for sampling and analysis require transfer of material to a controlled holding area. If yes, record date that the material was authorized for transfer.
15	Indicate date that additional information was included.
16.a	Identify any additional safety concerns and requirements.
16.b	Sign and date the form.

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TABLE 3  
INSTRUCTIONS FOR COMPLETING MATERIAL EVALUATION FORM - (SECTION III)

ITEM NO	DESCRIPTION
	DELETED
	DELETED
	DELETED
1	Based on Section I and II (or recent information) indicate container recommended (such as carbon steel, stainless steel, polyethylene).
2	Based on Section I and II (or recent information) indicate the reactivity group codes associated with the material.
3	List additional sources of information used to complete the form (phone calls, material specifications, reference material).
4	Provide the name and extension of the individual responsible for responding to questions regarding Section III and the date that Section III was completed.

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TABLE 4  
INSTRUCTIONS FOR COMPLETING MATERIAL EVALUATION FORM - (SECTION IV)

ITEM NO	DESCRIPTION
1	Provide the D.O.T. Shipping Name for material.
2	Provide the D.O.T. Hazard Class for material.
3	List required D.O.T. drum labels.
4	Provide the D.O.T. Identification No. (UN or NA) and prefix.
5	Provide the EPA Waste No. noted for material.
6	List applicable reactivity group codes (Refer to Section III, Item 2).
7	Record the FEMP lot code (Refer to Section I, Item 1).
8	Indicate whether a revision is required to the MEF.
9	Distribution.
10	Provide the name and extension of the individual responsible for responding to questions regarding Section IV and the date that Section IV was completed.

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TABLE 5  
FINGERPRINT ANALYSIS PARAMETERS

PARAMETER	APPLICABILITY	TEST METHOD/REQUIREMENTS
Visual inspection	Required for all waste streams	To include, at a minimum, a discussion of the following:  general description material color(s) particle size apparent stains multiple phases probe drum with pipe to ensure consistency
Liquid content	Required for waste suspected of containing free liquids	SW-846-9095: Paint Filter Liquids Test (PFLT)
pH	Required for waste streams with a free liquid phase (as determined by the PFLT)	SW-846-9040: pH Electrometric Method  FMPC Method No. 3033 <sup>(1)</sup>
Flash point	Required for waste with a free liquid phase (as determined by the PFLT)	Flash point meter
Density/specific gravity	Required for homogeneous wastes only; density for solid wastes, specific gravity for liquid wastes	Gravimetric for Density/ASTM D 1217 for Specific Gravity  FMPC Method Nos. 1004 and 1005 <sup>(1)</sup>

<sup>(1)</sup> These references are included for information, not for operational use.

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Fernald Site  
MATERIAL EVALUATION FORM

MEF NO.: \_\_\_\_\_

MEF REV. NO.: \_\_\_\_\_

SECTION I - MATERIAL GENERATOR			
1. FEMP SRC. _____ MTC _____		2. PLANT AND/OR BUILDING NO. _____	
3. PROCESS AREA _____		4. EQUIPMENT NAME(S): _____	
5. MEF NO. DATE _____		6. MEF REV. DATE _____	
7. APPROXIMATE NET WEIGHT OF FULL CONTAINER? <input type="checkbox"/> <100 lbs. <input type="checkbox"/> 100 to 1000 lbs. <input type="checkbox"/> >1000 lbs.		8. DOES MATERIAL CONSIST OF MORE THAN ONE SUBSTANCE? <input type="checkbox"/> YES <input type="checkbox"/> NO	
9. IS MATERIAL A WASTE? <input type="checkbox"/> YES <input type="checkbox"/> NO		10. COMMON NAMES: _____	
11. CHEMICAL NAMES: _____		12. COMMON/CHEMICAL NAME SOURCE: <input type="checkbox"/> Process Information <input type="checkbox"/> MSDS <input type="checkbox"/> Container Label <input type="checkbox"/> FEMP Lot Code	
13. SUBSTANCES SUSPECTED:		14. SIMILAR MATERIAL NAME _____	
15. SIMILAR MATERIAL LOT CODE(S): _____		16. OTHER: _____	
<input type="checkbox"/> Aerosols	<input type="checkbox"/> Cresol	<input type="checkbox"/> Endrine	<input type="checkbox"/> Methylene Chloride
<input type="checkbox"/> Arsenic	<input type="checkbox"/> m-Cresol	<input type="checkbox"/> Heptachlor	<input type="checkbox"/> Motor/Engine Oil
<input type="checkbox"/> Barium	<input type="checkbox"/> o-Cresol	<input type="checkbox"/> Hexachlorobenzene	<input type="checkbox"/> Nitrobenzene
<input type="checkbox"/> Benzene	<input type="checkbox"/> p-Cresol	<input type="checkbox"/> Hexachloroethane	<input type="checkbox"/> Other Organics
<input type="checkbox"/> Cadmium	<input type="checkbox"/> 2,4-D	<input type="checkbox"/> Hexachloro-1,3-butadiene	<input type="checkbox"/> Paint Stripper
<input type="checkbox"/> Carbon Tetrachloride	<input type="checkbox"/> Degreaser	<input type="checkbox"/> Hydraulic Oil	<input type="checkbox"/> Paint Thinner/Mineral Spirits
<input type="checkbox"/> Chlordane	<input type="checkbox"/> 1,4-Dichlorobenzene	<input type="checkbox"/> Ink	<input type="checkbox"/> Pentachlorophenol
<input type="checkbox"/> Chlorobenzene	<input type="checkbox"/> 1,2-Dichloroethane	<input type="checkbox"/> Lead	<input type="checkbox"/> Perchloroethylene
<input type="checkbox"/> Chloroform	<input type="checkbox"/> 1,1-Dichloroethylene	<input type="checkbox"/> Lindane	<input type="checkbox"/> Pyridine
<input type="checkbox"/> Chromium	<input type="checkbox"/> 2,4-Dinitrotoluene	<input type="checkbox"/> Mercury	<input type="checkbox"/> Selenium
<input type="checkbox"/> Coolants	<input type="checkbox"/> Enamel	<input type="checkbox"/> Methoxychlor	<input type="checkbox"/> Silver
		<input type="checkbox"/> Methyl ethyl ketone	<input type="checkbox"/> Synthetic oil
		<input type="checkbox"/> TBP/Kerosene	<input type="checkbox"/> Tetrachloroethylene
		<input type="checkbox"/> 1,1,1-Trichloroethane	<input type="checkbox"/> 2,4,5-TP (Silvex)
		<input type="checkbox"/> 2,4,5-Trichlorophenol	<input type="checkbox"/> 2,4,6-Trichlorophenol
		<input type="checkbox"/> Toxaphene	<input type="checkbox"/> Trichloroethylene
		<input type="checkbox"/> Unknown	<input type="checkbox"/> Vinyl Chloride
		<input type="checkbox"/> Xylene	<input type="checkbox"/> Oil
16. a. REASON FOR SUSPECTING ALL SUBSTANCES AND QUANTITY _____			
16. b. SOURCE FOR REASON AND QUANTITY. (Attach MSDS if Available)			
<input type="checkbox"/> Personnel Interviews	<input type="checkbox"/> AEDO Log	<input type="checkbox"/> MSDS	<input type="checkbox"/> Prior Evaluation of Similar Material
<input type="checkbox"/> Historical Records	<input type="checkbox"/> Physical Evidence	<input type="checkbox"/> Container Label	What Material: _____
<input type="checkbox"/> FEMP Lot Code	<input type="checkbox"/> Process Information	<input type="checkbox"/> Sump Report	SRC: _____ MTC: _____
<input type="checkbox"/> Spill Database			
16. c. HEALTH AND SAFETY CONCERNS/ REQUIREMENTS _____		16. d. SIGNATURE AND DATE _____	
17. HAS THE "FINGERPRINT" VISUAL INSPECTION BEEN COMPLETED? <input type="checkbox"/> YES <input type="checkbox"/> NO		18. NUMBER OF PHASES _____	
19. pH (IF KNOWN) (Attach Lab Results) _____		20. FLASH POINT (IF KNOWN) (Attach Lab Results) _____	
21. HAS A PAINT FILTER TEST BEEN COMPLETED? <input type="checkbox"/> YES <input type="checkbox"/> NO			
22. IS IT REACTIVE? EXPLAIN <input type="checkbox"/> YES <input type="checkbox"/> NO			
23. IS IT IGNITABLE? EXPLAIN <input type="checkbox"/> YES <input type="checkbox"/> NO			
24. OTHER INFORMATION (Example: Is the Material a Product or Waste?) _____			
25. ADDITIONAL SOURCES OF INFORMATION _____			
26. PRIMARY CONTACT INDIVIDUAL _____		EXTENSION _____ DATE COMPLETED _____	

NOTE: Form shall be completed using ink or a typewriter  
NOTE: Only WEMCO employees shall sign this form

MATERIAL EVALUATION FORM  
FORM NO. FS-F-3252  
Figure 1 (Sheet 1 of 2)

FS-F-3252 (REV 10-1991) Sheet 1

R - MATERIAL REVISED, ADDED, OR DELETED.

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
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.

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Authorization: <i>H.F. Daugherty</i> H. F. Daugherty, President	Supersedes: None	Effective Date: 05-26-92

NON-CONTROLLED COPY

#### 1.0 PURPOSE

This procedure provides instructions for operating the Haz-Trac computer data base. This data base is designed to track chemical substances from the time they enter the site until their final disposition is identified. The Haz-Trac system will provide guidance for the tracking, record keeping, and reporting of chemical substances.

**NOTE:** This procedure meets the requirements of the Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III.

#### 2.0 SCOPE

This procedure covers the "cradle-to-grave" tracking, record keeping, and reporting required for chemical substances stored or used at the Fernald Environmental Management Project (FEMP).

#### 3.0 DEFINITIONS

- 3.1 Systems Administrator - An individual designated as the controller for the Haz-Trac data base.
- 3.2 Chemical Substance - A matter of particular or definite chemical constitution that makes up a pure or mixed substance.
- 3.3 Inert Substance - Material having no active properties.
- 3.4 Chemical Abstract Service (CAS) number - A unique number that reveals the precise chemical designation of a substance.
- 3.5 Affected Department Manager - An individual who is responsible for handling, storing, and transporting chemical substances within his respective department.
- 3.6 Department Chemical Coordinator - A person designated by a department manager, responsible for keeping the department's chemical substances within his department, and assisting in the purchase approvals.

#### 4.0 RESPONSIBILITIES

- 4.1 Affected department managers or their designated representatives are responsible for:
  - 4.1.1 Developing and revising all procedures necessary for chemical tracking, reporting, and record keeping. Directing personnel to follow these procedures.

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4.0 RESPONSIBILITIES (cont.)

4.1.2 Ensuring that all chemical substances located in their assigned areas are accounted for, tracked, and reported. Also ensure that records of these activities are kept and maintained in the Haz-Trac computer data base system.

4.1.3 Assisting Department Chemical Coordinators (DCCs) in providing accurate chemical transaction tracking records for chemical substances.

4.1.4 Providing the assigned DCCs with guidance in the following areas:

4.1.4.1 Maintaining records.

4.1.4.2 Using the Haz-Trac computerized chemical tracking system.

4.1.4.3 Meeting SARA reporting requirements.

4.1.4.4 Permitting Department Chemical Coordinators (DCCs) or designated individuals to order chemical substances.

4.1.4.5 Directing personnel in the proper maintenance of all process facility tracking records, and making the records available to DCCs daily or as specified in procedures.

4.1.4.6 Identifying assigned DCCs to established departments by written notification.

4.2 Facilities Materials & Evaluation (FM&E) and IRS&T are responsible for assisting in:

4.2.1 Determining and documenting chemical substance types (hazardous, extremely hazardous, or toxic).

4.2.2 Determining and documenting the chemical substance categories associated with each hazardous substance.

4.2.3 Identifying and recording the correct Chemical Abstract Service (CAS) number.

4.2.4 Determining and documenting whether the chemical substance is pure or mixed.

4.2.5 Identifying any potential health and safety concerns or requirements.

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4.0 RESPONSIBILITIES (cont.)

4.2.6 Reviewing requests for new chemical substances for utilization within the boundaries of FEMP.

4.3 Nuclear and Systems Safety is responsible for:

4.3.1 Identifying whether the presence of chemical substances affect the hazard level classification of the facility where they are to be handled and stored.

4.4 Project Managers are responsible for:

4.4.1 Coordinating with DCCs to keep track of construction-associated chemical substances.

4.5 Pollution Prevention/Waste Minimization Coordinators are responsible for:

4.5.1 Assisting the DCCs in an effort to minimize waste materials (chemical substances) generated on site.

4.6 The Departmental Chemical Coordinators (DCCs) are responsible for:

4.6.1 Using all data necessary to document chemical transactions at the site.

4.6.2 Assisting environmental compliance as requested in preparing EPA reports.

4.6.3 Assisting in performing the following for each chemical substance in their assigned areas:

4.6.3.1 Determining each hazardous substance's physical forms.

4.6.3.2 Identifying the activities in which each chemical substance is used and it's purpose at the FEMP for every year (See Table 1).

4.6.3.3 Ensuring that receipt and transfer information is put into the Haz-Trac system before chemicals are delivered to a different location.

4.6.4 Tracking chemical substances until they are gone, no longer used, or become waste.

4.6.5 Recording all locations where chemical substances have been stored or used.

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4.0 RESPONSIBILITIES (cont.)

4.6.6 Performing the following for each chemical substance in its assigned area.

4.6.6.1 Recording all of the types of containers in which chemical substances were used or stored.

4.6.6.2 Recording the maximum amount of each chemical substance on hand during the year.

4.6.6.3 Recording the number of days the chemical substance was on the site.

4.7 DCC or designated representative is responsible for:

4.7.1 Checking the Haz-Trac inventory to verify that no surplus or substitute inventory of that specific chemical is available from another department located on site.

4.7.2 Contacting the Systems Administrator and requesting that the new chemical substance be placed on the Haz-Trac system.

4.7.3 Maintaining accurate chemical substance records.

4.7.4 Compiling records of all chemical substances stored or used in this area.

4.7.5 Maintaining cradle-to-grave records and supporting documentation.

4.7.6 Submitting the completed documents to the appropriate DCC and to Environmental Compliance/Quality Assurance (EC/QA).

4.7.7 Submitting an annual department report signed by the department manager, or his designated representative.

4.8 The Stores/Receiving (DCC) is responsible for the following:

4.8.1 Entering daily chemical substance information into the Haz-Trac data base.

4.8.2 Delivering chemical substances to the requesting department.

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#### 4.0 RESPONSIBILITIES (cont.)

##### 4.9 The Environmental Compliance and Quality Assurance department is responsible for the following:

- 4.9.1 Assisting in determining the purchase approval for a chemical substances.
- 4.9.2 Submitting reports of non-routine chemical releases to DOE and to Federal and State Environmental Protection Agencies.
- 4.9.3 Annually submitting a copy of, sections 311, 312, and 313 of the report to DOE, DCC and to the systems administrator. This report should include fugitive or non-point air emissions, stack or point air emissions, discharges to water, underground injection, and toxic substances transferred to off-site disposal or storage locations, along with their treatment and disposal methods.

#### 5.0 GENERAL

None

#### 6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

- 6.1 Identifying the proper handling, storage, and procurement of chemical substances.

#### 7.0 PROCEDURE

##### 7.1 DCC or designated representative

- 7.1.1 Prior to preparing a chemical procurement order or request, check the Haz-Trac data base to verify that no surplus or substitute inventory of that specific chemical is available from another department located on site.
- 7.1.2 If the chemical substance is not listed on the Haz-Trac system, the DCC or designated individual must complete a Requisition for Material and Service (See Figure 1), Material Evaluation Form (MEF) (See Figure 2), and obtain a Material Safety Data Sheet (MSDS) (See Figure 3).
- 7.1.3 Obtain appropriate approval to order the chemical substance.
- 7.1.4 Contact the Systems Administrator and request that the new chemical substance be placed on the Haz-Trac system.

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7.0 PROCEDURE (cont.)

7.1.5 Compile records of all chemical substances stored or used in your area.

**NOTE:** If a chemical spill and/or release occurs refer to applicable department procedures.

7.1.6 Notify EC/QA if a chemical spill or release meets the reportable quantity under SARA or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA):

**NOTE:** Environmental Compliance and Quality Assurance shall report spills or releases to the proper agency.

7.1.6.1 Prepare a substance release follow-up emergency notice according to the instructions in DOE 5000.3.

7.2 Stores/Receiving (DCC)

7.2.1 When chemical substances are received onto the site, enter the necessary information into the Haz-Trac system. These transactions are to be entered daily or as specified.

**NOTE:** Chemical substances are not to be delivered to the requesting department until the receipt and transfer to the chemical substance has been entered on to the Haz-Trac system.

7.3 Access Procedure to Haz-Trac

**NOTE:** Haz-Trac is accessed through the Hewlett-Packard 3000 computer. Only department Chemical Coordinators, their alternates, and designated personnel have write access.

7.3.1 At the prompt enter "HAZ", the system will then prompt you for a database access password.

7.3.1.1 Enter the password and press the "Return" key. Printer choices will be displayed.

**NOTE:** A password, which is issued by the Systems Administrator, is required to access the Haz-Trac database.

7.3.1.2 Select the printer and press the "Return" key. The main menu, titled Haz-Trac Main Menu Coordinator will then be displayed.

**NOTE:** This menu lists all main transaction screens. Subscreens may be accessed from these transaction screens.

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## 7.0 PROCEDURE (cont.)

7.3.1.3 The description of each function key is displayed at the bottom of each screen. These descriptions correspond to the function keys on the keyboard.

**NOTE:** Transaction and help screens can be accessed by pressing the function keys.

7.3.1.4 There are two options for accessing a main transaction screen: (1) Enter a line number and press the "Enter" key. (2) Use the function keys (F1 through F7) to display one of the first seven screens listed.

7.3.1.5 To enter data into the Haz-Trac data base the "Enter" key must be used.

**NOTE:** Either the "Tab" or arrow keys can be used to move between fields.

**NOTE:** Press the "Shift" and "Tab" key consecutively to move the cursor back one field.

## 7.4 Message Field

**NOTE:** Located at the bottom of each screen, above the function keys description is a message field.

7.4.1 The system displays pertinent update or error information in this field, e.g., "Now use function key," or "Not a valid chemical." The type of message will be identified as I: Information, E:Error, W:Warning.

## 7.5 Help Function Fields

7.5.1 Help screens accessed through the "Help" function fields. The Help function will display a detailed list of information or a table with specific codes for a particular field. "Help" fields are identified with an asterisk "\*".

7.5.2 Enter a "?" in the field and press the "Help" function key.

7.5.3 To select a specific table line item, enter the line number listed beside the desired item in the field titled make selection and press "enter".

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## 7.0 PROCEDURE (cont.)

7.5.4 Press the "Return" function key and the line item will be displayed in the selected field.

7.5.5 Press the "Return" function key to return to the field for which you requested "Help".

### 7.6 Clear Function

7.6.1 The function key labeled "Clear Screen" will clear the screen of all data.

**NOTE:** This function is used after retrieving an existing record or entering a new chemical transaction while remaining at the current screen.

### 7.7 Next Keys Function

7.7.1 By pressing the "Next Keys" additional function keys will display.

7.7.2 To return to the previous set of function keys press the "Next Keys" function key again.

### 7.8 Approval Function

7.8.1 The update function key is designed to allow only an authorized coordinator or designated alternate to approve chemical transfers.

7.8.2 The system verifies authorization by the logon identification.

### 7.9 Chemical Types

**NOTE:** Chemical types identify how the chemical may be found at the site. by the following abbreviations: Pure (P), Mixture (M), Byproduct (BYP), construction (CSTR), consumer (CSMR).

### 7.10 Chemical Component Screen

7.10.1 The Chemical Component screen is accessed from the menu or various screens throughout Haz-Trac.

7.10.2 Only the system administrator or a designated alternate is authorized to enter or update the chemical substance.

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## 7.0 PROCEDURE (cont.)

### 7.11 Required Fields

7.11.1 "Required" fields appear throughout the system. "Required" fields are highlighted on each screen and listed under each screen transaction description in this procedure.

7.11.2 The system will not allow a new record to be entered or an existing record to be updated unless all "Required" fields are complete. If a "Required" field is not completed, a message will be displayed.

**NOTE:** There are some fields that become conditionally "required" fields depending on the information that has been entered.

7.11.3 A new unit of measure is required if the physical form has changed.

**NOTE:** Concentration is required for liquids.

7.11.4 A container number is required if container size meets or exceeds 5 gallons and container type equals "D," "E," "G" or "O".

- |                                    |                               |
|------------------------------------|-------------------------------|
| • A (Above Ground Tanks)           | • L (Cylinder)                |
| • B (Below Ground Tanks)           | • M (Glass Bottles or Jugs)   |
| • C (Indoor Tanks)                 | • N (Plastic Bottles or Jugs) |
| • D (Steel Drum)                   | • O (Tote Bin)                |
| • E (Plastic or Non-metallic Drum) | • P (Tank Wagon)              |
| • F (Can)                          | • Q (Rail Car)                |
| • G (Carboy)                       | • R (Other)                   |
| • H (Silo)                         | • V (Vat/Open - Top Vessel)   |
| • I (Fiber Drum)                   | • X (Tube)                    |
| • J (Bag, Paper/Plastic)           | • W (Can Aerosol)             |
| • K (Box)                          |                               |

7.11.5 Quantity Moved/Quantity Issued is required if gross and tare weight are not entered.

7.11.6 To and From Coordinator fields: a coordinator's logon ID is entered into these fields.

7.11.7 Unit of Measure Fields: Industry standard abbreviations are used in this field: oz (ounces), lb (pound), gal (gallon), ton (ton), kg (kilogram), L (liter), g (gram), ml (milliliter), SCF (standard cubic feet).

**NOTE:** The master file function transactions provide basic chemical and quantitative information for each chemical located at the Site.

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## 7.0 PROCEDURE (cont.)

### 7.12 Chemical List

- 7.12.1 The Chemical List screen is used for viewing all chemicals available in the Haz-Trac database.
- 7.12.2 The chemicals will be displayed in alphabetical order. A specific chemical may be selected to appear on another screen by pressing the desired function key.
- 7.12.3 Required Fields: None.
- 7.12.4 Help Fields: None.
- 7.12.5 The screen will display 20 line items at a time. Additional chemicals can be displayed by using the function keys "Read Next" and "Read Prior".
- 7.12.6 An alphanumeric field located at the upper left hand corner of the screen will allow a partial search by entering up to 17 characters of the chemical name.
- 7.12.7 The screen will display the first chemical beginning with the characters entered.
- 7.12.8 The "Read Next" or "Read Prior" function keys may be used to locate a specific chemical.
- 7.12.9 Tab to the selection field at the top of the screen and enter the line number listed beside the desired chemical and press the desired function key.

**NOTE:** The "Next Keys" function key must be used to display the function keys that will allow access to additional screens.

### 7.13 Chemical Master Screen

- 7.13.1 The Chemical Master screen is used by the System Administrator to enter and update specific information for each chemical. This information is located throughout the Haz-Trac system.
- 7.13.2 Help Fields: To use the help function, enter a "?" in the field you wish help on and press the "Help" function key.

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## 7.0 PROCEDURE (cont.)

7.13.3 After viewing the help information, press the "Return" function key. The program will return to the same screen and to the field for which you requested help.

7.13.4 To retrieve a chemical enter the chemical name, CAS number, or common name or formula and press "Enter".

**NOTE:** Only the System Administrator or alternate has authority to add, change, or delete chemicals to the Master screen dataset.

## 7.14 Stock Number

7.14.1 Description: The Stock Number screen is used to maintain data stored in the chemical table.

7.14.2 A unique stock number is used to identify specific chemicals. This enables the system to maintain detailed records of concentrations, container types, and unit of measures for specific chemicals.

7.14.3 When the stock number is entered on the various screens the table information is transferred for a specific chemical.

7.14.4 Help Fields: Help fields include unit of measure, container type, physical form, and storage conditions.

7.14.5 To access the help information enter a "?" in the desired field and press the "Help" function key.

7.14.6 After viewing the help information, press the "Return" function key. The program will return to the screen and field for which you requested help.

## 7.15 Procedure To Enter stock number selection, item number 9 at the Menu

7.15.1 Key in the desired chemical and press "Enter".

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## 7.0 PROCEDURE (cont.)

7.15.2 Use function key "read next" or "read prior" to read additional stock numbers.

**NOTE:** Chemicals within the Haz-trac system will be assigned a stock number by the System Administrator to be consistent with Stores/Receiving and Laboratory stock numbers.

**NOTE:** All non-store or direct purchase chemical substances, the letter "R" will be assigned for the stock number.

### 7.16 Requirements Text

7.16.1 Description: The Requirements Text screen is used for maintaining information on each chemical.

7.16.2 Data shown on this screen is for Operational Safety and Health Administration (OSHA), Site Environmental Compliance, and Department of Transportation (DOT) requirements.

7.16.3 Help Fields: None available.

7.16.4 Entry Procedure: Access this screen from the Menu and various transaction screens within Haz-Trac.

7.16.5 The chemical name will be transferred to the Requirements Text screen.

### 7.17 Chemical Components

7.17.1 Description: The Chemical Component screen is used to maintain information of components found in manufactured brand name chemicals.

7.17.2 It tracks the chemicals used to make up the mixture, the CAS numbers, and the percentage of each. Chemical mixtures are maintained as individual chemicals, until the mixture is used for a product or disposed of.

7.17.3 Required Fields: List the chemical, weight percentage, and density or molarity.

7.17.4 Help Fields: None available.

7.17.5 Entry Procedure: This screen is accessed at the menu and various screens throughout Haz-Trac.

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## 7.0 PROCEDURE (cont.)

7.17.6 Enter desired chemical and press "Enter".

**NOTE:** Water will not be considered a chemical component. For example, the liquid chemical nitric acid, which contains a percentage of water, will be classified as "Pure," not a mixture. The computer will calculate the percentage of the chemical "Nitric Acid" in pounds and add that percentage to the total quantity displayed on the Chemical Master screen. Example: the chemical "Nitric Acid" will be treated as a 1 gallon container of 70 percent nitric acid for Transfers and Issues.

### 7.18 Chemical Package Transactions

7.18.1 The Chemical Package Transactions includes chemical package receipts, transfers, issues for use and available inventories.

7.18.2 Through the use of these screens maximum and daily average chemical quantities and plant inventories are maintained.

7.18.3 Package Chemical Receipt: Description: The initial receipt of package chemicals brought onto the site are recorded on the Package Chemical Receipt screen.

7.18.4 The receipt menu screen and various transaction screens within Haz-Trac.

### 7.19 Required Fields

7.19.1 Required Fields include CAS number, chemical name, location or building number, number of containers, container size, unit of measure, date received, storage conditions, coordinator, requestor, and purchase order (PO) number.

7.19.2 Container type will be required if original packaging has changed; the container number will be required if the container size meets or exceeds 5 gallons and the container type equals "D," "E," "G" or "O". (See 7.11.4 for description list.)

7.19.3 Help Fields: Help fields include unit measure, container type, physical form, and storage conditions.

7.19.4 To access the help information, enter a "?" in the desired field and press the "Help" function key.

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## 7.0 PROCEDURE (cont.)

7.19.5 When you are done viewing the help information, press the "Return" function key which will return you to the chemical receipt screen and field for which you requested help.

7.19.6 Function Keys: Press the "Update" function key to add chemical receipt records to the database.

## 7.20 Package Chemical Transfers and Approvals

7.20.1 Description: Only the Package Chemical Transfer and Approval screen is used for recording initial additions to chemical inventories and internal plant transfers.

7.20.2 The screen can be accessed at the menu and through various transaction screens within Haz-Trac.

7.20.3 All quantities transferred and approved will be stored in the Chemical Master Record and updated in Package Chemical Inventory.

7.20.4 A transfer transaction will not update inventory records unless an authorized coordinator or alternate has approved the records.

7.20.5 If the logon ID is the same as the "To Coordinator" the inventory will be updated automatically. Otherwise, the record will be added to the database as an unapproved transfer to await approval by an authorized coordinator or alternate.

7.20.6 Required Fields: Required fields include CAS number or chemical name, from coordinator, to coordinator, location or building number, and transfer date.

7.20.6.1 Enter the container type if the packaging has changed.

7.20.6.2 If you enter a gross and a tare weight, the Quantity Moved field will be calculated.

7.20.6.3 If only a gross weight is entered, the weight will be used in the "Quantity" field.

7.20.6.4 If neither the gross or tare weights are entered, the "Quantity Moved" field is required.

7.20.7 Help Fields: Help function include coordinators, unit of measure, physical form, container type, and storage conditions.

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## 7.0 PROCEDURE (cont.)

7.20.7.1 To access the help information, enter a "?" in the desired field and use the "Help" function key.

7.20.8 When viewing of the help information has been completed, press the "Return" function key to return to the transfer screen and the exact field for which you requested help.

7.20.9 Function Keys: Press the "Update" function key to add a transfer record to the database.

### 7.20.10 Entry Procedure: Initial Transfers

7.20.10.1 On the Package Chemical Receipt screen, the "Package Transfer" screen will display, enter the "To Location" or "Building number" and other pertinent information to complete the initial transfer.

7.20.10.2 Press the "Update" function key to save the transfer record to the database.

7.20.10.3 The system will automatically return to the Package Chemical Receipt screen, and the message line will acknowledge that the record has been updated or approved.

7.20.10.4 Entry Procedure: The authorized coordinator approves a transfer record by pressing the "Update" (Approval Only) function key.

7.20.10.5 Read through all unapproved records by using the "Read Next" function key.

7.20.10.6 For each record shown, the "Update" function key can be used to approve the record and update the inventory.

7.20.10.7 The log on ID of the coordinator will appear in the "Approval by Facilities Coordinator of Receipt and Transfer" field to acknowledge the approval.

### 7.21 Transfers Within The Plant

7.21.1 To record a chemical transfer from one area to another within the plant, select the desired record at the Package Chemical Inventory screen.

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## 7.0 PROCEDURE (cont.)

7.21.2 Press the "Package Transfer" function key. The record will be displayed at the Package Transfers and Approvals screen.

7.21.3 Enter the "To Location" or "Building number" and other information prompted for, then press the "Enter" key.

7.21.4 At the message prompt "1" press "Update" to add this transfer record, press the "Update" function key to complete the transfer.

7.21.5 The system will automatically return to the Package Chemical Inventory screen.

## 7.22 Chemical Transfer Reject Process

7.22.1 The chemical transfer reject process is used to "reject" a chemical transfer with incorrect information.

7.22.2 A transfer may only be rejected if it is initiated from a coordinator's inventory.

7.22.3 When a chemical transfer is rejected the chemical and quantity is returned to the sender's inventory.

7.22.4 Error(s) are to be corrected by the sending coordinator and re-transferred.

7.22.5 Press the "Transfer Reject" function key to return the chemical transfer back to the sender's inventory.

**NOTE:** The receiving coordinator has the capability of changing all fields except the "package size" and "number of containers", therefore a chemical transfer from a receipt cannot be rejected.

## 7.23 Package Chemical Issues

7.23.1 Description: The Package Chemical Issues screen is used to track a specific chemical and chemical components to the final disposition, thus removing them from inventory.

7.23.2 A record is selected at the Package Chemical Inventory screen and transferred to the Package Chemical Issues screen.

7.23.3 When an issue record is approved, the "Quantity On Hand" inventory is reduced on the Chemical Master screen.

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7.0 PROCEDURE (cont.)

- 7.23.4 The system will allow only an authorized coordinator or alternate to issue their own chemical.
- 7.23.5 Required Fields are "CAS Number" or "Chemical Name", coordinator, location or building number, final disposition and process.
- 7.23.6 The container type will be required if the original packaging has changed.
- 7.23.7 If a gross and tare weight is entered, the "QTY" issue field will be calculated.
- 7.23.8 If neither gross or tare weights are entered, the "QTY" issued field is required.
- 7.23.9 Help Fields are Physical form, final disposition, and process.
- 7.23.9.1 To use the Help function, enter a "?" in the field for which you need help and press the "Help" function key.
- 7.23.9.2 After viewing the help information, press the "Return" function key and the program will automatically return to the previous work screen and the exact field for which you requested help.
- 7.23.10 Function Keys: The "Update" function key will remove the issue amount record from inventory.
- 7.23.10.1 Entry Procedure: Select the chemical record you wish to issue from at the Package Chemical Inventory screen (See Entry Procedure for Package Chemical Inventory).
- 7.23.10.2 All available information will be transferred to the package issue screen.
- 7.23.10.3 The actual quantity available in inventory will appear in the "QTY AVAIL" field.
- 7.23.10.4 Enter information prompted for, and press "Enter".
- 7.23.10.5 Press the "Update" function key, the prompt will acknowledge that the record has been updated and approved. The system will then return to the Package Chemical Inventory screen.

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## 7.0 PROCEDURE (cont.)

### 7.24 Package Chemical Inventory Screen

- 7.24.1 Description: The Package Chemical Inventory screen will display chemical inventories available for use and "unapproved" inventories that are indicated with an asterisk (\*).
- 7.24.2 Selections can be made from this screen and transferred to either the Package Chemical Transfer or the Package Chemical Issue screen.
- 7.24.3 Required Fields: Enter chemical name or CAS number.
- 7.24.4 Help Fields: Enter Coordinator.
- 7.24.4.1 Entry Procedure: Enter a chemical name, or a Stock number and one of the following: location, building number, lot number, or coordinator; press "Enter".
- 7.24.4.2 Increasing the number of fields entered will narrow the search.
- 7.24.4.3 For example, enter the chemical name only and all locations of that particular chemical will be displayed.
- 7.24.4.4 Entering the chemical name, stock number, and coordinator will display the chemical with the particular stock number and coordinator.
- 7.24.4.5 Data will be displayed on the screen on lines 1 through 8.
- 7.24.4.6 To display more inventory, use the function keys "Read Next" and "Read Prior".
- 7.24.4.7 To display a specific coordinator's inventory press the "Tab" key; enter the coordinator's ID and press the "Enter" key.
- 7.24.4.8 Enter the line number that you wish to select and press "Enter."
- 7.24.4.9 The message "Now use function keys" will appear in the window.
- 7.24.4.10 Press either the "Package Transfer" function key or the "Package Issues" function key to go to the desired screen.

### 7.25 Vessel/Tanks Transactions

- 7.25.1 Vessel Transactions include the receipts, transfers, and issues for specific vessels at the site and their inventories.

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7.0 PROCEDURE (cont.)

- 7.25.2 Vessel Master Description: The Vessel Master screen is used to maintain data pertaining to a specific vessel.
- 7.25.3 This data can be changed only by authorized coordinators or alternates.
- 7.25.4 Required Fields: Vessel, vessel codes, concentration, location or building number and storage conditions.
- 7.25.5 Help Fields: Unit of measure, storage condition.
  - 7.25.5.1 To use the help function, enter a "?" in the field you wish help on and press the "Help" function key.
  - 7.25.5.2 After viewing the "Help" information, press the "Return" function key on the Help screen and the program will automatically return you to the Vessel Master screen and at the exact field for which you requested help.
- 7.25.6 Entry Procedure: To access the Vessel Receipts or the Vessel to Vessel Transaction screen enter the vessel number and press "Enter".
- 7.25.7 Enter the required information, then press the appropriate function key.

7.26 Storage Vessel Receipts

- 7.26.1 Description: The Storage Vessel Receipt screen is used to record the receipt of bulk chemicals to storage vessels at the site.
- 7.26.2 This program will maintain inventory of these vessels by updating the quantities in the Vessel Master.
- 7.26.3 Coordinators or alternates may receive only for the vessels assigned to them.
- 7.26.4 Required Fields: Vessel, coordinator, storage conditions, date received, and quantity received.
- 7.26.5 Help Fields: Unit of measure, Storage conditions, and coordinator.
- 7.26.6 Entry Procedure: Enter a vessel number and press "Enter".
  - 7.26.6.1 Enter required information and press "Enter." The message "Now use function keys" will appear.

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7.0 PROCEDURE (cont.)

7.26.6.2 Press the "Update" function key to add this receipt record into inventory.

7.26.6.3 Vessel to Vessel Transactions.

7.26.6.4 Description: The Vessel to Vessel Transfer screen is used to track chemical transfers between vessels.

7.26.6.5 Required Fields are: Sending vessel, receiving vessel, transfer date, volume transferred, unit of measure, final disposition code and process.

7.26.7 Help Fields are: Unit of measure, coordinator, final disposition and process.

7.26.8 Entry Procedure: Enter a vessel number and press "Enter".

7.26.8.1 Enter required information and press "Enter." The message "Now use function keys" will appear.

7.26.8.2 Press the "Update" function key to add the record to the database.

7.26.8.3 To retrieve a existing record, enter the sending vessel number and press "Enter".

7.26.8.4 Enter the "Receiving vessel" and "Transfer Data," then press "Enter".

7.26.8.5 Use the "Read Next" or the "Read Prior" function keys to view records.

7.27 Storage Vessel Inventory

7.27.1 Description: The Storage Vessel Inventory screen will track the chemical levels in specific storage vessels at the site.

7.27.2 The data will be stored in the database for average daily amount on hand, and will also be used to produce chemical graph reports.

7.27.3 Required Fields: Inventory date.

7.27.4 Help Fields: None available.

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## 7.0 PROCEDURE (cont.)

7.27.5 Entry Procedure: Select the Vessel Processing item number at the menu.

7.27.5.1 The Storage Vessel Inventory screen will appear.

7.27.5.2 Enter the inventory date and vessel instrument readings then press "Enter" the screen will display data in gallons and/or pounds on the screen.

7.27.5.3 The message "Now use function keys" will appear.

7.27.5.4 Use the desired function key to add, update, or delete the inventory record.

7.27.5.5 To retrieve an existing record enter the desired date and press "Enter", and then press the "Retrieve Record" function key.

**NOTE:** Coordinators and alternates may enter information only for vessels assigned to them.

## 7.28 Environmental and Safety Codes

7.28.1 The environmental and safety information is provided in this section for each chemical and chemical component entered into the Haz-Trac database.

7.28.2 Environmental and Safety Codes Text and Screen

7.28.3 Description: The Environmental and Safety Codes screen is used for viewing environmental and safety information available in the Haz-Trac database.

7.28.4 Required Fields: Chemical Name or CAS Number

7.28.5 Help Fields: Compatibility Group, SARA and CERCLA Reportable Quantity (RQ), Potential RCRA hazardous Waste Codes, Source Codes, Hazardous Categories, SARA Hazardous Codes, RCRA Hazard Codes, Right To Know (RTK) Code, and the Spill Prevention Control and Countermeasure (spcc) Guide.

7.28.6 Entry Procedure: To access this screen select item number 8, Environmental and Safety Codes at the menu, or by using the various function keys throughout Haz-Trac.

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## 7.0 PROCEDURE (cont.)

7.28.6.1 The entire "text" portion is accessed by using the read next function key.

7.28.6.2 When all the text has been displayed press the "End of Text" function key to display the Environmental and Safety Codes screen.

7.28.6.3 Enter a chemical name or CAS number to retrieve an existing record and then press "Enter".

## 8.0 APPLICABLE DOCUMENTS

### 8.1 Drivers

8.1.1 29 CFR 1910.1200, Occupational Safety and Health Administration (OSHA) Hazard Communication Standard

8.1.2 40 CFR Part 261, Identification and Listing of Hazardous Waste

8.1.3 40 CFR Part 302.4, List of Hazardous Substances and Reportable Quantities

8.1.4 40 CFR Part 355, Environmental Protection Agency: Emergency Planning Notification, Appendix A - The List of Extremely Hazardous Substances and their Threshold Planning Quantities

8.1.5 40 CFR Part 370, Environmental Protection Agency: Hazardous Chemical Reporting - Community Right-to-Know

8.1.6 40 CFR Part 372, Environmental Protection Agency: Toxic Chemical Release Reporting - Community Right-to-Know - Subpart D, specific Toxic Chemical Listing

### 8.2 Reference Documents

8.2.1 SSOP-0002, "Completing the Material Evaluation Form"

## 9.0 APPLICABLE FORMS

9.1 Form FMPC-ADM-2126, "Requisition for Material and Services"

9.2 Form FS-F-3252, "Material Evaluation Form (MEF)"

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10.0 FIGURES

10.1 Figure 1, "Requisition for Material and Services"

10.2 Figure 2, "Material Evaluation Form"

10.3 Figure 3, "Material Safety Data Sheet"

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TABLE 1  
EXAMPLES

ACTIVITIES	PURPOSES
storage	as a reagent
dissolution	repackaging only
1st cycle extraction	formulation component
2nd cycle extraction	article
3rd cycle extraction	chemical process aid
denitration	manufacturing aid
decontamination	ancillary or other use

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TABLE 2

REPORTS THAT MAY BE GENERATED USING HAZ-TRAC
HAZ801RP - Unapproved Chemical Package Transfers
HAZ802RP - Package Chemical Receipts
HAZ803RP - Package Chemical Inventory
HAZ807RP - Vessel Transfers
HAZ808RP - Chemical Package Transfers and Approvals
HAZ809RP - Stock Number Report
HAZ810RP - Chemical List with Identifiers
HAZ811RP - Chemical List with Hazard Categories
HAZ813RP - Coordinator Report
HAZ814RP - Chemical List with Industrial Safety Codes
HAZ816RP - Formula List with Chemicals
HAZ817RP - Package Chemical Usage by Chemical
HAZ818RP - Package Chemical Usage by Process





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Fernald Site  
**MATERIAL EVALUATION FORM**  
(Continued)

MEF NO: \_\_\_\_\_  
MEF REV. NO: \_\_\_\_\_

**SECTION II - FACILITY AND MATERIALS EVALUATION**

1. IS MATERIAL A WASTE?  YES  NO    2. IS IT EXCLUDED UNDER 261.4(b)(1)?  YES  NO    3. IS IT EXCLUDED UNDER 261.4(b)(2)?  YES  NO    4. DOES IT CONTAIN A LISTED WASTE AS PER 261 SUBPART (D)?  YES  NO    5. DOES IT EXHIBIT ANY CHARACTERISTICS AS PER 261 SUBPART (C)?  YES  NO    6. IS IT A NO HAZARDOUS SUBSTANCE?  YES  NO    7. IS IT A POUND?

7. CLASSIFICATION AS A WASTE:  RCRA Hazardous Waste     RCRA Non-Hazardous Waste     Other: \_\_\_\_\_  
 Solvent Extraction     Non-ACRA Waste     Radioactive     Needs Further Action in Sampling

8. PRIMARY BASIS FOR CLASSIFICATION:  Generator information     Material     Prior manifest information     Other: \_\_\_\_\_

9. IS IT SUBJECT TO LAND BAN RESTRICTIONS?  NO     YES    Effective Date: \_\_\_\_\_

10. DISTRIBUTE PER SECTION IV ITEM 8

11. OTHER INFORMATION SOURCES USED: \_\_\_\_\_

12. PRIMARY CONTACT: \_\_\_\_\_    EXTENSION: \_\_\_\_\_    DATE COMPLETED: \_\_\_\_\_

13. IS SAMPLING REQUIRED?  YES  NO    14. IS TRANSFER TO CONTROLLED HOLDING AREA REQUIRED?  YES  NO    15. INFORMATION ACTION COMPLETION DATE: \_\_\_\_\_

16. HEALTH AND SAFETY CONCERN REQUIREMENTS: \_\_\_\_\_    17. SIGNATURE AND DATE: \_\_\_\_\_

**SECTION III - ENVIRONMENTAL ENGINEERING**

1. RECOMMENDED STORAGE CONTAINER MATERIAL:  Carbon Steel     Stainless Steel     Polyethylene     Other: \_\_\_\_\_

2. APPLICABLE REACTIVITY GROUP CODES:  A     B     C     D     E     F     G     H

3. OTHER INFORMATION SOURCES USED: \_\_\_\_\_

4. PRIMARY CONTACT: \_\_\_\_\_    EXTENSION: \_\_\_\_\_    DATE COMPLETED: \_\_\_\_\_

**SECTION IV - TOXIC AND SOLID WASTE PROGRAMS**

1. PROPER DOT SHIPPING NAME: \_\_\_\_\_

2. DOT HAZARD CLASS: \_\_\_\_\_

3. REQUIRED LABELS: \_\_\_\_\_

4. DOT IDENTIFICATION NO: \_\_\_\_\_    SUFFIX: \_\_\_\_\_    5. EPA WASTE NO.: \_\_\_\_\_

6. APPLICABLE REACTIVITY GROUP CODES (COPY FROM SECTION III ITEM 2): \_\_\_\_\_

7. FERM SRC AND MTC (COPY FROM SECTION I ITEM 1): SRC \_\_\_\_\_    MTC \_\_\_\_\_

8. IS A REVISION TO MEF REQUIRED?  YES  NO

9. DISTRIBUTION: \_\_\_\_\_    DATE: \_\_\_\_\_

ENVIRONMENTAL GENERATOR: \_\_\_\_\_    DATE: \_\_\_\_\_

ENVIRONMENTAL ENGINEERING: \_\_\_\_\_    DATE: \_\_\_\_\_

ENVIRONMENTAL MONITORING: \_\_\_\_\_    DATE: \_\_\_\_\_

WCEA: \_\_\_\_\_    DATE: \_\_\_\_\_

RESV: \_\_\_\_\_    DATE: \_\_\_\_\_

FACILITIES AND WAREHOUSING: \_\_\_\_\_    DATE: \_\_\_\_\_

TRM: \_\_\_\_\_    DATE: \_\_\_\_\_

CONTROLLED HOLDING AREA: \_\_\_\_\_    DATE: \_\_\_\_\_

10. PRIMARY CONTACT: \_\_\_\_\_    EXTENSION: \_\_\_\_\_    DATE COMPLETED: \_\_\_\_\_

**MATERIAL EVALUATION FORM (MEF)**  
FS-F-3252  
Figure 2 (Page 2 of 2)

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## Material Safety Data Sheet

ANSI Z39.18-1983  
SA NSI 6840-01-067-6674  
QUICK IDENTIFIER  
Contains hazard data on label and tag

May be used to comply with OSHA's Hazard Communication Standard,  
29 CFR 1910.1200. Standard must be consulted for specific requirements.

### SECTION 1 -

Manufacturer's Name: Aerosol Company, Inc.  
Address: 1111 S. Millersville Rd. Box 1170  
City, State, and ZIP: Neodesha, KS 66757  
Emergency Telephone No.: 316/325-2666  
Toll Free Number: 1-800-368-2666  
Date Prepared: 1-5-86/Revised 2-12-90

### SECTION 2 - HAZARDOUS INGREDIENTS/IDENTITY

Ingredient Name	LD50 mg/kg	LC50 ppm	Other Hazardous Labels	Other Hazardous Labels	Other Hazardous Labels
Dichlorodifluoromethane	1000 ppm	1000 ppm	NA	NA	75-59-4
Dichlorodifluoromethane	1000 ppm	1000 ppm	NA	NA	75-71-8
Refined Petroleum Solvent	NE	NE	350 mg/kg	NA	NA
d-cis-trans phenothrin	NE	NE	NE	NA	NE

-On the EPA list of Hazardous Substances having a PD of 5,000 lbs  
-CAS # withheld as trade secret by the manufacturer

### SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS

Boiling Point: Not established  
Density: Heavier than air 4.53  
Solubility in Water: Insoluble  
Appearance and Color: Colorless compressed gas with faint ethereal odor  
Melting Point: NA

### SECTION 4 - FIRE & EXPLOSION DATA

Flash Point: Not determined  
Auto-ignition Temperature: Not determined  
Special Fire Fighting Procedures: Self-contained breathing apparatus (SCBA) is required if containers rupture and contents are spilled under "fire conditions".  
Unusual Fire and Explosion Hazards: When exposed to temperatures 130° F or above, the aerosol can may rupture due to the increase of internal pressure. If exposed to high temperatures (open flames, glowing metal surfaces, etc.), the propellants can be decomposed, forming toxic and irritating products.

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
05-26-92	0	Document describing the procedure for the control and tracking of chemical substances per Request No. S92-094, initiated by J. Ogg.

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**1.0 PURPOSE**

The purpose of this document is to provide the procedure for controlling order requirements for nuclear materials disposition activities from order receipt through material release.

**2.0 APPLICABILITY**

This procedure is applicable to the relocation of nuclear materials that are required for defense programs, locating customers to purchase recyclable material, and disposing of material categorized as waste.

**3.0 RESPONSIBILITIES**

3.1 Safe Shutdown Program shall be responsible for the following:

- 3.1.1 Implementing the Nuclear Materials Disposition Order Management System to ensure that customer requirements are met.
- 3.1.2 Authorizing DOE-approved work for sources outside the Fernald Environmental Management Project (FEMP).
- 3.1.3 Planning and scheduling routine disposition activities to meet DOE programmatic requirements.
- 3.1.4 Distributing and tracking Nuclear Materials Disposition orders.
- 3.1.5 Maintaining documentation relating to packaging and shipping nuclear materials.
- 3.1.6 Administering all aspects of the Work-for-Others Program.
- 3.1.7 Maintaining official records of customer specifications for all orders.
- 3.1.8 Assuming primary liaison role internally and with customers on routine technical and product quality requirements.
- 3.1.9 Receiving inquiries for nonprogrammatic work or service.
- 3.1.10 Coordinating with supporting departments and maintaining liaison with the requester.

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### 3.0 RESPONSIBILITIES (cont.)

#### 3.2 Site Services shall be responsible for the following:

- 3.2.1 Performing authorized work in accordance with customer requirements.
- 3.2.2 Providing specialized services approved under the Work-for-Others Program.
- 3.2.3 Maintaining records of packaging and shipping regulations.
- 3.2.4 Specifying packaging, arranging shipments with carriers and ensuring compliance with applicable regulations.
- 3.2.5 Performing special packaging when necessary.
- 3.2.6 Loading FEMP nuclear materials onto the carrier vehicle for final delivery.
- 3.2.7 Providing necessary product analytical services.
- 3.2.8 Providing technical support.
- 3.2.9 Performing specialized services approved under the Work-for-Others Program.

#### 3.3 The Controller shall be responsible for the following:

- 3.3.1 Coordinating site-wide budgeting and accounting for FEMP programs.
- 3.3.2 Reviewing financial planning.
- 3.3.3 Conducting cost accounting activities for the Work-for-Others Program.
- 3.3.4 Determining the reasonableness and accuracy of cost estimates for off-site inquiries.
- 3.3.5 Maintaining nuclear material inventory information.
- 3.3.6 Acting as liaison with requester sites on approvals to ship nuclear materials.
- 3.3.7 Preparing a "Nuclear Materials Transaction Report" Form for transfer of nuclear materials between sites.

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### 3.0 RESPONSIBILITIES (cont.)

- 3.3.8 Maintaining formal records and documentation of nuclear materials transfers.
- 3.4 Environmental Compliance and Quality Assurance (EC&QA) shall be responsible for providing listings of analyses and shipment reports.
- 3.5 Industrial, Radiological Safety and Training (IRS&T) shall be responsible for the following:
  - 3.5.1 Providing radiation monitoring for nuclear materials and operations.
  - 3.5.2 Giving final safety approvals for shipments of nuclear materials.

### 4.0 DEFINITIONS

- 4.1 Nuclear Materials Disposition Order (NMDO) - An authorized directive to communicate specific customer requirements to package and ship nuclear materials in response to Department of Energy (DOE) direction or Work-for-Others Program requests. The NMDO also serves as a work plan for moving, handling, packaging, and shipping nuclear materials.
- 4.2 Work-for-Others Program - A program of reimbursable (nonbudgeted) work available to DOE contractors, federal agencies, and the commercial private sector.

### 5.0 GENERAL

- 5.1 The Nuclear Materials Disposition Order Management System work flow is shown in Figure 1.
- 5.2 Delivery requirements for programmatic nuclear materials shall be transmitted to WEMCO management via the DOE Site Manager's Office.
- 5.3 Inquiries for nonprogrammatic work or services shall be forwarded to the Work-for-Others Program Coordinator (within the Safe Shutdown Program) for follow-up liaison with other supporting departments, unless specifically reassigned by management.
- 5.4 Nuclear Materials Disposition Orders directing FEMP activities are indexed, filed, and maintained by Safe Shutdown Program/Uranium Disposition.

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## 5.0 GENERAL (cont.)

- 5.5 Nuclear Materials Disposition Orders for work or services to be performed under the Work-for-Others Program shall include detailed information on the project with quantities, specifications, delivery instructions, the method of cost recovery, who is to perform the work, and other special stipulations or safety requirements. The orders are issued after formal DOE approval is provided for the project.
- 5.6 Specific Work-for-Others Program projects shall be evaluated to determine if government resources exist to perform the task, that the work will not interfere with prime DOE missions, and that private facilities are not available to perform the work on a timely and/or cost effective basis. DOE shall approve services to be performed under the Work-for-Others Program prior to starting.
- 5.7 Because of the new site mission, open orders shall be reviewed individually for validity. Orders will be cancelled or revised as appropriate.

## 6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

Not applicable

## 7.0 PROCEDURE

### 7.1 Preparation of Routine Nuclear Materials Disposition Orders

#### SAFE SHUTDOWN PROGRAM

- 7.1.1 After receiving official delivery requirements and changes for routine work, contact the Controller and other applicable groups to verify that resources exist to implement disposition. The principal managers responsible for the work will affirm availability of resources and consider whether the change control procedure is applicable.
- 7.1.2 Receive, maintain, and distribute official customer specification documentation for routine orders.
- 7.1.3 Schedule deliveries of nuclear materials, including revised requirements.
- 7.1.4 Prepare the formal Nuclear Materials Disposition Order (NMDO).
- 7.1.5 Approve the NMDO or revision for release.

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## 7.0 PROCEDURE (cont.)

### 7.2 Preparation of Nuclear Materials Disposition Orders for Work-for- Others Program

#### SAFE SHUTDOWN PROGRAM

7.2.1 After receiving inquiries to perform special work or provide services to other DOE contractors, federal agencies, or the commercial sector, notify the work-for-others coordinator.

#### SAFE SHUTDOWN PROGRAM - WORK-FOR-OTHERS COORDINATOR

7.2.2 Fill out the applicable section of a "Work-for-Others Inquiry," Form FS-F-2398.

**NOTE:** Section I and/or Section II of the Work-for-Others form is used to inform WEMCO Management and DOE/FSO of inquiries. Section I of FS-F-2398 may not be required. If the initial contact is definite and results in an immediate purchase order, the initial communication to management and DOE would be Section II. Section II is always required.

7.2.3 Coordinate with other departments as required to determine the feasibility of the requested work. The principal managers responsible for the work will affirm availability of resources considering whether the change control procedure is applicable.

7.2.4 Prepare a cost estimate for the requested work.

7.2.5 Transfer the cost estimate to the Controller.

#### CONTROLLER

7.2.6 Review the cost estimate and approve or disapprove of the proposed action.

7.2.7 Section II of the inquiry must be initialed by Financial Planning & Operations to verify availability of funds.

7.2.8 Return the estimate with approval or disapproval to the work-for-others coordinator.

#### SAFE SHUTDOWN PROGRAM - WORK-FOR-OTHERS COORDINATOR

7.2.9 Provide the formal response to the requesting party, including cost estimates.

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## 7.0 PROCEDURE (cont.)

7.2.10 Complete Section II of a Inquiry Form upon receipt of a purchase order.

7.2.11 Submit the completed form to Safe Shutdown Program.

### SAFE SHUTDOWN PROGRAM

7.2.12 Concur with the recommendations contained in Section II of Inquiry Form and approve submission to DOE for project authorization.

### SAFE SHUTDOWN PROGRAM - WORK-FOR-OTHERS COORDINATOR

7.2.13 After authorization is granted by DOE, prepare an NMDO.

**NOTE:** An inquiry may end at any point in the Work-for-Others sequence due to lack of FEMP capabilities, relative costs, or interference with DOE mission objectives.

7.2.14 Submit the NMDO to the Vice President, Safe Shutdown Program, for authorization.

### SAFE SHUTDOWN PROGRAM

7.2.15 Approve the NMDO or revision for release.

## 7.3 Distribution of Nuclear Materials Disposition Orders

### SAFE SHUTDOWN PROGRAM

7.3.1 Forward the approved NMDO to Site Services, EC&QA, Controller, and the DOE Site Manager.

7.3.2 Maintain and distribute purchase orders and product specifications received under the Work-for-Others Program.

7.3.3 Prepare an acknowledgement letter (See Figure 3) for transmittal to the principal managers responsible for the work.

7.3.4 Receive and file signed acceptance verifying all details of the work, including timing.

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## 7.0 PROCEDURE (cont.)

- 7.3.5 Request an "Authorization to Ship", Form UCN-16708 or Form RF-4394 as applicable, from MC&A.

**NOTE:** Rocky Flats, Y-12, Los Alamos, and all private commercial firms require a completed, approved, "Authorization to Ship" request form (normally initiated just after the material disposition order is issued).

- 7.3.6 Complete form and submit a preliminary copy of the form to Sitewide Quality.
- 7.3.7 Transmit the original of the authorization form to IRS&T for approval.

### IRS&T

- 7.3.8 Approve the "Authorization to Ship" form for safety requirements and return the form to Safe Shutdown Program.

### SAFE SHUTDOWN PROGRAM

- 7.3.9 Transmit a copy of the approved form to Site-wide Quality Assurance.
- 7.3.10 Send the original of the "Authorization to Ship" form to MC&A.

### MC&A

- 7.3.11 Approve the "Authorization to Ship" form.
- 7.3.12 Contact the requestor site and coordinate nuclear material control transfer requirements.

## 7.4 Implementation of Nuclear Materials Disposition Orders

### FACILITIES AND WAREHOUSING

- 7.4.1 Perform work specified by the nuclear materials disposition order.
- 7.4.2 Maintain packaging and cost control records.

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Authorization: W. H. Britton, President	Supersedes: IN-6010, Dated 08-30-91	Issue Date: 10-29-91

## 7.0 PROCEDURE (cont.)

### SAFE SHUTDOWN PROGRAM

7.4.3 Coordinate with Facilities & Warehousing to track the progress of nuclear materials disposition orders.

7.4.4 Report the progress of NMDO action to WEMCO management.

### CONTROLLER

7.4.5 Coordinate with applicable areas to track and collect the costs involved for all orders.

7.4.6 Bill individual customers for reimbursable work performed under Work-for-Others Program orders.

## 7.5 Nuclear Materials Disposition Order Verification

### FACILITIES AND WAREHOUSING

7.5.1 Package nuclear products according to applicable section procedures.

**NOTE:** Where special, nonroutine packaging is involved, Transportation can package materials directly.

### MC&A

7.5.2 Initiate a "Shipping Order for Nuclear Material," Form FMPC-CONT-558.

7.5.3 Send the completed form to Site-wide Quality Assurance.

### SITE-WIDE QUALITY ASSURANCE

7.5.4 Prepare analytical documentation regarding the material to be shipped.

7.5.5 Transmit a copy of the analytical documentation to Uranium Disposition.

7.5.6 Return the shipping order and analytical documentation to MC&A.

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## 7.0 PROCEDURE (cont.)

### MC&A

- 7.5.7 Complete the Material Control Data portion of the shipping order with additional inventory control data.
- 7.5.8 Return the shipping order to Site-wide Quality Assurance.

### SITE-WIDE QUALITY ASSURANCE

- 7.5.9 Approve the completed shipping order.
- 7.5.10 Forward the shipping order and shipping reports to Facilities and Warehousing.

## 7.6 Completion of Nuclear Materials Disposition Orders

### IRS&T

- 7.6.1 Monitor the packaged material for conformity to Department of Transportation radiological regulations.

### FACILITIES AND WAREHOUSING

- 7.6.2 Review the packaging and shipping documentation per Site Procedure FMPC-314.
- 7.6.3 Ensure that all appropriate regulations are met.
- 7.6.4 Arrange for a carrier and notify the receiving site of the carrier name.
- 7.6.5 Load the product for shipment.
- 7.6.6 Notify Safe Shutdown Program, MC&A, and Site-wide Quality Assurance upon final shipment of the product.

### MC&A

- 7.6.7 Fill out a "Nuclear Material Transaction Report," Form DOE/NRC-741.
- 7.6.8 Mail the completed "Nuclear Material Transaction Report" to the customer.

**NOTE:** The report shall be sent within one work day of shipment leaving the site.

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## 7.0 PROCEDURE (cont.)

### SITE-WIDE QUALITY ASSURANCE

7.6.9 Prepare and transmit a formal analyses and shipping report letter (See Figure 2) to the customer.

### SAFE SHUTDOWN PROGRAM

7.6.10 Prepare a nuclear materials disposition order completion notice letter (See Figure 4) and send the letter to the involved departments.

7.6.11 File the records of the routine nuclear materials disposition order and the Work-for-Others Program orders.

## 8.0 APPLICABLE DOCUMENTS

### 8.1 Drivers

8.1.1 DOE Order 2200.6, "Financial Accounting"

8.1.2 DOE Order 4300.2A, "Non-Department of Energy Funded Work"

8.1.3 DOE Order 5633 Series, "Control and Accountability of Nuclear Materials"

8.1.4 DOE Order 5660.1, "Management of Nuclear Material"

8.1.5 PP-5031, "Nuclear Materials Disposition Order Management System"

### 8.2 Reference Documents

8.2.1 FMPC-314, "Packaging, On-Site Movement and Off-Site Shipment of Material"

## 9.0 APPLICABLE FORMS

9.1 FS-F-2398, "Work-for-Others Inquiry"

9.2 FMPC-CONT-558, "Shipping Order for Nuclear Material"

9.3 DOE/NRC Form 741, "Nuclear Materials Transaction Report"

9.4 UCN-16708, "Authorization to Ship"

9.5 RF-4394, "Authorization to Ship"

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## 10.0 FIGURES

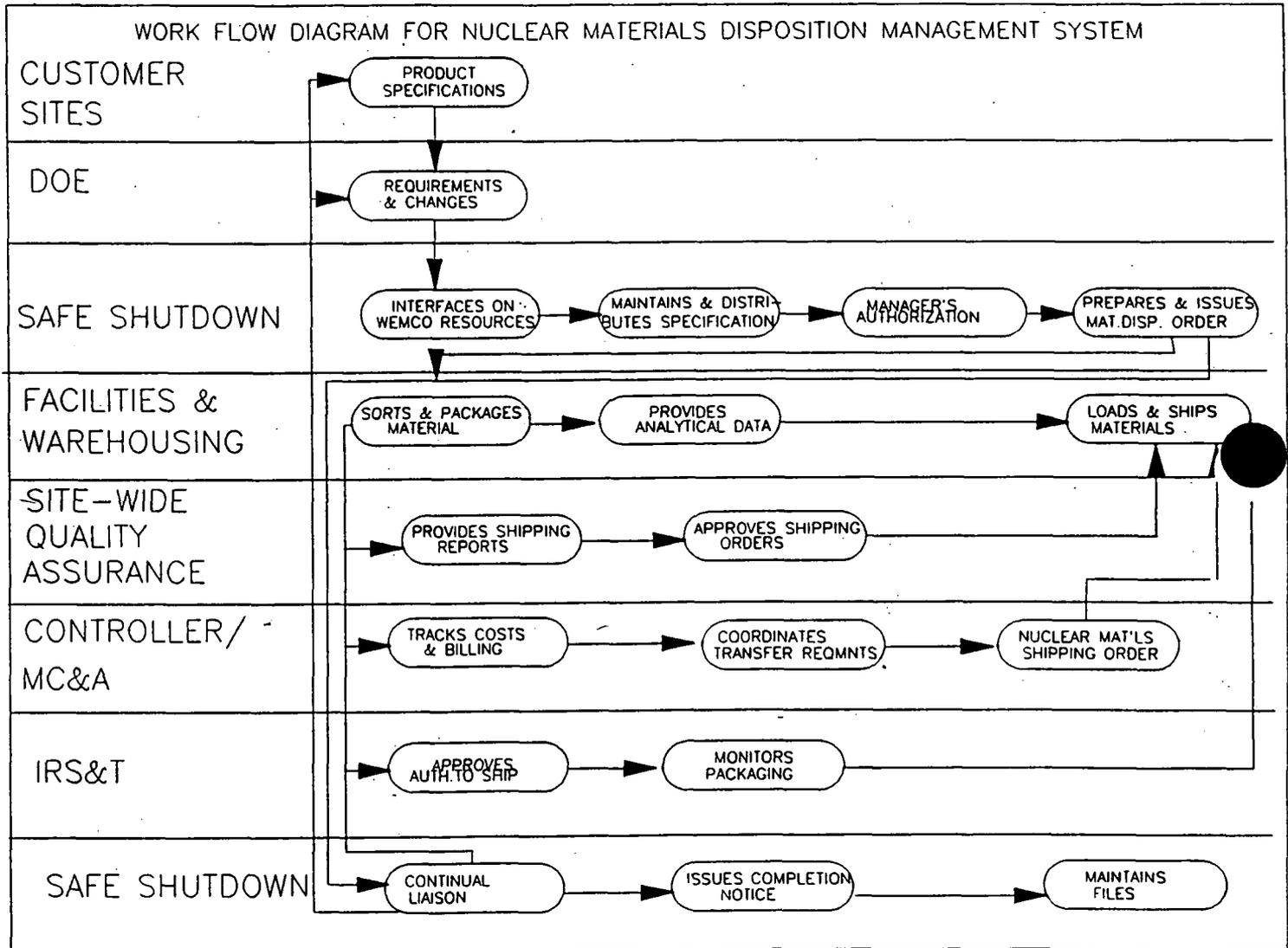
10.1 Figure 1, "Nuclear Materials Disposition Management System Work Flow Diagram"

10.2 Figure 2, "Analyses and Shipping-Report Letter"

10.3 Figure 3, "Acknowledgement Letter"

10.4 Figure 4, "Nuclear Materials Disposition Order Completion Notice"

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NUCLEAR MATERIALS DISPOSITION MANAGEMENT SYSTEM WORK FLOW DIAGRAM  
Figure 1

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Westinghouse  
Materials Company  
of Ohio

PO Box 398704  
Cincinnati, Ohio 45239-8704

(513) 738 6200

WMCO:QC:91-072

July 9, 1991

Y. H. Tracy  
Martin Marietta Energy Systems  
Y-12 Plant  
P. O. Box 2009  
Oak Ridge, TN 37830-8166

SUBJECT: MK31 DEPLETED URANIUM DERBY ANALYSES

**S**

Mrs. Tracy:

**A**

Attached are the MK31 depleted uranium derby analyses and shipment reports of shipment 741 No. 206 that has been sent to MMES, Y-12 Plant. This is in accordance with Customer Specifications 00-M-199 Rev. A and Customer Purchase Order 10Y-DP779V.

**M**

If you have any questions concerning the analyses, please call FTS 744-6608 (513) 738-6608.

Very truly yours,

**P**

*E. B. Spencer for*

J. E. Clements

**L**

RLA:srl

Attachment

**E**

c: D. C. Bonfer  
J. L. Trujillo  
Central Files

ANALYSES AND SHIPPING-REPORT LETTER  
SAMPLE  
Figure 2

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From: D. C. Bonfer/6536  
Date: July 25, 1991  
Subject: D-773 COMPLETION NOTICE



WMCO:SSP(UCB):91-034

To : Distribution

**S**  
Ref.: 1) WMCO Order No. D-773, Issued 05/24/91  
2) Martin Marietta (Y-12) P. O. 10Y-UP779V, dated 05/21/91

**A**

D-773 for ~200 MTU of Depleted Mark 31 Derbies has been completed.  
Final shipment was made on July 18, 1991, via Overnight, Shipping  
Order 1373. All charges against Charge Number NJB01 should cease and the  
number should be closed effective immediately.

*D. C. Bonfer*

**L**

D. C. Bonfer  
Project Leader for Transfer of Depleted Uranium Materials

DCB:sik

**E**

Distribution:

R. L. Ashcraft	C. W. Lower
J. D. Bardua	J. P. McGrogan
C. E. Block	J. M. Miller
D. L. Dunaway	D. S. Montgomery
L. M. Federmann	O. Pollard
R. J. Gall	M. E. Schroer
R. L. Gardner	J. L. Trujillo
J. A. Grumski	J. J. Volpe
R. J. Hansen, DOE-FSO	G. W. Westerbeck, DOE-FSO
H. J. Knue	M. Woods
	Work-for-Others File

NUCLEAR MATERIALS DISPOSITION ORDER COMPLETION NOTICE LETTER  
SAMPLE  
Figure 4

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
10-29-91	0	Procedure requirement for managing the material disposition order process required per Request No. P91-439, initiated by S. Kaushiva.

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		Page 1 of 4 Revision No. 0 Revision Date: JUN 1992	3530
SITE SERVICES PROCEDURE	DOCUMENT PERIODIC REVIEW PROGRAM	PO-D-007	DEPARTMENT PROCEDURE
Authorization: S. J. Dechter, Site Services Manager	Supersedes: PO-D-007 Dated: 07-13-90	Date: 05-01-92	

**1.0 PURPOSE**

The purpose of this document is to establish the requirements for managing the Site Services Document Periodic Review Program.

**2.0 APPLICABILITY**

**NON-CONTROLLED COPY**

This program shall apply to documents listed as current in the Site Services Department Index. The review program shall also apply to other organizations current documents that have been issued through the Site Services Document Program.

**3.0 RESPONSIBILITY**

3.1 Procedure Administration and Internal Auditing (PA) shall be responsible for the following:

- 3.1.1 Establishing a document review schedule.
- 3.1.2 Administering the document review program.

3.2 The Owner or Procedure Technical Representative (PTR) shall be responsible for the following:

- 3.2.1 Ensuring that technical content of documents is accurate.
- 3.2.2 Reviewing Site Services documents.

**4.0 DEFINITIONS**

- 4.1 Document Review Program (DRP) - A method used by Site Services to ensure that periodic review of documents is accomplished per an established schedule.
- 4.2 Document Review Cycle (DRC) - The nominal time period for periodic document review.
- 4.3 Procedure Technical Representative (PTR) - An individual assigned by the document owner to be responsible for the technical content and update of a specific document.
- 4.4 Document - Any of the Department, Section, and Standard Operating Procedures, Manufacturing, Product, and Material Specifications, Manuals, Methods, and Changes in Operation controlled by the Site Services Department.

## 5.0 APPLICABLE DOCUMENTS

### 5.1 Drivers

5.1.1 DOE Order 5480.19, "Conduct Of Operations Requirements For DOE Facilities"

### 5.2 References

5.2.1 PO-D-026, "Site Services Document Program"

## 6.0 PROCEDURE

### 6.1 Scheduling

6.1.1 Each document shall be reviewed using a DRC of 12 to 24 months after the issue date of the document.

6.1.2 PA shall establish the review schedule for each current document and transmit the schedule to applicable Department/Section Managers and reviewing organizations.

### 6.2 Review

6.2.1 Current document and review record shall be transmitted to the responsible manager per established document review schedule. Document change requests in process shall also be identified.

6.2.2 A document review record (See Figure 1) shall be completed by the document owner for each document.

6.2.3 PA shall transmit completed document review records indicating revision/reissue to the PTR for review evaluation and determination of procedure action.

6.2.4 The PTR shall submit document changes per the Site Services Document Program, Procedure PO-D-026.

6.2.5 The owner shall have authority to reissue a document, with no additional reviews, when no changes required.

6.2.6 The document shall be reissued at completion of periodic review (no change required), or at the incorporation of required changes.

## 7.0 APPLICABLE FORMS

None

## DOCUMENT PERIODIC REVIEW RECORD

3530

DOCUMENT TITLE: \_\_\_\_\_  
 ISSUE DATE: \_\_\_\_\_  
 REVISION DATE OR REVISION NO.: \_\_\_\_\_

AUTHORIZATION/ORGANIZATION: \_\_\_\_\_  
 DOCUMENT OWNER: \_\_\_\_\_  
 PTR: \_\_\_\_\_

DATE TRANSMITTED FOR REVIEW:

REQUIRED RETURN DATE TO PA:  
\_\_\_\_\_

PROCEDURE TYPE: \_\_\_\_\_

REFER TO ATTACHED LISTING FOR  
DOCUMENT CHANGE REQUESTS CURRENTLY IN PROCESS FOR THE DOCUMENT

DOCUMENT REVIEW

REVIEW THE DOCUMENT WITH REFERENCE TO YOUR AREA RESPONSIBILITY AND COMPLETE "REQUIRED DOCUMENT ACTION". THIS REVIEW IS NOT REQUIRED FOR DOCUMENTS CURRENTLY IN PROCESS FOR REISSUE.

REQUIRED DOCUMENT ACTION (CIRCLE ACTION NUMBER)

1. NO TECHNICAL CHANGE REQUIRED - REVIEW COMPLETE - NO OTHER ORGANIZATIONAL REVIEWS REQUIRED
2. CHANGES REQUIRED - CHANGE IDENTIFIED PER ATTACHED COMMENT SHEET
3. CANCEL
4. PLACE "ON HOLD"
5. CURRENTLY IN REVIEW PROCESS FOR REISSUE
6. NO CHANGES REQUIRED BY OWNER - ROUTE TO SUPPORT ORGANIZATIONS FOR REVIEW

REVIEWER SIGNATURE \_\_\_\_\_

MANAGER

DATE \_\_\_\_\_

FAILURE TO RETURN THE REVIEW BY THE REQUIRED RETURN DATE INDICATES  
 "NO CHANGE REQUIRED" - "REVIEW COMPLETE NO CHANGE REQUIRED"

COMPLETE REVIEW AND RETURN TO PROCEDURE ADMINISTRATION

RECORD OF ISSUE/REVISIONS

0878

<u>DATE</u>	<u>REV. NO.</u>	<u>DESCRIPTION AND AUTHORITY</u>
02-03-89	N/A	Document required periodic review program per Request No. P88-201, initiated by N. K. Weichold.
07-13-90	0	Reissued to meet current operations per Request P90-203, initiated by N. K. Weichold.
05-01-92	0	Reissued to meet current operations per Request P91-630, initiated by N. K. Weichold. Highlights of the reissue includes extending review time from a maximum of 15 to a maximum of 24 months, and update of new organizations names.

FEMP WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		Page 1 of 22 Revision No. 0	3530
SITE SERVICES PROCEDURE	SAMPLING DRUMMED WASTE FOR HAZARD IDENTIFICATION		SOP 20-C-805
			Area: As Applicable
Authorization: <i>R. L. Gardner</i> Facilities & Warehousing Manager		Supersedes: None	Issue Date: 04-10-92

1.0 PURPOSE

The purpose of this document is to establish the procedure for sampling drummed waste.

2.0 APPLICABILITY

This procedure is applicable to taking samples of drummed waste material at drum sampling locations and Resource Conservation and Recovery Act (RCRA) facilities.

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 respiratory protection for the process being performed.
- 3.1.2 Providing operators with the required respiratory protection.
- 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 Material Permit."
- 3.1.7 Obtaining specific drum storage location(s) from MC&A.
- 3.1.8 Notifying Materials Control & Accountability (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 Safety prior to moving drums in and out of Radiological Zones.

3.2 Operators and Supervisors shall be responsible for complying with this procedure.

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Authorization: R. L. Gardner, Facilities & Warehousing Manager	Supersedes: None	Issue Date: 04-10-92

### 3.0 RESPONSIBILITIES (cont.)

3.3 Environmental Management (EM) shall be responsible for the following:

- 3.3.1 Preparing "Sampling Request" forms for RCRA or suspect RCRA materials.
- 3.3.2 Performing statistical analysis on data received from on-site and off-site laboratories.
- 3.3.3 Performing hazardous waste determination.

3.4 Materials Control and Accountability (MC&A) shall be responsible for the following:

- 3.4.1 Assigning a representative to areas where drums are being moved.
- 3.4.2 Furnishing material identification data.

3.5 Industrial, Radiological Safety & Training (IRS&T) shall be responsible for the following:

- 3.5.1 Monitoring vehicles and drums entering and exiting Radiological Zones.
- 3.5.2 Issuing Radiation Work Permits.

### 4.0 DEFINITIONS

- 4.1 Equipment Blank Sample - Specimens of analyte-free media poured over previously cleaned sample equipment and accompanies the actual samples to the laboratory.
- 4.2 Composite Sample - Specimen derived by combining equal numbers of random samples obtained from the same waste stream.
- 4.3 Multi-Phase - A material consisting of liquid and a solid in any combination of 2 or more.
- 4.4 Random Sample - A representative sample of waste material taken from a drum chosen from a group of drums that had equal probability of being selected.
- 4.5 Trip Blank - A specimen of deionized water that accompanies the sample to the laboratory.

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#### 4.0 DEFINITIONS (cont.)

- 4.6 Wash Water Blank Sample - A specimen of clean rinseate water that accompanies actual samples to the laboratory.
- 4.7 Contact Waste - Unwanted material that has come into contact with a RCRA Waste or Suspect RCRA Waste during sampling.

#### 5.0 REFERENCES

- 5.1 SOP 20-C-605, "Establishment and Control of Satellite Accumulation Areas"
- 5.2 SOP 20-C-909, "Portable Ventilation Unit Operation"
- 5.3 SOP 20-C-912, "Checking Scale Operation"
- 5.4 SSOP-0018, "Processing Site Wide Analysis Request/Custody Record for Sample Control"
- 5.5 SSOP-0024, "Packaging of Low Level Radioactive Waste (L-LRW) for Off-Site Disposal"

#### 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.
- 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.

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## 6.0 INDUSTRIAL HEALTH & SAFETY REQUIREMENTS (cont.)

- 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 be contacted to check for flammable vapors from all drums classified as containing organic liquids. 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.
- 6.13 All persons will remain clear of aisle-ways while forklifts and handstackers are in use.
- 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 IRS&T Radiological Safety Section for evaluation. The involved personnel shall report to the Urine Sampling Station at the end of their shift to complete a Incident Investigation Report (IIR) (Form FMPC-ES&H-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.

## 7.0 PROCEDURE

### 7.1 General

- 7.1.1 Warnings, cautions, and notes precede the Item or Step to which they apply.
- 7.1.2 Any deviation from the Sampling Plan shall be noted in the "Sampling Log Book."
- 7.1.3 To prevent contamination, only one drum per sampling line shall be opened, unless a composite sample is required.

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7.0 PROCEDURE (cont.)

7.1.4 Volatile organic compounds (VOC) and combustible materials being sampled or staged shall be segregated from other materials. See Item 6.11 for identification and sampling of flammable liquids.

7.1.5 When samples are requested for volatile organic analysis, the samples shall be taken and the sample container and drum closed and sealed as quickly as possible.

7.2 Preparation for Sampling

NOTE: Contact supervisor if there are questions pertaining to the Sampling Request Form.

7.2.1 Obtain the "Sampling Request Form" from the supervisor.

7.2.1.1 Take Sampling Request Form to Material Control and Accountability where a lot number and location will be placed on the form.

7.2.1.2 Obtain the Lot Marking System Number for rinseate and trash cans containing contact waste from MC&A.

7.2.2 Check that a "Radiation Work Permit" and/or "Hazardous Material Permit" are posted and current with each new Sample Request Form.

7.2.2.1 If no permit(s) is/are posted, notify the supervisor.

NOTE: Scales shall be checked at the start of each operating shift or before the first use each day.

7.2.3 If not already completed, 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.

7.2.4 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.

7.2.5 Prepare containers (for cleaning sampling equipment and disposal of trash) as follows:

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Authorization: R. L. Gardner, Facilities & Warehousing Manager		Supersedes: None Issue Date: 04-10-92

7.0 PROCEDURE (cont.)

7.2.5.1 Tare weigh the empty, clean, color-coded 5-gallon containers.

7.2.5.2 Stencil the containers with the tare weight and the Lot Marking System Number according to RM-0005, Lot Marking and Color Coding System.

7.2.5.3 Install plastic liners in the five gallon containers.

NOTE: The equipment to be used for sampling is identified in the Sample Request Form.

7.2.6 Obtain sampling equipment that has a "Clean Equipment" tag attached.

7.2.6.1 If clean equipment is not available, obtain dirty equipment and clean per Item 7.8.

7.2.7 Obtain a box of clean, lidded sampling jars.

7.2.7.1 If the box of jars was not labeled, "Clean," process the jars per Item 7.8.

7.2.8 Tare weigh each sample jar (with lid).

7.2.8.1 Mark the tare weight on a piece of marking tape and place on the jar.

7.2.9 Complete the Sample Label, mark the tare weight on the Sample Label, Form 144, M-145, or M-160 to be used (Refer to Figure 1).

7.2.10 Fill out the applicable portions of a "Solid Waste Analysis Request/Custody Request" (SWAR/CR) form per SSOP-0018.

7.2.11 Place an absorbent pad that is applicable for material to be sampled (water/oil) under the sample jars(s).

7.2.12 Using the Log Book Stamps, imprint the "Sampling Log Book."

7.2.13 Fill out the log book with the information required by the stamp.

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7.0 PROCEDURE (cont.)

7.3 SAMPLING

**CAUTION: ONLY NON-SPARKING TOOLS AND EXPLOSION-PROOF EQUIPMENT SHALL BE USED IN THE VICINITY OF FLAMMABLE OR COMBUSTIBLE MATERIAL SAMPLING LINES.**

7.3.1 Remove the locking ring and drum lid from the drum to be sampled.

7.3.2 Visually inspect the waste material to be sampled to determine the physical characteristics (liquid, solid, dry, or moist).

**NOTE:** HEPA ventilation devices shall have current DOP Test Labels. DOP Test Labels must be unbroken and legible.

7.3.2.1 If the material is dry, install a HEPA filtered ventilation system per SOP 20-C-602.

7.3.3 Check that the drum contents corresponds with the Material Type Code (MTC) on the drum and the Sample Request Form.

**NOTE:** The supervisor shall inform Site Media Sampling.

7.3.3.1 If the material does not match the form, notify the supervisor.

7.3.4 If a drum contains solid and liquid phases, proceed as follows:

7.3.4.1 Measure the amount of liquid (in inches) in the drum using a COLIWASA.

7.3.4.2 Measure the amount of solid (in inches) using an Auger or Pipe Sampler.

7.3.4.3 Record the percent liquid and solid 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:** When each 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. Both phases shall be sampled individually.

7.3.4.4 Using a clean COLIWASA, sample the liquid per Item 7.6.

SITE  
SERVICES  
PROCEDURE

SAMPLING DRUMMED WASTE FOR HAZARD  
IDENTIFICATION

SOP 20-C-805

Area: As Applicable

Authorization: R. L. Gardner,  
Facilities & Warehousing Manager

Supersedes: None

Issue Date:  
04-10-92

7.0 PROCEDURE (cont.)

- 7.3.4.5 Deposit the sample into a collection jar or can.
- 7.3.4.6 If the "Sampling Request" form specifies Volatile Organic Analysis, perform Item 7.10.
- 7.3.4.7 Transfer collection jar with sample to ventilation enclosure.
- 7.3.4.8 Fill sample jars from material in the collection jar or can.
- 7.3.4.9 Dispose of excess sample material in the container from which the sample was taken.
- 7.3.4.10 Place the lid on sample jar.
- 7.3.4.11 After the required samples have been taken, clean the exterior of the filled sample jars with either a dry or wet cloth and dispose of the cloth per Item 7.8.7.1.
- 7.3.4.12 Affix the label(s) to sample jar(s).
- 7.3.4.13 Seal the jar lid with a "Tamper Proof Seal" (Refer to Figure 2).
- 7.3.4.14 Using a Pipe Sampler or Auger, take a sample of the solid material per Item 7.4 or 7.5.
- 7.3.4.15 Deposit the sample into a collection jar or can.
- 7.3.4.16 Transfer the collection jar with sample to ventilation enclosure.
- 7.3.4.17 Fill sample jars from material in the collection jar or can.
- 7.3.4.18 Dispose of excess sample material in the container from which the sample was taken.
- 7.3.4.19 Place the lid on sample jar.
- 7.3.4.20 After the required samples have been taken, clean the exterior of the filled sample jars.
- 7.3.4.21 Affix the label(s) to sample jar(s).
- 7.3.4.22 Seal the jar lid with a "Tamper Proof Seal" (Refer to Figure 2)
- 7.3.4.23 Clean samples per Item 7.8.

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7.0 PROCEDURE (cont.)

7.3.5 If the waste material is a single solid phase, proceed as follows:

7.3.5.1 Using an Auger Sampler or Pipe Sampler, take a sample per Item 7.4 or 7.5.

7.3.5.2 Deposit the sample into a collection jar or can.

7.3.5.3 Transfer the collection jar with sample to ventilation enclosure.

7.3.5.4 Fill sample jars from material in the collection jar or can.

7.3.5.5 Dispose of excess sample material in the container from which the sample was taken.

7.3.5.6 Place the lid on sample jar.

7.3.5.7 After the required samples have been taken, clean the exterior of the filled sample jars.

7.3.5.8 Affix the label(s) to sample jar(s).

7.3.5.9 Seal the jar lid with a "Tamper Proof Seal" (See Figure 2).

7.3.5.10 Clean the sampler per Item 7.8.

7.3.6 If the waste material is a single liquid phase, proceed as follows:

7.3.6.1 Using a clean COLIWASA, take a sample per Item 7.6.

7.3.6.2 If the "Sampling Request Form" specifies Volatile Organic Analysis, perform 7.10.

7.3.6.3 Deposit the sample into a collection jar or can.

7.3.6.4 Transfer collection jar with sample to ventilation enclosure.

7.3.6.5 Fill sample jars from material in the collection jar or can.

7.3.6.6 Dispose of excess sample material in the container from which the sample was taken.

7.3.6.7 Place the lid on sample jar.

7.3.6.8 After the required samples have been taken, clean the exterior of the filled sample jars.

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7.0 PROCEDURE (cont.)

7.3.6.9 Affix the label(s) to sample jar(s).

7.3.6.10 Seal the jar lid with a "Tamper Proof Seal" (See Figure 2).

7.3.6.11 Clean the sampler per Item 7.8.

7.3.7 If a composite sample is to be taken from drums of multi-phase material, record the Lot Marking System Numbers of the drums making up the composite in the Log Book and proceed as follows:

7.3.7.1 Notify the supervisor.

7.3.7.2 Obtain drums that are color coded and identified the same as the drum to be sampled.

7.3.7.3 Using a clean portable pump, transfer the liquid to the empty drum(s).

7.3.7.4 Using an clean Auger Sampler or Pipe Sampler, take samples of the solid material in the drums per Item 7.4 or 7.5.

7.3.7.5 If there is not enough material to fill the samples, take a second sample from each drum.

7.3.7.6 Using a clean stainless steel spatula, mix the contents of the sample can to blend the sample material.

7.3.7.7 Using a scoop, take a sample of the blended composite.

7.3.7.8 Deposit the sample into a collection jar or can.

7.3.7.9 Transfer collection jar with sample to ventilation enclosure.

7.3.7.10 Fill sample jars from material in the collection jar or can.

7.3.7.11 Dispose of excess sample material in the container from which the sample was taken.

7.3.7.12 Place the lid on sample jar.

7.3.7.13 After the required samples have been taken, clean the exterior of the filled sample jars.

7.3.7.14 Affix the label(s) to sample jar(s).

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7.0 PROCEDURE (cont.)

- 7.3.7.15 Seal the jar lid with a "Tamper Proof Seal" (See Figure 2).
- 7.3.7.16 Lid the composite sample can.
- 7.3.7.17 Mark the can with the same Material Type and Source Code as the drums that were sampled.
- 7.3.7.18 Clean the sampler per Item 7.8.
- 7.3.7.19 Using a COLIWASA, sample the liquid from the drums per Item 7.6.
- 7.3.7.20 If the "Sampling Request Form" specifies Volatile Organic Analysis, perform 7.10.
- 7.3.7.21 Deposit the sample into a collection jar or can.
- 7.3.7.22 Transfer collection jar with sample to ventilation enclosure.
- 7.3.7.23 Fill sample jars from material in the collection jar or can.
- 7.3.7.24 Dispose of excess sample material in the container from which the sample was taken.
- 7.3.7.25 Place the lid on sample jar.
- 7.3.7.26 After the required samples have been taken, clean the exterior of the filled sample jars.
- 7.3.7.27 Affix the label(s) to sample jar(s).
- 7.3.7.28 Seal the jar lid with a "Tamper Proof Seal" (See Figure 2).
- 7.3.7.29 Mark the can with the same Material Type and Source Code as the drums that were sampled.
- 7.3.7.30 Clean the sampler per Item 7.8.
- 7.3.7.31 Prepare the appropriate blank per Item 7.7.
- 7.3.8 If a composite sample is to be taken from drums of single phase solid material, perform Steps 7.3.7.4 thru 7.3.7.18.
- 7.3.9 If a composite sample is to be taken from drums of single phase liquid material, perform Steps 7.3.7.19 thru 7.3.7.31.

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7.0 PROCEDURE (cont.)

- 7.3.10 Place the sample jars and blanks in the lockable refrigerator.
- 7.3.11 Contact MC&A for storage of the drums, Composite Sample Cans, and Trash Containers.
- 7.3.12 Complete a "Chain-of-Custody Record," Form FMPC-SS-3361 (see Figure 3).
  - 7.3.12.1 If the samples will remain in the area overnight, place the custody record form in the top drawer of the sampling area desk.
  - 7.3.12.2 Lock the desk drawer containing the custody record form.
- 7.3.13 Lock the refrigerator.
  - NOTE 1:** The supervisor shall arrange to have the samples and "Chain-of-Custody Record" form delivered to the laboratory.
  - NOTE 2:** All sample containers and trash bags shall be surveyed by a Radiation Technician prior to exiting a regulated area.
- 7.3.14 At the end of the shift, or when sampling is complete, notify the supervisor that samples and blanks require delivery to the Analytical Laboratory.
- 7.3.15 Ensure that the custody record form accompanies samples being transferred.

7.4 Using the Auger Sampler

- 7.4.1 Insert the sampler into the material being sampled.
- 7.4.2 Press down and rotate the sampler T-handle.
- 7.4.3 Withdraw the sampler from the drum of material.
- 7.4.4 Check that a complete core sample was taken.
  - 7.4.4.1 If a complete core was not taken, empty the sampler into the drum the material was taken from and return to Step 7.4.1.
- 7.4.5 Using a clean spatula, push the sample out of the sampler and into collection jar or can.

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## 7.0 PROCEDURE (cont.)

### 7.5 Using the Pipe Sampler

**NOTE:** The pipe sampler shall be long enough to reach the bottom of the container being sampled.

- 7.5.1 Insert the pipe sampler diagonally through the contents of the drum.
- 7.5.2 Rotate the pipe sampler once or twice to cut a core of material.
- 7.5.3 Ensure that the slot is face up.
- 7.5.4 Slowly withdraw the pipe sampler from the drum.
- 7.5.5 Check that the entire length of pipe contains material.
- 7.5.6 If part of the pipe is empty, proceed as follows:
  - 7.5.6.1 Empty the sampler into the drum the material was taken from.
  - 7.5.6.2 Repeat Steps 7.5.1. thru 7.5.5 until a representative sample is obtained.

### 7.6 Using a COLIWASA SAMPLER

- 7.6.1 Check to ensure that the inner tubing and the outer sheath are not cracked.
  - 7.6.1.1 If the sampler is cracked, obtain a new, clean, intact sampler.
- 7.6.2 Insert the inner tubing inside the sheath.
- 7.6.3 Raise the ground glass end of tube several inches above the hole in the bottom of the sheath.

**NOTE:** The COLIWASA shall be lowered so that the levels of liquid inside and outside the sampler tube remain even. If the liquid level in the sampler tube is lower than the level outside the sampler, the rate is too fast and will result in a nonrepresentative sample.

- 7.6.4 Slowly lower the COLIWASA vertically into the drum, keeping the ground glass end away from the hole in the bottom of the sheath.
- 7.6.5 When the sheath hits the bottom of the drum, push the inner tube downward so that the ground glass end seals the sheath.

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## 7.0 PROCEDURE (cont.)

**NOTE:** The ground glass end shall seal the tube bottom.

- 7.6.6 Slowly withdraw the COLIWASA sampler with one hand while wiping the outside of the sampler with a clean disposable cloth.
- 7.6.7 Place the disposable cloth in a plastic bag that is labelled for the type of material being sampled.
- 7.6.8 Dispose of trash bags containing non-RCRA waste per SOP 20-C-601.
- 7.6.9 Dispose of trash bags containing RCRA, or suspected RCRA, waste per SOP 20-C-605.

**NOTE:** The analyses listed on the "Sampling Request" form should also be performed on blank samples.

## 7.7 Taking Blanks

**NOTE:** Wash Water Blanks are taken weekly, alternating with Equipment Blanks and Trip Blanks.

### 7.7.1 Wash Water Blanks

- 7.7.1.1 Using a clean (per item 7.8) pressurized hand pump, decant the clean rinseate from the Wash Water Container into the appropriate numbered sample jars.

**NOTE:** Taken on alternating weeks with Wash Water and Trip Blanks and Equipment Blanks.

### 7.7.2 Equipment Blank

- 7.7.2.1 Using a clean (per Item 7.8) pressurized hand pump and deionized water, rinse the clean sampling equipment.
- 7.7.2.2 Collect the rinseate in a clean (per Item 7.8) one-gallon sample container.
- 7.7.2.3 Transfer the water from the container into clean sample jars.
- 7.7.3 Lid the sample jars.

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7.0 PROCEDURE (cont.)

NOTE: Trip Blanks are prepared by Site Media Sampling.

NOTE: Trip Blanks shall only be obtained when volatile organic analysis is required for the material being sampled.

NOTE: Trip Blanks are used to measure cross-contamination of volatile organics during transport, and are taken on alternating weeks with Wash Water and Equipment Blanks.

7.7.4 Trip Blanks

7.7.4.1 Contact Site Media Sampling to obtain blanks.

7.7.5 Complete the applicable "Sample Label" (Refer to Step 7.2.9).

7.7.6 Affix the label(s) to the sample jar(s).

7.8 Cleaning Sampling Equipment

NOTE: Cleaning and rinsing shall be performed over the five-gallon container marked with the appropriate 15-digit FEMP Lot Markings (Refer to Step 7.2.5).

7.8.1 Position the five gallon container in the area where cleaning will be performed.

NOTE: A bottle brush shall be used as necessary to remove particulate matter, films, or other dirt.

NOTE: ALQUINOX or LIQUINOX (or equivalent) may be used as the cleaning detergent.

7.8.2 Using a phosphate free liquid detergent solution, wash the sampling equipment thoroughly.

7.8.3 Rinse the sampling equipment with water.

7.8.4 Drain excess water off the sampling equipment.

NOTE: Pesticide grade isopropanol is below laboratory grade isopropanol.

7.8.5 Rinse the sampling equipment with pesticide grade isopropanol and, if necessary, dry with a clean dry cloth.

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## 7.0 PROCEDURE (cont.)

**CAUTION: THE LID SHALL BE KEPT ON THE CONTAINER OF USED WASH AND/OR RINSE SOLUTION WHEN NOT IN USE.**

7.8.6 Lid the container of used wash/rinse solution.

7.8.7 If the sampler will not be used immediately, proceed as follows:

7.8.7.1 Place the clean sampler in a clean plastic bag or wrap with a plastic sheet.

7.8.7.2 Complete a "Clean Equipment" tag, Form FMPC-PRO-3128, (See Figure 6).

7.8.7.3 Attach the tag to the clean equipment.

7.8.7.4 Store the sampler per Item 7.9.

7.8.8 When the wash/rinse container is full, process the contents as RCRA waste per SOP 20-C-605.

7.8.9 Dispose of absorbent cloths or trash bags which have not come in contact with RCRA waste or suspected RCRA waste per SSOP-0024.

## 7.9 Storing Sampling Equipment

7.9.1 Seal the plastic bag with tape.

7.9.2 Place the samplers in a clean, protected area.

## 7.10 Liquid Organic Analysis Sampling

7.10.1 Obtain a septum bottle.

**NOTE: The liquid shall reach slightly above the lip of the bottle.**

7.10.2 Carefully fill the septum bottle with the sample liquid.

7.10.3 Place the teflon septum (with teflon side down) on top of the bottle.

7.10.4 Screw the plastic lid on the bottle.

7.10.5 Check the liquid for air bubbles by turning the bottle upside down.

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7.0 PROCEDURE (cont.)

NOTE: Organic analysis requires that no air bubbles be present in the septum bottle.

7.10.6 If air bubbles are present, empty the bottle and repeat Steps 7.10.2 through 7.10.5 until no air bubbles are present.

7.10.7 Label the septum bottle.

8.0 APPLICABLE FORMS

- 8.1 M-144, M-145, M-160, "Sample Label"
- 8.2 No Form Number, "Tamper Proof Seal"
- 8.3 FMPC-SS-3361, "Chain of Custody Record"
- 8.4 FMPC-PRO-3128, "Clean Equipment Tag"

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Green on White  
For Enrichment  
Less Than 0.71

**FMPC-SAMPLE LABEL/RCRA MATERIAL-DEPLETED**

SAMPLING LOCATION			<b>P.O. NO./ENRICHMENT</b>
COLLECTOR			
TYPE OF MATERIAL			
TYPE OF SAMPLE			
LOT NUMBER OR IDENT			
DATE	TIME	NET WT	

FMPC-FORM-306 M-144 (REV. 11/29/89)

Red on White  
For Enrichment  
Greater Than  
0.71

**FMPC-SAMPLE LABEL/RCRA MATERIAL-ENRICHED**

SAMPLING LOCATION			<b>P.O. NO./ENRICHMENT</b>
COLLECTOR			
TYPE OF MATERIAL			
TYPE OF SAMPLE			
LOT NUMBER OR IDENT			
DATE	TIME	NET WT	

FMPC-FORM-306 M-145 (REV. 11/29/89)

(Grams)                      Gross:                      Tare:

Black on Yellow  
For Enrichment  
Equal to 0.71

**FMPC-SAMPLE LABEL/RCRA MATERIAL-NORMAL**

SAMPLING LOCATION			<b>P.O. NO./ENRICHMENT</b>
COLLECTOR			
TYPE OF MATERIAL			
TYPE OF SAMPLE			
LOT NUMBER OR IDENT			
DATE	TIME	NET WT	

FMPC-FORM-306 M-160 (2/20/91)

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**If Seal is broken or  
package damaged  
check contents before  
signing receipt.**

SITE SERVICES PROCEDURE	SAMPLING DRUMMED WASTE FOR HAZARD IDENTIFICATION	SOP 20-C-805 Area: As Applicable
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FMPC  
 PRODUCTION OPERATIONS  
 CHAIN-OF-CUSTODY RECORD

Request No. \_\_\_\_\_  
 Company's Name and Address: \_\_\_\_\_ Phone No.: \_\_\_\_\_ Carrier Way Bill No. \_\_\_\_\_ Lab Destination \_\_\_\_\_

Name of Sampler(s): \_\_\_\_\_ Phone No.: \_\_\_\_\_ Badge No.: \_\_\_\_\_

SAMPLE NUMBER	SAMPLE LOCATION AND DESCRIPTION (Waste Type)	SAMPLED		SAMPLE TYPE	CONTAINER TYPE	ANALYSES REQUESTED (Please refer to last column)				SAMPLE COND ON RECEIPT	TYPES OF ANALYSES	
		DATE	TIME									
												1 Complete Analysis
												2 Total U
												3 Total Th
												4 EP Toxicity
												5 HSOBPC
												6 Th-228
												7 Th-232
												8 Ra-226
												9 Up-Cog Sample (N Calculated)
												10 Up-Cog Sample (Th Calculated)
												11 _____
												12 _____
												13 _____
												14 _____
												15 _____

Field Information: \_\_\_\_\_  
 Possible Sample Hazards: \_\_\_\_\_

**SIGNATURES:**

1. Relinquished By:	SIGNATURE _____	TITLE _____	COMPANY _____	INCLUSIVE DATES _____	Received By: _____
2. Relinquished By:	SIGNATURE _____	TITLE _____	COMPANY _____	INCLUSIVE DATES _____	Received By: _____
3. Relinquished By:	SIGNATURE _____	TITLE _____	COMPANY _____	INCLUSIVE DATES _____	Received By: _____
4. Relinquished By:	SIGNATURE _____	TITLE _____	COMPANY _____	INCLUSIVE DATES _____	Received By: _____

NO.	DISTRIBUTION OF COPIES
1	To Accompany Samples
2	Field Copy

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CLEANED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

Cleaned according to sop : \_\_\_\_\_

FMPC-OPR-3128 (6/22/89)

0678  
FEMP

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO  
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SAMPLING DRUMMED WASTE FOR HAZARD  
IDENTIFICATION

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Area: As Applicable

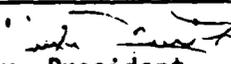
Authorization: R. L. Gardner,  
Facilities & Warehousing Manager

Supersedes: None

Issue Date:  
04-10-92

RECORD OF ISSUE/REVISION

<u>DATE</u>	<u>REV. NO.</u>	<u>DESCRIPTION AND AUTHORITY</u>
04-10-92	0	Procedure required for taking samples from drums of waste material per Request No. P92-049, initiated by J. Hey.

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		SITE STANDARD OPERATING PROCEDURE Page 1 of 32      3530
Title: MANAGEMENT OF SOIL, DEBRIS, AND WASTE FROM A PROJECT		DOCUMENT NO: SSOP-0044 REVISION NO. 0
Authorization:  H. F. Daugherty, President	Supersedes: SSOP-0044I, Dated 02-19-92	Effective Date: 06-19-92

### 1.0 PURPOSE

NON-CONTROLLED COPY

This procedure provides instructions for controlling and handling soil, debris, and waste from projects at the Fernald Environmental Management Project (FEMP), while maintaining standards for worker safety and environmental protection.

### 2.0 SCOPE

This procedure describes the requirements and responsibilities for controlling and handling the soil, debris, and waste from removal actions, construction projects, and planned maintenance activities at the Westinghouse Environmental Management Company of Ohio (WEMCO). This procedure provides a management method which minimizes the release of hazardous substances to the environment during construction maintenance, or removal action-excavation, and demolition activities.

### 3.0 DEFINITIONS

Administrative Record - An organized collection of records open to public review, that documents FEMP compliance with the requirements set forth by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - The law that mandates the development of organizational structure and procedures to respond to releases, or threats of releases of hazardous substances or pollutants/contaminants.

Construction Excavation/Penetration Permit - A permit that lists known hidden hazards or obstructions in an area where excavation or penetration activities will take place.

Debris - Solid materials that have been manufactured or processed (excluding treatment residuals). Natural geological material that exceeds a 9.5 mm sieve size such as gravel, cobbles, and boulders, or an inseparable mixture of such material with soil, liquid, sludge, or other solid waste materials.

Disposition Location - A location designated on the Construction Waste Identification and Disposition (CWID) form for the storage or disposal of waste.

Fixed Contamination - Radioactive contamination that is not readily removable.

Future Use Material - Reusable material held for anticipated use in the plant and/or in projects.

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO (SITE) DOCUMENT PROGRAM		SITE STANDARD OPERATING PROCEDURE Page 2 of 32
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### 3.0 DEFINITIONS (cont.)

Hazardous Substance - A substance designated for special consideration under the Clean Air Act, Clean Water Act, or Toxic Substance Control Act (TSCA), any waste that Resource Conservation and Recovery Act (RCRA) designates as hazardous, and any material that the Environmental Protection Agency (EPA) lists as presenting a substantial danger to health and the environment and a material, including its mixtures and solutions as listed in 49 CFR.

Hazardous Waste - Discardable material containing or exhibiting hazardous or toxic waste characteristics or listed as defined in Title 40 of the Code of Federal Regulations, Part 261 Resource Conservation Recovery Act (RCRA).

Metal Refuse - Metal not suitable for reclamation due to a hard-to-remove non-metallic wrapping, mixed metal composition, heavily rusted, less than 1/4-inch thick, or internal non-decontaminatable surfaces.

Mixed Waste - Contains RCRA constituents and radiological contamination.

Pollutant/Contaminant - A substance, not listed as hazardous, that may cause an adverse affect in organisms and/or the offspring of organisms if inhaled, absorbed, or ingested.

Project - For purposes of this procedure, project is defined as any (1) CERCLA Removal Actions, (2) Construction projects, or (3) maintenance activities.

Project Sampling Plan - A plan developed by Environmental Monitoring that specifies the sampling to be conducted for a specific operation.

Radioactive Contaminated Waste - Material such as concrete, liquid, or soil, that contain concentrations of radionuclides exceeding those specified in DOE Order 5400.5, "Radiation Protection of the Public and the Environment". Also non-bulk materials such as metal, which exhibit surface contamination in excess of unrestricted release criteria specified in Industrial Radiological Safety and Training (IRS&T) departmental procedures.

Recoverable Metals - Metals that are suitable for free release, reuse, or recycling.

RCRA Project File - A file that consists of a scope of work, "Construction Waste Identification/Disposition (CWID)" form, National Environmental Protection Agency (NEPA) documents, activity drawings, process knowledge, sampling plan, and analytical results.

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### 3.0 DEFINITIONS (cont.)

Removable Contamination - Surface contamination that is readily removed using the filter paper smear technique.

Removal Site Evaluation (RSE) - The documented results of an inspection (if necessary) and assessment of a release or threat of release of a hazardous substance, pollutant, or contaminant to determine if a CERCLA response is required. The RSE is submitted to the Department of Energy (DOE) for review and is also maintained as a part of the Administrative Record File.

Resource Conservation and Recovery Act (RCRA) - The regulatory statute that mandates "cradle-to-grave" control of specified hazardous waste by imposing management requirements on generators, transporters, and owners/operators of treatment, storage, and disposal (TSD) facilities.

Rubble - Non-metallic and non-reusable material (such as tiles, gravel, concrete, asphalt, masonry) greater than 2 inches in thickness.

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, a mixture of the above-mentioned materials with other liquids, sludges, or solids that are inseparable by simple mechanical removal process.

Toxic Substance Control Act (TSCA) - The law that enables the Environmental Protection Agency to control chemicals and substances, such as PCBs, dioxins, and asbestos, by requiring that all old and new materials entering the environment be tested. Also regulating the release of chemicals and substances when necessary.

Waste - Refuse or discarded materials that are abandoned, inherently waste-like, or recycled. Waste can be comprised of solids, liquids, or gases.

Waste Packaging Area - An area adjacent to the construction site where empty waste containers are filled with construction waste.

NOTE: The packaging area background radiation level shall not exceed limits established by IRS&T if waste will be transferred to a dedicated clean storage area or transported from the site.

Waste Sampling Request - Requirements provided by Environmental Engineering to Environmental Monitoring for number of samples, type, location, and lab analysis necessary to characterize project waste.

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#### 4.0 RESPONSIBILITIES

##### 4.1 Project Management (PM) shall be responsible for the following:

- 4.1.1 Coordinating with representatives of other departments to plan construction waste handling, determine if material is reusable or waste, and discuss waste minimization options.
- 4.1.2 Initiating a request for RCRA Determination/Radiological Characterization (RD/RC) for a project.
- 4.1.3 Coordinating delivery of empty waste containers to the project site.
- 4.1.4 Monitoring subcontractor and FEMP employee compliance with the "Construction Environmental Safety and Health Work Survey" (CESHWS) (see Figure 1) and Construction Waste Identification/Disposition (CWID) (see Figure 2) to ensure contaminated construction waste is handled and packaged in accordance with Standard Operating Procedures.
- 4.1.5 Maintaining the "Property Disposal Log" and coordinating the sale or disposal of surplus material.
- 4.1.6 Ensure free liquids are removed from process equipment prior to project start. Provide signed documentation to Environmental Engineering and/or Facilities and Materials Evaluation for RCRA project file.
- 4.1.7 Ensuring that waste minimization is accomplished.
- 4.1.8 Obtaining approved on-site disposition locations from Environmental Engineering and Waste Management for waste generated from the project.
- 4.1.9 Notifying Materials Control and Accountability of the container serial number and getting the inventory number.
- 4.1.10 Preparing a "Property Disposal Request", Form FMPC-CONT-563 (see Figure 3) per applicable department procedures before equipment (tagged or untagged) is removed.
- 4.1.11 Instructing subcontractors to segregate clean packing and shipping materials to prevent contact with contaminated waste. Packing materials shall be removed, whenever possible, before entering a radiologically contaminated area.

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#### 4.0 RESPONSIBILITIES (cont.)

#### 4.2 Environmental Engineering (EE) shall be responsible for the following:

- 4.2.1 Developing a RCRA project file for each project.
- 4.2.2 Ensuring that an adequate waste sampling request is developed.
- 4.2.3 Coordinating with the Project Management/Project Engineering to review the CWID form.
- 4.2.4 Responding to waste handling problems on a case-by-case basis.

#### 4.3 Industrial, Radiological Safety and Training (IRS&T) shall be responsible for the following:

- 4.3.1 Performing preliminary surveys to assist in identifying contaminated locations and the quantity of contaminated construction waste that will be generated. This survey will also be used by Environmental Engineering to determine any sampling locations for waste characterization.
- 4.3.2 Surveying waste and debris generated during a project for surface contamination prior to releasing it as waste, and monitoring the site for radiological safety purposes.
- 4.3.3 Sampling asbestos material or material that may contain asbestos.
- 4.3.4 Arranging for laboratory analysis to determine the presence of asbestos in samples.
- 4.3.5 Notifying the Project Engineer or Planner/Estimator of asbestos sample analysis results.
- 4.3.6 Specifying protective equipment required for personnel handling asbestos, RCRA, mixed waste material, and/or radioactive material.

#### 4.4 Environmental Monitoring (EM) shall be responsible for the following:

- 4.4.1 Developing the Project Sampling Plan as requested by Environmental Engineering, in accordance with departmental procedures.
- 4.4.2 Taking field samples in accordance with applicable department procedures and the Project Sampling Plan.

#### 4.5 Environmental Restoration shall be responsible for the following:

- 4.5.1 Providing CERCLA integration guidance.

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4.0 RESPONSIBILITIES (cont.)

4.5.2 Maintaining the Administrative Record.

4.5.3 Providing information pertaining to radiological or other hazardous substances contamination from CERCLA activities at the construction area.

4.5.4 Reviewing RSE documents prior to submitting to DOE.

4.6 Sitewide Quality Assurance (SQA) shall be responsible for the following:

4.6.1 Inspecting waste containers to verify container integrity.

4.6.2 Verifying preparation of containers before they are filled.

4.6.3 Observing containers being filled with waste and debris to verify adherence to applicable departmental procedures and the CWID.

4.6.4 Completing material identification documentation, obtaining the supervisors signature on the documents, and delivering the documentation to Materials Control and Accountability (MC&A).

4.6.5 Issuing Deviation Reports (DR) and Corrective Action Reports (CR) when waste is not handled in accordance with departmental procedures, the CWID, or CESHWS.

4.6.6 Preparing and issuing a "Sitewide Quality Surveillance Checklist".

4.7 Materials Control and Accountability (MC&A) shall be responsible for the following:

4.7.1 Maintaining an inventory of filled containers.

4.7.2 Producing documentation to move filled containers to storage.

4.8 Maintenance shall be responsible for the following:

4.8.1 The Site Services Department Maintenance Planner/Estimator shall perform the PM/PE responsibilities as follows:

4.8.1.1 Consulting with representatives of other involved departments to plan waste handling methods, determine material disposition (reusable or waste), and discuss waste minimization options.

4.8.1.2 Initiating RD/RC requests for maintenance projects.

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- 4.8.1.3 Monitoring FEMP and subcontractor personnel to ensure that contaminated waste is handled in accordance with applicable departmental SSOPs.
- 4.8.2 Obtaining approved on-site disposition locations from Environmental Engineering and Waste Management for waste generated from the project.
- 4.8.3 Ensuring that free liquids are removed from process equipment prior to project start. Provide the signed documentation to Environmental Engineering and/or F&ME for RCRA Project file.
- 4.8.4 Providing MC&A with the container's serial number, and getting an inventory number from MC&A.
- 4.9 Site Services shall be responsible for the following:
  - 4.9.1 Coordinating delivery of empty containers to the packaging site.
  - 4.9.2 Preparing a designated location for receiving contaminated materials to be stored prior to shipment.
  - 4.9.3 Making the required preparation for International Shipping Order (ISO) (sea/land) container loading.
  - 4.9.4 Providing final closure for ISO containers.
  - 4.9.5 Providing material movement services (including weighing filled containers and delivering containers to and from the site) and providing proper shipping documentation.
- 4.10 Waste Management shall be responsible for the following:
  - 4.10.1 Participating in the development of the Waste Sampling Request and providing concurrence on the final request.
  - 4.10.2 Issuing a RCRA Determination/Radiological Characterization (RD/RC) Letter based on process knowledge and/or sample results.
  - 4.10.3 Identifying disposition locations for all streams.
  - 4.10.4 Shipping materials designated for shipment.
  - 4.10.5 Management of soil and debris which is to be stored at the FEMP.

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## 5.0 GENERAL

- 5.1 The "Contaminated Waste Packaging Requirements" (see Table 1 for requirements) shall be followed for each type of contaminated waste to be shipped to a DOE burial site.
- 5.2 Containers that exceed the specified capacity shall be returned to the job site to bring the container within limits.
- 5.3 The following materials shall not be packaged in box type containers for shipment to a designated DOE burial site.
- (A) Resource Conservation and Recovery Act (RCRA) hazardous wastes.
  - (B) Pressurized vessels
  - (C) Explosives
  - (D) Radioactive gases
  - (E) Pyrophoric materials
  - (F) Toxic or poisonous substances (except asbestos containing materials)
  - (G) Reactive material
  - (H) Liquid metals
  - (I) Flammable substances
  - (J) Alkaline metals
  - (K) Liquid organic waste
  - (L) Waste containing free liquid, dry powder, or respirable fines that have not been immobilized per NVO-325.
  - (M) PCBs
  - (N) Etiologic agents
  - (O) Chelating agents

**NOTE:** Packaging of materials listed in 5.3 shall be handled on a case-by-case basis by Environmental Engineering.

- 5.4 Asbestos shall be packaged in accordance with applicable IRS&T departmental procedures.
- 5.5 The appropriate CERCLA Programs Operable Unit Manger shall review completed RSE documents to ensure that all CERCLA requirements have been met and then forward the RSE to DOE for review and approval.

## 6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

None

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## 7.0 PROCEDURE

### 7.1 Pre-project Planning/Estimating

**NOTE:** A pre-project meeting attended by departmental representatives involved in the Project shall be held. Project interface requirements shall be addressed and agreed to by all. The meeting may incorporate the project site walkdown to review the project scope for sampling and waste characterization. No excavation, demolition, or penetration activities will be allowed to begin until a RCRA Determination/Radiological Characterization has been completed for the associated project. This includes projects not generating soil, debris, or waste. When an emergency situation occurs and work must begin before the RD/RC is completed, authorization to generate the waste must be obtained from Waste Management.

#### PROJECT MANAGEMENT & MAINTENANCE (PM&M)

- 7.1.1 Prepare form FMPC-CONT-563, "Property Disposal Request" (see Figure 3) per applicable department procedures before equipment (tagged or untagged) is removed.
- 7.1.2 Instruct subcontractors to segregate clean packing and shipping materials to prevent contact with contaminated waste. Packing materials shall be removed, whenever possible, before entering a radiologically contaminated area.
- 7.1.3 Prepare a draft form FMPC-CONST-2716, "Construction Waste Identification/Disposition" (CWID) sheet (see Figure 2).

**NOTE:** Accuracy and detail are required in preparing the CWID since the CWID and supporting documentation may be used by the planner/estimator or the subcontractor to estimate the costs associated with handling construction wastes and by F&ME for completion of RD/RC. The CWID is also used to report and quantify the estimated waste versus the actual waste generated at the completion of the project and to quantify the amounts and waste types for use on the CESHWS form (see Table 2 and Figure 1, for requirements).

- 7.1.3.1 Complete Part II of the CWID using the waste requirements provided.

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7.0 PROCEDURE (cont.)

**PROJECT MANAGEMENT & MAINTENANCE (PM&M)**

7.1.4 Forward preliminary project information to Environmental Engineering.

**NOTE:** Environmental Engineering will expedite RCRA Determination/Radiological Characterization (RD/RC).

**ENVIRONMENTAL ENGINEERING**

7.1.5 Initiate a RCRA Project File for each project.

7.1.6 Issue priorities list for RD/RC and update status information.

7.1.7 Consult with the applicable departments and conduct a project site walkdown.

**NOTE:** The following groups should be represented: Facility Owner, PM/PE, Radiological Safety, Waste Management, Environmental Monitoring, and CERCLA Program Group (depending on the nature of the project, other groups may also be required).

7.1.8 Document the walkdown using process and historical knowledge.

7.1.9 Submit a request for Radiological Safety to survey the project site.

**NOTE:** The result of this survey, along with historical and process knowledge, shall be used in the preparation of a Waste Sampling Request.

7.1.10 Complete an "Environmental Media Sampling Request", Form FMPC-EM-3307 (see Figure 4).

7.1.11 Obtain F&ME concurrence with the Waste Sampling Request.

7.1.12 Submit the Waste Sampling Request to Environmental Monitoring.

**ENVIRONMENTAL MONITORING**

7.1.13 Prepare and obtain approval of a "Construction Excavation/Penetration Permit", Form FMPC-T-2711 (see Figure 5) for field sampling.

7.1.14 Using the Waste Sampling Request provided by Environmental Engineering, develop the Project Sampling Plan.

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## 7.0 PROCEDURE (cont.)

### ENVIRONMENTAL MONITORING

- 7.1.15 Take samples in accordance with the sampling plan.
- 7.1.16 Submit samples to the analytical lab for analysis.
- 7.1.17 Notify Environmental Engineering that sampling is complete and that samples have been sent to the lab.

### ENVIRONMENTAL ENGINEERING

- 7.1.18 Track and expedite lab analysis.
- 7.1.19 Update information for projects on the RCRA priority list.

### ENVIRONMENTAL MANAGEMENT

- 7.1.20 Perform analysis of samples per the applicable department procedures.

**NOTE:** Samples may be submitted to an off-site laboratory.

- 7.1.21 Forward analysis results to Environmental Engineering and Environmental Monitoring.

### ENVIRONMENTAL ENGINEERING

- 7.1.22 Review the analysis results from the lab and complete the RCRA Project File.
- 7.1.23 Transmit the RCRA Project File to F&ME and the completed analytical data package to Environmental Monitoring.
- 7.1.24 Using analysis results, update the FEMP Site Sampling Data Base.

### WASTE MANAGEMENT

- 7.1.25 Using the information provided by the RCRA Project File prepare and issue RCRA Determination/Radiological Characterization (RD/RC) letter (see Table 2 and Figure 7 for requirements).
- 7.1.26 Provide disposition location for all waste streams.

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7.0 PROCEDURE (cont.)

**PROJECT MANAGEMENT & MAINTENANCE**

7.1.27 Revise the CWID based on the RD/RC letter.

7.1.28 Consult with Environmental Engineering and review the CWID form to identify and document the disposition location for each waste.

**NOTE:** A consideration of waste minimization possibilities shall be included.

7.1.29 Obtain required approvals for the completed CWID.

**NOTE:** The waste planning phase of a construction project is complete when the CWID is approved and issued.

7.1.30 Contact Environmental Engineering to determine the type of waste containers necessary for packaging contaminated and hazardous waste.

**PROJECT MANAGEMENT**

7.1.31 Develop a set of excavation and demolition drawings specifying contamination levels for soil and equipment and listing construction wastes, weights, and volumes.

7.1.32 If excavation involves potentially hazardous substances or if more than 1 cubic yard of soil is to be removed, draft an RSE.

7.1.33 Transmit the RSE to the appropriate CERCLA Program Operable Unit (OU) Manager for review.

**ENVIRONMENTAL RESTORATION**

7.1.34 Review the draft RSE to determine the need for CERCLA removal action.

7.1.35 Submit the RSE to DOE for approval.

**NOTE:** DOE will determine if a specific CERCLA removal action is required.

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## 7.0 PROCEDURE (cont.)

### PROJECT MANAGEMENT

7.1.36 Complete form FMPC-Q-2717, "Construction Environmental Safety and Health Work Survey" (CESHWS) per Project Management department procedure.

7.1.37 Post the CESHWS and supporting documentation in the work area.

7.1.38 Post a "Prohibited Materials List" on the waste containers.

## 7.2 Controlling and Disposing of Uncontaminated Waste

### PROJECT MANAGEMENT

7.2.1 After the project starts, waste and debris shall be handled in accordance with the CESHWS posted in the work area. The CESHWS shall have the completed CWID and all supporting documentation required for waste identification and compliance attached.

7.2.1.1 If changes are required, except for minor modifications in quantities, revise and reissue the CWID and CESHWS with all approvals.

7.2.1.2 In order for bulk material (i.e. soil, concrete, and liquid) from a radioactive material management area to be free-released, analytical data and appropriate process knowledge shall be required in order to obtain approval from Radiation Safety.

## 7.2.2 Uncontaminated Soil

### PROJECT MANAGEMENT

7.2.2.1 Contact Radiological Safety and request that a radiation survey be conducted.

### RADIATION SAFETY

7.2.2.2 Survey the truck that is to be loaded to ensure that applicable transportation limits are not exceeded as specified by departmental procedures.

**NOTE:** If transportation limits are exceeded do not use the truck.

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7.0 PROCEDURE (cont.)

**RADIATION SAFETY**

7.2.2.3 Complete a Radiological Survey Report.

7.2.2.4 Release loaded truck to the designated and marked location as specified by Waste Management for unloading.

NOTE: Soil shall be unloaded in the designated controlled area within one hour. No loads, full or partial, shall sit overnight.

7.2.2.5 Deliver a copy of the Radiological Survey Report(s) to PM.

NOTE: A survey report is required for each load.

7.2.3 Uncontaminated Debris and Waste

**PROJECT MANAGEMENT**

7.2.3.1 Request that Radiological Safety conduct a survey for unrestricted release.

**RADIATION SAFETY**

7.2.3.2 Survey the debris and waste to identify contaminated spots.

7.2.3.3 Notify the PM/PE of survey results.

**PROJECT MANAGEMENT**

7.2.3.4 Consult with the subcontractor to remove and package contaminated waste and debris that may be present in accordance with the CWID or CESHWS.

**RADIATION SAFETY**

7.2.3.5 Survey the construction site and establish a staging area that will prevent radiological contamination of materials.

**PROJECT MANAGEMENT & MAINTENANCE (PM&M)**

7.2.3.6 Contact Site Services and arrange for delivery of a lockable dumpster.

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## 7.0 PROCEDURE (cont.)

### PROJECT MANAGEMENT & MAINTENANCE (PM&M)

7.2.3.7 Locate the lockable dumpster in the staging area specified by Radiological Safety.

7.2.3.8 As waste and debris is generated, ensure that material is moved to the staging area and placed outside the dumpster until the waste is monitored by Radiological Safety.

**NOTE:** Waste shall not remain outside the dumpster overnight.

### IRS&T

7.2.3.9 Survey collected waste to ensure that no contaminated waste enters the dumpster.

### PROJECT MANAGEMENT

7.2.3.10 Have the subcontractor place the verified clean waste into the dumpster.

**NOTE:** The dumpster shall be picked up after project completion or when the dumpster is full.

## 7.3 Controlling and Disposing of Contaminated Waste

**NOTE:** Loose or removable contamination shall be removed (as practicable) prior to demolition or removal of contaminated or hazardous construction waste. Contaminated waste removal shall be coordinated with waste operations high level cleaners and Site Maintenance.

**NOTE:** Excavation/demolition activities involving contaminated materials shall be accomplished in accordance with the Site Specific Safety and Health Plan (SSHP). The SSHP addresses abatement processes required to protect human health and the environment.

### PROJECT MANAGEMENT & MAINTENANCE

7.3.1 Contact Inventory Control and Warehousing and obtain containers required for project.

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7.0 PROCEDURE (cont.)

**PROJECT MANAGEMENT & MAINTENANCE**

7.3.2 Contact Sitewide Quality Assurance and request that waste containers be inspected during preparation and loading.

**NOTE:** Sitewide Quality Assurance shall be notified at least one hour in advance.

**SITEWIDE QUALITY ASSURANCE**

7.3.3 Ensure that the container is loaded and secured in accordance with applicable SSOPs (SSOP-0024).

7.3.4 Coordinate with the subcontractor to segregate and package construction waste (Refer to CWID OR CESHWS).

**NOTE:** Packaging shall be in accordance with the SSHP.

**NOTE:** Material too large for the designated container shall be reduced in size by the subcontractor.

**NOTE:** Material designated for future use shall be handled as specified on the CWID.

7.3.5 Install a status indicator on the container.

7.3.6 Complete Form FMPC-CONT-1945-XX, Item Production/Certification/Identification (W-65 card). (See Figure 6)

**PROJECT MANAGEMENT & MAINTENANCE**

7.3.7 When the container is secure, sign the Item Production/Certification/Identification (W-65 card), most recent update, as "generator".

7.3.8 Coordinate with MC&A to transport waste to the disposition location.

**SITE SERVICES**

7.3.9 Transport containers from the job site to the scale to be used for weighing.

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## 7.0 PROCEDURE (cont.)

### SITE SERVICES

7.3.10 Weigh the material in accordance with SSOP-0024.

**NOTE:** Waste containers shall be prepared in accordance with SSOP-0024, "Packaging Low Level Radioactive Waste (LLRW) for Offsite Disposal"

7.3.11 Record the weight on the Item Production/Certification/Identification (W-65 card).

7.3.12 Coordinate with MC&A to transport the containers to designated storage location.

7.3.13 Contact MC&A when a box must be emptied for any reason.

### PROJECT MANAGEMENT

7.3.14 Prepare a final CWID when the project is complete and submit a copy to F&ME for the RCRA Project file.

## 8.0 APPLICABLE DOCUMENTS

### 8.1 Drivers

8.1.1 DOE Order 5480.5, "Radiation Protection of the Public and the Environment"

8.1.2 Title 40 CFR, Parts 260, 261 "Resource Conservation and Recovery Act", and 300, "Comprehensive Environmental Response Compensation Liability Act"

### 8.2 References

8.2.1 PO-D-035, "Shipment of Low Level Radioactive Waste Requirements"

8.2.2 PP-0314, "Packaging, On-site Movement and Offsite Shipment of Material"

8.2.3 SSOP-0024, "Packaging Low Level Radioactive Waste for Off-Site Disposal"

8.2.4 SSOP-0027, "Control of Box-Type Containers"

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## 9.0 APPLICABLE FORMS

- 9.1 FMPC-CONST-563, "Property Disposal Request"
- 9.2 FMPC-PM&A-2716, "Construction Waste Identification and Disposition"
- 9.3 FMPC-EM-3307, "Environmental Media Sampling Request"
- 9.4 FMPC-T-2711, "Construction Excavation/Penetration Permit"
- 9.5 FMPC-Q-2717, "Construction Environmental Safety and Health Work Survey"
- 9.6 FMPC-CONT-1945-XX, "Item Production/Certification/Identification"

## 10.0 FIGURES

- 10.1 Figure 1, "Construction Environmental Safety and Health Work Survey"
- 10.2 Figure 2, "Construction Waste Identification/Disposition"
- 10.3 Figure 3, "Property Disposal Request"
- 10.4 Figure 4, "Environmental Media Sampling Request"
- 10.5 Figure 5, "Construction Excavation/Penetration Permit"
- 10.6 Figure 6, "Item Production/Certification/Identification"
- 10.7 Figure 7, "Construction Waste Requirements"

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**TABLE 1  
CONTAMINATED WASTE PACKAGING REQUIREMENTS**

MATERIALS <sup>(1)</sup>	METAL CONTAINERS	DRUMS	INTERNATIONAL SHIPPING ORGANIZATION (ISO)	CONTAMINATED DUMPSTERS
Metal refuse	Yes	N/A	Yes <sup>(2)</sup>	N/A
Scrap wood/pallets	Yes	N/A	Yes	Yes
Concrete	Yes	N/A	N/A	N/A
Soil	Yes	N/A	N/A	N/A
Asbestos	Yes	N/A	Yes	N/A
Misc. trash	N/A	N/A	N/A	Yes <sup>(2)</sup>
Floor sweepings/dust collector residues	N/A	Yes <sup>(2)</sup>	N/A	N/A

(1) RCRA material shall be handled on a case-by-case basis.

(2) Refer to SSOP-0024 for specific packaging guidelines.

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**TABLE 2  
RADIOLOGICALLY CONTAMINATED AND UNCONTAMINATED CONSTRUCTION WASTE  
DEFINITIONS AND DISPOSITION REQUIREMENTS**

MATERIAL	MAXIMUM CONCENTRATION <sup>(1)</sup>	
	Category 1	Category 2
Depleted uranium	≤ 100	> 100
Enriched uranium	≤ 100	> 100
Thorium	≤ 50	> 50

<sup>(1)</sup> In Picocuries per gram (pCi/gm).

Category 1

Less than or equal to 100 pCi/g, nonhazardous

Category 2

Greater than 100 pCi/g, nonhazardous



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**CONSTRUCTION ENVIRONMENTAL SAFETY AND HEALTH WORK SURVEY  
(CONTINUED)**

1. Hot Cuts on ductwork, equipment and piping shall be made by mechanical means only.  
 YES  NO (If yes, describe special instructions.)

---

2. Space restrictions:  YES  NO (If yes, check appropriate restrictions and give details.)  
 JOB ACCESS     STORAGE AREA     TOILET FACILITIES

---

3. Special instructions:  
 YES  NO (If yes, give details.)  
 OPERATIONAL REQUIREMENTS

ADDITIONAL JOB HAZARDS (Not covered on ESHI work sheet form.)

---

GENERAL (Item No.):

---

PILE PREVENTION (Item No.):

---

ELECTRICAL (Item No.):

---

NUCLEAR AND SYSTEM CRITICALITY SAFETY:

---

HEALTH PHYSICS:

---

INDUSTRIAL HYGIENE:

---

ENVIRONMENTAL COMPLIANCE:

---

Construction Rubble Disposal Required:		
TYPE OF MATERIALS	APPROXIMATE QUANTITY	DISPOSAL AREA
1.		
2.		
3.		
4.		
5.		

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Fernald Site  
CONTROLLER - GENERAL ACCOUNTING  
PROPERTY DISPOSAL REQUEST

JOURNAL VOUCHER NO.	CONTROL NO.
FOR GENERAL ACCOUNTING USE ONLY	
C O S T	Basic .....
	Other .....
	Accumulated Depreciation .....
	Net Book Cost .....
Acquisition Date:	R.U. No.:
Estimated Cost:	

Date: \_\_\_\_\_

**SECTION - A**

DESCRIPTION	LOCATION	
ISSUE NO.	EQUIPMENT NO.	
MANUFACTURER	DOES UNIT CONTAIN PRECIOUS OR CRITICAL MATERIALS? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, TYPE	
MODEL NO. (If Serial no.) Lot Stock no. 1	CHECK ONE YES ! NO N A	
SERIAL NO.		Are spare parts available? .....
USE NO. MATERIAL EVALUATION FORM:		Are manuals available? .....
SIZE OR CAPACITY	Are spare parts to be excessed? .....	
	Material Evaluation Form .....	
	Material Safety Data Sheet .....	

SURPLUS  NON-SURPLUS

**SECTION - B**

PHYSICAL CLASSIFICATION	DISPOSAL CONDITION CODE	1 = Unused - good	4 = Used - good	7 = Repairs Required - good
		2 = Unused - fair	5 = Used - fair	8 = Repairs Required - fair
		3 = Unused - poor	6 = Used - poor	9 = Repairs Required - poor

Excess: 1 2 3 4 5 6 7 8 9

Salvage: REASON FOR CLASSIFICATION AS SALVAGE

Scrap: REASON FOR CLASSIFICATION AS SCRAP

DOE Scrap Approval: SIGNATURE & DATE

ADP EQUIPMENT:  Information Erased from Hard Disk  
 Information Not Erased from Hard Disk

CLASSIFIED BY: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

EXCESS DISPOSAL COORDINATOR & DATE: \_\_\_\_\_

PROCUREMENT DIRECTOR & DATE: \_\_\_\_\_

**SECTION - C**

MONITOR DATA: Type of contamination -  Normal  Enriched  Depleted  Other

See attached Radiological Monitoring Data Sheet

INITIATOR	STAFF MANAGER
PRINT OR TYPE	PRINT OR TYPE
SIGNATURE	SIGNATURE

**SECTION - D**

RECEIVED RECLAMATION AND DISPOSAL AREA	EXCESS DISPOSAL COORDINATOR & DATE	REVIEWED BY STOREKEEPER	STOREKEEPER & DATE
--	------------------------------------	-------------------------	--------------------

**SECTION - E**

**PREPARATION AND ROUTING:**

1. Initiator prepares original and five (5) copies and completes Section A.
2. Initiator corrects the EDC and completes Section B.
3. Initiator has excesses monitored by ERM/T and completes Section C.
4. Initiator has form approved by Staff Manager.
5. Initiator forwards all copies to EDC via Stores Warehouse Supervisor.
6. EDC and Storekeeper complete Section D.
7. All Copies are then sent to Property Accounting who numbers forms and retains original and one copy, sends one copy to originator, one copy to ADP Department Head, and two copies to EDC.
8. Initiator upon receipt of two controlled numbered forms affixes one to excessed items and retains one for record purposes.
9. Initiator calls EDC to coordinate removal of items.

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PROPERTY DISPOSAL REQUEST  
FORM FMPC-CONST-563  
Figure 3

CIS

CIS

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ENVIRONMENTAL MEDIA SAMPLING REQUEST # _____												
(To be completed by requester)												
Project Name: _____					Project/WO #: _____							
Requester: _____					Phone #: _____							
Field Contact: _____					Phone #: _____							
Charge #: _____												
PROJECT INFORMATION												
Regulatory Driver (e.g. RCRA, RI/FS, CERCLA, DOE Order, ARAR's) _____												
Objective: _____												
Scope of Work: _____												
Requested completion date: _____												
Location of samples (attach maps, blueprints and/or surveys): _____												
Special instructions: _____												
* SOLID	** LIQUID	MULTIPHASE SLUDGE	ANALYSIS TABLE (see reverse for listing)							Archives		
			1	2	3	4	5	6	7			
Concrete/Asphalt	Drum	Drum										
Soil	Tank	Tank										
Surface	Sump	Sump										
1 ft   6 ft	Pit	Pit										
2 ft   7 ft	Basin	Basin										
3 ft   8 ft	Other	Other										
4 ft   9 ft												
5 ft   10 ft												
Paint												
Residue												
Other												
* Soil depths greater than 10 ft attach additional instructions.												
** Liquids with greater than 5% solid per volume are considered multiphase.												
Analysis Support Level								A	B	C	D	E
CONCURRENCE												
Environmental Engineering: _____					Date: _____							
Facility Material Evaluation: _____					Date: _____							
Requester Signature: _____					Date: _____							
Date Received: _____			Scheduled Start Date: _____			Scheduled Completion Date: _____						

Title: MANAGEMENT OF SOIL, DEBRIS, AND WASTE FROM A  
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 H. F. Daugherty, President

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 Dated 02-19-92

Effective Date: 06-19-92

TABLE 1 TCLP (Full Spectrum)		TABLE 2 METALS — TCLP — TOTALS		TABLE 3 PENT/HERB — TCLP — TOTALS		TABLE 4 VOA/SEMI VOA — TCLP — TOTALS		TABLE 5 RAD		TABLE 6 TOTAL VOA		TABLE 7	
<b>METALS</b>	<b>SEMI VOLATILES</b>	<b>METALS</b>	<b>METALS</b>	<b>PENT/HERB</b>	<b>VOLATILES</b>	<b>SEMI VOLATILES</b>	<b>Radionuclides</b>	<b>Radionuclides</b>	<b>Radionuclides</b>	<b>Radionuclides</b>	<b>Radionuclides</b>	<b>Radionuclides</b>	<b>Radionuclides</b>
Arsenic	1,4 - Dichlorobenzene	Arsenic	Lead	2,4 - D	Benzene	1,4 - Dichlorobenzene	Cs 137	Co 60	Am 241	Acetone	Am 241	Am 241	Am 241
Barium	2,4 - Dinitrochlorobenzene	Barium	Mercury	Endrin	Carbon Tetrachloride	2,4 - Dinitrochlorobenzene	Np 237	Po 210	Pu 238	Benzene	Po 210	Po 210	Po 210
Cadmium	Hexachlorobenzene	Cadmium	Selenium	Lindane	Chlorobenzene	Hexachlorobenzene	Pu 239/240	Ra 226	Ra 226	Carbon Disulfide	Ra 226	Ra 226	Ra 226
Chromium	Hexachlorocyclopentadiene	Chromium	Silver	Toxaphene	Chlorobenzene	Hexachlorocyclopentadiene	Ra 228	Ra 228	Ra 228	Carbon Tetrachloride	Ra 228	Ra 228	Ra 228
Lead	Hexachloro - 1,3 - Benzodioxane	Lead		2,4,5 - TP Acid (Solvent)	Chloroform	Hexachloro - 1,3 - Benzodioxane	Ra 106	Ra 106	Ra 106	Chlorobenzene	Ra 106	Ra 106	Ra 106
Mercury	Nitrobenzene	Mercury			2 - Butane	Nitrobenzene	Tc 99	Tc 99	Tc 99	Chloroethane	Tc 99	Tc 99	Tc 99
Selenium	Pentachlorophenol	Selenium			1,1 - Dichloroethane	Pentachlorophenol	Tb Total	Tb Total	Tb Total	Chloromethane	Tb Total	Tb Total	Tb Total
Silver	2,4,5 - Trichlorophenol	Silver			1,2 - Dichloroethane	2,4,5 - Trichlorophenol	Tb 228	Tb 228	Tb 228	1,1 - Dichloroethane	Tb 228	Tb 228	Tb 228
	2,4,6 - Trichlorophenol				Tetrachloroethylene	2,4,6 - Trichlorophenol	Tb 230	Tb 230	Tb 230	1,2 - Dichloroethane	Tb 230	Tb 230	Tb 230
	o - Cresol				Trichloroethylene	o - Cresol	Tb 232	Tb 232	Tb 232	Trans - 1,2 - Dichloroethane	Tb 232	Tb 232	Tb 232
	m - Cresol				Vinyl Chloride	m - Cresol	U Total	U Total	U Total	o - Dichlorobenzene	U Total	U Total	U Total
	p - Cresol					p - Cresol	U 234	U 234	U 234	2 - Ethoxyethanol	U 234	U 234	U 234
	Pyridine					Pyridine	U 235/236	U 235/236	U 235/236	Fahyl Acetate	U 235/236	U 235/236	U 235/236
							U 238	U 238	U 238	Ethyl Benzene	U 238	U 238	U 238
							U 238 Alpha/Beta	U 238 Alpha/Beta	U 238 Alpha/Beta	Ethyl Ether	U 238 Alpha/Beta	U 238 Alpha/Beta	U 238 Alpha/Beta
										Isobutanol			
										Methanol			
										Methyl Isobutyl Ketone			
										Methyl Ethyl Ketone			
										Methylene Chloride			
										Nitrobenzene			
										2 - Nitropropane			
										Pyridine			
										Tetrachloroethylene			
										Toluene			
										1,1,1 - Trichloroethane			
										1,1,2 - Trichloro-1,2,2			
										Trifluoroethane			
										Trichlorofluoromethane			
										Vinyl Chloride			
										Xylenes			

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**FEED MATERIALS PRODUCTION CENTER**

**CONSTRUCTION EXCAVATION/PENETRATION PERMIT**

Issued to: \_\_\_\_\_ Date Issued: \_\_\_\_\_  
 WACO Permit No.: \_\_\_\_\_ Subcontractor W.O. No.: \_\_\_\_\_  
 WACO Project/Title No.: \_\_\_\_\_/  
 Plant: \_\_\_\_\_ Location: \_\_\_\_\_  
 Scope of Work: \_\_\_\_\_

This permit is issued on the basis of available information, and may not be a complete description of all obstructions. Stop work immediately, and contact the WACO Project Engineer if obstructions, other than those defined, are encountered.

The following utilities are known to exist in the EXCAVATION/PENETRATION area, and a sketch or drawing defining the same utilities is attached for verification to this permit.

\_\_\_\_\_

Drawings: \_\_\_\_\_

Special Hazards and/or Precautions: \_\_\_\_\_

Disposal of Excavated Material: Yes  No

If NO is checked, excavated dirt may be used for backfill provided it meets engineering specifications for backfill. Construction rubble from the EXCAVATION/PENETRATION must be disposed of as described below.

<u>Material Type</u>	<u>Disposal Area</u>	<u>Material Type</u>	<u>Disposal Area</u>
_____	_____	_____	_____
_____	_____	_____	_____

Note: Contractors shall notify appropriate utilities for work outside the plant boundaries in accordance with Ohio Underground Utility Damage Act. All drilling and cutting tools shall be grounded in accordance with OSHA regulations.

The following approvals are required as determined, and checked by the WACO Project Engineer.

\_\_\_\_ Civil Engineer \_\_\_\_\_ Electrical Engineer \_\_\_\_\_  
 \_\_\_\_ Utilities Engineer \_\_\_\_\_ Others \_\_\_\_\_

The following approvals are required on all CONSTRUCTION EXCAVATION/PENETRATION PERMITS:

WACO Project Engineer/Phone No.: \_\_\_\_\_  
 Operational Supervisor/Phone No.: \_\_\_\_\_  
 Waste Mgmt. Operations/Phone No.: \_\_\_\_\_  
 Industrial Safety/Phone No.: \_\_\_\_\_  
 Health Physics/Phone No.: \_\_\_\_\_  
 Env. Compliance/Phone No.: \_\_\_\_\_

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CARD XX      ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION      159791

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE			SHIFT	BADGE NO.	PACKAGE NO.
					MO	DAY	YEAR			
SEAL NUMBER		SEAL DATE			PACKAGE PHYSICAL CERTIFICATION			PLANT	PROD. MBA	GROSS WEIGHT
MONTH   DAY   YEAR		YES   NO						PLANT TO	MBA TO	
WASTE DESCRIPTION AND COMMENTS					EMPTY CONTAINER AT START					TARE WEIGHT
					RUST HOLES OR DENTS					
					MATERIAL IS AS CODED					NET WEIGHT
					PROHIBITED MATERIALS					
					LIQUIDS IN CONTAINER					
PACKAGE TYPE					MINIMUM OF VOID SPACE					
PACKAGE SIZE					PACKAGE SECURED					
					DRAIN PLUG SECURED					
GENERATOR SIGNATURE					SUPERVISOR SIGNATURE			DATE		

FMPC-CONT-1945-EX (REV. 12/19/88)

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION  
FORM FMPC-CONT-1945-XX  
Figure 6

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## SOIL, DEBRIS AND WASTE REQUIREMENTS

### I SOIL

1. Soils within the Category 1 limits (see Table 2) may be used as backfill on the project or stockpiled in designated Category I soil areas.
2. Soils within Category 2 may be used as backfill or stockpiled in designated Category II soil areas.
3. All soil temporarily stockpiled at the project site during the project will be placed on plywood, tarps, or plastic and covered with plastic sheeting or tarps to prevent wind or rain erosion. Chain link fencing is required around soil piles which are stored for extended periods. Waste Management will determine when fencing is required.
4. When an emergency situation occurs and excavation must be done before characterization can be completed, the soil can be temporarily stockpiled at the project site. The soil will be placed on plastic, tarps or plywood and covered with plastic sheeting or tarps to prevent wind or rain erosion. Soil can be used as backfill, however the excess soil must be characterized. Characterization must be completed immediately after the job has been finished. A project is not considered complete until the excess soil is adequately characterized and removed from the job site. Chain link fencing is required around soil piles which are stored for extended periods. Waste Management will determine when fencing is required.

### II DEBRIS

#### A. RUBBLE

1. All rubble that can not be free released in accordance with IRS&T departmental procedures shall be packaged for shipment to a designated DOE burial site.

#### B. METAL

1. Metal waste is categorized as recoverable or nonrecoverable. Recoverable metal consists of ferrous (carbon steel material such as structural shapes and piping) and non-ferrous (stainless steel, copper, aluminum, lead, brass, monel inconel, or nickel) material. Nonrecoverable consists of oxidized sheet metal and mixed metals, and metal that cannot be decontaminated to meet free-release limits as specified in IRS&T departmental procedures.

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## SOIL, DEBRIS AND WASTE REQUIREMENTS

### B. METAL

2. Metal can be released for unrestricted use provided that it meets the requirements specified in applicable IRS&T departmental procedures.
3. Contaminated metal that is decontaminated to meet free-release limits specified in IRS&T department procedures shall be released for burial at a sanitary landfill or sold as scrap.
4. Nonrecoverable metal shall be packaged for shipment to a designated DOE burial site.
5. Recoverable metals shall be stored on-site to support the excess metal sales program.

### C. PROCESS EQUIPMENT

1. Reusable equipment, such as machine tools, valves, and instruments, shall be classified as future-use material.
2. Equipment that is not re-usable shall be classified by waste type and disposed of in the same manner as other waste.

### D. WOOD

**NOTE:** Pressure-treated wood shall be segregated pending RCRA determination.

1. Wood scrap (such as pallets, crates, form lumber, sheeting, and similar material) generated by construction activities shall be surveyed by Radiological Safety to determine if it meets the requirements specified in department procedures.

Wood removed during the demolition phase of construction shall be reviewed by the Radiological Safety Lead Technician, on a case by case basis.

2. The Radiological Safety Technician (RST) shall determine if the wood has been exposed to radioactive materials and if the material is surveyable.

**NOTE:** Based on RST findings, the wood shall be processed as Low-Level Waste (LLW) or certified clean and free released.

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## SOIL, DEBRIS AND WASTE REQUIREMENTS

### E. ASBESTOS

1. Materials that contain asbestos or that are suspected to be asbestos, shall be handled as asbestos.
2. All asbestos material shall be handled according to applicable IRS&T department procedures.

### F. POLYCHLORINATED BIPHENOLS (PCBs)

1. PCB material consists of transformers, capacitors, and similar electrical equipment containing PCBs and material (gloves, rags, spill absorbents) that has been used in removing PCB-containing equipment from service or for clean-up of spills of PCB-containing materials.
2. PCBs shall be packaged and stored at a location specified by Environmental Compliance.

### G. OTHER

1. Construction waste (liquid or solid) not specifically categorized on the Construction Waste Identification and Disposition (CWID) form posted in the area shall be handled on a case-by-case basis by Environmental Engineering and Radiological Safety.
2. When hazardous or mixed waste is to be generated on a project, a Material Evaluation Form (MEF) must be completed for that waste stream prior to the generation of the waste.
3. All hazardous and mixed wastes must be containerized and packaged in accordance with applicable site procedures.

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
06-19-92	0	Procedure for controlling and minimizing waste produced by construction and/or maintenance projects, required per Request No. P91-028, initiated by S. Lund.

FEMP WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		Page 1 of 19 Revision No. 0 <b>3530</b>
SITE SERVICES PROCEDURE	SHIPMENT OF LOW LEVEL RADIOACTIVE WASTE REQUIREMENTS	PO-D-035
		DEPARTMENT PROCEDURE
Authorization: S. J. Dechter, Site Services (Signature on File)		Supersedes: None
		Issue Date: 02-28-92

1.0 PURPOSE

This document defines the requirements for the shipment of Low Level Radioactive waste.

2.0 APPLICABILITY

The requirements apply to the off-site shipment of low level radioactive waste (LLRW) at the FEMP.

3.0 DEFINITIONS

- 3.1 Bulk Materials - Objects of nonradioactive material externally contaminated with radioactive material. These objects or articles, such as scrap wooden pallets and boxes, must be suitably wrapped or enclosed.
- 3.2 Carrier - Any person engaged in the transportation of passengers or property as a common, contract, private charter, or freight forwarder, as defined in the Interstate Commerce Act, as amended, or by the United States Postal Service.
- 3.3 Consignee - The person or organization designated in the shipping papers to receive a shipment.
- 3.4 Exclusive Use - The sole use of a 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.
- 3.5 ISO Container - A container having a volume of 64 cubic feet or more, designed and constructed to permit being lifted with its contents intact, and intended primarily for the containment of low level radioactive waste (LLRW) during transportation.
- 3.6 Low Level Radioactive Waste (LLRW) - Waste that contains radioactivity and is not classified as high level waste, transuranic waste, spent nuclear fuel or 11e(2) byproduct material as defined by DOE Order 5820.2A. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentration of transuranic is less than 100 n Ci/g.

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### 3.0 DEFINITIONS (cont.)

- 3.7 Limited Quantities (LQ) - Materials that the radiation level at any point on the external surface of the package does not exceed 0.5 millirem per hour, and the package does not contain more than 15 grams of uranium-235.
- 3.8 Low Specific Activity (LSA) - Material that the activity is uniformly distributed and that the estimated average concentration per gram of contents does not exceed the specification contained in 49 CFR, section 173.403(n).
- 3.9 Off-Site - All of the areas outside the main perimeter security fence that are not controlled at all times by guards and security fences.
- 3.10 Package - Pertaining to radioactive materials, the packaging together with its radioactive contents as presented for transport.
- 3.11 Packaging - Pertaining to radioactive materials, the assembly of components necessary to ensure compliance with the packaging requirements of 49 CFR Subpart I.
- 3.12 Radioactive Material - Any material having a specific activity greater than 0.002 microcuries per gram.
- 3.13 Radioactive Waste - Solid, liquid, or gaseous material that contains radionuclides regulated under the Atomic Energy Act of 1954, as amended, and of negligible economic value when the costs of recovery are considered.
- 3.14 Waste Generator - From a radiological standpoint, any person, at the FEMP, whose act or process produces (LLRW).

### 4.0 RESPONSIBILITIES

- 4.1 Facilities and Warehousing - Responsible for assigning personnel and equipment for loading (LLRW) for off-site shipment.
- 4.2 Inventory Control and Warehousing - Responsible for Warehouse Attendants inspecting and verifying the accuracy of shipment against the Tally Sheet(s) and placarding carrier trailer or shipment container as required.
- 4.3 Logistics Administration - Responsible for developing and updating transportation related procedures ensuring compliance with all Federal, State and local regulations, DOE Orders and Directives and consignee requirements.

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#### 4.0 RESPONSIBILITIES (cont)

- 4.4 Maintenance/Garage - Responsible for the inspection of the inbound carrier vehicles that will be used for outbound shipments, providing for the inspection, lubrication, and the preventative maintenance of all government vehicles at FEMP, and documenting all maintenance and inspections.
- 4.5 Traffic Control Section - Responsible for providing guidance on the requirements for packaging, loading, on-site movement, and off-site shipment of (LLRW) including preparing the bill of lading and coordinating with carriers the scheduling of off-site shipment of (LLRW).
- 4.6 Waste Shipment and Mixed Waste Storage - Responsible for providing assistance to waste generators, arranging for waste sampling, reviewing waste shipment documentation and categorizing waste. Preparing (LLRW) packages and packaging (LLRW) for off-site shipment and coordinating shipment.

#### 5.0 GENERAL

- 5.1 Shipments of (LLRW) are made by exclusive use vehicle service only. The shipper must load, and the consignee must unload the vehicle contents. The vehicle must remain closed and sealed with a pre-numbered, tamper-proof seal until consignee is ready to unload the vehicle.
- 5.2 The following weight limits shall be observed:
- 5.2.1 Six drum metal overpacks shall not exceed 6,000 pounds gross weight.
- 5.2.2 55-gallon drums shall not exceed 1,200 pounds gross weight.
- 5.2.3 30-gallon drums shall not exceed 700 pounds gross weight.
- 5.2.4 85-gallon drums, when used as metal overpacks for 55-gallon drums, shall not exceed 1,200 pounds, plus the tare weight of the drum.
- 5.2.5 85-gallon drums, when used as a package, shall not exceed 1,000 pounds gross weight.
- 5.2.6 ISO containers shall not exceed 45,000 pounds gross weight.

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## 6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

- 6.1 Safety glasses with side shields and chemical safety goggles shall be worn if (LLRW) are being handled or are in the area unless other eye protection is specified.
- 6.2 Respiratory protection shall be worn when provided by the supervisor.
- 6.3 Face shields shall be worn when removing lids or bungs of containers filled with liquids or during operations where the possibility exists that personnel could be splashed with liquids.
- 6.4 Leather-palmed gloves shall be worn when handling drums, operating equipment, and when loading rough, sharp-edged, or contaminated material.
- 6.5 Neoprene rubber gloves shall be worn when handling hazardous chemicals/materials and skin contact is possible.
- 6.6 Any material or object that comes into contact with a (LLRW) shall be considered a (LLRW) and shall be identified as such, and disposed of in an approved identified (LLRW) container.
- 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 IRS&T Radiological Safety Section for evaluation. The involved personnel shall report to the Urine Sampling Station at the end of their shift to complete a Incident Investigation Report (IIR) (Form FMPC-ES&H-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 Safety Section.

## 7.0 Shipment Initiation

### WASTE SHIPMENT AND MIXED WASTE STORAGE

- 7.1 Determine waste containers to be shipped.
- 7.2 Provide Traffic Control with advance notification that a shipment of (LLRW) is being prepared for off-site shipment.
- 7.3 Provide Traffic Control with information required to determine applicable DOT requirements for shipment.

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## 7.0 Shipment Initiation (cont.)

- 7.4 Provide Facilities and Warehousing with identification and location of waste containers to be shipped and request that containers be moved to appropriate staging area.
- 7.5 Provide transport organization with documentation that states location on-site where (LLRW) is to be picked up and delivered, name and quantity of waste.
- 7.6 Provide additional information to transporter so (LLRW) may be loaded and moved safely.
- 7.7 Provide with information required to mark and label waste containers for compliance with applicable DOT regulations and consignee waste acceptance criteria.
- 7.8 Contact Traffic Control Section if further guidance is required when preparing waste for off-site shipment.

## 8.0 Container Preparation

### WASTE SHIPMENT AND MIXED WASTE STORAGE

#### 8.1 ISO Containers

- 8.1.1 Receive notification from Waste Operations of identification of ISO containers that are to be shipped and applicable marking and labeling requirements for shipment.
- 8.2.2 Verify temporary storage of ISO containers during preparation for off-site shipment is in compliance with existing requirements in applicable departmental procedure(s) and Nuclear Safety guidelines.
- 8.1.3 Verify ISO container is caulked and banded.
- 8.1.4 Request Radiological Safety conduct radiological survey(s) and smears of ISO container.
- 8.1.5 Verify weight and serial number of ISO container.
- 8.1.6 Inspect ISO container for defects.
- 8.1.7 Stencil required shipping information on to ISO container or apply appropriate bar code label.

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## 8.0 Container Preparation (cont.)

- 8.1.8 Conduct final inspection of ISO container to verify that container is in acceptable condition for transport and that applicable markings have been applied.
- 8.1.9 Attach seal to ISO container doors.
- 8.1.10 Place required markings on ISO container.
- 8.1.11 Notify Quality Assurance that ISO container is prepared for inspection.
- 8.1.12 Notify Quality Assurance that ISO container is ready for final inspection.
- 8.1.13 Notify Facilities and Warehousing that ISO container is ready to be loaded.
- 8.1.14 Provide transport organization with documentation that states location on-site where (LLRW) is to be picked up and delivered, name and quantity of waste.

## 8.2 White Metal Boxes

- 8.2.1 Receive notification from Waste Shipping Coordinator of identification of white metal boxes for shipment and applicable marking and labeling requirements.
- 8.2.2 Verify that temporary storage of white metal boxes during preparation for off-site shipment is in compliance with existing requirements and prepare box for shipment per applicable procedures.
- 8.2.3 Submit required documentation to Waste Shipping Coordinator.
- 8.2.4 Request that Facilities and Warehousing or move white metal box to final preparation area.
- 8.2.5 Notify Sitewide Quality Assurance that white metal box is prepared for inspection.
- 8.2.6 Conduct final inspection of white metal box to verify box is in acceptable condition for transport and that applicable markings have been applied.

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### 8.0 Container Preparation (cont.)

- 8.2.7 Notify Sitewide Quality Assurance that white metal box is ready for final inspection.
- 8.2.8 Notify Facilities and Warehousing that white metal box is ready to be loaded.
- 8.2.9 Provide transport organization with documentation that states location on-site where (LLRW) is to be picked up and delivered, name and quantity of waste.

### 8.3 Drums

- 8.3.1 Receive notification from Waste Shipping Coordinator of identification of drums for shipment and applicable marking and labeling requirements.
- 8.3.2 Verify that temporary storage of drums during preparation for off-site shipment is in compliance with existing requirements and prepare drum for shipment per applicable procedures.
- 8.3.3 Conduct a final inspection of drum to verify condition for transport and applicable markings have been applied.
- 8.3.4 Notify Quality Assurance that drum is ready for final inspection.
- 8.3.5 Notify Facilities and Warehousing that drum is ready to be loaded.
- 8.3.6 Provide transport organization with documentation that states location on-site where (LLRW) is to be picked up and delivered, name and quantity of waste.
- 8.3.7 Provide Traffic Control with advance notice of off-site (LLRW) shipments as required.
- 8.3.8 Prepare Tally Sheet(s) (FVC-VAB-614), Radioactive Waste Management Storage and Disposal (FVC-VAB-614) and forward them to Materials Control and Accountability.
- 8.3.9 Initiate a Shipping Order For Nuclear Materials (FMPC-CONT-558) for off-site shipments.

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## 8.0 Container Preparation (cont.)

- 8.3.10 Verify that (LLRW) is identified and classified.
- 8.3.11 Request radiological surveys of (LLRW) packages from Radiological Safety.
- 8.3.12 Review survey results with Radiological Safety to verify compliance with applicable departmental procedure(s).
- 8.3.13 Provide Traffic Control Section with information required to determine applicable DOT requirements and bill of lading descriptions.
- 8.3.14 Coordinate packaging of (LLRW).
- 8.3.15 Notify Facilities and Warehousing when (LLRW) is prepared for loading and movement to temporary holding area for off-site shipping.

## 9.0 Container Loading

### 9.1 ISO Containers

#### TRAFFIC CONTROL

- 9.1.1 Schedule carrier equipment for use in off-site shipment.
- 9.1.2 Schedule off-site shipment of (LLRW) upon receipt of an approved Shipping Order For Nuclear Materials (FMPC-CONT-558), Tally Sheet(s) (FVC-VAB-614), and Radioactive Waste Management - Storage and Disposal (FVC-VAB-614).
- 9.1.3 Provide Tally Sheet(s) (FVC-VAB-614) and Radioactive Waste Management -Storage and Disposal (FVC-VAB-614) to Facilities and Warehousing.

#### MAINTENANCE/GARAGE

- 9.1.4 Inspect inbound carrier vehicles that will be used for off-site shipments per Federal Motor Carrier Safety Regulations and departmental procedure(s). Record information on required form(s).
- 9.1.5 Document inspection results on the FMPC Preliminary Visual Trailer Inspection (FMPC-SS-3344) with comments.

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9.0 Container Loading (cont.)

**FACILITIES AND WAREHOUSING**

9.1.6 Forward copies of maintenance and inspection documents to Quality Assurance, and Facility Service and Support.

**FACILITIES AND WAREHOUSING**

9.1.7 Obtain one set of Tally Sheet(s) (FVC-VAB-614) and Radioactive Waste Management - Storage and Disposal (FVC-VAB-614) from Traffic Control one day prior to shipment date.

9.1.8 Verify ISO containers have been properly recorded on Tally Sheet(s) (FVC-VAB-614) including, container identification numbers, quantities, and gross weights.

9.1.9 Verify gross weights have been marked on exterior of all containers and appropriate LSA markings are affixed as required.

9.1.10 Inspect each container for defects and take corrective action as required.

9.1.11 Before loading, verify that vehicle has been monitored, and results recorded on the Vehicle Radiation Monitoring Report (FS-IRS&T-1596-1).

9.1.12 Review FMPC Preliminary Visual Trailer Inspection (FMPC-SS-3344).

9.1.13 Inspect vehicle and record results on Offsite Loading - Tie Down Inspection - Vehicle Inspection (FMPC-SAML-PUR-2495) and take corrective action as required.

9.1.14 Move vehicle to ISO container location.

9.1.15 Verify runners of ISO containers are free of debris and doors are properly sealed.

9.1.16 Apply prenumbered, tamper-proof seal to locking mechanism and record on Offsite Loading - Tie Down Inspection - Vehicle Inspection (FMPC-SAML-2495).

9.1.17 Load ISO container onto flatbed trailer.

9.1.18 Secure each ISO container to flatbed trailer.

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## 9.0 Container Loading (cont.)

- 9.1.19 Inspect loaded trailer and complete LLW shipment Checklist and NTS Notification (FMPC-SAML-3065), and Offsite Loading - Tie-Down Inspection - Vehicle Inspection (FMPC-SAML-PUR-2495).
- 9.1.20 Request Quality Assurance to verify during loading that trailer has been loaded properly and containers properly secured according to applicable departmental procedure(s).
- 9.1.21 Request Radiological Safety to monitor and smear carrier vehicle trailer to verify that contamination levels are in compliance with applicable requirements and record readings on Vehicle Radiation Monitoring Report (FS-IRS&T-1596-1) and Radiological Survey Report (FS-F-1993-1).
- 9.1.22 Move vehicle to truck scale to be weighed.
- 9.1.23 Verify weight has been recorded by Warehouse Attendants on (FMPC-PRO-238).
- 9.1.24 Verify Warehouse Attendant has affixed "Radioactive Placards" on two opposite sides, and front and rear of container(s) and move conveyance to temporary holding area.
- 9.1.25 Notify Traffic Control that transport conveyance is loaded and prepared for off-site shipment.
- 9.1.26 Provide completed documentation for each shipment to the Traffic Control for processing.

### INVENTORY CONTROL AND WAREHOUSING

- 9.1.27 Warehouse Attendants shall affix "Radioactive Placard" on two opposite sides, and front and rear of container(s) prior to weighing motor vehicle.
- 9.1.28 Warehouse Attendants shall weigh transport vehicle and print weights on (Form FMPC-PRO-238) and resolve discrepancies.

## 9.2 Six Drum Metal Overpacks

### TRAFFIC CONTROL

- 9.2.1 Schedule carrier equipment for use in off-site shipment. 234

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### 9.0 Container Loading (cont.)

9.2.2 Schedule off-site shipment of (LLRW) upon receipt of an approved Shipping Order For Nuclear Materials (FMPC-CONT-558), Tally Sheet(s) (FVC-VAB-614), and Radioactive Waste Management - Storage and Disposal (FVC-VAB-614).

9.2.3 Provide Tally Sheet(s) (FVC-VAB-614) and Radioactive Waste Management - Storage and Disposal (FVC-VAB-614) to Facilities and Warehousing.

#### MAINTENANCE/GARAGE

9.2.4 Inspect inbound carrier vehicles that will be used for off-site shipments to Federal Motor Carrier Safety Regulations.

9.2.5 Document inspection results on the FMPC Preliminary Visual Trailer Inspection (FMPC-SS-3344) with appropriate comments.

9.2.6 Forward copies of maintenance and inspection documents to Quality Assurance, and Facility Service and Support.

#### FACILITIES AND WAREHOUSING

9.2.7 Obtain one set of Tally Sheet(s) (FVC-VAB-614) and Radioactive Waste Management - Storage and Disposal (FVC-VAB-614) from Traffic Control Section one day prior to shipment date.

9.2.8 Verify that the Six Drum Metal Overpacks have been properly recorded on the Tally Sheet(s) (FVC-VAB-614) including, container identification numbers, quantities, and gross weights.

9.2.9 Verify that gross weights have been marked on the exterior of all containers and appropriate LSA markings are affixed as required.

9.2.10 Inspect each container for defects and take corrective action as required.

9.2.11 Before loading, verify that the vehicle has been monitored, and the results recorded on Vehicle Radiation Monitoring Report (FS-IRS&T-1596-1).

9.2.12 Review FMPC Preliminary Visual Trailer Inspection (FMPC-SS-3344).

9.2.13 Inspect vehicle and record the results on Offsite Loading - Tie Down Inspection - Vehicle Inspection (FMPC-SAML-PUR-2495) and take corrective action as required.

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## 9.0 Container Loading (cont.)

- 9.2.14 Move vehicle to Six Drum Metal Overpack location.
- 9.2.15 Load overpacks to assure equal weight distribution on the trailer.
- 9.2.16 Inspect the loaded trailer and complete the LLW Shipment Checklist and NTS Notification (FMPC-SAML-3065), and the Off-Site Loading - Tie-Down Inspection - Vehicle Inspection (FMPC-SAML-PUR-2495).
- 9.2.17 Request Quality Assurance to verify during loading that trailer has been loaded properly and containers properly secured according to applicable departmental procedure(s).
- 9.2.18 Request Radiological Safety to monitor and smear carrier vehicle trailer to verify that the contamination levels are in compliance with applicable requirements, and record readings on Vehicle Radiation Monitoring Report (FS-IRS&T-1596-1) and Radiological Survey Report (FS-F-1993-1).
- 9.2.19 Move vehicle to truck scale to be weighed.
- 9.2.20 Verify weight has been recorded by Warehouse Attendants on (FMPC-PRO-238).
- 9.2.21 Verify Warehouse Attendants have affixed "Radioactive Placards" on two opposite sides, and front and rear of container(s) and move conveyance to temporary holding area.
- 9.2.22 Notify Traffic Control that transport conveyance is loaded and prepared for off-site shipment.
- 9.2.23 Ensure the envelope containing copies of the Tally Sheet(s), Radioactive Waste Management - Storage and Disposal Data Sheet, Hazardous Waste Certification Statement and Certification Statement for the shipment are placed inside the trailer to be removed by NTS personnel upon arrival at the disposal site.
- 9.2.24 Apply prenumbered, tamper-proof seal to locking mechanism and record on Offsite Loading - Tie Down Inspection - Vehicle Inspection (FMPC-SAML-2495).
- 9.2.25 Provide completed documentation for each shipment to Traffic Control for processing.

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9.0 Container Loading (cont.)

**INVENTORY CONTROL AND WAREHOUSING**

- 9.2.26 Warehouse Attendants affix "Radioactive Placard" on two opposite sides, and front and rear of trailer prior to weighing motor vehicle.
- 9.2.27 Warehouse Attendants shall weigh transport vehicle and print weights on (FMPC-PRO-238), and resolve discrepancies.

9.3 White Metal Boxes

**TRAFFIC CONTROL**

- 9.3.1 Schedule carrier equipment for use in off-site shipment.
- 9.3.2 Schedule off-site shipment of (LLRW) upon receipt of an approved Shipping Order For Nuclear Materials (FMPC-CONT-558), Tally Sheet(s) (FVC-VAB-614), and Radioactive Waste Management - Storage and Disposal (FVC-VAB-614).
- 9.3.3 Provide Tally Sheet(s) (FVC-VAB-614) and Radioactive Waste Management - Storage and Disposal (FVC-VAB-614) to Facilities and Warehousing.

**MAINTENANCE/GARAGE**

- 9.3.4 Inspect inbound carrier vehicles that will be used for off-site shipments.
- 9.3.5 Document inspection results on the FMPC Preliminary Visual Trailer Inspection (FMPC-SS-3344) with comments.
- 9.3.6 Forward copies of maintenance and inspection documents to Quality Assurance, and Facility Service and Support.

**FACILITIES AND WAREHOUSING**

- 9.3.7 Obtain one set of Tally Sheet(s) (FVC-VAB-614) and Radioactive Waste Management - Storage and Disposal (FVC-VAB-614) from Traffic Control one day prior to shipment date.
- 86.9.3.8 Verify White Metal Boxes have been properly recorded on Tally Sheet(s) (FVC-VAB-614) including, container identification numbers, quantities, and gross weights.

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9.0 Container Loading (cont.)

- 9.3.9 Verify that gross weights have been marked on exterior of all containers and appropriate LSA markings are affixed as required.
- 9.3.10 Inspect each container for defects and correct defects as required.
- 9.3.11 Before loading, verify that vehicle has been monitored, and results recorded on Vehicle Radiation Monitoring Report (FS-IRS&T-1596-1).
- 9.3.12 Review FMPC Preliminary Visual Trailer Inspection (FMPC-SS-3344).
- 9.3.13 Inspect vehicle and record results on Offsite Loading - Tie Down Inspection - Vehicle Inspection (FMPC-SAML-PUR-2495) and take corrective action as required.
- 9.3.14 Move vehicle to white metal box location.
- 9.3.15 Verify that runners are free of debris and that doors are properly sealed.
- 9.3.16 Apply prenumbered, tamper-proof seal to locking mechanism and record on Offsite Loading - Tie Down Inspection - Vehicle Inspection (FMPC-SAML-2495).
- 9.3.17 Load white metal boxes on to the flatbed trailer.
- 9.3.18 Secure each white metal box to flatbed trailer.
- 9.3.19 Inspect loaded trailer and complete LLW shipment Checklist and NTS Notification (FMPC-SAML-3065), and Off-Site Loading - Tie-Down Inspection - Vehicle Inspection (FMPC-SAML-PUR-2495).
- 9.3.20 Request Quality Assurance to verify loading and securing of containers per applicable procedure(s).
- 9.3.21 Request Radiological Safety to monitor and smear carrier vehicle trailer to verify that contamination levels are in compliance with 49 CFR, and record their readings on Vehicle Radiation Monitoring Report (FS-IRS&T-1596-1) and Radiological Survey Report (FS-F-1993-1).

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#### 9.0 Container Loading (cont.)

- 9.3.22 Move vehicle to truck scale to be weighed.
- 9.3.23 Verify weight has been recorded by Warehouse Attendants on (FMPC-PRO-238).
- 9.3.24 Verify that "Radioactive" placards have been placed on two opposite sides, front and rear of container(s) are moved to temporary holding area.
- 9.3.25 Notify Traffic Control that transport conveyance is loaded and prepared for off-site shipment.
- 9.3.26 Provide completed documentation for each shipment to Traffic Control for processing.

#### INVENTORY CONTROL AND WAREHOUSING

- 9.3.27 Warehouse Attendants shall affix "Radioactive Placard" on two opposite sides, front and rear of container(s) prior to weighing motor vehicle.
- 9.3.28 Warehouse Attendants shall weigh transport vehicle and print weights on (FMPC-PRO-238), and resolve discrepancies.

#### 9.4 Drums

##### TRAFFIC CONTROL

- 9.4.1 Schedule carrier equipment for use in off-site shipment.
- 9.4.2 Schedule off-site shipment of (LLRW) upon receipt of an approved Shipping Order For Nuclear Materials (FMPC-CONT-558), Tally Sheet(s) (FVC-VAB-614), and Radioactive Waste Management - Storage and Disposal (FVC-VAB-614).
- 9.4.3 Provide Tally Sheet(s) (FVC-VAB-614) and Radioactive Waste Management -Storage and Disposal (FVC-VAB-614) to Facilities and Warehousing.

##### MAINTENANCE/GARAGE

- 9.4.4 Inbound carrier vehicles used for off-site shipments shall be inspected.

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## 9.0 Container Loading (cont.)

- 9.4.5 Document inspection results on the FMPC Preliminary Visual Trailer Inspection (FMPC-SS-3344) with appropriate comments.
- 9.4.6 Forward copies of maintenance and inspection documents to Quality Assurance and Facility Service and Support Sections.

### FACILITIES AND WAREHOUSING

- 9.4.7 Obtain one set of Tally Sheet(s) (FVC-VAB-614) and the Radioactive Waste Management - Storage and Disposal (FVC-VAB-614) from Traffic Control Section one day prior to the shipment date.
- 9.4.8 Verify that the Drums have been properly recorded on the Tally Sheet(s) (FVC-VAB-614) including, container identification numbers, quantities, and gross weights.
- 9.4.9 Verify that gross weights have been marked on the exterior of all containers and appropriate LSA markings are affixed as required.
- 9.4.10 Inspect each container for defects and correct defects as required.
- 9.4.11 Before loading, verify that vehicle has been monitored, and the results recorded on Vehicle Radiation Monitoring Report (FS-IRS&T-1596-1(REV.8/23/91)).
- 9.4.12 Review FMPC Preliminary Vehicle Inspection (FMPC-SS-3344).
- 9.4.13 Inspect vehicle and record the results on Offsite Loading - Tie Down Inspection - Vehicle Inspection (FMPC-SAML-PUR-2495) and take corrective action as required.
- 9.4.14 Move vehicle to area where drums are located.
- 9.4.15 Load drums and request Quality Assurance to verify during loading that trailer has been loaded and containers secured.
- 9.4.16 Request Radiological Safety to monitor and smear carrier vehicle trailer to verify that the contamination levels are in compliance with 49 CFR, and record their readings on Vehicle Radiation Monitoring Report (FS-IRS&T-1596-1) and Radiological Survey Report (FS-F-1993-1).

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9.0 Container Loading (cont.)

- 9.4.17 Move vehicle to truck scale to be weighed.
- 9.4.18 Verify weight has been recorded by Warehouse Attendants on (FMPC-PRO-238).
- 9.4.19 Verify Warehouse Attendants have affixed "Radioactive Placards" on two opposite sides, and front and rear of container(s) and move conveyance to temporary holding area.
- 9.4.20 Notify Traffic Control Section that transport conveyance is loaded and prepared for off-site shipment.
- 9.4.21 Ensure placement of the envelope containing copies of the Tally Sheet(s), Radioactive Waste Management - Storage and Disposal Data Sheet, Hazardous Waste Certification Statement and Certification Statement for the shipment are inside the trailer.
- 9.4.22 Apply prenumbered, tamper-proof seal to locking mechanism and record on Offsite Loading - Tie Down Inspection - Vehicle Inspection (FMPC-SAML-2495).
- 9.4.23 Provide completed documentation for each shipment to Traffic Control for processing.

**INVENTORY CONTROL AND WAREHOUSING**

- 9.4.24 Warehouse Attendants shall affix "Radioactive Placard" on two opposite sides, and front and rear of container(s) prior to weighing motor vehicle.
- 9.4.25 Warehouse Attendants shall weigh transport vehicle and print weights on (FMPC-PRO-238) and resolve discrepancies.

10.0 Shipment

**TRAFFIC CONTROL SECTION**

- 10.1 Notify carrier to dispatch driver to FEMP for shipment pick-up.
- 10.2 Verify OFFSITE LOADING - TIE DOWN INSPECTION - VEHICLE INSPECTION (FEMP-SAML-2495) has been completed and signed by Warehouse Attendant and Facilities and Warehousing Supervisor.

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10.0 Shipment (cont.)

- 10.3 Verify and sign the LLW Shipment Checklist and NTS Notification (FMPC-SAML-3065) has been completed and signed by Facilities and Warehousing Supervisor.
- 10.4 Request Radiological Safety to conduct a radiological survey of the carrier vehicle trailer.
- 10.5 Verify that the Radiological survey results are documented on the Vehicle Radiation Monitoring Report (FS-IRS&T-1596-1(REV.8/23/91)).
- 10.6 Verify all associated shipping documents have been received.
- 10.7 Prepare bill of lading.
- 10.8 Notify Quality Assurance that shipment is ready for certification.
- 10.9 Verify that the Shipping Envelope is in the transport vehicle or trailer (as applicable) and that a tamper-proof seal has been attached to the doors of the transport vehicle trailer.
- 10.10 Request Radiological Safety to conduct a "Cab Only" survey and document on applicable form to insure vehicle is within radiological limits.
- 10.11 Sign bill of lading and Shipping Order for Nuclear Materials.
- 10.12 Provide Carrier/Driver with the written driver instruction packet containing, specific instruction for maintenance of exclusive use shipment controls and other information pertaining to shipment.
- 10.13 Verify "Radioactive Placards" have been properly affixed to two opposite sides, and front and rear of trailer/container(s).
- 10.14 Notify consignee of estimated time of arrival for each shipment and document notification.
- 10.15 Complete the Shipping Order for Nuclear Materials (FMPC-CONT-558) and return it to Materials Control and Accountability the day of shipment departure.

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV.NO.</u>	<u>DESCRIPTION AND AUTHORITY</u>
02-28-92	0	Requirement for document to identify shipment of low level radioactive waste requirements per Request No. P92-050, initiated by J. P. McGrogan. This document replaces SOP-TRF-46-C-110.

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Authorization: <i>H. F. Daugherty</i> H. F. Daugherty, President	Supersedes: None Effective Date: 06-01-92

**NON-CONTROLLED COPY****1.0 PURPOSE**

This document provides the procedure for preparing radioactive material for offsite shipment from the Fernald site.

**2.0 SCOPE**

This procedure is applicable to WEMCO personnel who perform the packaging and loading methods for shipping 4A and other uranium material off-site in exclusive use transport vehicles. Packaging methods include container/vehicle inspection, container/pallet identification, palletizing containers or loose material, and filling drums with 4A 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 WEMCO Section, who initiates an on-site movement or off-site shipment of material.

Gondola - An open-top railroad car.

4A Material - Uranium material designated for army use only.

Off-Site - 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.

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### 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 - Uranium material that is a result of an uncontrolled casting.

### 4.0 RESPONSIBILITIES

4.1 The generator/packager shall comply with this procedure.

4.2 The supervisor of the area or packager shall:

- Specify applicable scale check procedures and standard tare weight of packages.
- Ensure 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 the lid on an unfilled waste container is secured when no packaging is occurring to prevent additions of unknown materials.
- Ensure packages are weather-protected before, during, and after use to prevent moisture build-up.
- Contact Radiological Safety for a radiological permit prior to performing work.

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#### 4.0 RESPONSIBILITIES (cont.)

- 4.3 Traffic shall specify the required container and provide a placard for the gondola.
- 4.4 The Motor Vehicle Operator (MVO) shall transport packaged material to the applicable staging area and move metal boxes for weighing.
- 4.5 Materials Control and Accountability (MC&A) shall prepare documentation for off-site shipment of the material.
- 4.6 The Radiological Safety Technician shall issue a radiological permit and as requested monitor containers.
- 4.7 Quality Assurance shall certify metal boxes for offsite shipment.
- 4.8 Transportation shall provide equipment and resources necessary for the packaging and movement of materials.

#### 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.

#### 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.
- 6.4 HEPA type filter vacuum cleaners or a vacuum system approved by IRS&T 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.

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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 or possible radioactive materials intake to IRS&T 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

- 7.1.1 Ensure a Material Evaluation Form (MEF), FS-F-3252 has been completed determining the material as RCRA/Non-RCRA and additional documentation from Environmental Compliance has been provided specifying evaluation results for the material.

**NOTE:** A sample of the material for Toxic Concentrate Leaching Process (TCLP) may be required as requested by Operable Unit 3 (OU3) Compliance.

- 7.1.1.1 If an MEF has not been generated, obtain a numbered MEF from Facilities Material & Evaluation (FM&E) and initiate a "Material Evaluation" per SSOP-0002.
- 7.1.1.2 If the material is determined to be RCRA, notify the supervisor for disposition.

**NOTE:** RCRA material shall not be shipped.

- 7.1.1.3 If the material is Non-RCRA, proceed to 7.1.2.
- 7.1.2 If notified by the supervisor a sample is required, obtain a sample of the material per SOP 1-C-101.

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7.0 PROCEDURE (cont.)

7.2 Filling Drums with Briquettes (See Figure 1)

GENERATOR/PACKAGER

- 7.2.1 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).
- 7.2.2 Obtain 10-gallon cans containing briquettes from storage.
- 7.2.3 Prior to filling the drum, place both containers on herculite, side by side. Pour sand evenly into drum until a 3 inch layer is formed on the bottom of drum.
- 7.2.4 Remove lid(s) from 10-gallon can(s) and manually transfer 9 briquettes, positioning 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.

- 7.2.5 Pour sand evenly over the 9 briquettes forming a 3 inch layer over the briquettes.
- 7.2.6 Continue filling the drum with briquettes and sand in the sequence instructed in 7.2.3 and 7.2.4.

NOTE: The drum will hold 5 layers of briquettes and 6 layers of sand.

- 7.2.7 Place bung lid, with vent plug installed, on drum and secure the drum lid bolt-type lock ring/lever, as applicable.
- 7.2.8 Request Radiological Safety to complete radiation monitoring of the drum.
- 7.2.9 Stencil or label drum and lid with the identification shown in Figure 1 and proceed to 7.3.5 to prepare drum for loading.

7.2.9.1 Obtain Item Number from MC&A.

7.2.9.2 For Drum Uranium (DU) weight, utilize data from 10-gallon can.

7.2.9.3 To calculate the Total Weight, add the sand weight (360 lbs) plus DU weight plus the drum tare weight.

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## 7.0 PROCEDURE (cont.)

### GENERATOR/PACKAGER

7.2.9.4 Obtain DU activity, Direct Reading (DR)-contact, and DR-1 meter from the Radiation Safety Technician.

7.2.10 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

7.3.1 Visually inspect the drum for damage, such as corrosion, dents, holes or other defects (refer to Tables 1, 2 and 3).

7.3.1.1 If damaged, mark the lid or side of the damaged drum with a red "X" and refer to Tables 1, 2, and 3 for corrective action, as applicable.

7.3.2 For a drum of uranium material other than 4A material, label or stencil the inventory/lot and drum number on the drum in accordance with the FEMP Lot Marking and Color-Coding System, RM-0005 (see Figure 2).

7.3.3 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 and "Radioactive-LSA".

**NOTE:** Bar-code labels may be used in place of stencilling.

7.3.4 Secure the drum lid bolt-type lock ring/lever lock, as applicable.

7.3.5 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.

**NOTE:** Drums of 4A material shall not be weighed.

7.3.5.1 For drums of 4A material, ensure the weights are identified on the drum. If not, obtain the weight as directed by supervisor.

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7.0 PROCEDURE (cont.)

**GENERATOR/PACKAGER**

7.3.6 Transport drum to scale as instructed by supervisor.

7.3.7 Inspect the scale to be used.

NOTE: The scale shall be inspected and operated in accordance with the SOP applicable to the area.

7.3.8 Using forklift, move the container on to the scale.

7.3.9 Record weight of drum on "Item Production/Certification/Identification" XX Card, Form FS-F-1945-XX (see Figure 3).

7.3.10 Using forklift, remove the container from the scale and move to the loading area.

7.3.11 Record the data from the container on the "Item Production/Certification/Identification" XX Card, Form FS-F-1945-XX.

7.3.12 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.

7.3.13 Complete the "Item Production/Certification/Identification" Card, Form FS-F-1945-XX by entering the required weights and transmit card to MC&A.

7.3.14 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)**

7.4.1 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.

7.4.2 Strap or band the container(s) together and to the pallet.

7.4.3 Per the applicable department procedure, move the pallet(s) to the area designated by the supervisor for loading.

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## 7.0 PROCEDURE (cont.)

### 7.5 Securing and Palletizing 4A Uranium Pieces

#### GENERATOR/PACKAGER

7.5.1 Prior to wrapping uranium pieces, vacuum any loose residuals.

7.5.2 Wrap uranium pieces in rubber and/or herculite material.

7.5.3 Place wrapped material on pallet per Table 6 and Figures 4, 5, and 6, as applicable.

NOTE: Spills and duds are jagged, irregular shapes and will either be packaged in drums or singularly banded to skids at the discretion of the supervisor.

7.5.4 Shore and band material as shown in Figures 4, 5, and 6, as applicable.

7.5.5 Stencil or label the pallet edge with the identification of "Radioactive - LSA".

### 7.6 Preparing Metal Boxes 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.

CAUTION: METAL BOXES SHALL ONLY BE USED FOR NONPRESSURE BUILDUP MATERIAL UNLESS BOX IS VENTED.

NOTE: Section 7.6 is not applicable to the preparation of 4A material.

#### GENERATOR/PACKAGER

7.6.1 Visually inspect box surfaces for rust, dents, or holes per Tables 1, 2, and 3.

7.6.1.1 If box is damaged, mark side with a red "X" and complete corrective action per Tables 1, 2, and 3.

7.6.2 If the bottom of the box has a drain plug, ensure plug is securely in place.

#### SUPERVISOR

7.6.3 Specify the scale and the method of transporting the box.

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7.0 PROCEDURE (cont.)

**GENERATOR/PACKAGER**

- 7.6.4 As instructed by supervisor, move the empty metal box to the staging area.
- 7.6.5 Remove banding and cardboard packing material from the metal box and place in a designated container.
- 7.6.6 Tare weigh each twentieth box to verify standard tare weight as follows:
- 7.6.6.1 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.
- 7.6.6.2 Place box on the scale and obtain tare weight.
- 7.6.7 Record the weight on a "Box Tare Weight Check", Form FMPC-PRO-2867 (see Figure 7).
- 7.6.8 Remove box from the scale.
- 7.6.9 Using a forklift, move box to a designated location for packaging.
- 7.6.10 Check packaging containers to be packaged to ensure that lids are secure.
- 7.6.11 Complete an "Item Production/Certification/Identification Card", Form FS-F-1945-XX per drum and insert the drum lot number and tare weight on the card and transmit to MC&A.
- 7.6.12 Ensure that the hoist/crane to be used has been inspected per applicable SOP for the area.
- 7.6.13 Place lifting device over container.
- 7.6.14 Attach the lifting device specified by the supervisor on each side of the container.
- 7.6.15 Position container over the top of the box.

CAUTION: ENSURE THE BOX WEIGHT DOES NOT EXCEED A MAXIMUM GROSS WEIGHT OF 8,000 POUNDS.

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7.0 PROCEDURE (cont.)

**GENERATOR/PACKAGER**

7.6.16 Lower container into box and remove the lifting device.

**CAUTION: USE EXTREME CARE WHEN HANDLING 10-GALLON CANS TO AVOID PINCHING FINGERS.**

7.6.16.1 If using 10 gallon cans, load 24 ten-gallon containers of material in the metal box as shown in Figure 8.

**NOTE:** The bottom layer will consist of 15 ten-gallon containers in a configuration of three rows of five containers each.

**CAUTION: A MINIMUM OF TWO PERSONNEL SHALL MOVE PLYWOOD USING PROPER LIFTING TECHNIQUES.**

7.6.17 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.

7.6.18 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.

7.6.19 When box is full, place lid on box and notify supervisor box is loaded.

**SUPERVISOR**

7.6.20 Specify the scale to be used.

**GENERATOR/PACKAGER**

7.6.21 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.

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7.0 PROCEDURE (cont.)

**MVO**

7.6.22 Using an 8,000 lb industrial forktruck, move the box on to the scale.

**GENERATOR/PACKAGER**

7.6.23 Weigh the box including box pins and other hardware to ensure gross weight does not exceed 8000 lbs for a metal box.

**MVO**

7.6.24 Remove the box from the scale.

**GENERATOR/PACKAGER**

7.6.25 Record the tabulated gross and tare weights, and contents on the FS-F-1945-XX card.

7.6.26 Label or stencil on the box the shipment log number, box identification, and tare, net, and gross weights (see Figure 9).

7.6.27 Label or stencil "Radioactive - LSA" on the box as shown in Figure 9.

7.6.28 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.

7.6.29 Notify supervisor that package is ready for inspection.

**SUPERVISOR**

7.6.30 Notify QA the box is ready for certification.

**QUALITY ASSURANCE**

7.6.31 Inspect the box per the applicable department procedure for certification.

7.6.31.1 If the box is not certified, complete a DCAR per SSOP-0023, tag the box for correction, and notify the generator/packager.

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7.0 PROCEDURE (cont.)

GENERATOR/PACKAGER

7.6.32 Using fabric strapping, secure lid on the box for interplant shipment.

7.6.33 Notify the supervisor that boxes are ready to be moved to the staging area.

MVO

7.6.34 Using an 8,000 lb industrial forktruck, move box to the staging area.

7.7 Securing Metal Box Container Lid (See Figure 10)

NOTE: Section 7.7 is not applicable to the preparation of 4A material.

GENERATOR/PACKAGER

7.7.1 Remove the lid edge protector from the container.

7.7.2 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.

7.7.3 Install a neoprene sponge rubber gasket on the lid sealing surface if applicable.

7.7.4 Place the lid into position on top of the container.

7.7.5 Secure the lid as follows:

7.7.5.1 Install bolts as shown in Figure 10.

7.7.5.2 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.

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7.0 PROCEDURE (cont.)

GENERATOR/PACKAGER

7.7.5.3 Using a wide-edged blunt chisel, bend the bottom edge of the clip locking strap inward until the strap is secured.

7.7.6 Install the lid edge protector on the container.

7.7.7 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.

7.7.8 Finger tighten each hex nut.

7.7.9 Using a torque wrench, tighten the hex bolts until a minimum of two threads are visible beyond the nut.

7.7.10 Notify supervisor the box is secure and ready for offsite shipment.

7.8 Loading Containers/Pallets on a Truck

NOTE: Section 7.8 is not applicable to 4A material.

GENERATOR/PACKAGER

7.8.1 Inspect truck interior for any structural damage.

7.8.1.1 If truck is damaged, notify supervisor.

NOTE: Truck will be repaired or rejected.

7.8.2 Using a forklift, move containers or pallets from staging area on to truck per Transportation's instructions.

7.9 Loading Pallets in a Gondola (See Figure 11)

NOTE: Section 7.9 is applicable to 4A material only.

NOTE: A minimum of two personnel is required to perform Section 7.9.

GENERATOR/PACKAGER

7.9.1 Inspect gondola interior for structural damage.

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7.0 PROCEDURE (cont.)

GENERATOR/PACKAGER

7.9.1.1 If gondola is damaged, notify supervisor.

NOTE: Gondola will be repaired or rejected.

7.9.2 Obtain liner from supervisor.

NOTE: The liner is not intended to be airtight. It is only intended to protect the material from the weather.

7.9.3 Carefully remove outer packaging from the liner.

7.9.4 Place the liner in the gondola as directed by supervisor.

7.9.5 Unroll the liner to the opposite end of the gondola.

7.9.6 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.

7.9.7 Place the liner end flaps over the ends of the gondola.

NOTE: There should be a 6 inch minimum overhang over the corners.

7.9.8 Check liner for a uniform fit in the gondola and adjust as needed.

7.9.9 Using an overhead crane with pallet fork lifting device, insert forks in pallet and place pallet in gondola as follows:

7.9.9.1 Lift pallet of material and move over the gondola.

7.9.9.2 Slowly lower and position pallet in the gondola per Table 5, as applicable.

7.9.10 Ensure loading of pallet does not drag down the sides of the liner into the gondola.

7.9.11 Insert shoring between pallets per Table 5 or band entire load to prevent shifting during transport. The end row material may have to be loaded individually.

7.9.12 When loading is complete, fold the liner end flaps into the car.

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7.0 PROCEDURE (cont.)

GENERATOR/PACKAGER

- 7.9.13 Remove the coiled ropes, with bungee sections, attached to the one end flap.
- 7.9.14 Uncoil the ropes to the other end.
- 7.9.15 Thread the ropes through the receiver loops provided on the opposite end flap.
- 7.9.16 Pull the ropes snug and tie off the rope to itself.
- 7.9.17 Ensure the bungee sections are not pulled to their limit.
- 7.9.18 Remove the 2 end ropes from the surface of each end flap and temporarily place over the ends of the gondola.
- NOTE: These are the final end tie ropes.
- 7.9.19 Fold the first side flap into the gondola and over the drums or material.
- NOTE: This first side flap is the flap on the loading side.
- 7.9.20 Ensure the flap crests the top of the material.
- 7.9.21 Remove the 8 ropes, with bungee cords, that are taped to the inside of the second flap (opposite of the load side flap).
- 7.9.22 Tie the 8 ropes to the 8 receiver holes of the first flap by threading each through the receiver hole, looping the rope and rethreading the rope back through the receiving hole again. Pull snug and tie the rope back to itself.
- 7.9.23 Untape the ends of the 23 cross ropes affixed to the surface of the bottom flap and temporarily place over the gondola loading side.
- 7.9.24 Fold over the top flap (opposite of load side) and thread the 15 continuous cross ropes with bungee sections (out of 23) through the receiver hole in the hem. Loop and rethread the rope through the receiver holes, pull snug, and tie to the opposite (previously over the end of the gondola) cross ropes end.

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## 7.0 PROCEDURE (cont.)

### GENERATOR/PACKAGER

- 7.9.25 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.
- 7.9.26 Tie each of the final end ropes (2 on each end) to the most convenient of the four crossing ropes near each end of the gondola.
- 7.9.27 Ensure the sections of bungees attached to the 15 continuous cross ropes are not pulled to their limit.
- 7.9.28 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.

- 7.9.29 Affix a placard provided by Traffic on 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"

### 8.2 References

- SSOP-0002, "Completing the Material Evaluation Form"
- SSOP-0023, "Deviation and Corrective Action Reporting"
- RM-0005, "FEMP Lot Marking and Color-Coding System"
- SOP 20-C-600, "Overpacking Defective Containers"
- SOP 1-C-101, "Sampling Residue and Waste Materials"

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#### 9.0 APPLICABLE FORMS

- FS-F-1945-XX, "Item Production/Certification/Identification"
- FMPC-PRO-2867, "Box Tare Weight Check"

#### 10.0 FIGURES

- Figure 1, Example of Briquette Drum Markings and Cut Away View
- Figure 2, Example of Packaging Container Markings/Labels
- Figure 3, Item Production/Certification/Identification Card
- Figure 4, Diagram of Uranium Metal Ingot Arrangement on Pallet
- Figure 5, Diagram of Uranium Metal Billet Arrangement on Pallet
- Figure 6, Diagram of Uranium Duds and Spill Arrangement on Pallet
- Figure 7, Box Tare Weight Check Form
- Figure 8, Diagram of Container Arrangement in Metal Box
- Figure 9, Diagram of Metal Box Identification
- Figure 10, Lid Installation
- Figure 11, Diagram of Loading Pallets in Gondola

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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		As directed by supervision <u>NOTE:</u> Disposition shall be within 24 hours.
B	Corrosion with shallow pitting and/or mild metal flaking		X	As directed by supervision
C	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

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TABLE 2  
LEAKER INSPECTION CATEGORIES

TYPE	CHARACTERISTIC	CORRECTIVE ACTION
I	Material flowing from container and accumulation on pallet or pad.	<ol style="list-style-type: none"> <li>1. Notify supervisor.</li> </ol> <p><u>NOTE:</u> Supervisor notifies AEDO.</p> <ol style="list-style-type: none"> <li>2. Immediately stop or contain leak.</li> <li>3. Record on inspection form the container requires mitigation within 24 hours.</li> <li>4. Complete additional cleanup as necessary.</li> </ol> <p><u>NOTE:</u> Supervisor shall initiate a Minor Event Report (MER).</p>
II	Material on drum exterior only; no material on pallet or pad.	<ol style="list-style-type: none"> <li>1. Record leak on inspection form.</li> <li>2. Notify supervisor.</li> </ol> <p><u>NOTE:</u> Supervisor shall initiate a MER.</p> <p><u>NOTE:</u> Supervisor shall review the completed inspection forms to prioritize containers for transfer to overpack staging area and subsequent mitigation.</p>
III	Container exterior discolored/ visible contamination; no material release.	<ol style="list-style-type: none"> <li>1. Record condition on inspection form.</li> </ol> <p><u>NOTE:</u> Supervisor shall schedule container for overpacking.</p> <p><u>NOTE:</u> Supervisor shall initiate a MER.</p>

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TABLE 3  
DENT/BULGE STATUS

<i>TYPE</i>	<i>CHARACTERISTIC</i>	<i>CORRECTIVE ACTION</i>
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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TABLE 4  
CRITERIA FOR PALLETIZING DRUMS

MATERIAL TYPE	DRUM SIZE	TOTAL OF DRUMS PER PALLET
4A Material Top Crops	30-gallon	4
4A Material Briquettes	55-gallon	4
4A Material 228 ARF	30-gallon	5
Uranium Material other than 4A	30 or 50-gallon	4

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TABLE 5  
PALLET ARRANGEMENT AND SHORING REQUIREMENTS

PALLET SIZE	POSITION REQUIRED	SHORING REQUIRED
48 inch	2 pallets wide and 13 pallets long in each row	18 inches between each pallet and 6 inches in length <sup>(1)</sup>
36 inch	3 pallets wide and 17 pallets long in each row	6 inches between each pallet and 18 inches in length <sup>(1)</sup>

(1) Banding of the material may be substituted in place of shoring, as determined by supervisor.

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TABLE 6  
CRITERIA FOR PALLETIZING LOOSE 4A MATERIAL

MATERIAL DESCRIPTION	TOTAL NUMBER PER PALLET
Ingots	4
Billets	3 to 5 (not to exceed 3,380 pounds)
Duds and Spills	4

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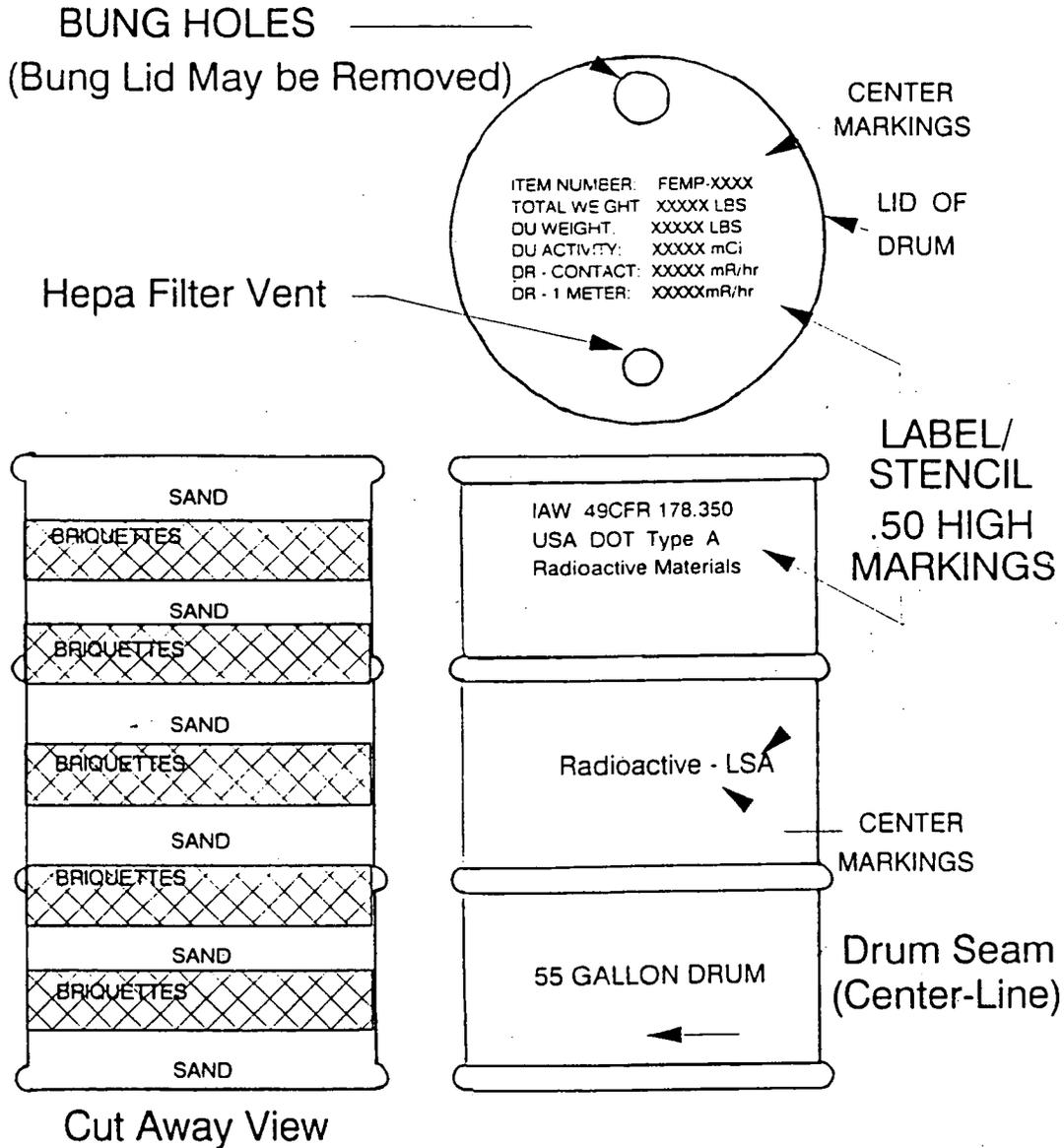
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# BRIQUETTE DRUM MARKINGS

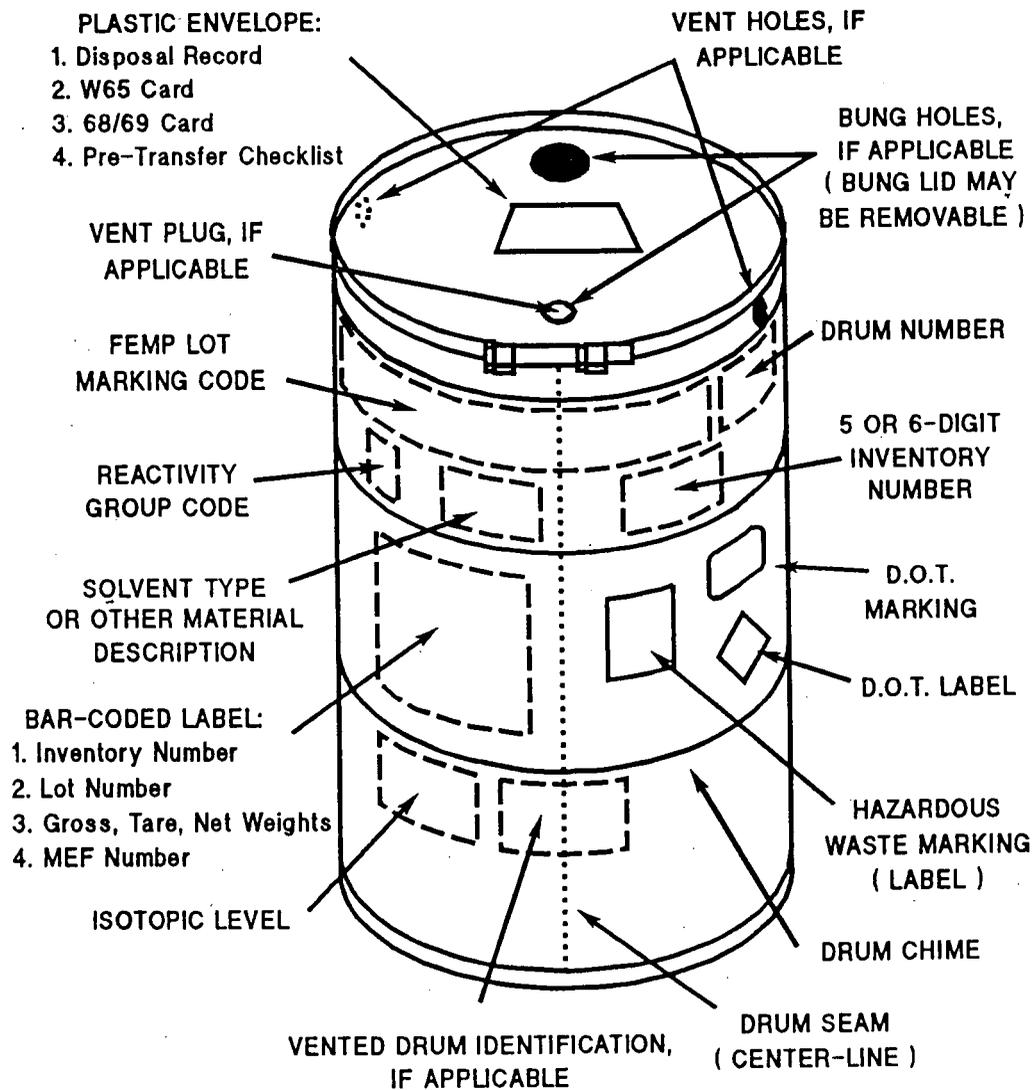
4A MATERIAL



EXAMPLE OF BRIQUETTE DRUM MARKINGS AND CUT AWAY VIEW  
Figure 1

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## TYPICAL LABELING/STENCILING OF AN OPEN HEAD OR BUNG CONTAINER



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EXAMPLE OF PACKAGING CONTAINER MARKINGS/LABELS  
Figure 2

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CARD XX ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION											
P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE			SHIFT	BADGE NO.	PACKAGE NO.	
					MO	DAY	YEAR				
SEAL NUMBER		SEAL DATE		PACKAGE PHYSICAL CERTIFICATION		PLANT		PROD. BSA			
MONTH		DAY		YEAR		YES		NO			
WASTE DESCRIPTION AND COMMENTS				EMPTY CONTAINER AT START		PLANT TO		BSA TO		GROSS WEIGHT	
				PLUG HOLES OR DEPTS							
				MATERIAL IS AS CODED							
				PROHIBITED MATERIALS							
				PLUGS IN CONTAINER							
PACKAGE TYPE				NO. NUM. OF VOID SPACE						TARE WEIGHT	
PACKAGE SIZE				PACKAGE SECURED							
				DRAIN PLUG SECURED						NET WEIGHT	
GENERATOR SIGNATURE						SUPERVISOR SIGNATURE					
15-F-1945-XX REV. 9/1989						DATE					

CARD 65 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION											
P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE			SHIFT	BADGE NO.	PACKAGE NO.	
					MO	DAY	YEAR				
SEAL NUMBER		SEAL DATE		PACKAGE PHYSICAL CERTIFICATION		PLANT		PROD. BSA			
MONTH		DAY		YEAR		YES		NO			
WASTE DESCRIPTION AND COMMENTS				EMPTY CONTAINER AT START		PLANT TO		BSA TO		GROSS WEIGHT	
				PLUG HOLES OR DEPTS							
				MATERIAL IS AS CODED							
				PROHIBITED MATERIALS							
				PLUGS IN CONTAINER							
PACKAGE TYPE				NO. NUM. OF VOID SPACE						TARE WEIGHT	
PACKAGE SIZE				PACKAGE SECURED							
				DRAIN PLUG SECURED						NET WEIGHT	
GENERATOR SIGNATURE						SUPERVISOR SIGNATURE					
15-F-1945-XX REV. 9/1989						DATE					

CARD 66 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION											
P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE			SHIFT	BADGE NO.	PACKAGE NO.	
					MO	DAY	YEAR				
SEAL NUMBER		SEAL DATE		PACKAGE PHYSICAL CERTIFICATION		PLANT		PROD. BSA			
MONTH		DAY		YEAR		YES		NO			
WASTE DESCRIPTION AND COMMENTS				EMPTY CONTAINER AT START		PLANT TO		BSA TO		GROSS WEIGHT	
				PLUG HOLES OR DEPTS							
				MATERIAL IS AS CODED							
				PROHIBITED MATERIALS							
				PLUGS IN CONTAINER							
PACKAGE TYPE				NO. NUM. OF VOID SPACE						TARE WEIGHT	
PACKAGE SIZE				PACKAGE SECURED							
				DRAIN PLUG SECURED						NET WEIGHT	
GENERATOR SIGNATURE						SUPERVISOR SIGNATURE					
15-F-1945-XX REV. 9/1989						DATE					

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION  
FORM FS-F-1945-XX  
Figure 3

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## URANIUM METAL INGOTS ( 4A MATERIAL )

4 INGOTS PER PALLET APPROXIMATELY 6000 LBS

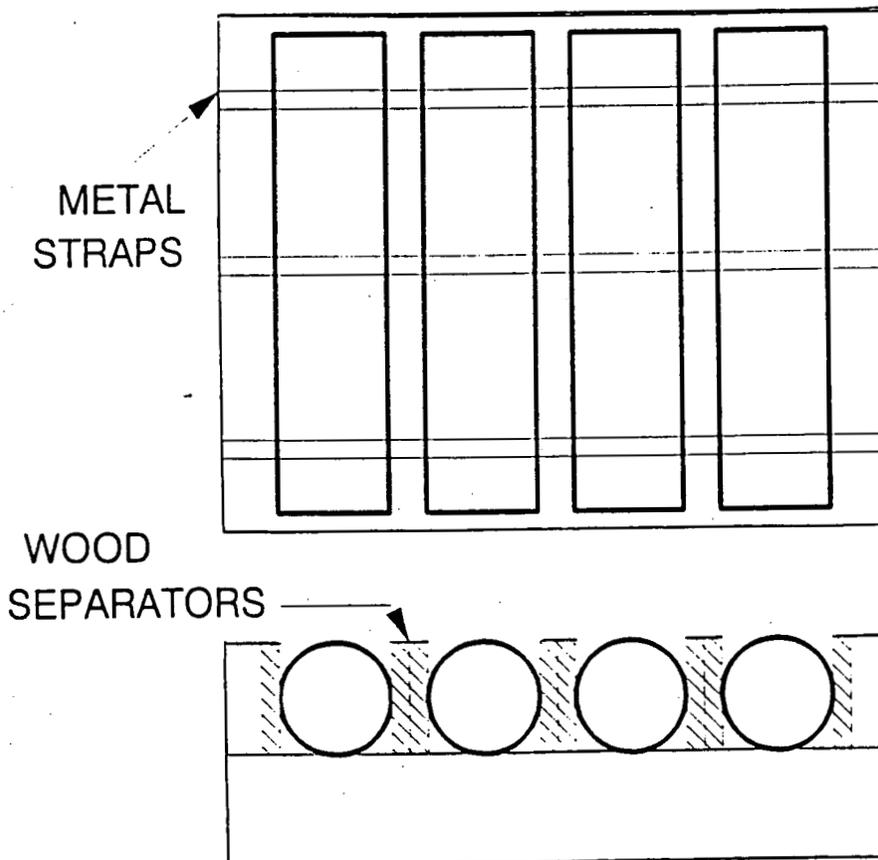


DIAGRAM OF URANIUM METAL INGOT ARRANGEMENT ON PALLET  
Figure 4

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## URANIUM METAL BILLETS (4A MATERIAL) F SERIES

BILLETS SHALL BE WRAPPED IN RUBBER

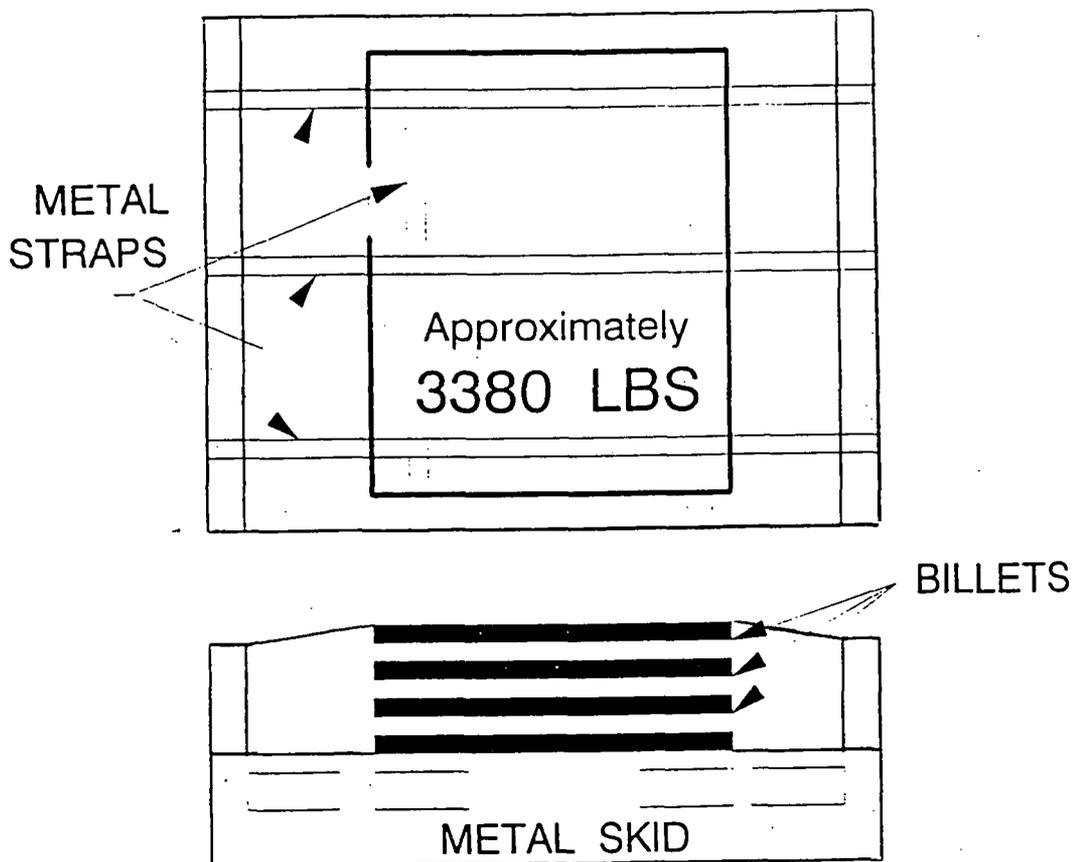


DIAGRAM OF URANIUM METAL BILLET ARRANGEMENT ON PALLET  
Figure 5

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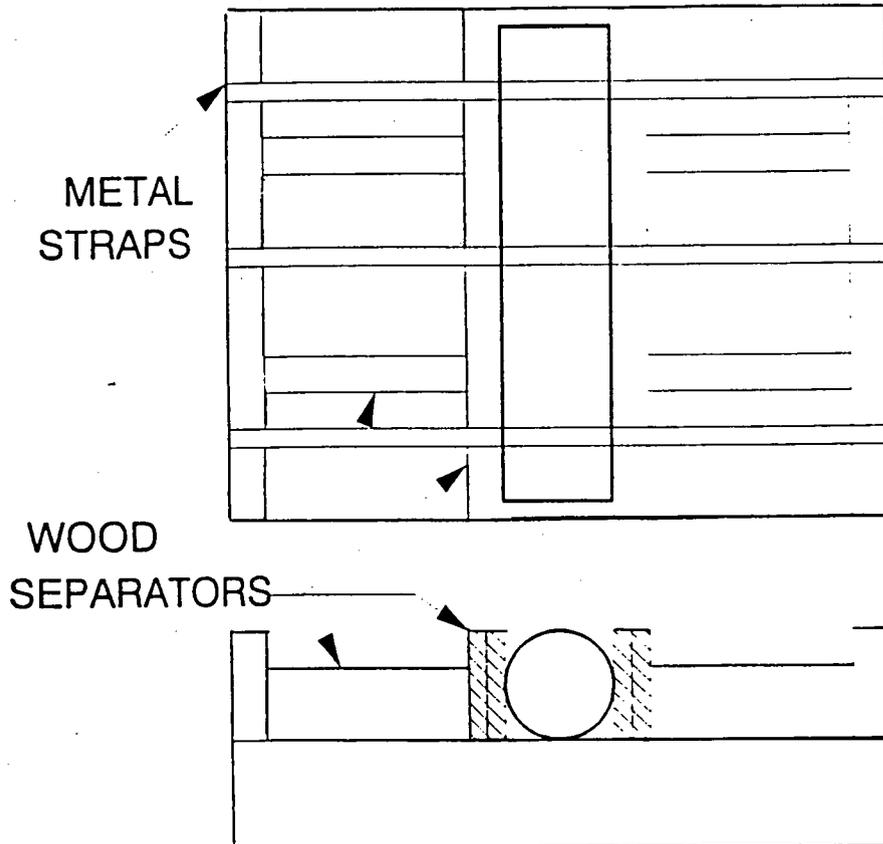
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# URANIUM DUDS AND SPILLS

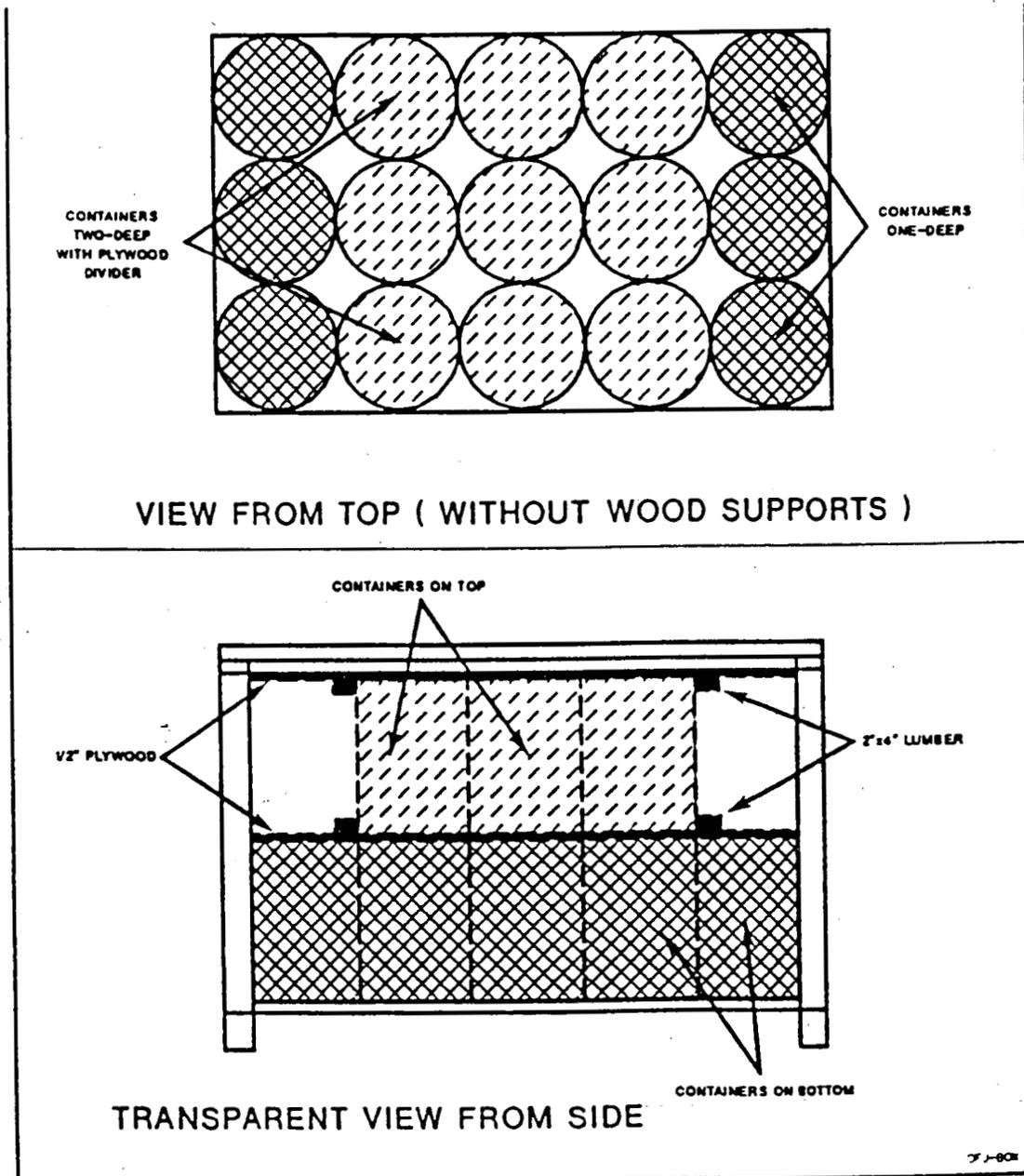
( 4A MATERIAL )

METAL SHALL BE WRAPPED IN RUBBER





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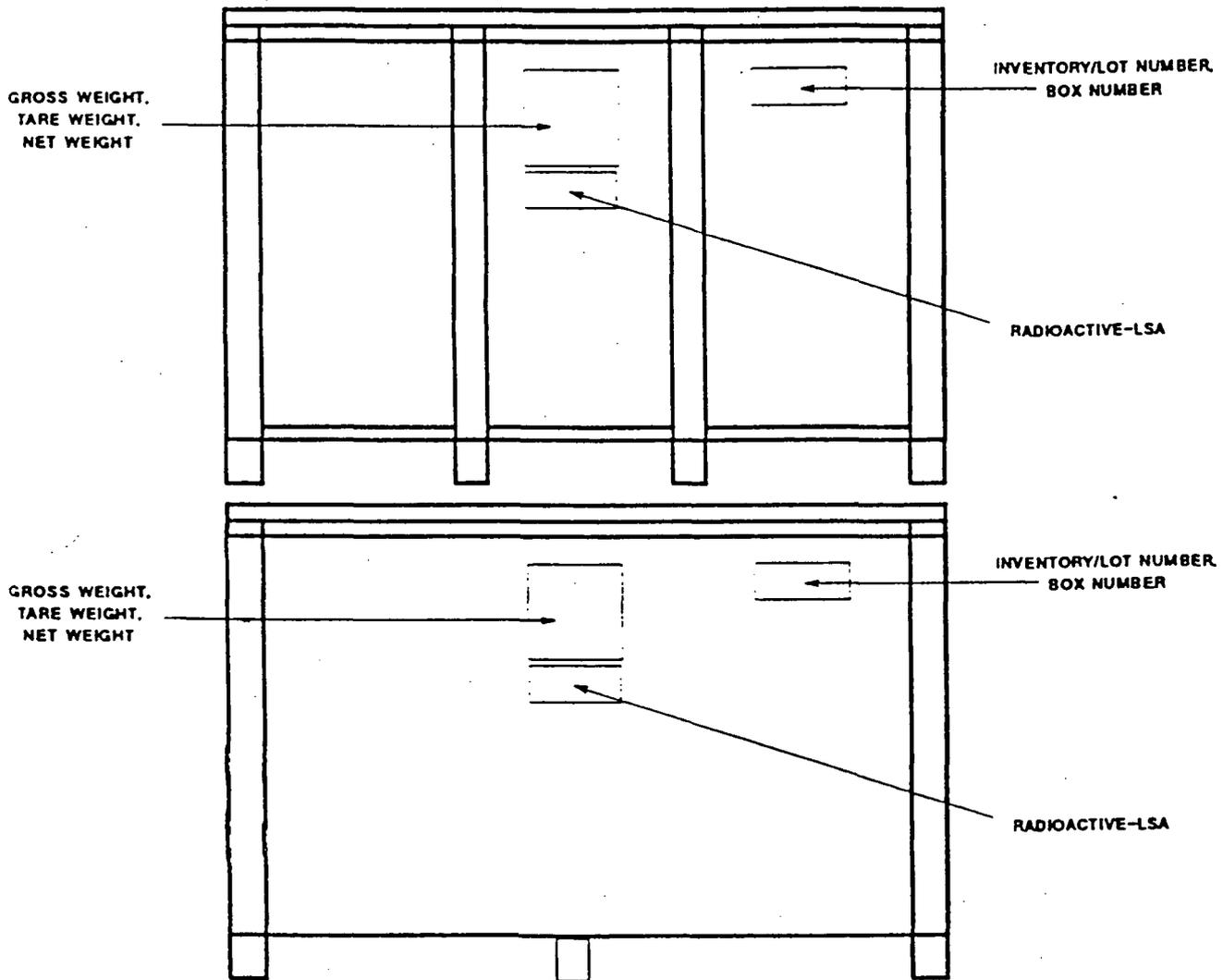
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DIAGRAM OF CONTAINER ARRANGEMENT IN METAL BOX  
Figure 8

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## TYPICAL METAL BOX MARKINGS FOR OFFSITE SHIPMENT

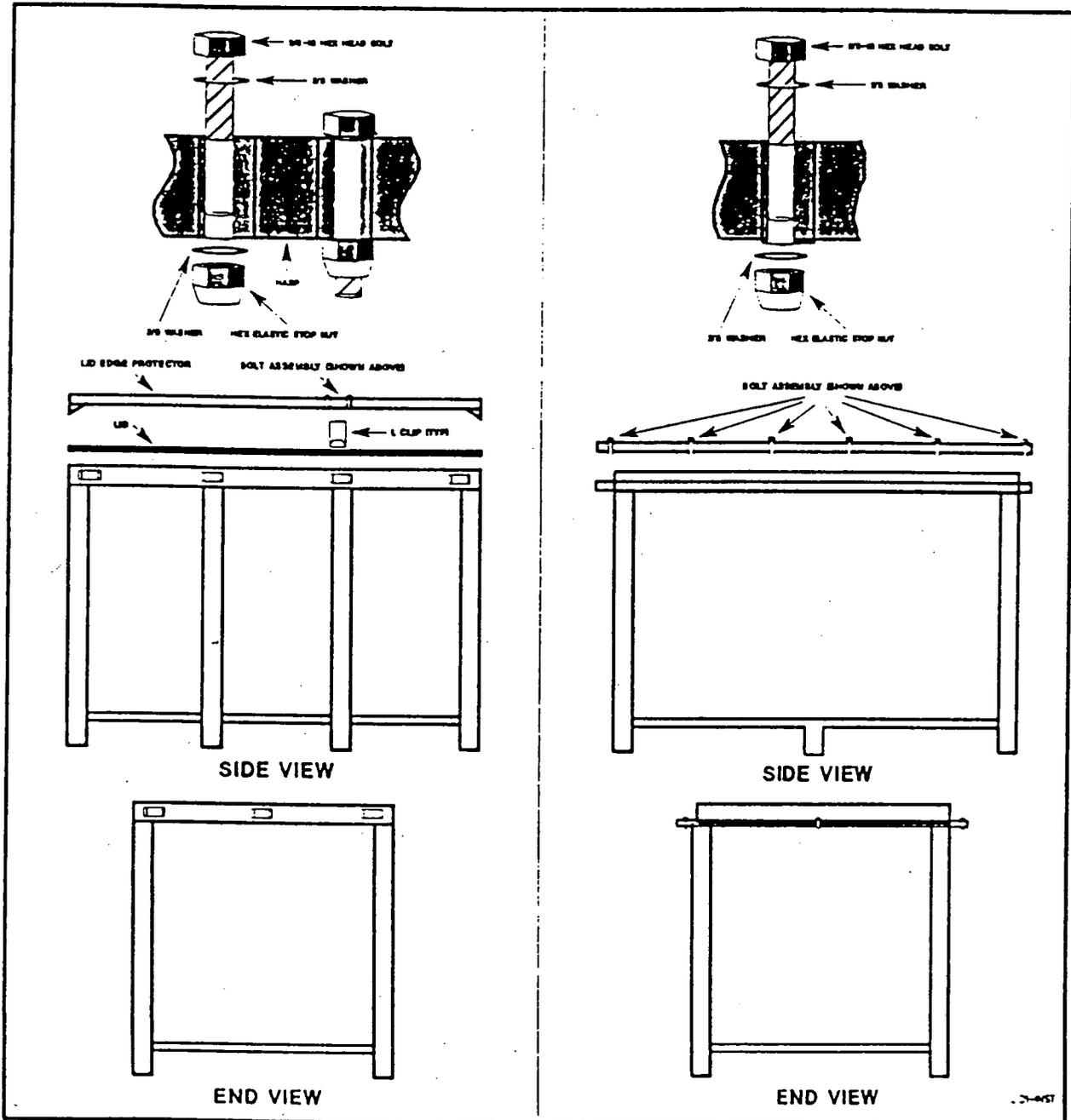


**VIEW FROM SIDE**

ALL MARKINGS SHALL BE A MINIMUM OF 1.5" TALL, UNLESS OTHERWISE SPECIFIED.

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## TYPICAL METAL BOX LID INSTALLATION



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# LOADING GONDOLA CARS 4A MATERIAL

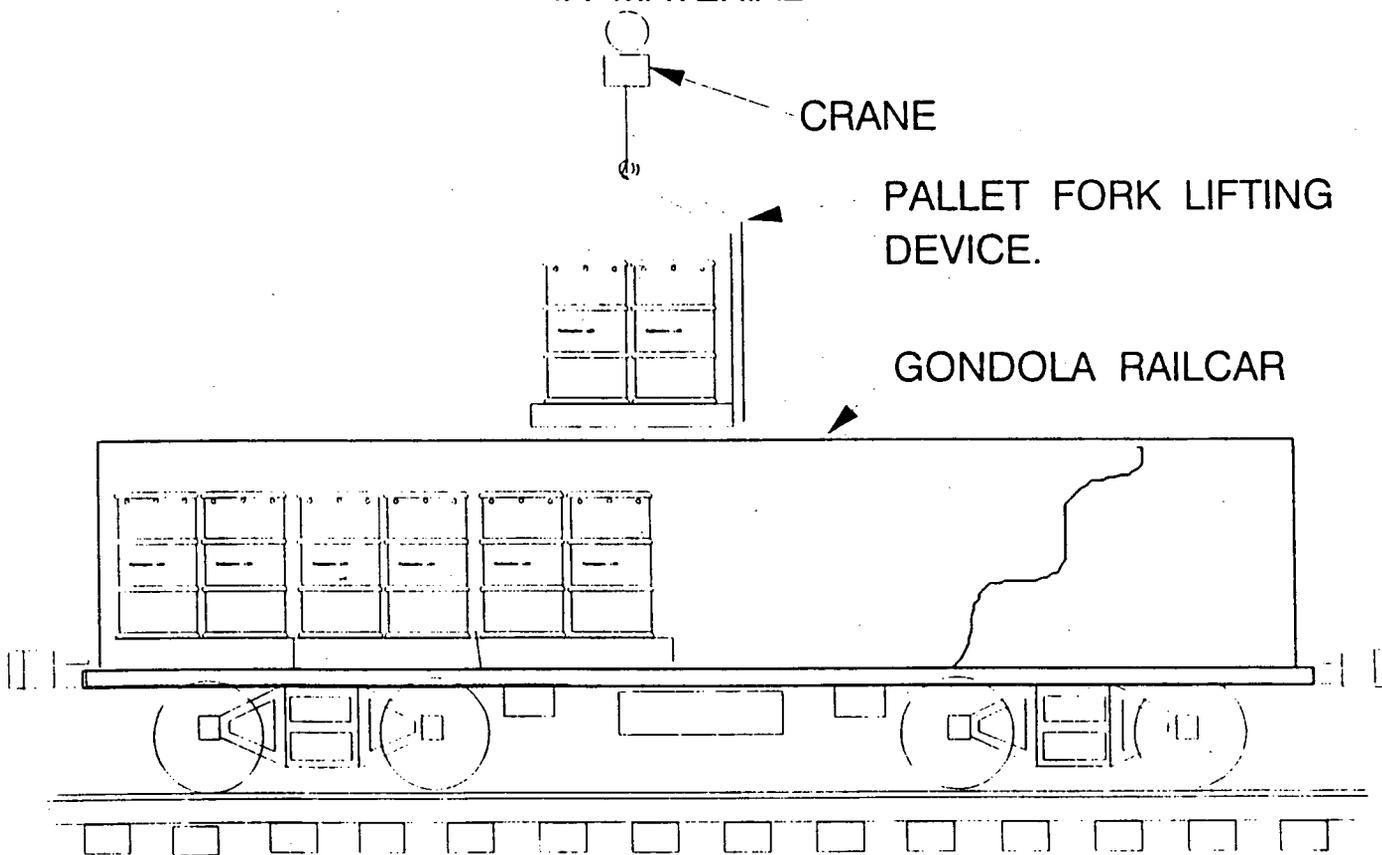


DIAGRAM OF LOADING PALLETS IN GONDOLA  
Figure 11

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
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.

FEMP WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		Page 1 of 9 Revision No. 2
SITE SERVICES PROCEDURE	STORAGE OF ENRICHED MATERIAL	SOP 20-G-801 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.

### 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"

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WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		Page 2 of 9 Revision No. 2
SITE SERVICES PROCEDURE	STORAGE OF ENRICHED MATERIAL	SOP 20-C-801 AREA: As Applicable
Authorization: Per CIO C89-086 R. L. Gardner, Facilities & Warehousing	Supersedes: None	Issue Date: 06-02-90

## 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.

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FEMP WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		Page 3 of 9 Revision No. 2
SITE SERVICES PROCEDURE	STORAGE OF ENRICHED MATERIAL	SOP 20-C-801
		AREA: As Applicable
Authorization: Per CIO C89-086 R. L. Gardner, Facilities & Warehousing		Supersedes: None Issue Date: 06-02-90

## 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.

FEMP WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		Page 4 of 9 Revision No. 2
SITE SERVICES PROCEDURE	STORAGE OF ENRICHED MATERIAL	SOP 20-C-801
		AREA: As Applicable
Authorization: Per CIO C89-086 R. L. Gardner, Facilities & Warehousing		Supersedes: None Issue Date: 06-02-90

## 7.0 PROCEDURE (cont.)

TABLE 1  
NUCLEAR SAFETY MASS AND VOLUME LIMITS  
FOR ENRICHED URANIUM COMPOUNDS<sup>(1)(2)</sup>

% 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<sup>3</sup> 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<sub>4</sub> <sup>(1)(2)</sup>

Stack Limit	1.25% U235	1.8% U235	2.0% U235
One High	≤ 170 lbs U (≤ 225 lbs UF <sub>4</sub> )	≤ 91 lbs U (≤ 120 lbs UF <sub>4</sub> )	≤ 68 lbs U (≤ 90 lbs UF <sub>4</sub> )
Two High	≤ 85 lbs U (< 112 lbs UF <sub>4</sub> )	N/A N/A	≤ 34 lbs U (< 45 lbs UF <sub>4</sub> )

(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.

FEMP WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		Page 5 of 9 Revision No. 2
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## 7.0 PROCEDURE (cont.)

TABLE 3  
SAFE LIMITS FOR ENRICHED DERBIES<sup>(1)(2)</sup>

% U-235	Mass (lbs)	Slab (Inches)
.95	Unlimited	Unlimited
1.25	5870	27 <sup>(3)</sup>

<sup>(1)</sup>Limits are applicable to uranium metal pieces with the smallest dimension of 3.5 inches.

<sup>(2)</sup>When material is between enrichments listed, the limits for the higher enrichment are applicable.

<sup>(3)</sup>Stacked two pallets high.

TABLE 4  
SAFE LIMITS FOR ENRICHED INGOTS<sup>(1)</sup>

% U-235	Dimensions <sup>(2)</sup> (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

<sup>(1)</sup>When material is between enrichments listed, the limits for the higher enrichment are applicable.

<sup>(2)</sup>Smallest dimension of solid piece or wall thickness of hollow cylinder.  
Wall thickness =  $\frac{(OD-ID)}{2}$



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7.0 PROCEDURE (cont.)

TABLE 6 (cont.)  
MASS LIMITS FOR URANIUM METAL<sup>(1)</sup> (U-1bs)

- (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)

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WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO  
SITE SERVICES DOCUMENT PROGRAM

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SITE SERVICES PROCEDURE

STORAGE OF ENRICHED MATERIAL

SOP 20-C-801

AREA: As Applicable

Authorization: Per CIO C89-086  
R. L. Gardner, Facilities & Warehousing

Supersedes: None

Issue Date: 06-02-90

**MATERIAL IDENTIFICATION RECORD**

CARD
PL. 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			SHIFT	TRANS BY
					MO.	DAY	YEAR		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					

FMP-CONT-2221 (REV. 8/17/88) (SHIPPER) (TRANSPORTATION) (RECEIVER)

**NUCLEAR MATERIAL TRANSFER RECORD**

CARD
PL. NO.
68

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			SHIFT	TRANS BY
					MO.	DAY	YEAR		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					

FMP-CONT-1990 (REV. 8/17/88) (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			SHIFT	TRANS BY
					MO.	DAY	YEAR		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					

FMP-CONT-1990 (REV. 8/17/88) (SHIPPER) (TRANSPORTATION) (RECEIVER)

NUCLEAR MATERIAL TRANSFER/RECEIPT/IDENTIFICATION RECORD  
(68, 69, XX CARD PACKET)

FMP-CONT-1990, CONT-2220, CONT-2221

Figure 1

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Authorization: Per CIO C89-086 R. L. Gardner, Facilities & Warehousing	Supersedes: None	Issue Date: 06-02-90

RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
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.

FEMP WESTINGHOUSE MATERIALS COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		Page 1 of 6 Revision No. 2
SITE SERVICES PROCEDURE	CONTROL AND UTILIZATION OF CONTAMINATED TRASH DUMPSTERS	SOP 20-C-604 AREA: As Applicable
Authorization: R. L. Gardner, Facilities & Warehousing Manager		Supersedes: None Issue Date: 05-24-88

### 1.0 PURPOSE/DESCRIPTION

The purpose of this document is to provide procedures for filling dumpsters with contaminated trash.

### 2.0 APPLICABILITY

This procedure is applicable to contaminated trash dumpsters.

### 3.0 RESPONSIBILITIES

#### 3.1 Site Services shall be responsible for the following:

- 3.1.1 Providing personnel with training or training material on controlling contaminated trash dumpsters.
- 3.1.2 Ensuring that designated contaminated trash dumpster access doors remain locked when not in use.

#### 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/Staff Manager.
- 3.2.2 Maintaining training records of personnel who are using the dumpsters.
- 3.2.3 Providing training records to Waste Operations.
- 3.2.4 Contacting Industrial Hygiene or Radiological Safety to determine the appropriate respiratory protection for handling contaminated trash.
- 3.2.5 Providing operators with the required respiratory protection.

#### 3.3 Waste Generators shall be responsible for the following:

- 3.3.1 Ensuring that prohibited items are not placed into contaminated trash dumpsters.
- 3.3.2 Ensuring that contaminated trash is bagged in plastic prior to being placed in the dumpster.

#### 3.4 Facility Owners shall be responsible for ensuring that designated contaminated trash dumpster access doors remain locked when not in use.

SITE  
SERVICES  
PROCEDURECONTROL AND UTILIZATION OF  
CONTAMINATED TRASH DUMPSTERS

SOP 20-C-604

AREA: As Applicable

Authorization: R. L. Gardner,  
Facilities & Warehousing ManagerSupersedes:  
NoneIssue  
Date: 05-24-88

#### 4.0 DEFINITIONS

- 4.1 Contaminated Waste Dumpster - Secured container for the collection of contaminated trash.
- 4.2 Contaminated Waste Generator - Person filling the contaminated trash dumpster

#### 5.0 REFERENCES

None

#### 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 IRS&T or posted signs.
- 6.3 Respiratory protection provided by the supervisor shall be worn when required by IRS&T.
- 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.
- 6.6 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 IRS&T 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 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 Safety Section.

NOTE: Warnings, cautions, and notes precede the Item or Step to which they apply.

#### 7.0 PROCEDURE

##### 7.1 Inspection

- 7.1.1 Examine the trash for prohibited items or categories of waste (Refer to Figure 1).

FEMP WESTINGHOUSE MATERIALS COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		Page 3 of 6 Revision No. 2
SITE SERVICES PROCEDURE	CONTROL AND UTILIZATION OF CONTAMINATED TRASH DUMPSTERS	SOP 20-C-604
		AREA: As Applicable
Authorization: R. L. Gardner, Facilities & Warehousing Manager	Supersedes: None	Issue Date: 05-24-88

## 7.0 PROCEDURE (cont.)

7.1.1.1 If a suspect item is located and determination is impossible, remove the item.

7.1.1.2 Contact the supervisor and request instructions.

7.1.2 Remove prohibited items from the trash as instructed by supervision.

## 7.2 Filling Dumpsters

7.2.1 Dispose of small or loose items as follows:

7.2.1.1 Place the small/loose material in clear plastic bags.

7.2.1.2 Gather or twist the open end of the bag until the opening is closed.

7.2.1.3 Using tape, secure the bag.

7.2.2 Contact the person responsible for the dumpster to obtain approval and the door keys.

7.2.3 Unlock dumpster.

7.2.4 Place bulky items (such as oversize pieces of cardboard) directly into the dumpster.

7.2.5 Inspect the trash in the secured clear plastic bag to ensure there are no prohibited items.

**NOTE:** Do not place unsecured bags or damaged bags into the dumpster.

7.2.6 Inspect the bags for damage.

7.2.6.1 Place damaged bags into undamaged bags.

**CAUTION:** PIPING AND PIECES OF WOOD OVER TWO FEET IN LENGTH SHALL NOT BE PLACED IN THE DUMPSTER.

7.2.7 Place identified contaminated trash excluding items in Figure 1 into the dumpster.

7.2.8 Lock dumpster.

7.2.9 Return the door key to the responsible person.

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SITE SERVICES PROCEDURE	CONTROL AND UTILIZATION OF CONTAMINATED TRASH DUMPSTERS	SOP 20-C-604 <hr/> AREA: As Applicable
Authorization: R. L. Gardner, Facilities & Warehousing Manager	Supersedes: None	Issue Date: 05-24-88

8.0 APPLICABLE FORMS

None

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		Issue Date: 05-24-88

**LIST OF WASTE TYPES PROHIBITED FROM THE CONTAMINATED TRASH DUMPSTERS**

- \* Any kind of liquid
- \* Non-radioactive materials
- \* Pressurized containers/spray cans
- \* Explosive materials
- \* Gaseous radioactive materials
- \* High-level radioactive waste
- \* Pyrophoric materials
- \* Hazardous materials
- \* Flammable substances
- \* Alkaline metals
- \* Reactive or oxidizing materials
- \* Ashes, dry powders, or dusts
- \* Immobilized or ionized waste with pH less than 4.
- \* Mixed waste
- R \* Glass

**WARNING:** IF THERE IS ANY QUESTION ABOUT WHETHER OR NOT THE TRASH FALLS INTO ANY OF THE CATEGORIES ABOVE, CONTACT THE AREA SUPERVISOR OR SITE SERVICES.

FEMP - WESTINGHOUSE MATERIALS COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		Page 6 of 6 Revision No. 2
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		AREA: As Applicable
Authorization: R. L. Gardner, Facilities & Warehousing Manager	Supersedes: None	Issue Date: 05-24-88

LIST OF ISSUE/REVISION

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
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 P90-255.
01-28-91	2	Revised to incorporate CIO C91-061 per Request No. P92-015.

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		SITE POLICY AND PROCEDURE Page 1 of 9	3530
Title: CONTROL AND ACCOUNTABILITY OF NUCLEAR MATERIALS		DOCUMENT NO: FMPC-307 REVISION NO. 4	
Authorization: <i>W. H. Britton</i> W. H. Britton, President	Supersedes: FMPC-307, Dated 05-28-91, Rev. 3	Issue Date:- 12-19-91	

## 1.0 POLICY

Westinghouse Environmental Management Company of Ohio (WEMCO) shall maintain control and accountability of nuclear materials at the Fernald Environmental Management Project (FEMP) in accordance with DOE orders.

## 2.0 SCOPE

This site policy implements the responsibilities and requirements for nuclear materials control and accountability program planning and management as contained in Materials Control and Accountability (MC&A) Plan, PL-FMPC-3006.

## 3.0 DEFINITIONS

- 3.1 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.
- 3.2 Book Inventory - The quantity of nuclear material shown in the accounting records to be present at a given time.
- 3.3 Depleted Uranium - Uranium having less than 0.711 percent by weight of the isotope U-235.
- 3.4 Economic Discard Limit - The value of U-235 and uranium assay at which a uranium residue may be declared a waste material.
- 3.5 Enriched Uranium - Uranium containing greater than 0.711 percent by weight of the isotope U-235.
- 3.6 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.
- 3.7 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, see RM-0005.

Title: CONTROL AND ACCOUNTABILITY OF NUCLEAR  
 MATERIALS

DOCUMENT NO: FMPC-307  
 REVISION NO. 4

Authorization:  
 W. H. Britton, President

Supersedes: FMPC-307,  
 Dated 05-28-91, Rev. 3

Issue Date: 12-19-91

3.0 DEFINITIONS (cont.)

- 3.8 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 off-site must meet criteria in "Waste Certification Program Plan", QA 87001.
- 3.9 Material Balance Account (MBA) - A subsidiary account of the facility for a specific process to establish accountability and to localize inventory differences.
- 3.10 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. These losses must be categorized, reported to DOE, and removed from the nuclear materials inventory.
- 3.11 Normal Uranium - Uranium containing 0.711 percent by weight of U-235, which is that isotopic content which occurs in nature.
- 3.12 Nuclear Material Discard - Nuclear material removed intentionally from process inventory and disposed of as waste by approved methods.
- 3.13 Nuclear Materials Management and Safeguards System (NMMSS) - The national database and information support system for nuclear materials controlled by the U. S. Government.
- 3.14 Nuclear Material (NM) - Collective term including all such materials designated by the DOE. A listing of designated nuclear materials can be found in DOE Order 5633.3; however, at the FEMP, nuclear materials shall mean depleted, normal and enriched (less than 20% U-235 by weight) uranium and thorium.
- 3.15 Physical Inventory - Quantity of nuclear material determined to be on hand by counting or measuring it, usually sampling, weighing and analyzing samples taken; also by calculations, outage measurements and pressure-volume-temperature relationships.
- 3.16 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.

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		SITE POLICY AND PROCEDURE Page 3 of 9
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Authorization: W. H. Britton, President	Supersedes: FMPC-307, Dated 05-28-91, Rev. 3	Issue Date: 12-19-91

### 3.0 DEFINITIONS (cont.)

- 3.17 Safeguards - Measures mandated by DOE orders designed to prevent theft or diversion of nuclear materials. At the FEMP, these requirements are satisfied by the implementation of physical and administrative controls over the location and movement of nuclear materials. A set of graded safeguards requirements entails less stringent physical controls over the types of nuclear materials found at the FEMP, compared to requirements for weapons-grade materials located at other sites.

### 4.0 RESPONSIBILITIES

- 4.1 Materials Control and Accountability (MC&A) - 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 WEMCO management regarding the physical and book inventories.

MC&A is responsible for reporting measured discards and process emissions in accordance with DOE Directives, and for declaring nuclear materials below the economic discard limit as waste.

MC&A is responsible for maintaining the FMPC Lot Marking and Color Coding System, RM-0005, and the MC&A Plan, PL-FMPC-3006.

- 4.2 Site Services - Responsible for sampling, handling, weighing, loading, processing, storing, inventorying, and avoiding unnecessary isotopic crossover of nuclear materials at the FEMP. Also responsible for maintenance of NM scales and water treatment operations which control NM discards. Documents that track the movements of nuclear materials onsite are originated by Facility Operations supervisors/managers, but must be approved by MC&A. Assists Environmental Compliance in providing calculated stack and scrubber loss data in a timely manner to allow MC&A to meet normal operating loss reporting deadlines to the DOE.
- 4.3 Analytical Laboratory - Responsible for determining and reporting uranium assay and isotopic analysis of all uranium-bearing materials 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.

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Authorization: W. H. Britton, President	Supersedes: FMPC-307, Dated 05-28-91, Rev. 3	Issue Date: 12-19-91

4.0 RESPONSIBILITIES (cont.)

- R 4.4 Environmental Compliance and Quality Assurance - Environmental  
R Compliance must provide calculated stack and scrubber loss data in a  
R timely manner to allow MC&A to meet normal operating loss reporting  
R deadlines to the DOE.
- 4.5 Safeguards and Security Section - Responsible for safeguarding the  
FEMP's nuclear materials inventory against theft or diversion and for  
preparing the Site Safeguards and Security Plan.
- 4.6 Traffic Section - 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.
- 4.7 Information Systems - Responsible for the actual electronic data  
processing (EDP) for the nuclear materials accounting system.
- 4.8 Cost Accounting - Responsible for calculating and assigning monetary  
values applicable to all nuclear materials inventories in each  
material balance account. Prepares Product Cost Transfer Vouchers to  
transfer the value of material shipped off-site.
- 4.9 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 FMPC-CONT-558), see Figure 2.

5.0 GENERAL

- 5.1 DOE Order 5633 Series establishes the requirements, responsibilities  
and authorities for nuclear materials control and accountability under  
Department of Energy jurisdiction. WEMCO, a DOE contractor, is  
subject to all applicable parts of these regulations.
- 5.2 DOE directives, particularly DOE Order 5633.3, require facilities  
possessing nuclear materials to prepare a materials control and  
accountability plan and procedures.

The "Materials Control and Accountability Plan" (PL-FMPC-3006)  
supplemented by the MC&A Internal Procedures Manual, satisfy these  
requirements. 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.

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WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		SITE POLICY AND PROCEDURE Page 5 of 9
Title: CONTROL AND ACCOUNTABILITY OF NUCLEAR MATERIALS		DOCUMENT NO: FMPC-307 REVISION NO. 4
Authorization: W. H. Britton, President	Supersedes: FMPC-307, Dated 05-28-91, Rev. 3	Issue Date: 12-19-91

## 5.0 GENERAL (cont.)

- 5.3 A DOE issued inspection guide, referred to as the "Inspection and Evaluation (I&E) Standards and Criteria-Material Control and Accountability," where applicable, serves as the basis for evaluation of MC&A. This guide stipulates training requirements for all MC&A personnel, as well as other facility personnel involved in making nuclear material measurements, weighing, sampling and analysis.
- 5.4 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.
- 5.5 The requirements for handling nuclear materials at the FEMP are included in the departmental standard operating procedures.
- 5.6 All nuclear materials are to be lot marked and color coded as outlined in RM-0005, "Lot Marking and Color Coding System."
- 5.7 All nuclear material shipments to the FEMP must be authorized by Form FMPC-ES&H-1987, "Authorization to Ship Nuclear Materials" (See Figure 1). All shipments from the FEMP must be authorized by Form FMPC-CONT-558, "Shipping Order for Nuclear Material" (See Figure 2).
- 5.8 All nuclear material data that is to be released outside the WEMCO organization, including estimates or calculations of possible process losses, must be submitted to MC&A for review and comment before release to the public or the news media.

## 6.0 PROCEDURE

Detailed procedures and instructions for implementing this site policy and procedure are provided in PL-FMPC-3006, "Materials Control and Accountability Plan."

## 7.0 APPLICABLE DOCUMENTS

### 7.1 Drivers

- 7.1.1 DOE Guide, "Inspection and Evaluation (I&E) Standards and Criteria for Nuclear Materials Control and Accountability"
- 7.1.2 DOE Order 5633.2, "Control and Accountability of Nuclear Materials: Responsibilities and Authorities"

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Authorization: W. H. Britton, President	Supersedes: FMPC-307, Dated 05-28-91, Rev. 3	Issue Date: 12-19-91

7.0 APPLICABLE DOCUMENTS (cont.)

- 7.1.3 DOE Order 5633.3, "Control and Accountability of Nuclear Material"
- 7.1.4 DOE Order 5633.4, "Nuclear Materials Transactions: Documentation and Reporting"
- 7.1.5 DOE Order 5633.5, "Nuclear Materials Reporting and Data Submission Procedures"

7.2 References

- 7.2.1 FMPC-519, "Management of Hazardous Waste"
- 7.2.2 IN-6032, "Control of Construction/Maintenance Waste"
- 7.2.4 PL-FMPC-3006, "Materials Control and Accountability Plan"
- 7.2.5 RM-0005, "FMPC Lot Marking and Color Coding System"
- 7.2.6 QA 87001, "Waste Certification Program Plan"

8.0 FORMS USED

- 8.1 FMPC-ES&H-1987, "Authorization to Ship Nuclear Materials"
- 8.2 FMPC-CONT-558, "Shipping Order for Nuclear Material"

Additional forms are dispersed throughout the MC&A Manual and are referenced in Section XIV of the MC&A Manual and Section 14 of the Plan.

9.0 FIGURES

- 9.1 Figure 1 - FMPC-ES&H-1987, "Authorization to Ship Nuclear Material"
- 9.2 Figure 2 - FMPC-CONT-558, "Shipping Order for Nuclear Material"

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Authorization: W. H. Britton, President	Supersedes: FMPC-307, Dated 05-28-91, Rev. 3	Issue Date: 12-19-91

Westinghouse Materials Company of Ohio  
AUTHORIZATION TO SHIP NUCLEAR MATERIALS

TO: C. W. Lower, Nuclear Materials Representative  
Westinghouse Materials Company of Ohio  
P. O. Box 398704  
Cincinnati, Ohio 45239

WMT No.: \_\_\_\_\_

Authorization is requested to ship the following nuclear materials to WMCO (Station FVC):

Type:  Normal  Enriched  Depleted  Thorium

Note: Weights listed are in:  Lbs.  Kgs.  Gms.

SCRAP CLASS	QUANTITY & TYPE CONTAINER	PHYSICAL OR CHEMICAL DESCRIPTION	NET WEIGHT	ELEMENT WEIGHT	U-235

ADDITIONAL DESCRIPTION

1. U-235 RANGE \_\_\_\_\_ 2. ALLOYING OR ADDITIVE ELEMENTS \_\_\_\_\_ 3. MAX NET WT. OF CONTAINERS (IF NOT UNIFORM) PACKED \_\_\_\_\_

4. CRITICALITY CONTROL EMPLOYED  SLAB  MASS  VOLUME  CONCENTRATION  CYLINDER \_\_\_\_\_

5. OTHER (Specify) \_\_\_\_\_ State Maximum Value \_\_\_\_\_

6. SHIPPER'S COLOR CODING OR SPECIAL IDENTIFICATION \_\_\_\_\_

7. PACKAGE DESCRIPTION (IF NOT IN STANDARD CONTAINER) \_\_\_\_\_

8. SPECIAL PRECAUTIONS \_\_\_\_\_

Nuclear materials are to be identified, packaged and shipped in accordance with all provisions of the latest DOE Manual Order. Notification and DOE Form - 741 must include this authorization number.

STATION LOCATION: \_\_\_\_\_ REQUESTED BY: \_\_\_\_\_ REQUESTED SHIPPING DATE: \_\_\_\_\_

DATE OF REQUEST: \_\_\_\_\_

SIGNATURE (NUCLEAR MATERIALS REPRESENTATIVE): \_\_\_\_\_

APPROVAL (For FVC Use Only)

Scheduled Date of Delivery: \_\_\_\_\_ DATE: \_\_\_\_\_

Approved By: \_\_\_\_\_ (NUCLEAR MATERIALS REPRESENTATIVE) DATE: \_\_\_\_\_

REMARKS

NO.	DISTRIBUTION OF COPIES
1	To FVC for Approval and Return to Shipper
2	FVC - MC&A - RECORD COPY
3	Originator
4	
5	

FMPC-ES&H-1987-REV. 1-27-88



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Title: CONTROL AND ACCOUNTABILITY OF NUCLEAR MATERIALS		DOCUMENT NO: FMPC-307 REVISION NO. 4
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RECORD IS ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
08-26-87	0	Revision to document.
09-21-88	1	Revision to document.
01-26-90	2	Revision to document.
05-28-91	3	Revision to document.
12-19-91	4	Revised to incorporate temporary revision T91-001, per Request No. S92-006, initiated by D. Dunaway.

FEMP WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		Page 1 of 11 Revision No. 0
SITE SERVICES PROCEDURE	TRASH BALER OPERATION	SOP 2-C-923
		AREA: Plant 2/3
Authorization: R. L. Gardner, Facilities and Warehousing	Supersedes: None	Issue Date: 10-14-91

### 1.0 PURPOSE

The purpose of this document is to establish 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 The supervisor shall be responsible for the following:

- 3.1.1 Ensuring that personnel are qualified per the established training requirements identified by the Department/Staff Manager.
- 3.1.2 Contacting Industrial Hygiene or Radiological Safety to determine the appropriate respiratory protection for the process being performed.
- 3.1.3 Providing operators with the required respiratory protection.

3.2 Operators shall be responsible for complying with this SOP.

### 4.0 DEFINITIONS

4.1 Platen - Pressure plate of the baler.

### 5.0 REFERENCES

5.2 PP-FMPC-719, "Energy Control (Lockout and Tagout)"

### 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, IRS&T, 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, personnel shall comply with the "Energy Control (Lockout and Tagout)", procedure PP-FMPC-719.
- 6.5 Respiratory protection provided by the supervisor shall be worn when specified by IRS&T, the supervisor, or posted signs.

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#### 6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

- 6.6 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 IRS&T Radiological Safety Section for evaluation. The involved personnel shall report to the Urine Sampling Station at the end of their shift to complete a Incident Investigation Report (IIR) (Form FMPC-ES&H-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 Safety Section.

#### 7.0 PROCEDURE

##### 7.1 Trash Receiving

- 7.1.1 Move away from the incinerator bin and conveyor while the Transport Driver is emptying material from the dumpster.
- 7.1.2 Check dumpster while bottom is open to ensure that all trash has been deposited in the bin.
- 7.1.2.1 If trash remains inside the dumpster, use a rake and pull the material from the dumpster.
- 7.1.3 Complete a "Trash Baler Operation Log", Form FMPC-PRO-2887.
- 7.1.4 Visually inspect the trash to determine if prohibited items or categories of waste (Refer to Table 1) are contained in the trash.
- 7.1.4.1 If prohibited items are found, remove the items from the trash.

#### NOTE

Prohibited waste types shall be separated by container (such as paint cans in one, glass in another).

- 7.1.4.2 Segregate each item in a container or plastic bag designated for that type of waste.
- 7.1.4.3 Label each bag/container with the waste description.

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Authorization: R. L. Gardner, Facilities and Warehousing		Supersedes: None Issue Date: 10-14-91

7.0 PROCEDURE (cont.)

TABLE 1  
WASTE PROHIBITED FROM CONTAMINATED TRASH DUMPSTERS

Item No.	DESCRIPTION
1	Any liquid
2	Non-radioactive materials
3	Pressurized containers/spray cans
4	Explosive materials
5	Gaseous radioactive materials
6	High-level radioactive waste
7	Pyrophoric materials
8	Hazardous waste materials
9	Flammable substances
10	Alkaline metals
11	Reactive or oxidizing materials
12	Ashes, dry powders, or dusts
13	Immobilized or ionized waste with pH less than 4
14	Asbestos containing materials
15	Glass
16	Heavy metal objects
17	Soft drink/juice cans

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7.0 PROCEDURE (cont.)

NOTE

Supervisor shall notify the Facility Owner and Waste Operations of prohibited items found.

NOTE

Prohibited items shall be returned to the area where the items were picked up.

7.1.4.3 Notify the supervisor of prohibited items found.

NOTE

The Trash Baler supervisor and operator, as generator, shall sign the 1945-XX Card.

7.1.5 Complete and sign an "Item Production/Certification/Identification card", Form FMPC-CONT-1945-XX.

7.1.6 Ensure that the bale removal chain at the rear of the baler is unhooked from the platen (See Figure 1).

NOTE

Trash Baler will not operate in the automatic mode unless the door is positioned against limit switches and latched.

7.1.7 Ensure that the bale removal door is closed and securely latched.

7.1.8 Check the scaffold to be used to ensure the platform is free of loose items.

7.1.9 Position the scaffold platform against the bale removal door.

7.1.10 Lock the scaffold wheels in place.

7.1.11 Latch scaffolding chain locks onto the baler frame.

7.1.12 Place moveable walkway between the scaffolding and the platform.

7.1.13 Position the south swinging gate between the angle iron and scaffolding.

7.1.14 Chain and lock the north swinging gate to the scaffolding.

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## 7.0 PROCEDURE (cont.)

### 7.2 Baler Operation (See Figure 1)

7.2.1 Raise the safety gate.

7.2.2 Cover the bale chamber floor with a large sheet of trash cardboard.

7.2.3 Place trash bags in the bale chamber.

#### NOTE

Automatic operation of baler is not possible unless the safety gate is latched closed.

7.2.4 Pull down the safety gate until the gate is latched.

#### NOTE

The baler will automatically compact the contents, then return to the UP position, when the DOWN button is pressed.

7.2.5 At the control panel, press the DOWN button.

7.2.6 Repeat steps 7.2.1 thru 7.2.5 until the bale is nearly complete.

7.2.7 Before compaction is complete, add a large cardboard sheet to top of bale.

#### NOTE

When bale is completed, the indicator at the control panel will light and the baler automatically shut off in the DOWN position.

7.2.8 Repeat steps 7.2.1 thru 7.2.5 and complete the bale.

7.2.9 Record the bale number on the "Trash Baler Operation Log", Form FMPC-PRO-2887.

### 7.3 Bale Removal

7.3.1 Check the scaffold to ensure that loose items have been removed from the platform.

7.3.2 Unlock scaffold platform wheels.

7.3.3 Move the platform away from the bale removal door.

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### 7.0 PROCEDURE (cont.)

- 7.3.4 Open the bale removal door using the gradual tension release latch.
- 7.3.5 Insert four or more wires through the slots in the floor of the baling chamber.
- 7.3.6 Wrap the wires around bale and then back through the slots in the ram of the baler.
- 7.3.7 Insert the end of each wire through the end loop.
- 7.3.8 Wrap each end of the wire at least four times above the end loop.
- 7.3.9 At the rear of the baler, hook bale removal chains onto the platen.
- 7.3.10 Operate the hand stacker or forklift to be used without a load to ensure safe conditions.
- 7.3.11 Complete "Operator Checklist," Form FMPC-ADMS-2414 or "Electric Truck Operator's Daily Checklist," Form FMPC-ADMS-2415 as applicable.
- 7.3.12 Using the hand stacker or forklift, position a wood skid at bale removal door.
- 7.3.13 Ensure that the baler safety gate is in the closed position.

#### NOTE

Only one bale shall be placed on a skid.

- 7.3.14 On the control panel, press and hold the UP button until bale rolls out onto the skid.
- 7.3.15 Using the hand stacker 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.

- 7.3.16 Mark the bale with the date and bale number.
- 7.3.17 Record the bale number on the log sheet.
- 7.3.18 On the baler, close and latch the bale removal door.

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#### 7.0 PROCEDURE (cont.)

7.3.19 At control panel, press and hold the DOWN button.

7.3.20 When the baler platen reaches the lowest position, ensure that bale removal chains automatically unhook from rear of platen.

7.3.21 If chains fail to unhook proceed as follows:

7.3.21.1 Release the DOWN button.

7.3.21.2 Press the EMERGENCY STOP button at the control panel.

7.3.21.3 Manually unhook the chains.

7.3.21.4 Turn the EMERGENCY STOP button head.

7.3.21.5 Ensure that the baler cycle completes with the baler ram in the UP position.

7.2.22 Release the down button and ensure that baler returns to the UP position.

7.2.23 Move completed bale to the designated storage area.

#### 7.4 Monthly Inspection

7.4.1 At the start of the first day shift each month, inspect contaminated trash dumpsters per the "Contaminated Trash Dumpster Monthly Checksheet", Form FMPC-OPR-3258.

#### NOTE

The supervisor shall report problems to the facility owner of the building where the dumpster is located.

7.4.2 Notify the supervisor of discrepancies:

7.4.3 Turn in the completed checksheet to the supervisor.

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7.0 PROCEDURE (cont.)

7.5 Trouble Shooting (Refer to Table 2)

TABLE 2 Baler Trouble Shooting		
Problem	Cause	Corrective Action
1. Baler will not start.	A. Bale removal door/latch open. B. Safety Gate Open C. EMERGENCY STOP Switch activated.	A. Close removal door and latch. B. Close safety gate. C. Turn EMERGENCY STOP push button head to release the locking device.
2. Baler Shuts Down	A. Safety gate raised faster than ram. B. Releasing the UP push button during the ejection cycle.	A. Allow ram to move up before activating safety gate. B. Press and hold the UP button.

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#### 8.0 APPLICABLE FORMS

- 8.1 FMPC-PRO-2887, "Trash Baler Operation Log"
- 8.2 FMPC-CONT-1945-XX, "Item Production/Certification/Identification"
- 8.3 FMPC-ADMS-2414, "Gas, LPG or Diesel Fueled Equipment Operator's Checklist"
- 8.4 FMPC-ADMS-2415, "Electric Truck Operator's Daily Checklist"
- 8.5 FMPC-OPR-3258, "Contaminated Dumpster Monthly Checksheet"

SITE  
 SERVICES  
 PROCEDURE

TRASH BALER OPERATION

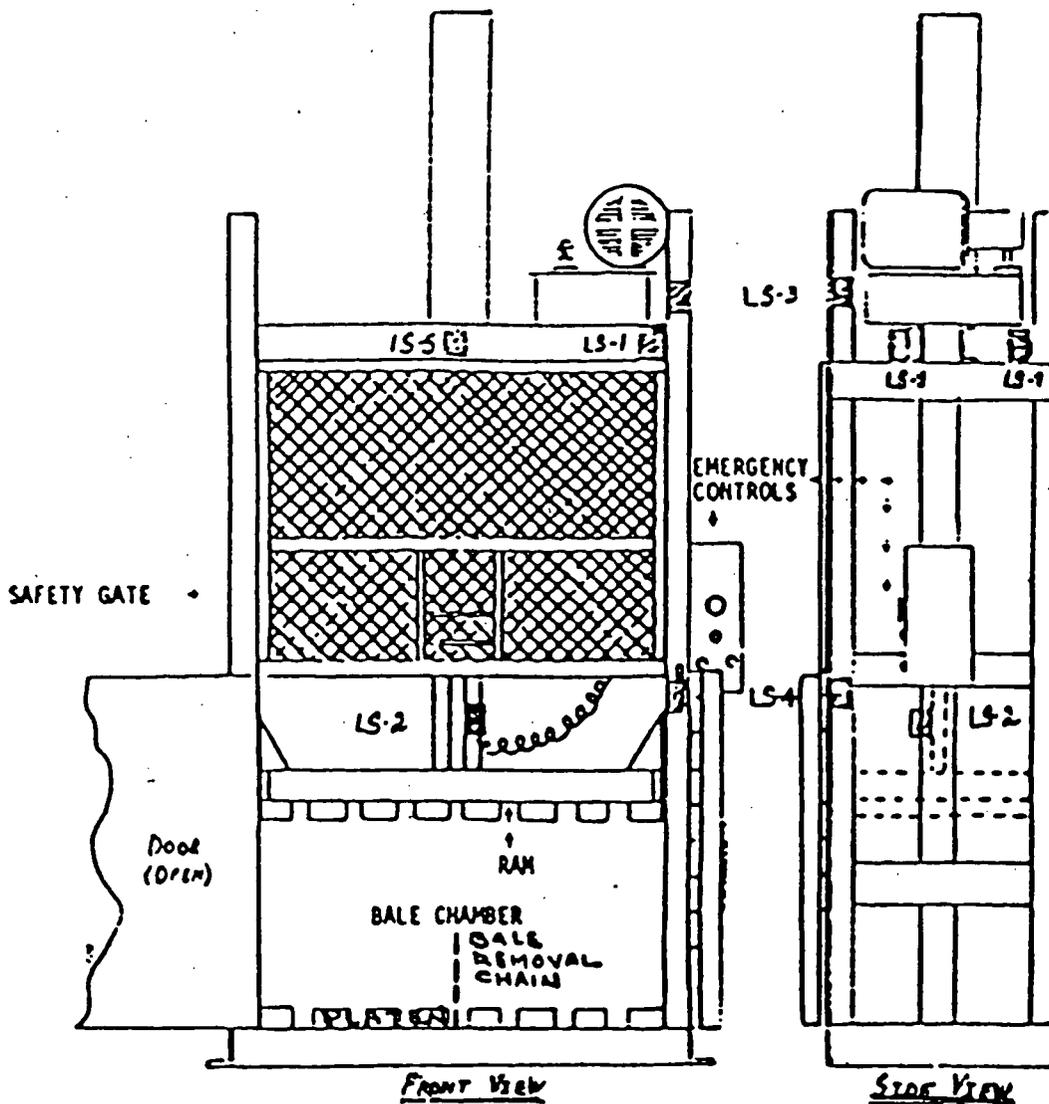
SOP 2-C-923

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 Facilities and Warehousing

Supersedes: None

Issue  
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LIMIT SWITCH LOCATIONS

- 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 1

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
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).

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		POLICY Page 1 of 4	3530
Title: RISK ASSESSMENT AND MANAGEMENT (RAM) SYSTEM POLICY		DOCUMENT NO: PO-0712 REVISION NO. 0	
Authorization: <i>W. H. Britton</i> W. H. Britton, President	Supersedes: IN-6034, Dated 11-25-91	Effective Date: 01-25-92	

## 1.0 PURPOSE

New and modified facilities, remediation/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. These assessments shall be conducted to determine if hazards, failures or concerns could adversely impact any one or more of the following:

- o The health and safety of personnel and the public;
- o The environment, both on and off-site;
- o The constructability, operability, and maintainability of the FEMP within legal, regulatory, and corporate compliance and commitment boundaries;
- o The ability to meet WEMCO mission/goals, scientific and technical objectives, and program schedules; and
- o The economics of operation of the FEMP.

## 2.0 SCOPE

The FEMP Risk Assessment and Management (RAM) System includes a screening device, developed to provide a graded approach to address possible health, environmental, and mission risks. This system serves to ensure that the level of administrative and hardware controls applied are in proportion to the risks identified for potential individual event sequences of a proposed project, operation, or activity.

Risk Assessments shall be conducted for projects, activities, Plant Test Authorizations, Project Authorizations, and significant process and/or procedural modifications (see Section 3.0).

This system does not address the conduct of the CERCLA (Superfund Site) Risk Assessments required for an RI/FS. The CERCLA Risk Assessments are described in EPA/540/1-89/002, Risk Assessment Guidance for Superfund, Volumes I and II.

The RAM System is, to a large measure, based on engineering judgement. It is not, nor was it intended to be, as extensive or detailed as the CERCLA risk assessment process. However, the results of the RAM System, along with such safety-related documentation as the Safety Assessment, may prove to be a useful source of baseline data for the CERCLA risk assessment process.

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Title: RISK ASSESSMENT AND MANAGEMENT (RAM) SYSTEM POLICY		DOCUMENT NO: PO-0712 REVISION NO. 0
Authorization: W. H. Britton, President	Supersedes: IN-6034, Dated 11-25-91	Effective Date: 01-25-92

### 3.0 DEFINITIONS

The complete list of RAM System definitions is provided in SM-0001, Risk Assessment and Management (RAM) System, and shall be used verbatim per that document. The following is a partial listing of those terms used in this policy statement.

- 3.1 Hazard - An existing or potential condition which, by itself or in combination with other variables, has the capacity to result in the unwanted effects of deaths or injuries to personnel, or the release of radioactive or hazardous chemicals to the environment. (DOE/OR-901)
- 3.2 Event - An undesirable happening. An accident or abnormal operational situation or condition (DOE-OR-901).
- 3.3 Event Sequence - Each potential failure, concern, and hazard has one or more possible causes. A potential failure, concern, or hazard with one such possible cause and its probability of occurrence and quality level, is designated an event sequence.
- 3.4 Operation - An organized set of activities directed toward a common purpose, e.g., site restoration activities.
- 3.5 Project - An activity which has a defined scope of work, scheduled beginning and ending dates, prescribed budget or cost constraints, and an approved schedule for its accomplishment. This term includes General Plant Projects (GPP), Line Item Projects, or Capital and Expense Projects. For the purpose of Risk Assessment and Management System documentation, the term shall also include Plant Test Authorizations or any other proposed changes to a process or facility.
- 3.6 Risk - A quantitative or qualitative expression of possible loss in terms of consequence severity and probability of occurrence. (DOE/OR-901)
- 3.7 Risk Assessment - The process of identifying hazards, potential failures and concerns along with their possible consequences, causes, probabilities of occurrence, controls, and mitigators.
- 3.8 Risk Management - The process of risk identification, assessment and decision of disposition (elimination, control, mitigation, or tolerance), and the tracking of the effectiveness of the actions resulting from these determinations.
- 3.9 Significant Process and/or Procedural Modification - A modification to a process or procedure which requires a Safety Assessment to be performed, i.e., if a Safety Assessment is required, then a Risk Assessment Report (RAR) is required also.

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		POLICY Page 3 of 4	3530
Title: RISK ASSESSMENT AND MANAGEMENT (RAM) SYSTEM POLICY		DOCUMENT NO: PO-0712 REVISION NO. 0	2530
Authorization: W. H. Britton, President	Supersedes: IN-6034, Dated 11-25-91	Effective Date: 01-25-92	

#### 4.0 GENERAL REQUIREMENTS

- 4.1 This document shall take precedence and shall constitute the WEMCO internal driver for any subsequent documentation which describes requirements, responsibilities, or procedures for the development and implementation of the FEMP Risk Assessment & Management (RAM) System.
- 4.2 The Nuclear & System Safety Section shall be responsible for developing and maintaining the Risk Assessment and Management (RAM) System.
- 4.3 The FEMP Risk Assessment and Management (RAM) System is described in, and shall be implemented by the requirements, responsibilities and activities in SM-0001, Risk Assessment and Management (RAM) System.
- 4.4 A Safety Assessment (SA) and Risk Assessment Report (RAR) may be developed concurrently; however, the Safety Assessment shall be issued first so that the RAR can address any concerns identified in the SA.
- 4.5 The RAR and the Project-Specific Health and Safety (P-S H&S) Plan may be developed concurrently; however, the RAR shall be issued first so that the P-S H&S Plan can address the event sequences and their controls/mitigators identified in the RAR.

#### 5.0 APPLICABLE DOCUMENTS

##### 5.1 Drivers

- 5.1.1 DOE Order 5700.6C, QUALITY ASSURANCE
- 5.1.2 DOE Order 4700.1, PROJECT MANAGEMENT SYSTEM
- 5.1.3 DOE Order 6430.1A, GENERAL DESIGN CRITERIA

##### 5.2 Reference Documents

- 5.2.1 SM-0001, Risk Assessment and Management (RAM) System

##### 5.3 Resource Documents

- 5.3.1 DOE/OR-901, Guidelines for Preparation of Safety Analysis Reports, Chapter 11, "Accident Analysis"

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		POLICY Page 4 of 4
Title: RISK ASSESSMENT AND MANAGEMENT (RAM) SYSTEM POLICY		DOCUMENT NO: PO-0712 REVISION NO. 0
Authorization: W. H. Britton, President	Supersedes: IN-6034, Dated 11-25-91	Effective Date: 01-25-92

RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
01-25-92	0	Policy required to establish the RAM System per Request No. S92-028, initiated by V. Werner.

3530

CONTROL NO. 99-1011

SM-0001

Supersedes: IN-6035 & IN-6036

**RISK ASSESSMENT AND  
MANAGEMENT (RAM) SYSTEM  
MANUAL**

**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT**

Westinghouse Environmental Management Company of Ohio

P.O. Box 398704

Cincinnati, Ohio 45239-8704

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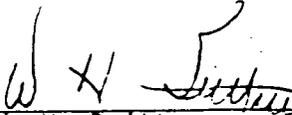
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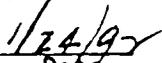
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# RISK ASSESSMENT AND MANAGEMENT (RAM) SYSTEM MANUAL

Effective Date: 01-25-92

Revision No. 0

  
W. H. Britton

  
Date

## FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Westinghouse Environmental Management Company of Ohio

P.O. Box 398704

Cincinnati, Ohio 45239-8704

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SM-0001  
Effective Date: 01-25-92  
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01-25-92	0	Document describing the Risk Assessment and Management (RAM) System, per Request No. S92-040, initiated by V. Werner. Supersedes Interims IN-6035 and IN-6036.

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## RISK ASSESSMENT AND MANAGEMENT (RAM) SYSTEM

### 1.0 INTRODUCTION

The FEMP Risk Assessment and Management (RAM) System is, to a large measure, based on engineering judgement. The RAM System includes a screening device, developed to provide a graded approach to address possible health, environmental, and mission risks. This system serves to ensure that the level of administrative and hardware controls applied are in proportion to the risks identified for potential individual event sequences of a proposed project, operation, or activity.

The Risk Assessment and Management (RAM) System is described in two documents: PO-712, which states the policy and scope, and this manual which describes responsibilities, requirements, and provides the "how-to" details. These details include definitions of terms used for conducting and documenting RAM System risk assessments and determining the Quality Levels for systems and components based on the assessment results. Also included in this manual are the requirements for the preparation and issuance of the RAM System Risk Management Plans (RMPs) and Risk Management Reports (RMRs). In addition to these two documents, the RAM System is also supported by SSOP-0014, "Documentation of a Subject Matter Expert (SME)."

#### 1.1 BACKGROUND

Since the mid-1970's a new and rather imprecise science, called risk assessment, has been developed to help us understand and quantify risks posed by technology, our life-styles, and our personal habits (i.e., smoking, drinking, and diet).

Risk assessment involves two interlocking steps: hazard identification and estimation of risk. Hazard identification is both the recognition of dangers that exist today and the complicated art of predicting future dangers. Estimation of risk generally involves two processes. The first is determining the probability that an event will occur. This

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process answers the question "How likely is the event?" The second determines the severity (consequences) of the event, answering the question "How much damage is caused?" Determining probability and severity is complicated and fraught with uncertainty.

The next step, determining the overall level of risk, is often a difficult one. To understand how difficult it is to assess risk, consider the following: An employee is working in an open pad area when a meteorite falls through the air, striking the employee on the head and causing the death of that person. The probability of a meteorite striking that worker at that location is extremely low; however, the consequence of such an occurrence is very serious, a person's death. Thus, the probability and severity factors indicate distinctly different levels of risk.

Risk assessment is ultimately designed to help society manage its hazardous environment. Nothing is absolutely safe, or "entirely free from harm". The science of risk assessment recognizes that human life is haunted by hazards. Rather than talking in terms of safety, which is absolute, the risk assessor speaks in terms of risk, which is relative.

## 1.2 POLICY and SCOPE OF THE RISK ASSESSMENT & MANAGEMENT (RAM) SYSTEM

The policy of the RAM System, as stated in PO-712 "Risk Assessment and Management (RAM) System Policy," is as follows:

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. These assessments shall be conducted to determine if hazards, failures or concerns could adversely impact any one or more of the following:

- o The health and safety of personnel and the public;
- o The environment, both on and off-site;

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- o The constructability, operability, and maintainability of the FEMP within legal, regulatory, and corporate compliance and commitment boundaries;
- o The ability to meet WEMCO mission/goals, scientific and technical objectives, and program schedules; and
- o The economics of operation of the FEMP.

Section 2.0 Scope of PO-712 states that "Risk Assessments shall be conducted for projects, activities, Plant Test Authorizations, Project Authorizations, and significant process and/or procedural modifications" (see Appendix A: Glossary).

### 1.3 RAM SYSTEM AND CERCLA RISK ASSESSMENTS

The RAM System does not address the conduct of the CERCLA (Superfund Site) risk assessments required for an RI/FS.

The CERCLA Risk Assessments are described in EPA/540/1-89/002, Risk Assessment Guidance for Superfund, Volumes I and II. The CERCLA risk assessment process has three main parts: the baseline risk assessment (Part A) which assess human health risk; refinement of preliminary remediation goals (Part B); and evaluation of remedial alternatives (Part C).

The CERCLA risk assessment process is dependent on revisions to the proposed National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Through its guidance, the links between the human health evaluation, the environmental evaluation, and the remedial investigation/feasibility study (RI/FS) have been strengthened.

The RAM System is not, nor was it intended to be, as extensive or detailed as the CERCLA risk assessment process. However, the results of the RAM System, along with other documentation such as the Safety Assessment, may prove to be a useful source of baseline data for the CERCLA risk assessment process.

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The initial screening process provided by the RAM System may also be a useful source of information for the human factors evaluations required by DOE Order 6430.1A, GENERAL DESIGN CRITERIA, and by DOE Order 5480.19, CONDUCT OF OPERATIONS.

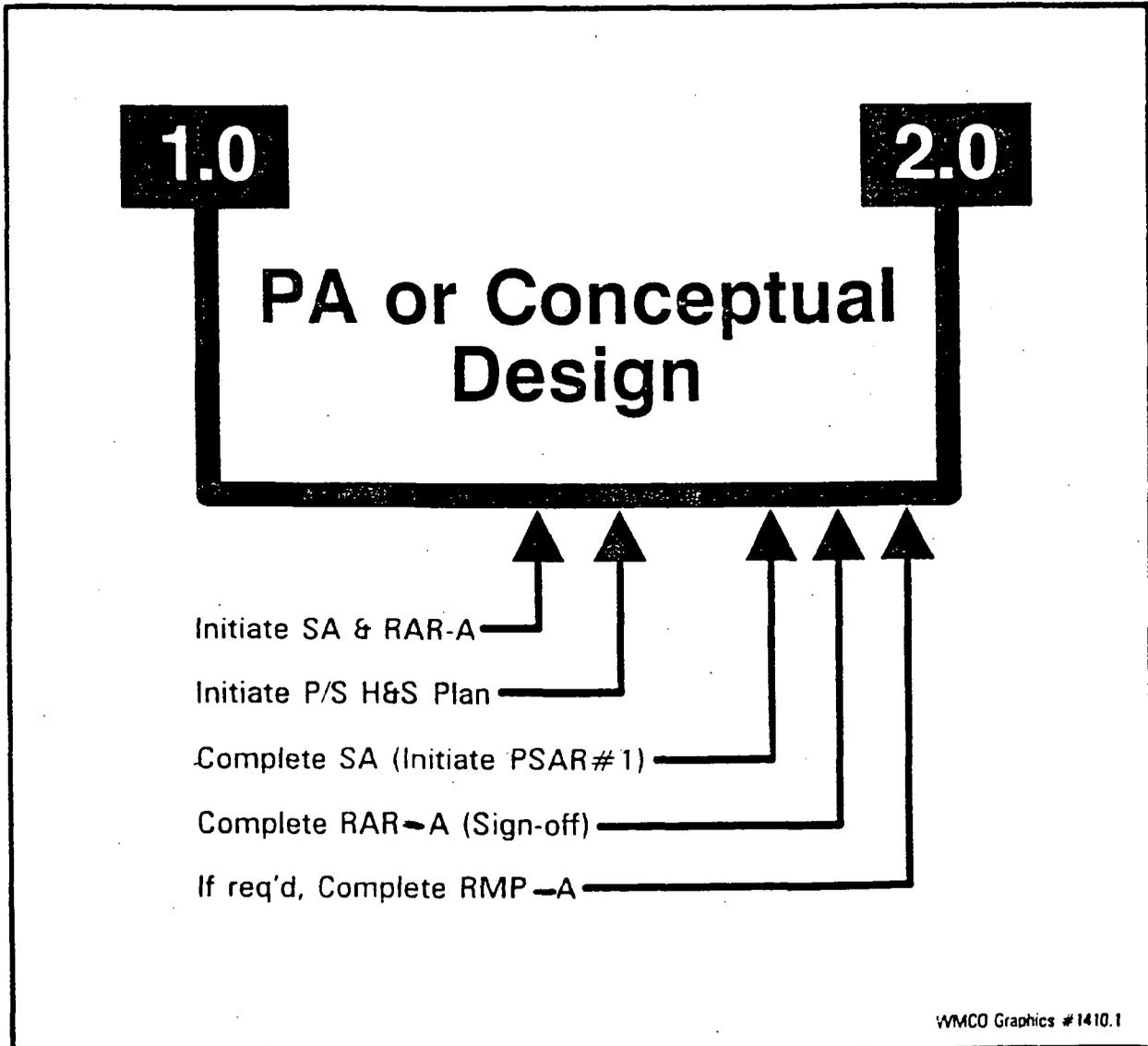
#### 1.4 PROCESS FLOW DIAGRAM FOR RISK ASSESSMENT PROCESS

The Process Flow Diagram for Risk Assessment Process, depicted in segments on the following pages, is a graphic representation of the time frame in which RAM System documentation is to be developed in the project/activity cycle. The project/activity cycle has been divided into seven phases, which include the following:

- 1.0 PA or Conceptual Design
- 2.0 Design Criteria
- 3.0 Title I & II
- 4.0 Construction
- 5.0 Operational Readiness Review (Start-up)
- 6.0 Operational
- 7.0 Decommissioning.

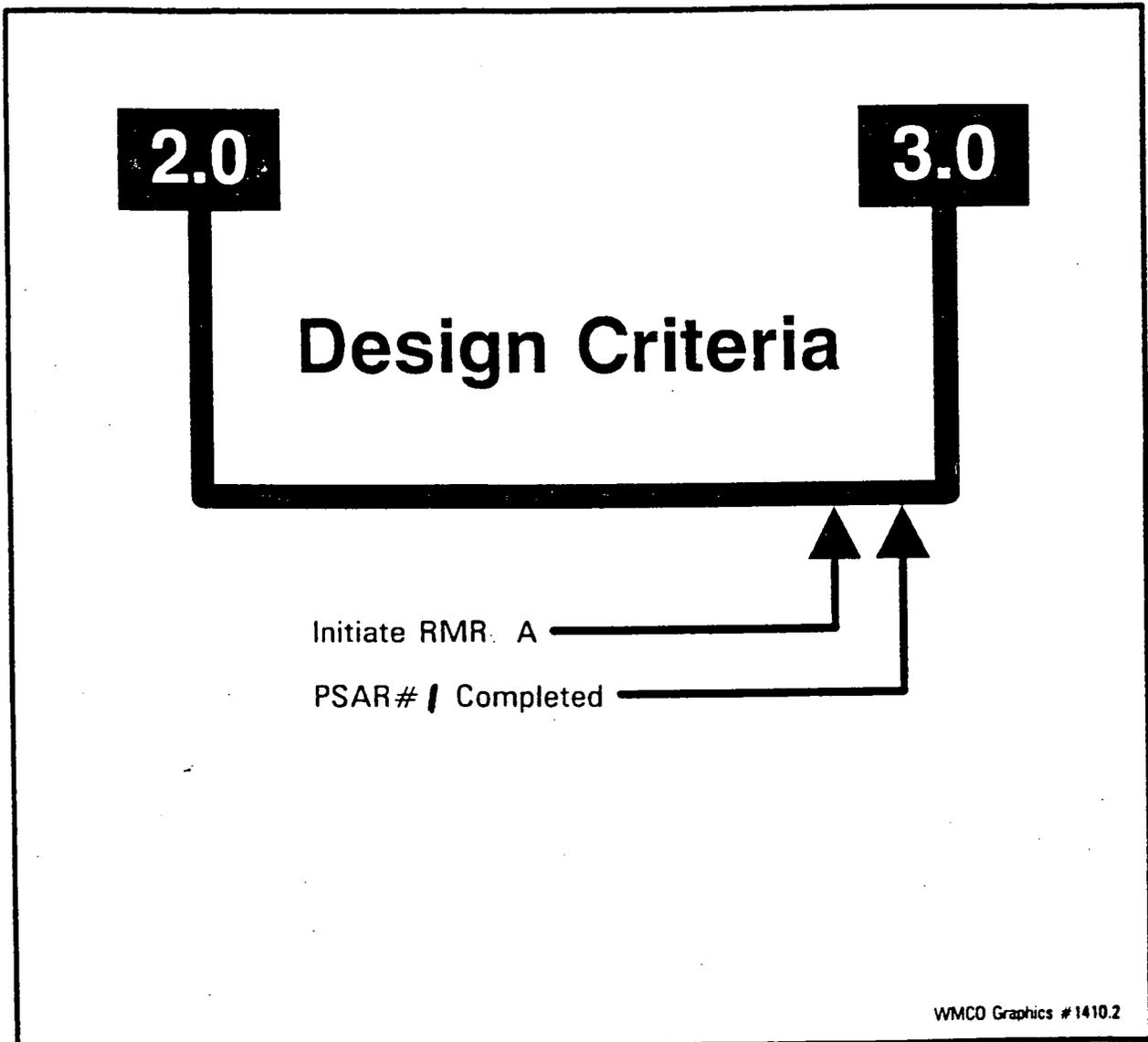
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Figure 1-1a: Process Flow Diagram of the Risk Assessment Process, 1.0 PA or Conceptual Design Phase



<b>LEGEND</b>	
<b>PS H&amp;S PLAN</b> = Project Specific Health and Safety Plan	<b>PSAR</b> = Preliminary Safety Analysis Report
<b>SA</b> = Safety Assessment	<b>SAR</b> = Safety Analysis Report
<b>RAR</b> = Risk Assessment Report	<b>OSR</b> = Operational Safety Requirements for RARs, etc.
<b>RMP</b> = Risk Management Plan	<b>A</b> = design phase
<b>RMR</b> = Risk Management Report	<b>B</b> = operational phase
<b>SOP</b> = Standard Operating Procedures	<b>C</b> = decommissioning phase

Figure 1-1b: Process Flow Diagram of the Risk Assessment Process,  
2.0 Design Criteria Phase



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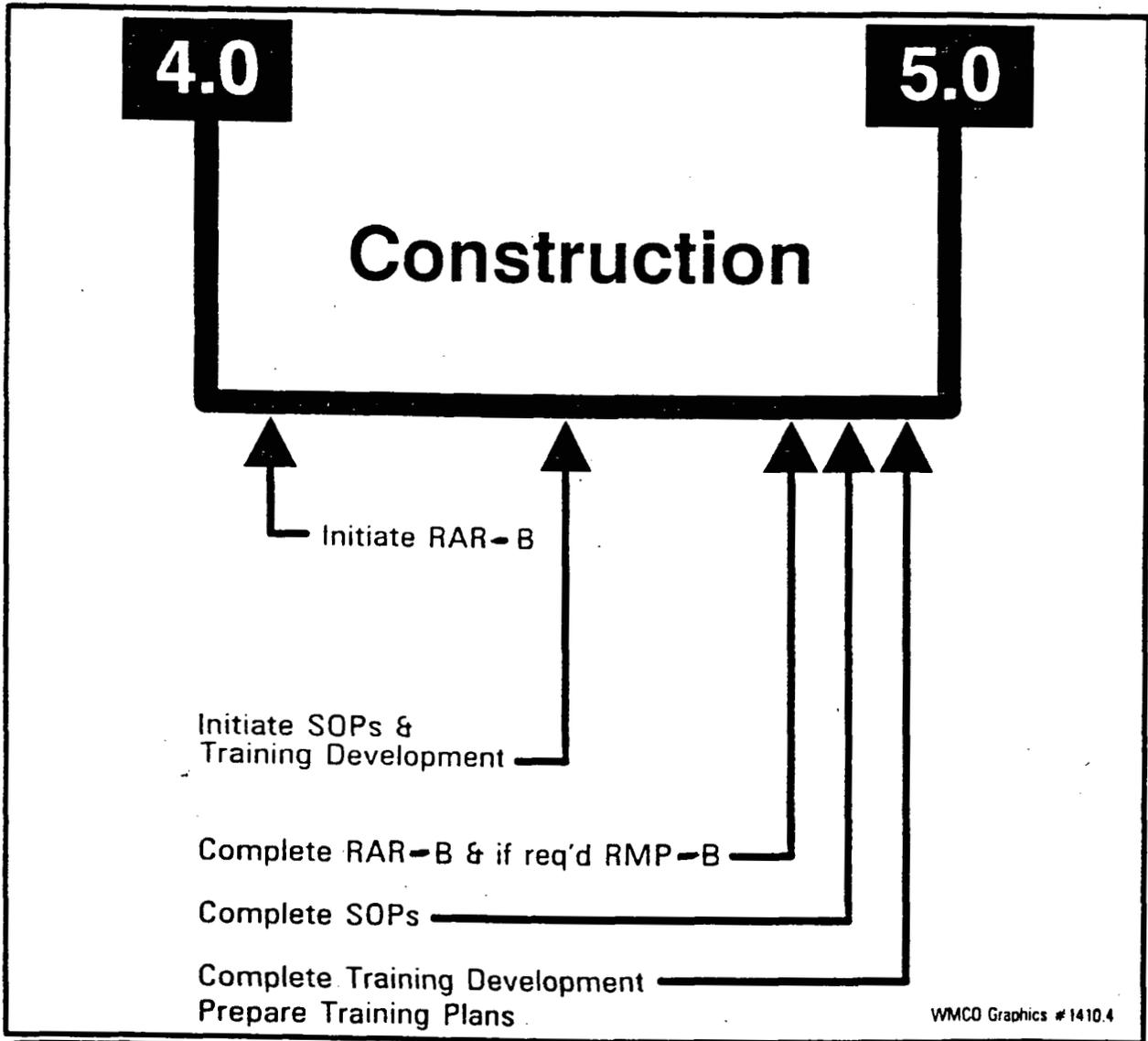
**LEGEND**

**PS H&S PLAN** = Project Specific Health and Safety Plan  
**SA** = Safety Assessment  
**RAR** = Risk Assessment Report  
**RMP** = Risk Management Plan  
**RMR** = Risk Management Report  
**SOP** = Standard Operating Procedures

**PSAR** = Preliminary Safety Analysis Report  
**SAR** = Safety Analysis Report  
**OSR** = Operational Safety Requirements  
 for RARs, etc.  
**A** = design phase  
**B** = operational phase  
**C** = decommissioning phase



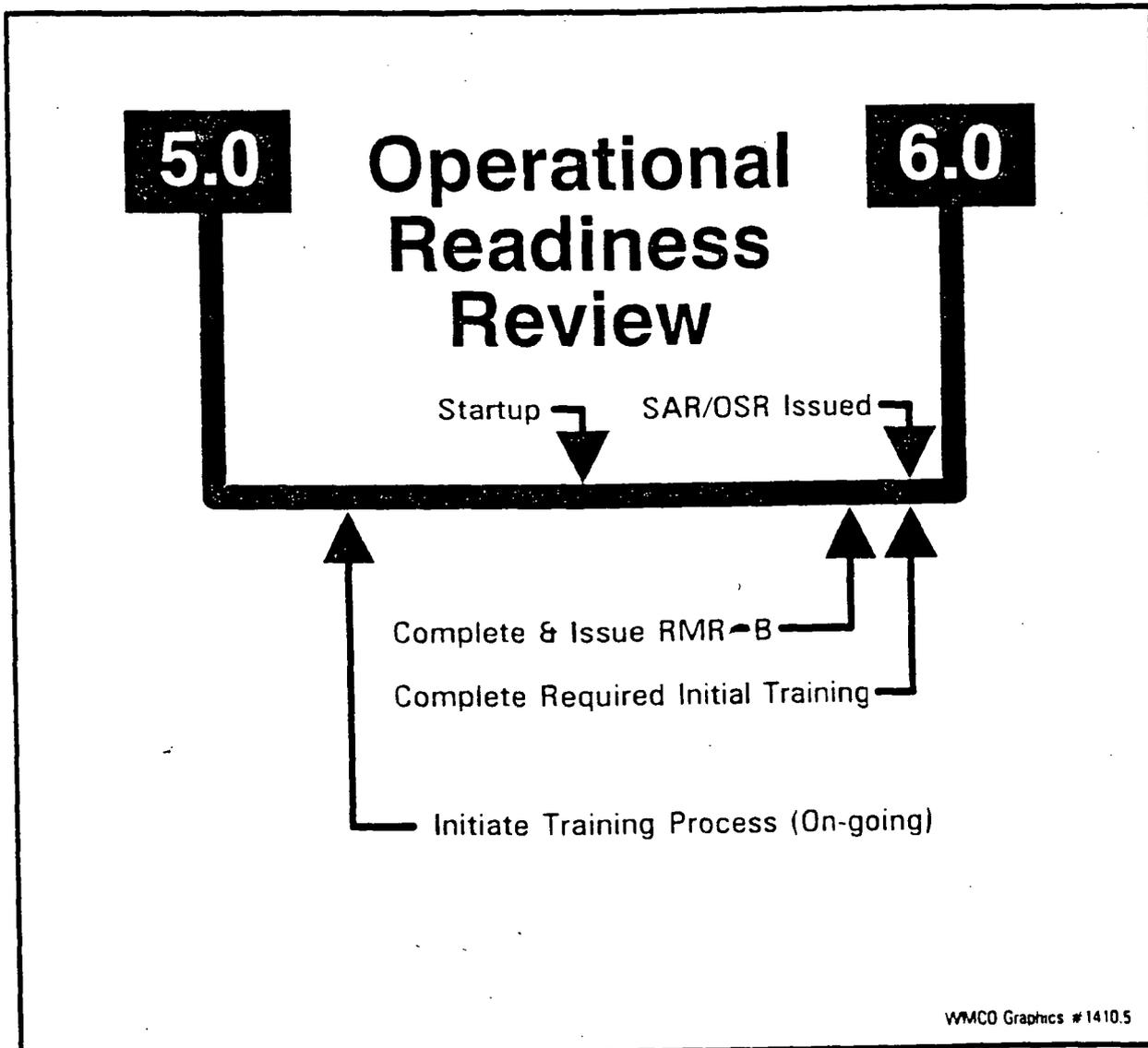
Figure 1-1d: Process Flow Diagram of the Risk Assessment Process, 4.0 Construction Phase



LEGEND	
PS H&S PLAN = Project Specific Health and Safety Plan	PSAR = Preliminary Safety Analysis Report
SA = Safety Assessment	SAR = Safety Analysis Report
RAR = Risk Assessment Report	OSR = Operational Safety Requirements
RMP = Risk Management Plan	for RARs, etc.
RMR = Risk Management Report	A = design phase
SOP = Standard Operating Procedures	3 = operational phase
	C = decommissioning phase

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Figure 1-1e: Process Flow Diagram of the Risk Assessment Process, 5.0 Operational Readiness Review (Start-Up) Phase

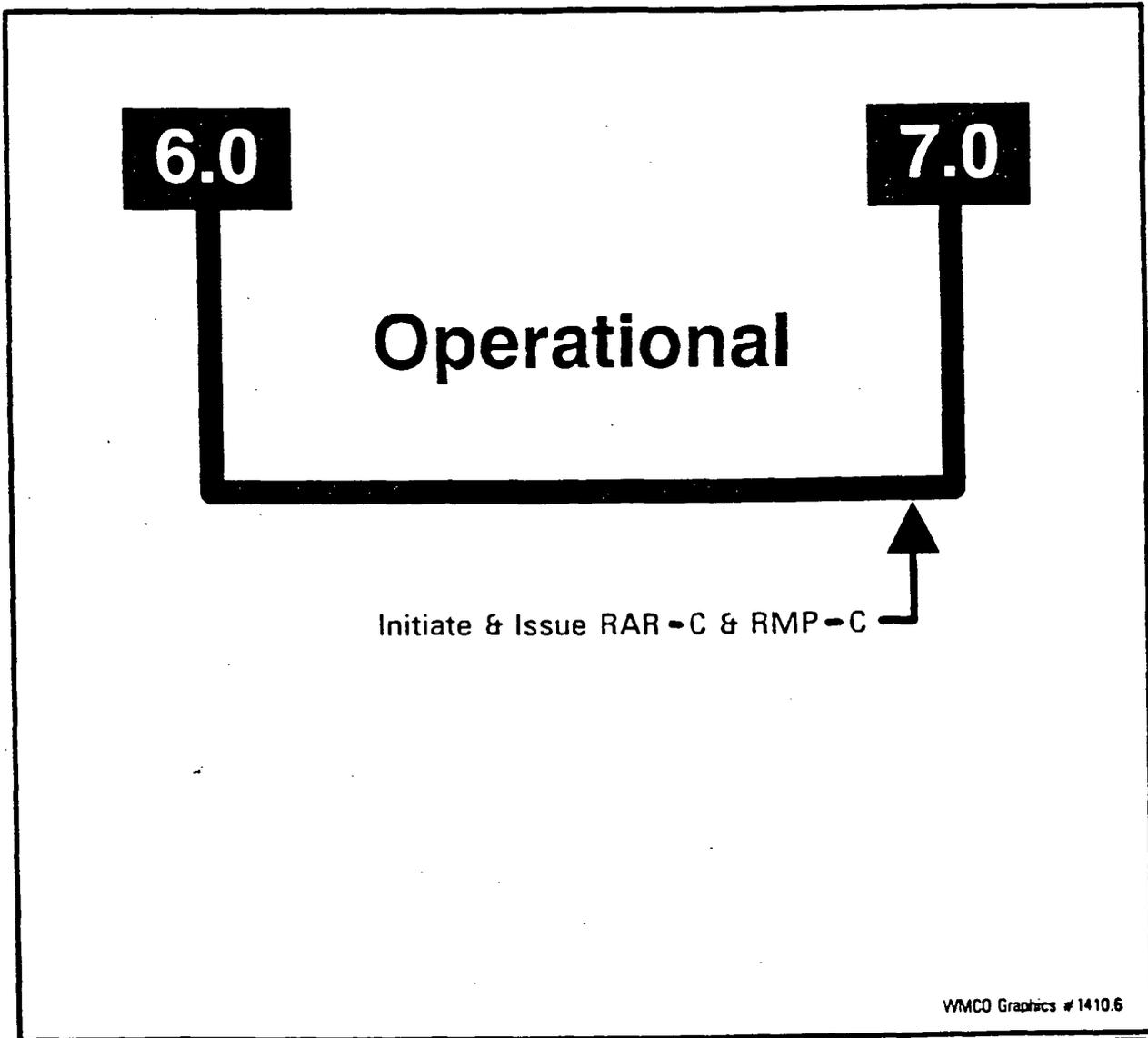


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**LEGEND**

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|--|--|
| <b>PS H&amp;S PLAN</b> = Project Specific Health and Safety Plan | <b>PSAR</b> = Preliminary Safety Analysis Report |
| <b>SA</b> = Safety Assessment                                    | <b>SAR</b> = Safety Analysis Report              |
| <b>RAR</b> = Risk Assessment Report                              | <b>OSR</b> = Operational Safety Requirements     |
| <b>RMP</b> = Risk Management Plan                                | for RARs, etc.                                   |
| <b>RMR</b> = Risk Management Report                              | <b>A</b> = design phase                          |
| <b>SOP</b> = Standard Operating Procedures                       | <b>B</b> = operational phase                     |
|  | <b>C</b> = decommissioning phase                 |

Figure 1-1f: Process Flow Diagram of the Risk Assessment Process,  
6.0 Operational Phase



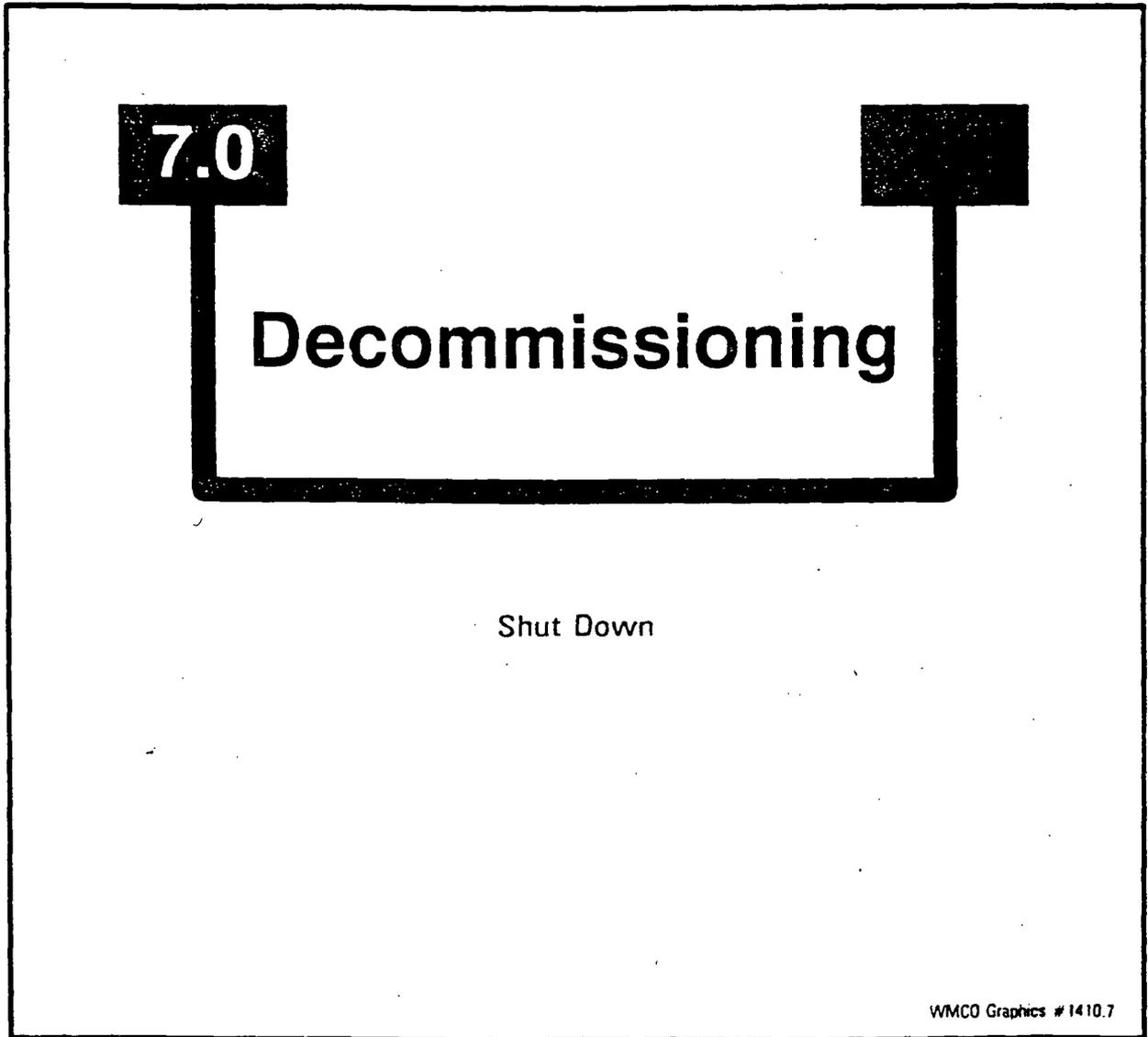
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**LEGEND**

- |  |  |
|--|--|
| <b>PS H&amp;S PLAN</b> = Project Specific Health and Safety Plan | <b>PSAR</b> = Preliminary Safety Analysis Report |
| <b>SA</b> = Safety Assessment                                    | <b>SAR</b> = Safety Analysis Report              |
| <b>RAR</b> = Risk Assessment Report                              | <b>OSR</b> = Operational Safety Requirements     |
| <b>RMP</b> = Risk Management Plan                                | for RARs, etc.                                   |
| <b>RMR</b> = Risk Management Report                              | <b>A</b> = design phase                          |
| <b>SOP</b> = Standard Operating Procedures                       | <b>B</b> = operational phase                     |
|  | <b>C</b> = decommissioning phase                 |

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Figure 1-1g: Process Flow Diagram of the Risk Assessment Process,  
7.0 Decommissioning



<b>LEGEND</b>	
<b>PS H&amp;S PLAN</b> = Project Specific Health and Safety Plan	<b>PSAR</b> = Preliminary Safety Analysis Report
<b>SA</b> = Safety Assessment	<b>SAR</b> = Safety Analysis Report
<b>RAR</b> = Risk Assessment Report	<b>OSR</b> = Operational Safety Requirements
<b>RMP</b> = Risk Management Plan	for RARs, etc.
<b>RMR</b> = Risk Management Report	<b>A</b> = design phase
<b>SOP</b> = Standard Operating Procedures	<b>B</b> = operational phase
	<b>C</b> = decommissioning phase

## 2.0 RAM SYSTEM RESPONSIBILITIES

All organizations and personnel referenced in this document, with the exception of 2.11, are WEMCO organizations and personnel.

- 2.1 WEMCO President - reviews and approves all RAM System documentation which contains one or more Quality Level 1 event sequences.
- 2.2 Nuclear & System Safety (N&SS) is responsible for the following:
- a. Performing the Safety Assessment which is part of the input to the Risk Assessment;
  - b. Developing and maintaining the Risk Assessment and Management (RAM) System, including the administratively-controlled document number and issuance system, and assigning the RAM System controlled document numbers;
  - c. Assigning cognizant personnel to all RAR Task Teams;
  - d. Determining the applicability of the process flow diagram time intervals for short-time or limited scope projects;
  - e. Reviewing and approving all RARs, RMPs, and RMRs;
  - f. Issuing and administratively controlling all completed RARs, RMPs, and RMRs; and
  - g. Determining the requirements, on a case-by-case basis, for the revision of all RAM System documentation.
- 2.3 Applicable Engineering Function(s) - assigns cognizant personnel and/or documented subject matter experts (SMEs) to the Task Team. Manager(s) of the applicable functions review and approve for

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issuance all RARs, RMPs, and RMRs that their personnel were assigned to the development of as a member of the RAR Task Team.

- 2.4 Site Services - assigns cognizant personnel and/or documented SMEs to the applicable RAR Task Teams. Section Manager(s) of the applicable functions review and concur for issuance all RAM System documentation that their personnel were assigned to the development of as a member of the RAR Task Team.
- 2.5 Sitewide Quality Assurance - reviews and concurs in all RAM System documentation.
- 2.6 Centralized Training/IRS&T - assigns cognizant personnel and/or a documented SME to the applicable RAR Task Teams. Reviews and concurs in all RAM System documentation when training, qualification, and/or certification requirements are described in those documents as a control/mitigator (see 3.4).
- 2.7 Task Team - conducts the risk assessment. The Task Team is chaired by the RAR Initiator. The RAR Task Team is composed of cognizant personnel and/or documented SMEs as requested by the RAR Initiator and assigned by their immediate managers.
- 2.8 RAR Initiator - is responsible for the following:
- a. Identifying the scope of the risk assessment to be conducted, and obtaining an administratively-controlled RAR number.
  - b. Convening an RAR Task Team of appropriate personnel from the following organizations/functions: applicable Engineering function(s); Nuclear and System Safety; Environmental Management; Site Services; and others (e.g., Centralized Training) as needed.
  - c. Acting as Chair for the RAR Task Team.

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- d. Preparing the Risk Assessment Report (RAR) which reflects the RAR Task Team's assessment.
  - e. Preparing the Risk Management Plan (RMP) as required, and ensuring its completion in the required time interval.
  - f. Obtaining the required approval/concurrence signatures for the RAR and RMP.
- 2.9 Department Manager of RAR/RMR Initiator(s) - reviews and has final approval authority for the applicable RAM System documentation, unless the document(s) contains one or more Quality Level 1 event sequences (see 2.1). For those documents, this manager is the last signature prior to the WEMCO President's signature.
- 2.10 RMR Initiator - prepares the RMR as required, and ensures its completion in the required time interval. Obtains the required approval/concurrence signatures for the RMR.
- 2.11 Subcontractor's Performing Risk Assessment(s) for WEMCO shall conduct risk assessments using the RAM System under the guidance and supervision of the assigned WEMCO Project Engineer/Manager. Each WEMCO organization listed as an RAR Task Team participant may delegate its membership on the team to appropriately-qualified subcontractor personnel, subject to the approval of the applicable WEMCO Project Engineer/Manager.

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TABLE 1: APPLICABLE ORGANIZATIONS

Organization (Dept/Section)	RAR Task Team	Review & Concur	Review & Approve
Nuclear & System Safety	A	A	-
EC&QA/Sitewide Quality Assurance	-	A	-
IRS&T/Centralized Training	I	I	-
PM&A/Project Management	I	I	-
PM&A/Engineering Services	I	I	-
RPS&I/Safe Shutdown	I	I	-
SS/Traffic	I	I	-
SS/Maintenance	I	I	-
SS/Facilities & Warehousing	I	I	-
SS/Analytical	I	I	-
SS/Utilities	I	I	-
EM/Waste Management	I	I	-
EM/Environmental Restoration	I	I	-
EM/Environmental Monitoring	I	I	-
IRS&T/Industrial Hygiene	I	I	-
IRS&T/Radiological Safety	I	I	-
IRS&T/Safety Engineering & Fire Services	I	I	-
IRS&T/EP/Fire Protection Engineering	I	I	-
WEMCO President (any Quality Level 1 items)	-	-	A
RAR Initiator's Dept. Manager (no QL 1 items)	-	-	A
Designator	Meaning		
A	Always		
I	If applicable: if the project indicates a potential impact in this area; or if the action originated here.		

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### 3.0 RAM SYSTEM GENERAL REQUIREMENTS

The RAM System General Requirements listed here are in addition to those listed in PO-712.

- 3.1 The provisions and requirements described in PO-712 shall take precedence over and be directly reflected in any and all documents issued subordinate to, or in support of, the Risk Assessment and Management (RAM) System.
- 3.2 Risk Assessments shall be conducted for projects, activities, Plant Test Authorizations, Project Authorizations, and significant process and/or procedural modifications as defined in Appendix A: Glossary.
- 3.3 A Safety Assessment (SA) and Risk Assessment Report (RAR) may be developed concurrently; however, the Safety Assessment shall be issued first so that the RAR can address any concerns identified in the SA.
- 3.4 The RAR and the Project-Specific Health and Safety (P-S H&S) Plan may be developed concurrently; however, the RAR shall be issued first so that the P-S H&S Plan can address the event sequences and their controls/mitigators identified in the RAR.
- 3.5 Training in the Risk Assessment and Management (RAM) System includes the contents of PO-712 and this manual, and should be successfully completed before performing the activities described in this document.
- 3.6 The documents prepared as part of the RAM System shall be reviewed, concurred with, administratively-controlled, issued, and maintained by N&SS.

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- 3.7 The Process Flow Diagram for Risk Assessment Process (see Figures 1-1a through 1-1g) indicates the Project (activity) phases during which the RAM System documentation and other inter-related documentation are initiated and issued. For short-duration, smaller-scope projects, the time line intervals may be shortened. Should questions arise concerning applicability of the time scale, N&SS shall be contacted for clarification.
- 3.8 In all phases, the conduct of the risk assessment and the development of the RAM System documentation shall address the human elements of the system as well as the structural and mechanical elements. DOE Order 6430.1A, GENERAL DESIGN CRITERIA, addresses these issues for design in Section 1300-12, "Human Factors Engineering."
- 3.9 This system describes a risk assessment, not an analysis, and as such relies in part on engineering judgement and the use of documented Subject Matter Experts (SMEs) in determining such things as the Quality Levels assigned to items, activities or services, and the residual risk.
- 3.10 Subject Matter Experts, when employed in the RAM System processes, shall be documented per SSOP-0014, "Documentation of a Subject Matter Expert (SME)."
- 3.11 If job or task-specific training is listed as a control or mitigator, a representative of the Centralized Training (CT) Section shall be included on the RAR Task Team.
- 3.12 For all RARs and any subsequent RMPs and RMRs, if training is listed as a control/mitigator for one or more event sequences, then Centralized Training (CT) organization shall be consulted and the CT Manager shall concur with the activities specified

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for them to accomplish before the applicable RAR and any subsequent RMPs and RMRs can be issued.

- 3.13 For revisions of issued RAM System documentation, at least the same level and organizations which concurred with or approved the issuance of the original documentation shall be required to review and concur with/approve any revisions.
- 3.14 The level of detail in the RAR, RMP and RMR shall be proportional to the complexity of the activity (project) they describe.
- 3.15 The Design RAR (Type A) is developed during the PA/Conceptual Design phase and is focused on those areas described in Appendix A: Glossary. Although exact information may be sparse, whatever is proposed shall be addressed to the extent possible, including operations, maintenance, and decommissioning. The prime message here is "engineer it in," reducing the reliance on administrative controls. The Design Phase RAR and any required RMP shall be issued before initiating the Design Criteria Phase.
- 3.16 The Operational RAR (Type B) is developed during the Construction phase and is focused on those areas indicated in Appendix A: Glossary, describing them at the detail level. This assessment shall address training and procedure development as well as other safety issues for operations and maintenance. It also addresses the issue of decommissioning to the extent possible. The Operational RAR and any required RMP shall be issued before initiating ORR/startup. The Operational RAR is a "living" document, subject to review and revision throughout the lifetime of the facility/process it describes.

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- 3.17 The Decommissioning RAR (Type C) is developed and issued prior to the initiation of decommissioning of a facility, system or process. The focus of this RAR is as described in Appendix A: Glossary, and shall include the development and implementation of additional training and procedures which are needed to safely decommission a facility, system, or process.
- 3.18 All Types of RARs, RMPs, and RMRs (Design - Type A, Operation - Type B, Decommissioning - Type C) shall be identified, issued, administratively-controlled, and maintained by the numbers issued by N&SS.
- 3.19 There is one failure, hazard, or concern per page of the RAR. Therefore, each failure, hazard, or concern is referenced by the number of the page on which it is described.
- 3.20 A failure, hazard, or concern may have multiple consequences and possible causes. Each cause has its own unique probability of occurrence and Quality Level, and is indicated with a letter in alphabetical sequence (A, B, C).
- 3.21 An event sequence (e.g., 4A) is designated by the RAR page number of the particular failure, concern, or hazard and the alphabetical sequence letter (A, B, C) of the possible cause.
- 3.22 As a minimum, the following potential conditions/risks shall be considered when performing the Risk Assessment:
- a. Adverse impact(s) on the health and safety of WEMCO personnel and the public;
  - b. Insult(s) to or adverse impact(s) on the environment, both on and off-site;

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- c. Adverse impact(s) to/on laws, regulations, or standards; DOE Orders, WEMCO policies and procedures; and public reaction;
  - d. Adverse impact(s) on the ability to meet WEMCO mission/goals; scientific and technical program objectives; and program schedules and commitments; and
  - e. Potential for damage or loss to facilities or equipment; monetary loss; and delay of work completion or start/restart of a process or operation.
- 3.23 A Risk Management Plan (RMP) and any subsequent Risk Management Report (RMR) shall be prepared for a project, operation/activity, PTA, PA, or significant process or procedural modification when one or more of the event sequences is rated a Quality Level of 1, 2, or 3. All event sequences rated at those levels shall be addressed in the RMP and any subsequent RMR.
- 3.24 GPP and Line Item Projects require the full participation of all of the applicable organizations listed in PO-712, Section 4.0, General Requirements.
- 3.25 Completed forms FS-F-3372, "Request For and Assignment Of RAR Task Team Participation," shall be transmitted to and retained by N&SS in the RAR controlled document file pertaining to the relevant RAR to provide a readily available audit trail.
- 3.26 Examples provided in this manual are for guidance only and are not intended to be all-inclusive or limiting.

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3.27 Each RMP shall consist of, and be presented in the order of, at least, the following format:

- o Title page (see Figure 5-1)
- o Concurrence and Approval Signatures page (see Figure 5-2)
- o Table of Contents page(s) (see Figure 5-3)
- o Section I: Introduction
- o Section II: Summary
- o Section III: Risks Requiring Inclusion in the Plan (see Figure 5-4)
  - A. Quality Level 1
  - B. Quality Level 2
  - C. Quality Level 3
- o Section IV: Description of Controls, Mitigators, and Requirements
  - A. General Risk Controls, Mitigators, and Requirements (see Figure 5-5)
  - B. Job-Specific Controls, Mitigators, and Requirements (see Figure 5-6)
- o Section V: Training, Qualifications, and Certifications Requirements (see Figure 5-7)
  - A. Compliance Training Requirements
  - B. Project Orientation
  - C. Visitors
  - D. Project-Specific Training, Qualification, and Certification Requirements
- o Section VI: Attachments
  - A. Risk Assessment Report
  - B. Inspection and Test Plan(s), if applicable
  - C. Others, as needed.

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- 3.28 Each RMR shall consist of, and be presented in the order of, at least the following format:
- o Title page (see Figure 6-6)
  - o Concurrence and Approval Signatures page (see Figure 5-2)
  - o Table of Contents page(s) (see Figure 6-5)
  - o Section I: Introduction
  - o Section II: Summary
  - o Section III: Identified Risks and Planned Controls, mitigators, and Requirements Summary (see Figure 6-1)
  - o Section IV: Implemented Controls, Mitigators, and Requirements (see Figure 6-2)
  - o Section V: Event Occurrences (see Figure 6-3)
  - o Section VI: Lessons Learned (see Figure 6-4)
  - o Section VII: Attachments
    - A. Risk Assessment Report
    - B. Risk Management Plan
    - C. Event Occurrence Report(s), if any
    - D. Others, as needed.
- 3.29 Whenever a change or modification which could impact the basis for determination, control or mitigation of risk occurs in the design, construction, operation, maintenance, facility, equipment, process or activity which is described in the RAM System documentation, the applicable RAM System document(s) shall be reviewed, revised and reissued to accurately reflect the appropriate risk of the project, process or activity described.

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#### 4.0 PERFORM AND DOCUMENT AN RAR

##### 4.1 Initiate RAR Process

A completed project/operation description and/or operating scenario is required for use in this process.

##### RAR INITIATOR

4.1.1 Request N&SS to perform a Safety Assessment using form FMPC-OS&H-2706, "Request for Safety Assessment," attaching a copy of the prepared project/operation description, operating scenario, and/or other pertinent information per FMPC-508 and FMPC-2116.

4.1.2 Determine the scope of the project risk assessment.

4.1.3 Contact Nuclear & System Safety (N&SS) to request the issuance or update of a Risk Assessment Report (RAR) administratively-controlled number, supplying the following information:

- a. If this is a revision of a previously-issued RAR, provide the previous RAR controlled number and request the revision number to be increased by one.

Example: 91-0001-A-1 changed to 91-0001-A-2

- b. If this is an RAR which continues the process from a previously-issued RAR, request the issuance of the same RAR administratively-controlled number with the applicable alpha designator: (A) Design; (B) Operational; (C) Decommissioning.

Example: 91-0001-A-1 changed to 91-0001-B-0

NOTE: Revision number reverts to zero.

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- c. If this is a new Design RAR (or an Operational or Decommissioning RAR for which no earlier RAR exists), provide the complete title, WBS or PA number, the Safety Assessment number, and the RAR Initiator's name, job title/designation, telephone extension, and mail stop.

#### NUCLEAR & SYSTEM SAFETY

- 4.1.4 Record the appropriate information in the RAM System Log, and issue the appropriate RAR administratively-controlled number.

#### RAR INITIATOR

- 4.1.5 Record the issued RAR administratively-controlled number on the draft RAR form, Form FS-F-2501, "Risk Assessment Report (RAR)" Form and FS-F-2501-1, "RAR Concurrence/Approval" Form (see Figures 4-1 and 4-2).
- 4.1.6 Formulate an RAR Task Team of appropriate expertise from the following organizations/functions: applicable Engineering function(s); Nuclear and System Safety; Environmental Management; Site Services; and others (e.g., Centralized Training) as needed. (See Table 1 for guidance.)
- 4.1.7 Using form FS-F-3372, "Request For and Assignment of RAR Task Team Participation," request the assignment of cognizant personnel and/or documented Subject Matter Experts (SMEs) to the RAR Task Team from the applicable organizational managers as listed in Table 1, "Applicable Organizations." (See Figure 4-3 for request form.)

#### 4.2 Request/Assign RAR Task Team Participation

#### RAR INITIATOR

- 4.2.1 Complete "Section I: Request For Participation" on form FS-F-3372, "Request For and Assignment of RAR Task Team

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Participation," (see Figure 4-3) for each organization to be represented on the RAR Task Team:

- a. "To the Manager of": Organization as listed in Table 1.
- b. "RAR No.:" RAR administratively-controlled number issued by N&SS.
- c. "Date:" Date of request.
- d. "Project Title/No.:" Project, operation, Plant Test Authority (PTA), Project Authorization (PA), or significant process and/or procedural modification.
- e. "RAR Initiator:" Printed name and signature of individual responsible for initiating the RAR process.
- f. "RAR Initiator's Organization:" Initiator's affiliation.

4.2.2 Transmit the requests to the applicable organization managers.

#### MANAGERS OF APPLICABLE ORGANIZATIONS

4.2.3 Assign, as requested, cognizant personnel and/or documented Subject Matter Expert(s) by completing "Section II: Assignment of Personnel for RAR Task Team Participation" of form FS-F-3372, "Request For and Assignment of RAR Task Team Participation" (see Figure 4-3):

- a. "Name:" Name of designee, either a cognizant individual or a documented SME.
- b. "Telephone No." Telephone number of designee.
- c. "Job Title:" Designee's position.

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- d. "...is \_\_\_/is not \_\_\_..": Designee currently is or is not a documented Subject Matter Expert for the RAR subject, check the appropriate space.
- e. "....include the following:" If the designee "is" a documented SME, list those areas pertinent to the RAR where the designee is a documented SME.
- f. "Name:" Printed name and signature of the manager of the designee's organization.
- g. "Organization:" Manager's organization.
- h. "Date:" Date of signature.

4.2.4 Transmit the completed RAR Task Team request to the RAR Initiator.

4.3 Convene RAR Task Team

**RAR INITIATOR**

- 4.3.1 After receiving the completed request forms, develop a distribution list of the RAR Task Team members, and retain the completed forms in the RAR document development file.
- 4.3.2 Convene the RAR Task Team.
- 4.3.3 Provide the RAR Task Team with copies of the project/operation description, or operating scenario, the SA (when completed), all applicable procedures and forms, and any other available and pertinent information.
- 4.3.4 Preside as RAR Task Team Chairperson.

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#### 4.4 Conduct and Document Risk Assessment

##### RAR TASK TEAM

4.4.1 Within the boundaries established by the project (activity) scope and using the information and materials provided, assemble a complete list of possible failures, concerns, or hazards in or about the project being evaluated. Consider, as applicable, at least the following:

- a. Adverse impact(s) on the health and safety of personnel and the public;
- b. Insults to or adverse impact(s) on the environment, both on and off-site.
- c. Adverse impact(s) to/on laws, regulations, or standards; DOE Orders, WEMCO policies and procedures; and public reaction.
- d. Adverse impact(s) on the ability to meet WEMCO mission/goals; scientific and technical program objectives; and program schedules and commitments.
- e. Potential for damage or loss to the facilities or equipment; monetary loss; and delay of work completion or start/restart of a process or operation.
- f. Failure of equipment or major components of equipment;
- g. Energy barriers or failures on performance or safety (i.e., power failures and shorts);
- h. The potential of fire or explosion from human error or from the intrinsic properties of the materials/process involved;

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- i. Construction or operation impacts of design flaws, or installation errors;
  - j. Human factors impact items such as noise levels, sharp edges, lighting requirements, operator fatigue or stress inducers, task identification, novelty/routine, lack of applicable training, or lack of or inadequate applicable procedures.
  - k. Impacts on performance or safety if item(s) are improperly handled, installed, operated or maintained;
  - l. Compatibility of adjacent systems, items, materials, or processes;
  - m. Potential exposure to toxic or hazardous materials (such as fumes, vapors, or solids), or to radiological contamination source(s); and
  - n. Anticipated operational occurrence, such as potential spills, or schedule deviation.
  - o. What could go wrong and under what conditions could it go wrong?
- 4.4.2 On form FS-F-2501 under POSSIBLE FAILURE/CONCERN/HAZARD, enter one specific possible failure, concern or hazard per page.
- 4.4.3 Consider what the outcome(s) might be for that specific failure, concern or hazard; i.e., determine the potential consequences (there may be several). See Table 2, "Seriousness Level Rationale," for ideas.

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4.4.4 On form FS-F-2501 under CONSEQUENCES, enter the consequences for the listed POSSIBLE FAILURE/CONCERN/HAZARD.

- a. Briefly describe the specific consequence(s) which could occur as a result of the occurrence of the listed possible failure, concern, or hazard.

For example: If the occurrence of the listed possible failure, concern or hazard could result in a potential death to on-site personnel, then state: "Potential death to on-site personnel."

- b. List those consequences which may require special attention or control; usually enter only items which rate 3 or higher on the Seriousness Level Rationale (see Table 2), such as:
- o "Potential for significant on-site damage from chemical release" (a level 4);
  - o "Potential violation of OSR" (a level 3);
  - o "Potential for delay of work greater than 1 month, but less than 3 months" (a level 3).

4.4.5 Using Table 2, determine the "SERIOUSNESS CODE" of each of the consequences listed for the POSSIBLE FAILURE/CONCERN/HAZARD.

- a. Review the SERIOUSNESS CODES of each of the consequences listed, and select the highest SERIOUSNESS CODE applicable.

For example, if a listed POSSIBLE FAILURE/CONCERN/HAZARD has a list of consequences with seriousness codes of 5, 4, 3, 3, 2, and 3, respectively, record on the RAR form

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for that POSSIBLE FAILURE/CONCERN/HAZARD a seriousness code of 5 (the highest level applicable).

4.4.6 Consider the possible causes of the listed failure, concern, or hazard. Consider, as applicable, at least the following:

- a. Human error (be conservative, assume at least a rate of 10%), including such items as design flaws, inspection oversights, and installation, operation, and maintenance errors.

NOTE: In emergency situations (which are very stressful) it is not uncommon for human error rates, even among experienced personnel, to range between 25 and 50%.

- b. Equipment failure or malfunction, including leaks and ruptures of tanks, valves, nozzles, seals, hoses, or other attachments. Potential impact(s) on the situation of the loss or failure of fire-fighting and ventilation equipment.
- c. Power failure or interruption of service;
- d. Failure or interruption of other vital utilities, such as water for fire sprinkler systems;
- e. Failure, damage or loss from external sources such as vehicle impact, fire, or inclement weather;
- f. For structures or pads, consider integrity of materials used for construction, such as concrete or roofing materials;
- g. For tanks, pipes, drums, and other containers, consider potential incompatibilities between the materials used to

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fabricate the container and the materials contained in it;

- h. Potential for fire, explosion, or gas generation of the materials used/stored in or near the activity; and
- i. Potential for release of or exposure to toxic or hazardous fumes, vapors, or particulates.

- 4.4.7 On form FS-F-2501 under POSSIBLE CAUSE(S) OF FAILURE/ CONCERN/HAZARD, enter the possible causes. Index each using sequential capital letters--A, B, C.

For example: A POSSIBLE CAUSE list may include:

- A) Installation error.
- B) Lid lock failure.

- 4.4.8 Using Table 3, "Probability of Occurrence Rating Scale", standard probability of occurrence charts, vendor/product reliability data, or computations, determine the probability of occurrence for each possible cause previously listed.

- a. The PROBABILITY OF OCCURRENCE for A) in the example of Step 4.4.7 might be determined by using the standard, conservative error rate of 10% for human error which is 4-High.
- b. The PROBABILITY OF OCCURRENCE for B) in the example of Step 4.4.7 might be determined by reference to the vendor's information on failure rates which states it as:  $1.333 \times 10^{-3}$ . This converts to 2-Low, because its PROBABILITY OF OCCURRENCE lies between 3 (at least once in 100 uses) and 2 (at least once in a thousand uses).

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- 4.4.9 On form FS-F-2501 under PROBABILITY OF OCCURRENCE, enter the determined probability of occurrence for each listed POSSIBLE CAUSE. Use the same capital letter to indicate the PROBABILITY OF OCCURRENCE as was used to indicate the POSSIBLE CAUSE.

For the example listed in 4.4.8, the PROBABILITY OF OCCURRENCE would look like this:

- A) 4-High
- B) 2-Low.

- 4.4.10 Using Table 4, "Quality Level Matrix," determine the applicable Quality Level for each event sequence.

**NOTE:** Table 4: "Quality Level Matrix" is a matrix of SERIOUSNESS CODE numbers and PROBABILITY OF OCCURRENCE code numbers. The QUALITY LEVEL number indicates the risk associated with a particular event sequence before controls or mitigators are in place.

For example: In step 4.4.5, the SERIOUSNESS CODE number entered for a listed failure was 5; and in step 4.4.9, two possible causes are listed, each with its own PROBABILITY OF OCCURRENCE code number: A) 4 and B) 2. Therefore, two QUALITY LEVELS (one for each event sequence) would result:

For A): A SERIOUSNESS CODE of 5 and a PROBABILITY OF OCCURRENCE of 4 equals a QUALITY LEVEL of 2.

For B): A SERIOUSNESS CODE of 5 and a PROBABILITY OF OCCURRENCE of 2 equals a QUALITY LEVEL of 3.

- 4.4.11 On form FS-F-2501 under QUALITY LEVEL, enter each quality level using the same capital letter to indicate the QUALITY

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LEVEL as was used to indicate the POSSIBLE CAUSE and PROBABILITY OF OCCURRENCE.

For the example in Step 4.4.10, the QUALITY LEVELS would be entered as:

- A) 2
- B) 3

- 4.4.12 Determine the best method(s) available to either control (reduce the probability of occurrence), or to mitigate (reduce the consequences once it has occurred) each failure, concern, or hazard. These might include such items or services as:
- a. Requiring specific engineered barriers to potentially unsafe operation or maintenance be either designed into a structure or item, or added to an existing structure or item;
  - b. Requiring specific industrial/professional standards in the design, installation, operation and maintenance features of structures, items, or services;
  - c. Requiring the use of specific protective devices, alarms, or clothing for the performance of the activity;
  - d. Requiring QA inspections during the construction and/or installation of structures or items;
  - e. Requiring pre-use inspection and testing of items;
  - f. Requiring use of a particular FEMP procedure or series of procedures, permits, work practices, etc.;

- g. Requiring specific personnel selection criteria and/or qualifications/certification(s) for personnel involved in the activity;
- h. Requiring the successful completion of job- or task-specific training before the performance of the activity; and
- i. Requiring the presence of additional supervisory or qualified personnel (such as Radiological Safety Technicians, Fire Inspectors, work helpers) to monitor and intervene as needed.

NOTE: Whenever possible, it is better to control than to mitigate.

- 4.4.13 On form FS-F-2501 under CONTROLS AND MITIGATORS, enter the determined controls and mitigators. Use the same capital letter to indicate the CONTROLS AND MITIGATORS as was used to indicate the event sequence of POSSIBLE CAUSE, PROBABILITY OF OCCURRENCE, and QUALITY LEVEL.

In the example referenced last in Step 4.4.11, the controls and mitigators may be listed as:

- A-1) Installers shall successfully complete the vendor's installation training.
- A-2) QA shall inspect the installation and supervise the test procedure, before the item is assigned to use.
- B-1) Lid locks shall be inspected just prior to use for any signs of cracks or other damage.

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- B-2) A replacement supply of at least 12 lid locks shall be maintained in the work area, readily available for use.
- B-3) The spill clean-up crew shall be readily available in the work area whenever 100 or more containers are being handled.
- 4.4.14 Determine the effect on the listed consequences and probability of occurrence of each event sequence with the control(s) and mitigator(s) in place.
- a. Realistically approximate the effect of the implementation of the listed controls for an event sequence on the probability that the failure, concern, or hazard would still occur.
  - b. Realistically approximate the effect of the implementation of the listed mitigators for an event sequence on the consequences if the failure, concern, or hazard would still occur.
- 4.4.15 Using the results of the previous step and following the same logic sequence employed in determining the QUALITY LEVEL (risk) for each event sequence, approximate the RESIDUAL RISK, as accurately as possible. This is a judgement call and may be stated as a range or as a statement of opinion.
- Documented SMEs can be very helpful here, where experience in similar circumstances can shed light on what happens in "the real world."
- 4.4.16 On form FS-F-2501 under RESIDUAL RISK/COMMENTS, enter the chosen residual risk statement. If appropriate to do so, the same capital letter may be used to indicate each of the

RESIDUAL RISK/COMMENTS as was used to indicate the event sequences.

- 4.4.17 Although it is not a recommended practice, if additional sheets of paper must be attached to the form (for such things as additional possible causes, controls or mitigators, or for charts and calculations), their existence shall be documented on form FS-F-2501 under RESIDUAL RISK/COMMENTS. These additional pages shall be numbered with the pertinent page number and a sequentially ordered, lower case alpha designator.

For example: RAR page number 6 requires additional space on two sheets of paper for the discussion of controls and mitigators. This is noted on RAR page 6 under RESIDUAL RISK/COMMENTS as: "Additional controls and mitigators are listed on continuing pages RAR-6a and RAR-6b."

#### 4.5 Prepare For and Review Draft RAR

##### RAR INITIATOR

- 4.5.1 Confirm that the applicable Safety Assessment has been issued and that any safety concerns raised in the SA have been addressed in the RAR.
- 4.5.2 Ensure that all the RAR Task Team comments have been resolved and prepare the RAR draft for review.
- 4.5.3 Reconvene RAR Task Team members for their review and concurrence of DRAFT RAR.
- 4.5.4 On form FS-F-2501-1, sign as indicated as the RAR Initiator.

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**RAR TASK TEAM**

- 4.5.5 Review Draft RAR for accuracy and completeness.
- 4.5.6 Resolve members' comments.

**EACH RAR TASK TEAM MEMBER**

- 4.5.7 Indicate concurrence with the final Draft RAR by writing initials on the form FS-F-2501-1, "Risk Assessment Report (RAR) Concurrence/Approval," in the left margin next to the space indicated for your management's signature.

**RAR INITIATOR**

- 4.5.8 Determine the need for an RMP, using the following criteria:  
An RMP and any subsequent RMR shall be prepared for a project, operation, PTA, PA, or significant process or procedural modification when one or more of the event sequences is rated a Quality Level 1, 2, or 3. All of the event sequences rated at those levels shall be addressed in the RMP and any subsequent RMR.
- 4.5.9 Submit the RAR for review and concurrence signature to the RAR Initiator's immediate manager.

**RAR INITIATOR'S IMMEDIATE MANAGER**

- 4.5.10 Review and either sign form FS-F-2501-1 as concurrence or return the RAR to the Initiator for comment resolution.

**RAR INITIATOR**

- 4.5.11 After the immediate manager has signed, submit the RAR to N&SS for review and notify them when the draft RMP, if required, is scheduled to be completed.

**NUCLEAR & SYSTEM SAFETY**

- 4.5.12 Review the RAR for content and form, ensuring that the requirements of the RAM System are met.

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- 4.5.13 Review the RAR Initiator's determination of the need for an RMP and subsequent RMR based on the determined Quality Levels of the event items listed. Notify the RAR Initiator of any need to change that decision.
- 4.5.14 If an RMP and subsequent RMR are required, issue the controlled RMP and RMR numbers in sequence with the associated RAR administratively-controlled number.
- 4.5.15 Transmit to the RAR Initiator the reviewed RAR package along with comments and the controlled numbers to use for any required RMP or RMR.

#### RAR INITIATOR

- 4.5.16 Resolve and incorporate N&SS comments, if any, and prepare final "sign-off" copy of the RAR.
- a. If any substantial changes (i.e., more than spelling corrections or such like) were made to the RAR (RAR/RMP package), prepare a new signature page and resubmit for immediate manager's concurrence.
  - b. If an RMP is required, the completed RAR may be held until RMP is completed; i.e., send both documents for approval as a package.
  - c. If RMP is not required, the RAR is not being held for completion of the RMP, or the RAR/RMP package is complete, route the RAR for concurrence/approval to the organizations/personnel which participated on the RAR Task Team and those others which/who in Table 1 are applicable.
- 4.5.17 If during the sign-off cycle, additional comments or revisions are made, resubmit the RAR (RAR/RMP package) to N&SS for

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change approval or determination of the need for resubmitting for previous signatures obtained, before obtaining the final approval signature.

- 4.5.18 After all concurrence/approval signatures have been obtained, route to N&SS for issuance. Attach the originals of completed forms FS-F-3372, "Request For and Assignment Of RAR Task Team Participation," to be included in the controlled document file.

#### NUCLEAR & SYSTEM SAFETY

- 4.5.19 Issue and control distribution of RARs and RAR/RMP packages.

#### RMR INITIATOR

- 4.5.20 Review and revise RARs as stated in Chapter 7.0.

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TABLE 2: Seriousness Level Rationale Chart

Possible Consequences of Potential Hazard, Failure or Concern	Catastrophic 6	Very High 5	High 4	Moderate 3	Low 2	Negligible 1
Personnel/Public Health & Safety	Death or serious injury/illness to off-site public and/or multiple on-site deaths or serious injuries/illness to personnel.	Death or debilitating, serious, permanent injury/illness (significant impact to quality of life) such as significant impairment of internal organs to on-site personnel; minor, if any, injury/illness to off-site public.	Serious, permanent injury/illness to on-site personnel which is amenable to rehabilitation, such as loss of a hand, finger, or eye. No off-site impact to the health and safety of the public.	Injury/illness requiring hospital treatment, lost work-time, but full recovery is expected. No off-site impact.	First aid, at-plant treatment or outpatient treatment for on-site personnel of minor injury or illness, such as slight skin contamination which washes off, or casting a sprain or simple fracture of an arm/leg.	No adverse impact to the health and safety of personnel and public.
Potential Environmental Insult or Adverse Impact	Irreversible, significant damage to off-site environment, including such items as multiple deaths of animals, trees, or other living, beneficial organisms; long-term contamination of an area which renders it unfit for habitation for an extended time.	Significant off-site damage caused by such items as violation of off-site release limits, which is recoverable with substantial additional resources. Short-term contamination of an off-site area (such as toxic spill) which can be cleaned up.	Significant on-site damage caused by such items as violation of on-site release limits, which may have minor off-site adverse impact. Any off-site damage is readily recoverable.	Recoverable on-site adverse impact with localized impact, such as a spill of hazardous waste material not immediately detected and corrected. No detectable off-site adverse impact.	Readily recoverable minor adverse impact such as a small spill of a hazardous waste material, immediately detected and cleaned up. No off-site impact.	No adverse impact or insult to the environment.

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TABLE 2: Seriousness Level Rationale Chart (cont)

Possible Consequences of Potential Hazard, Failure or Concern	Catastrophic 6	Very High 5	High 4	Moderate 3	Low 2	Negligible 1
Adverse impact on: laws, regulations, standards, DOE Orders; WEMCO policies and procedures; public reaction.	International impact such as Chernobyl. Could lead to international censure of US Government Operations.	National impact on such as: USEPA, DOE Headquarters, etc. Such violations which could lead to total shut down of the Facility. WEMCO and/or individual(s) vulnerable to criminal prosecution. Could lead to national censure of DOE and Westinghouse.	Regional or State impact on such as: OHIO-EPA, for such as violation(s) of permit limits which would make WEMCO vulnerable to fines and local censure. Potential for individual(s) and/or WEMCO liable for civil lawsuit(s) or penalties.	Westinghouse/WEMCO policy/procedure impact such as violation of requirements for or of: security measures; QA inspections/audits; nuclear criticality safety; SAR, OSR, SARP; Fire Safety codes; Industrial Hygiene & Safety standards. Unrecoverable damage to required documentation audit trail.	Violation of department/section procedure(s)-- strictly administrative, not "operational". Adverse, but readily recoverable impact on those procedures, etc. listed in previous column. Recoverable damage to required documentation: files, routing, or storage.	No discernible adverse impact.

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TABLE 2: Seriousness Level Rationale Chart (cont)

Possible Consequences of Potential Hazard; Failure or Concern	Catastrophic 6	Very High 5	High 4	Moderate 3	Low 2	Negligible 1
Adverse impact on the ability to meet: WEMCO mission/goals; scientific and technical program objectives; program schedules and commitments.	Leads to total loss of WEMCO/FEMP system integrity. Unrecoverable loss of scientific or technical data or results; unrecoverable loss of secured information to the potential harm of the nation (such as industrial or scientific espionage by unfriendly nation or group).	Major external commitment or vital internal commitment missed, leading to potential for major violation of system integrity. Unrecoverable adverse impact on scientific or technical program objectives. Significant violation of WEMCO mission/goals.	Adverse impact on external or major internal commitment necessitating major rescheduling and additional resources. Not readily recoverable impact(s) which require the restructuring or redesigning of major program objectives. Recoverable impact to WEMCO mission/goals.	Recoverable, with additional resources, so that no external commitments are missed; major internal commitment(s) are adversely impacted and require restructuring or rescheduling. Major, but recoverable impact to program objectives and/or schedules.	Readily recoverable, with no external commitments or schedules are missed; no major internal commitments or schedules are missed. Minor, readily recoverable impact(s) to program objectives.	Recoverable, minor internal commitment(s) or schedule(s) adversely impacted, which may necessitate overtime or small additional resources to complete in a timely fashion.
Potential for damage or loss to facility or equipment; monetary loss; delay of work completion.	Monetary loss exceeds \$50 million; vital work process delayed indefinitely or terminated uncompleted.	Monetary loss less than \$50 million, but equal to or greater than \$10 million. Delay of work completion for 6 months or more, but with a definite schedule for completion.	Monetary loss less than \$10 million, but equal to or greater than \$1 million. Delay of work completion less than 6 months, but equal to or greater than 3 months.	Monetary loss less than \$1 million, but equal to or greater than \$100 thousand. Delay of work greater less than 3 months, but equal to or greater than 1 month.	Monetary loss less than \$100 thousand, but equal to or greater than \$50 thousand. Delay of work less than 1 month, but equal to or greater than 1 week.	Monetary loss less than \$50 thousand. Delay of work less than 1 week.

\*NOTE: The categories (left-hand column) and their seriousness levels are not directly comparable. For example, this chart is not intended to suggest that the loss of life or health is directly comparable to any particular monetary loss or the missing of any particular commitment.

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TABLE 3: Probability of Occurrence Rating Scale

Probability Scale		Descriptions	
6	Extremely High	a.	Likely that event will occur more than twice during a year.
		b.	For projects: Likely that event will occur at least once during a 3-month span.
		c.	For intermittent use equipment: Likely that failure will occur each time that equipment is used.
5	Very High	a.	Likely that event will occur once or twice during a year.
		b.	For project: Likely that event will occur once during a 6-month span.
		c.	For intermittent use equipment: Likely that failure will occur at least once in every 5 uses.
4	High	a.	Likely that event will occur once in 10 years.
		b.	For projects: Under similar circumstances, a similar event has occurred in industry at least once in the last ten years; or SME postulates that of 10 similar projects, it is likely that the event will occur once.
		c.	For intermittent use equipment: Likely that failure will occur once in 10 uses.
3	Moderate	a.	Likely that event will occur once in 100 years.
		b.	For projects: SME postulates that of 100 similar projects, it is likely that event will occur once.
		c.	For intermittent use equipment: Likely that failure will occur once in 100 uses.
[Table is continued on the next page]			

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Probability Scale		Descriptions	
2	Low	a.	Likely that event will occur once in 1000 years.
		b.	For projects: SME postulates that of 1000 similar projects, it is likely that event will occur once.
		c.	For intermittent use equipment: Likely that failure will occur once in 1000 uses.
1	Negligible	a.	Occurrence is expected to be less than once in 1000 years.
		b.	For projects: SME postulates that event will occur less than once in 1000 similar projects.
		c.	For intermittent use equipment: Likely that failure will occur once in 10,000 or more uses.
		<b>NOTE:</b> If during the history of this facility, this event/failure has occurred at this facility, the assigned code shall be at least a "4".	
		<b>NOTE:</b> If a similar failure/event has occurred at this facility at any time in its history, the failure/event <u>canNOT</u> be coded a "1".	

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TABLE 4: Quality Level Matrix

Seriousness Level	Probability of Occurrence					
	1	2	3	4	5	6
6	3	2	2	1	1	1
5	4	3	2	2	1	1
4	4	4	3	2	2	1
3	4	4	3	3	2	2
2	4	4	4	4	3	3
1	4	4	4	4	4	3

Figure 4-1: Form FS-F-2501, "Risk Assessment Report (RAR)"

<b>RISK ASSESSMENT REPORT (RAR)</b> RAR TYPE: _____ RAR NUMBER: _____ INITIATOR: _____ DATE: _____ PAGE: _____ OF _____ REVISED: _____		SERIOUSNESS CODE 1 2 3 4 5 6	
		CONSEQUENCES	
Project Title: _____ POSSIBLE FAILURE/CONCERN/HAZARD	PROBABILITY OF OCCURRENCE CODE (1-3) A)	QUALITY LEVEL CODE (1-4)	RESIDUAL RISK/COMMENTS
POSSIBLE CAUSE(S) OF FAILURE/CONCERN/HAZARD A)	CONTROLS AND MITIGATORS A)		



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Figure 4-2: Form FS-F-2501-1, "Risk Assessment Report (RAR) Concurrence/Approval"

Fernald Site  
**RISK ASSESSMENT REPORT (RAR)  
 CONCURRENCE/APPROVAL**

RAR NUMBER:		PROJECT TITLE:		PAGE	OF	DATE
SIGNATURE		NAME		JOB TITLE		
INITIATOR:	PRINT:					
INITIATOR'S SECTION MANAGER:	PRINT:					
MANAGER NP&SB:	PRINT:					
MANAGER SOA:	PRINT:					
	PRINT:					
	PRINT:					
	PRINT:					
	PRINT:					
	PRINT:					
	PRINT:					
AUTHOR'S DEPARTMENT MANAGER:	PRINT:			FINAL APPROVAL		

FS-F-2501-1 (R2A 91)

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Figure 4-3: Form FS-F-3372, "Request For and Assignment Of RAR Task Team Participation"

Fernald Site  
**REQUEST FOR AND ASSIGNMENT OF  
 RAR TASK TEAM PARTICIPATION**

<b>SECTION I: REQUEST FOR PARTICIPATION</b>		
TO THE MANAGER OF:		
You are hereby requested to assign from your organization one of your cognizant personnel and/or a documented SME to participate on the RAR Task Team for the following project:		
RAR NUMBER:		DATE:
PROJECT TITLE		PROJECT NUMBER:
RAR INITIATOR:	PRINTED NAME	SIGNATURE:
RAR INITIATOR'S ORGANIZATION:	DEPARTMENT	SECTION:
<b>SECTION II: ASSIGNMENT OF PERSONNEL FOR RAR TASK TEAM PARTICIPATION</b>		
The request to provide RAR Task Team participation by my organization is accepted; the individual assigned to the team is:		
NAME:		PHONE NUMBER:
JOB TITLE:		
This individual <input type="checkbox"/> is <input type="checkbox"/> is not currently a documented SME in one or more areas pertinent to the subject matter addressed in this RAR. If the individual is a documented SME, the documented subject areas include the following:		
NAME		SIGNATURE:
ORGANIZATION		DATE

## 5.0 PREPARE AN RMP

A completed project/operation description and/or operating scenario, SA, and RAR are required before beginning the preparation of an RMP.

Sections I & II of the RMP are "summaries" and are done last.

### 5.1 Prepare RMP Section III: Risks Requiring Inclusion in the Plan

Figure 5-4 is an example of this section.

#### RMP PREPARER

- 5.1.1 Review RAR and prepare lists of event sequences which resulted in each Quality Level of 1, 2, and 3. Quality Level 4 items are not required to be addressed in the plan. If no event sequences occurred in a particular category, state "NONE" under that category listing.
- 5.1.2 After each event sequence listed, include in parentheses the RAR number sequence of that event (e.g., RAR 5A where 5 is the page number and A is the index of the event sequence.).

### 5.2 Prepare RMP Section IV: Description of Controls, Mitigators, and Requirements

The controls and mitigators listed in the RAR form the basis for those listed in this section, especially those listed in Subsection IV. B.

- 5.2.1 List in Subsection IV. A., all of the controls, mitigators and requirements that apply to the project as a whole (see Figure 5-5 for an example of this subsection).

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5.2.2 In Subsection IV. B., detail the job-specific control(s), mitigator(s), and requirements which address each identified risk listed in Section III (see Figure 5-6 for an example of this subsection).

5.3 Prepare RMP Section V: Training, Qualifications, and Certifications Requirements

Figure 5-7 is an example of this section.

5.3.1 Determine with the Centralized Training representative what current training activities are applicable and what additional, job-specific training is required.

5.3.2 List in Subsection A the compliance training requirements, such as the following:

A. **COMPLIANCE TRAINING REQUIREMENTS**

All personnel engaged in this project are required to complete the following Training Requirements. These Training Requirements shall be satisfied prior to the start of work. All training is to be documented and records of this training will be maintained by WEMCO IRS&T Centralized Training Section. Additionally, Rust Employee Relations must maintain the training records for Rust employees.

1. OSHA 29 CFR 1910.120 (e)(3)(i) - 40-Hour Training for General Site Worker.

**Note:** This requirement can be met by FEMP 40 - Hour Compliance Training Program.

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2. OSHA 29 CFR 1910.120 (e)(3)(i) - 24-Hour Supervised Field Experience Training documented on Form FS-F-3233 (REV. 12/5/91).

**Note:** This documentation shall be sent to IRS&T Centralized Training Section.

3. OSHA 29 CFR 1910.120 (e)(4) - 8-Hour training for Supervisory Personnel.

**Note:** All personnel who supervise workers on this project must have this training.

4. Subcontractors with proof of OSHA 29 CFR 1910.120 (e)(3)(i) training are required to take Site Specific Training [29 CFR 1910.120(9)] as determined on a case-by-case basis by WEMCO IRS&T compliance Training Coordinator.
5. DOE Order 5480.11 - Radiation Safety Training, Radiation Personnel Monitoring, and Radiation Worker Hands-on Training.
6. DOE Order 5480.5 and 5480.20 - Nuclear Criticality Safety Training.
7. OSHA 29 CFR 1910.147 - Energy Control Awareness
8. OSHA 29CFR1910.147 - Energy Control (Lock & Tag) training (as required for specific activities)

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9. DOE Order 5400.10, 29 CFR 1910.134, and ANSI Z88.2-1980 - Respirator Training and Fit Testing.

**Note:** This training must be current along with medical certification and shall include quantitative fit-testing.

10. OSHA 29 CFR 1910.157(g) - Portable Fire Extinguisher Training
11. DOE Order 5483.1A - You and OSHA Training

5.3.3 List in Subsection B any required project orientation such as the following:

**B. PROJECT ORIENTATION**

All personnel engaged in the project shall receive the following orientation:

1. FEMP Site Orientation Video
2. Orientation on the specific Material Safety Data Sheets related to this project.
3. Orientation on the Project Specific Health and Safety Plan

A Pre-construction/Kick-off meeting will be held prior to the start of this project to discuss work activities and safety considerations. Minutes of this meeting will be made available.

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NOTE: Each subcontractor has a subcontractor-specific orientation covering such things as benefits, time-cards, business practices, etc., which is required/presented to their employees. This is NOT listed in this section.

- 5.3.4 List in Subsection C any training/orientation requirements for visitors to the work site, such as the following:

**C. VISITORS**

Visitors to the site shall view the FEMP Site Orientation Video and receive a briefing on the Project Specific Health and Safety Plan, prior to acquiring a dosimeter badge. In addition these individuals SHALL BE ESCORTED by a person who has completed the 40-Hour program. No visitors shall be permitted to enter an Exclusion Zone, Contaminated Area, or Airborne Radioactivity Area.

- 5.3.5 List in Subsection D all of the project specific training, qualification, and certification requirements for this project/activity, such as:

**D. PROJECT SPECIFIC TRAINING, QUALIFICATION, AND CERTIFICATION REQUIREMENTS**

The following Project Specific Training, Qualification, and/or Certifications are required for the various construction and support personnel that will task this project: ....

Note: Information in this section is to be provided by the RAR Initiator with the assistance of the RAR Task Team.

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- 5.3.6 List in the appropriate subsection any tasks requiring training for which no current training activity is available, and when/how, and by whom the training is to be developed and implemented.
- 5.4 Prepare RMP Section VI: ATTACHMENTS
- 5.4.1 Attachment A: Attach a copy of the applicable RAR.
- 5.4.2 Attachment B: Attach the project-specific Inspection and Test Plan(s), if applicable. If more than one plan, use more than one Attachment alphabetical designator.
- 5.4.3 Prepare and/or select and attach other documents as needed or applicable (e.g., Structural Analysis, Electrical Installation Verification Plan). Use consecutive alphabetical designators.
- 5.5 Prepare RMP Section I: INTRODUCTION & Section II: SUMMARY
- 5.5.1 In Section I: Include a short, narrative description of the project, and the purpose and overview of the plan.
- 5.5.2 In Section II: Summarize the results of the RAR and the major activities required to control and mitigate the identified risks.
- 5.6 Complete the Preparation and Assemble the RMP
- 5.6.1 Prepare a table of contents for the RMP (see Figure 5-3).
- 5.6.2 Prepare a concurrence and approval signature page, as shown in Figure 5-2, including the applicable organizations and management levels to concur and to approve the RMP. (These are at least the same as those required to sign-off the RAR.)

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5.6.3 Prepare the Title page as shown in Figure 5-1.

5.6.4 Transmit to N&SS for review.

NOTE: If RAR has not yet received the final review by N&SS, send both the RAR and the RMP as a package.

5.7 Review, Issue, and Control the RMP

**NUCLEAR & SYSTEM SAFETY**

5.7.1 Review the draft RMP for content and form, ensuring that the requirements of the RAM System, and any other applicable procedures are met.

5.7.2 Transmit to the RMP Initiator the reviewed RMP (RAR/RMP package) along with comments.

**RAR INITIATOR**

5.7.3 Resolve and incorporate N&SS comments, if any, and prepare final "sign-off" copy of the RMP.

5.7.4 Route for concurrence/approval the RMP (RAR/RMP package) to the organizations which were represented on the RAR Task Team and any other organizations/personnel listed in Table 1 which/who are applicable.

5.7.5 If during the sign-off cycle additional comments or revisions are made, resubmit the package to N&SS for change approval before obtaining the final approval signature.

5.7.6 After all concurrence/approval signatures have been obtained, route to N&SS for issuance.

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**NUCLEAR & SYSTEM SAFETY**

5.7.7 Issue and control distribution of the RMP using the same system as used for the issuance and control of the applicable RAR.

**RMR INITIATOR**

5.7.8 Review and revise RMP as stated in Chapter 7.0.

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Figure 5-1: Sample RMP/RMR Title Page

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RMP No. \_\_\_\_\_

# RISK MANAGEMENT PLAN

for

[INSERT PROJECT TITLE]

prepared by

[Insert Author/Group]

for

U.S. DEPARTMENT OF ENERGY/FERNALD SITE OFFICE

[Insert Date Issued]

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Figure 5-3: Sample RMP Table of Contents Page

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**TABLE OF CONTENTS**

for

RMP No. \_\_\_\_\_

[INSERT TITLE OF PROJECT]

Section	Page
Concurrence/Approval Signatures	i
I: Introduction	1
II: Summary	1
III: Risks Requiring Inclusion in the Plan	3
A. Quality Level 1	3
B. Quality Level 2	3
C. Quality Level 3	4
IV: Description of Controls, Mitigators, and Requirements	5
A. General Risk Controls, Mitigators, and Requirements	5
B. Job-Specific Controls, Mitigators, and Requirements	6
V: Training, Qualifications, and Certifications Requirements	8
A. Compliance Training Requirements	8
B. Project Orientation	10
C. Visitors	12
D. Project-Specific Training, Qualification, and Certification Requirements	13
VI: Attachments	
A. Risk Assessment Report	
B. Inspection and Test Plan(s), if applicable	
C. [Others, as needed]	

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Figure 5-4: Sample of RMP Section III

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**III: RISKS REQUIRING INCLUSION IN THE PLAN**

The Risk Assessment Report (RAR-91-0000-A-0) identifies Thirteen possible event sequences associated with the [Insert title of Project here]. No event sequences are designated Quality Level 1. Six event sequences are designated Quality Level 2. Seven event sequences are designated Quality Level 3. These event sequences are described under the appropriate Quality Level heading.

**A. Quality Level 1**

NONE.

**B. Quality Level 2**

1. Downing of power lines resulting in injury to personnel or work stoppage due to faulty design. (RAR 7A)
  2. Downing of power lines resulting in injury to personnel or work stoppage due to faulty installation not identified by WMCO inspection. (RAR 7B)
  3. Electrical shock to personnel during maintenance activity resulting in potential death to personnel due to faulty design. (RAR 8A)
  4. Electrical shock to personnel during maintenance activity resulting in potential death to personnel due to lack of use or improper use of the PP-719, "Energy
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Figure 5-5: Sample of RMP Section IV. A.

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**IV: DESCRIPTION OF CONTROLS, MITIGATORS, AND REQUIREMENTS**

**A. General Risk Controls, Mitigators, and Requirements**

All design, pre-construction planning, and inspections shall be accomplished in accordance with the following written procedures, regulations, standards, and instructions:

1. National Electric Code, 1990 edition.
2. IH&S-F-06, Siting and Use of Office Trailers and Other Portable Structures at the FMPC.
3. FMPC-717, "Inspections."
4. FMPC-719, "Energy Control," (formerly, "Proper Lock & Tag").
5. DOE Order 6430.1A, General Design Criteria.
6. Quality Engineering Inspection Plan 1: Electrical Installation Verification.
7. Quality Engineering Inspection Plan 2: Electrical Inspection and Test.

The Contractor's Work Plan and procedures shall detail the normal activities expected during the subcontract effort. The written procedures, regulations, standards, and instructions listed above

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Figure 5-6: Sample of RMP Section IV. B.

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**B. Job-Specific Controls, Mitigators, and Requirements**

Those specific activities which address the identified event sequences (as listed in Section III) are described in the following subsections. The event sequences are listed with the designators used in Section III.

**o Controls, Mitigators, and Requirements for Quality Level 2 Event Sequences:**

B.1 FMPC-719, Energy Control, shall be followed when performing maintenance.

B.2 Design in accordance with NEC and DOE/EV-0043. All 115 Volt, 15 or 20 amp circuits shall be protected by ground fault interrupters (GFIC). A single disconnect means shall be provided for each structure and shall be marked "Main."

B.3 FMPC-717, "Final Inspection," shall be accomplished by WEMCO Safety and Site Engineering.

B.4 Backflow preventors shall be installed in process lines.

B.5 GFIC protection is required on heat tracing. Heat tracing equipment shall have Site Safety approval prior to Contractor order and installation. WEMCO Safety is aware of the Project location fire-fighting limitations.

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Figure 5-7: Sample of RMP Section V

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**V: TRAINING, QUALIFICATIONS, AND CERTIFICATIONS REQUIREMENTS**

All personnel shall have current the required General Employee Training and Compliance Training. Job and task-specific training, qualifications and certification requirements are listed below. This list includes the training requirements listed in the Job-Specific Health and Safety Plan.

**A. COMPLIANCE TRAINING REQUIREMENTS**

All personnel engaged in this project are required to complete the following Training Requirements. These Training Requirements shall be satisfied prior to the start of work. All training is to be documented and records of this training will be maintained by WEMCO IRS&T Centralized Training Section. Additionally, Rust Employee Relations must maintain the training records for Rust employees.

1. OSHA 29 CFR 1910.120 (e)(3)(i) - 40-Hour Training for ...

**B. PROJECT ORIENTATION**

All personnel engaged in the project shall receive the following orientation:

1. FEMP Site Orientation Video...

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## 6.0 PREPARE AN RMR

A completed project/operation description and/or operating scenario, SA, RAR, and RMP are required before beginning the preparation of an RMR.

### 6.1 Initiate Preparation of RMR

#### RMR INITIATOR

6.1.1 Request N&SS to determine the need for an RMR.

#### NUCLEAR & SYSTEM SAFETY

6.1.2 Determine if RMR is required.

6.1.3 Notify RMR Initiator of the decision.

#### RMR INITIATOR

6.1.4 If instructed to do so by N&SS, initiate the preparation an RMR.

Sections I & II of the RMR are "summaries" and are prepared last.

### 6.2 Prepare RMR Section III: IDENTIFIED RISKS AND PLANNED CONTROLS, MITIGATORS AND REQUIREMENTS SUMMARY

Figure 6-1 is an example for this section.

#### RMR INITIATOR

6.2.1 Review the applicable RAR and RMP for content and risks.

6.2.2 Summarize the main content, risks requirements, and the planned controls and mitigators.

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6.3 Prepare RMR Section IV: IMPLEMENTED CONTROLS, MITIGATORS, AND REQUIREMENTS

Figure 6-2 is an example for this section.

6.3.1 Collect and review actual project outcome documentation and information.

6.3.2 Determine and document for each event sequence listed in the RMP the actual control(s), mitigator(s), and requirements which were implemented, whether or not they were listed in the RMP.

6.3.3 Compare the planned activities with the actual activities, and note any changes or modifications.

6.4 Prepare RMR Section V: EVENT OCCURRENCES

Figure 6-3 is an example for this section.

6.4.1 Determine what, if any, actual events occurred which impacted or were impacted by this project.

6.4.2 List first those related to risks identified in the RAR/RMP, followed by those which occurred but were not identified in the RAR/RMP.

6.4.3 If no applicable events occurred, state "NONE."

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6.5 Prepare RMR Section VI: LESSONS LEARNED

Figure 6-4 is an example for this section.

- 6.5.1 Review the accumulated project information, interview the participants to the extent possible, and document both the positive and negative outcomes.
- 6.5.2 If any events occurred and the RAR/RMP identified such an event (or one very similar), document the following:
- a. Using the RAR, copy the description (including the RAR event number) of the event sequence: failure, concern, or hazard; consequences; and planned control(s), mitigator(s), and requirements.
  - b. Refer to Section IV, were all the planned controls, mitigators, and requirements implemented? If not, why not?
  - c. What effects, both positive and negative, the planned controls, mitigators and requirements had (for those implemented) and possibly could have had (for those not implemented) on the event outcome?
- 6.5.3 If any events occurred which had not been identified in the RAR/RMP, document the following:
- a. Describe what occurred and what controls, mitigators and requirements that could have been implemented which might have prevented the event or reduced the severity of the consequences of the event.

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- b. Describe any unique or unusual aspects of the event which could account for the its not being addressed in the RAR/RMP.
- 6.5.4 If any events occurred (whether or not described in the RAR/RMP), document the following:
- a. How the event was resolved.
  - b. What controls, mitigators or requirements shall or should be implemented or considered for future similar projects?
- 6.6 Prepare RMR Section VII: ATTACHMENTS
- 6.6.1 Attachment A: Attach a copy of the applicable RAR.
  - 6.6.2 Attachment B: Attach a copy of the applicable RMP.
  - 6.6.3 Attachment C: Attach copies of any applicable Event Occurrence Reports.
  - 6.6.4 Prepare or select and attach any other documents as needed, using consecutive alphabetical designators; Attachment D, E, F, etc.
- 6.7 Prepare RMR Section I: INTRODUCTION & Section II: SUMMARY
- 6.7.1 In Section I: Include a short, narrative description of the project, and the purpose and overview of the report.
  - 6.7.2 In Section II: Summarize the major results of the report.

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6.8 Complete the Preparation and Assemble the RMR

6.8.1 Prepare a table of contents for the RMR (see Figure 6-5).

6.8.2 Prepare a concurrence and approval signature page as shown in Figure 5-2, including the applicable organizations and management levels to concur and to approve the RMR. (These are at least the same as those required to sign-off the RMP. If any differences from the RAR/RMP, request approval for this change from N&SS.)

6.8.3 Prepare the Title page as shown in Figure 6-6.

6.8.4 Transmit to N&SS for review.

6.9 Review, Issue, and Control the RMR

**NUCLEAR & SYSTEM SAFETY**

6.9.1 Review the draft RMR for content and form, ensuring that the requirements of the Risk Assessment and Management System, and any other applicable procedures are met.

6.9.2 Transmit to the RMR Initiator the reviewed RMR package along with comments.

**RMR INITIATOR**

6.9.3 Resolve and incorporate N&SS comments, if any, and prepare final "sign-off" copy of the RMR.

6.9.4 Route the RMR to the organizations listed on the Concurrence/Approval Signature page for concurrence/approval.

6.9.5 If during the sign-off, cycle additional comments or revisions are made, resubmit the RMR to N&SS for change approval before obtaining the final approval signature.

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6.9.6 After all concurrence/approval signatures have been obtained, route to N&SS for issuance.

#### NUCLEAR & SYSTEM SAFETY

6.9.7 Issue and control distribution of RMRs using the same system as used for the issuance and control of the applicable RAR.

#### RMR INITIATOR

6.9.8 Review and revise RMR as stated in Chapter 7.0.

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Figure 6-1: Sample of RMR Section III

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**III: IDENTIFIED RISKS AND PLANNED CONTROLS, MITIGATORS, AND REQUIREMENTS SUMMARY**

The Risk Assessment Report for [insert project name] identified NO Quality Level 1, Two Quality Level 2, and Three Quality Level 3 event sequences, see attached RAR No. [insert RAR No. here].

The Risk Management Plan for [insert project name] identified the controls, mitigators, and requirements for addressing these identified event sequences, see attached RMP No. [insert RMP No. here].

The identified event sequences described the following potentials:

- B.1 Entrapment during emergency evacuations leading to a potential loss of life. This event sequence was to be controlled with a fire prevention sprinkler system, and training in and posting of evacuation routes.
  - B.2 Trips and falls during entering and exiting of trailer leading to a potential injury to personnel. This event sequence was to be controlled by design criteria for hand railings, and skid-proof walkway.
  - C.1 Chemical contamination to personnel during maintenance activity due to boiler stack emissions. This event sequence was to be controlled by inspection and monitoring, and mitigated by placement of emergency showers in the near vicinity of the potential contamination area.
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Figure 6-2: Sample of RMR Section IV

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**IV: IMPLEMENTED CONTROLS, MITIGATORS, AND REQUIREMENTS**

The General Risk Controls, Mitigators, and Requirements listed in Subsection A of Section IV of the [insert project title here], RMP-91-0000-A-0, were implemented as written (see Attachment B).

The Job-Specific Controls, Mitigators, and Requirements which were implemented are listed by the Quality Level of the event sequences. There were NO Quality Level 1 event sequences.

o **Implemented Controls, Mitigators, and Requirements for Quality Level 2 Event Sequences:**

B.1 Ground-fault interrupter circuits installed.

B.2 Drainage system installed to prevent puddles on the access routes.

B.3 Isolated grounds installed on computer systems.

- B.4
- a. HEPA filter installed on glove box exhaust to reduce release potential.
  - b. Procedures developed and implemented for operation of new glove box system.
  - c. Training on new glove box systems, procedures and practices developed and conducted through vendors and Centralized Training. Twenty-hour qualification
-

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Figure 6-3: Sample of RMR Section V

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V: EVENT OCCURRENCES

NONE. [This is the response for this Section, if in fact no accidents or incidents occurred.]

During the decommissioning of this project, three event occurrences were identified, as follows:

A. Event Occurrences Identified by the RAR/RMP

1. An on-site person was moderately injured by inhaling some contaminated dust. The worker was outside the plastic containment, without a respirator on, but some dust was escaping through an unknown tear/hole in the containment plastic.
2. A small fire was ignited in a trash bin by sparks from a cutter's torch.

B. Event Occurrences Not Identified by the RAR/RMP

3. A skin contamination occurred to a WEMCO safety inspector when she investigated a suspicious liquid material (low-level radiologically contaminated waste water) found in a drum on the lower level.

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Figure 6-4: Sample of RMR Section VI

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**VI: LESSONS LEARNED**

The Risk Assessment Report and the Risk Management Plan for [insert project name] identified the controls, mitigators, and requirements for addressing the identified event sequences, see attached RMP No. [insert RMP No. here].

However, during the installation of ground-fault interrupter circuits on the recirculation pumps, a tool box was inadvertently placed near the sump drain. The drain cover had been removed for inspection. The tool box was accidentally overturned and a screwdriver fell into the drain. No one was injured and damage occurred, but time was lost (2 hours) to locate, retrieve, clean, and monitor the screwdriver for radiological contamination. At the subsequent safety review meeting, the following determinations were made:

- (1) Project managers and facility owners will not schedule two such work activities to take place at the same time in such a narrow work space
- (2) Electricians, when working in areas with drains, will check to insure that the drains have been covered before beginning their work.

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Figure 6-5: Sample of RMR Table of Contents

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TABLE OF CONTENTS  
for

RMR No. \_\_\_\_\_  
[INSERT TITLE OF PROJECT]

Section	Page
Concurrence/Approval Signatures	i
I: Introduction	1
II: Summary	1
III: Identified Risks and Planned Controls, Mitigators, and Requirements	2
IV: Implemented Controls, Mitigators, and Requirements	4
V: Event Occurrences	6
VI: Lessons Learned	7
VII: Attachments	
A. Risk Assessment Report	
B. Risk Management Plan	
C. Event Occurrence Report(s), if any	
D. Others, as needed.	

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Figure 6-6: Sample of RMR Title Page

RMR No. \_\_\_\_\_

# RISK MANAGEMENT REPORT

for

[INSERT PROJECT TITLE]

prepared by

[Insert Author/Group]

for

U.S. DEPARTMENT OF ENERGY/FERNALD SITE OFFICE

[Insert Date Issued]

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### 7.0 REVISION OF RAM SYSTEM DOCUMENTATION

#### 7.1 Monitor RAM System Documentation

##### RAR/RMR INITIATOR and/or APPLICABLE MANAGERS

7.1.1 During each phase of the implementation of the applicable RAR/RMP/RMR, monitor the currency of the information presented in the document(s).

7.1.2 Whenever a change or modification occurs in the design, construction, operation, maintenance, facility, equipment, process or activity which is described in an issued RAR/RMP/RMR which could impact the basis for determination, control or mitigation of risk, review all of the applicable, issued RAR/RMP/RMRs for impact(s) of the changes.

7.1.3 Contact N&SS for determination of which provisions/steps of PP-712 and this manual are required.

#### 7.2 Revise RAM System Documentation

##### NUCLEAR & SYSTEM SAFETY

7.2.1 On a case-by-case basis, determine which of the provisions of PP-712 and this manual are required and convey that determination to the RAR/RMR Initiator.

##### RAR/RMR INITIATOR and/or APPLICABLE MANAGERS

7.2.2 Perform the required tasks and submit the completed, revised RAR/RMP/RMR to N&SS for issuance and distribution.

##### NUCLEAR & SYSTEM SAFETY

7.2.3 Issue, control, and maintain the RAM System documentation as required for readily accessible audit trail and reference.

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APPENDIX A: RAM SYSTEM GLOSSARY

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The source of each RAM System definition is listed in parentheses following the definition to which it applies, unless this document is the source.

1. Administrative Control - a procedural mechanism that requires actions by personnel rather than by equipment. (DOE/OR-901)
2. Anticipated Operational Occurrence - an abnormal event that is expected to occur once or more during the lifetime of the facility (e.g., loss of electrical power, small spills). (DOE/OR-901)
3. Cognizant Personnel - personnel who are knowledgeable in one or specific areas or skills, especially through personal experience. The determination of "cognizance" for an individual is the decision of that individual's immediate manager. These personnel may or may not be documented subject matter experts.
4. Control - a mechanism used to regulate or guide the operation of a system. For possible event situations, controls are those mechanisms that prevent the incident or initiating events, or prevent the event from proceeding to another stage. Controls are used to reduce the probability of an event. (DOE/OR-901)
5. Event - an undesirable happening. An accident or abnormal operational situation or condition. (DOE/OR-901)
6. Event Sequence - Each potential failure, concern, and hazard has one or more possible causes. A potential failure, concern or hazard with one such possible cause, and its probability of occurrence and quality level, is designated an event sequence.
7. Hazard - an existing or potential condition which, by itself or in combination with other variables, has the capacity to result in the unwanted effects of deaths or injuries to personnel, or the

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release of radioactive or hazardous chemicals to the environment.  
(DOE/OR-901)

8. Initiator - the starting occurrence in a sequence of either desirable or undesirable occurrences. (DOE/OR-901) In this procedure, an RAR Initiator is the individual who is responsible for the RAR process; and an RMR Initiator is the individual who is responsible for the RMR process.
9. Item - an all-inclusive term used in place of any of the following: assembly, component, equipment, material, structure, or system.
10. Mitigator - a mechanism used to reduce the magnitude of the consequences of events. Mitigators do not prevent initiating events; however, they are used to reduce the consequences of an event once it occurs. (DOE/OR-901)
11. Occurrence - that which could lead to, cause, or happen during an event. (DOE/OR-901)
12. Operation - an organized set of activities directed toward a common purpose, e.g., site restoration activities.
13. Operator Error - a human action that exceeds some limit of acceptability; that is, an operator error is an out-of-tolerance action where the limits of tolerable performance are defined by the system being analyzed. (DOE/OR-901)
14. Project - an activity which has a defined scope of work, scheduled beginning and ending dates, prescribed budget or cost constraints, and an approved schedule for its accomplishment. This term includes General Plant Projects (GPP), Line Item Projects, or Capital and Expense Projects. For the purpose of Risk Assessment and Management System documentation, the term shall also include

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Plant Test Authorizations or any other proposed changes to a process or facility.

15. Quality Level - a designator assigned to an item, activity, or service which indicates the risk associated with that item, activity, or service. It is also used to indicate the appropriate management system controls to be imposed in order to assure conformance to applicable quality requirements.
16. RAR Initiator - is the individual who is responsible for the RAR process; and can be any one of the following: Facility Owner, Project Manager, Project Engineer, or on a process and/or other modification where no Project Manager/Engineer is assigned, the individual responsible for the process/procedure modification.
17. RAR/RMP/RMR Type - A letter designation corresponding to the period of an activity to which an RAR, RMP, and/or RMR applies. There are three types; Design Phase is Type A, Operational Phase is Type B, and Decommissioning Phase is Type C.
18. Residual Risk - the risk of an operation, with credit taken for response of controls and mitigation placed in the system.  
(DOE/OR-901)
19. Risk - a quantitative or qualitative expression of possible loss in terms of consequence severity and probability of occurrence.  
(DOE/OR-901)
20. Risk Assessment - The process of identifying hazards, potential failures and concerns along with their possible consequences, causes, probabilities of occurrence, controls, and mitigators.
21. Risk Assessment Report (RAR) - a formal, administratively-controlled document which identifies hazards, potential failures and concerns; and their consequences, causes, probabilities of

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occurrence, Quality Levels, controls, mitigators, and residual risks. Each one of the three required RARs is named for the phase that it primarily supports: A) Design, B) Operational, and C) Decommissioning. An RAR is made up of one or more RAR forms.

- A. Design RAR is the RAR produced during the PA/Conceptual Design Phase, issued prior to the initiation of Design Criteria. Everything including design, construction, startup and operation, through final decommissioning of a facility is included in the design phase RAR. It is recognized that details are not fully developed at this phase, but they are to be addressed as fully as possible. Safety and efficiency are to be "engineered in," during this initial design phase, rather than having to "retro-fit on" these considerations during a later phase. This RAR is designated on the RAR form as "TYPE A".
- B. Operational RAR is the RAR initiated early in the Construction phase and issued prior to Start-Up. The primary focus for this RAR is operations and maintenance, although information pertinent to decommissioning activities is discussed as applicable. Here is where the details and administrative controls are fully developed. This RAR is designated on the RAR form as "TYPE B".
- C. Decommissioning RAR is the RAR issued prior to initiating decommissioning/final shut down of a facility, system, or process. The major focus of the identified hazards, failures and concerns in this RAR are those involved with dismantling or shutting down of facilities, systems or process; and the realigning of adjacent or interactive systems, facilities or processes. This RAR is designated on the RAR form as "TYPE C".

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22. Risk Assessment Report (RAR) Administratively-controlled Number - an alpha-numeric designator assigned by N&SS to individually identify and control RARs, RMPs, and RMRs. The format is as follows:
- DDD (Document Type) - YY (Yr) - XXXX (Index) - T (Type) - R (Rev.)  
RAR-91-0026-A-1; RMP-91-0055-B-0; RMR-91-0003-C-3
23. Risk Management - the process of risk identification, assessment and decision of disposition (elimination, control, mitigation, or tolerance), and the tracking of the effectiveness of the actions resulting from these determinations.
24. Risk Management Plan (RMP) - a formal, administratively-controlled document which describes the specific actions to be taken and the responsibilities for accomplishing those actions which are performed to eliminate, control, or mitigate the consequences of the potential failures, hazards, and concerns identified in the associated RAR as a Quality Level 1, 2, or 3.
25. Risk Management Report (RMR) - a formal, administratively-controlled document which describes the successes, failures, and any changes made in the requirements described in the associated RMP, and any impacts which may have occurred to the original RAR. All Design and Operational RMPs require an RMR to be completed at the time specified in this procedure, Section 6.0 and as depicted on Process Flow Diagram in Figure 1a-g. Decontamination RARs may require an RMR if deemed necessary by N&SS.
26. RMR Initiator - the individual who is responsible for the RMR process; and can be any one of the following: Facility Owner, Project Manager, Project Engineer, or on a process and/or other modification where no Project Manager/Engineer is assigned, the individual responsible for the process/procedure modification.

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27. Safety Assessment (SA) - a brief, factual, and objective document that determines if facilities, operations, or processes involve hazards--other than those standard to industry--which require elimination, control, or mitigation, thereby establishing the need for a Safety Study or Safety Analysis Report (SAR). (DOE/OR-901)
28. Service - the performance of activities such as design, inspection, construction, nondestructive examination, testing, training, or operating.
29. Significant Process and/or Procedural Modification - a modification to a process or procedure which requires a Safety Assessment to be performed, i.e., if a Safety Assessment is required, then a Risk Assessment Report (RAR) is required also.
30. Subject Matter Expert (SME) - an individual qualified, or previously qualified, and experienced in performing a particular task. (DOE Order 5480.18)
31. Surveillance - a deliberate and systematic inspection, test, calibration, or check of equipment to verify continuing safe performance in accordance with established criteria. (DOE/OR-901)

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APPENDIX B - REFERENCES

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## REFERENCES

The Risk Assessment and Management (RAM) System is designed to be in compliance with the applicable portions of the following:

1. DOE Order 5480.5, SAFETY OF NUCLEAR FACILITIES.
2. DOE Order 5480.19, CONDUCT OF OPERATIONS.
3. DOE Order 5700.6C, QUALITY ASSURANCE.
4. DOE Order 4700.1, PROJECT MANAGEMENT SYSTEM
5. DOE Order 6430.1A, GENERAL DESIGN CRITERIA.
6. DOE/OR-901, Guidelines for Preparation of Safety Analysis Reports, Chapter 11, "Accident Analysis."
7. FMPC-508, "Safety Analysis Documentation Program."
8. FMPC-609, "Records Management."
9. FMPC-711, "Quality Levels," [in revision].
10. PO-712, "Risk Assessment and Management (RAM) System Policy."
11. SSOP-0014, "Documentation of a Subject Matter Expert (SME)."

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Authorization: (SOF) W. H. Britton, President	Supersedes: FMPC-518, Dated 5-7-90, Rev. 1	Issue Date: 10-1-91

## 1.0 POLICY

Westinghouse Environmental Management Company of Ohio (WEMCO) shall ensure that all actions/projects at the Fernald Environmental Management Project (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.

## 2.0 SCOPE

This procedure describes the NEPA Program at the FEMP and identifies the responsibilities of WEMCO organizations for implementing and supporting the NEPA Program.

## 3.0 DEFINITIONS

3.1 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.

3.2 Action Description Memorandum (ADM) - A document used in the NEPA process to facilitate a determination of which NEPA document is required for a proposed action. An ADM is prepared if the proposed action does not fit clearly into one of the classes of action for a categorical exclusion listed in the NEPA guidelines and it fails the test of "clearly insignificant" impact on the environment.

3.3 Categorical Exclusion (CATEX) - A NEPA document developed from a category of actions which do not individually or cumulatively have a significant impact on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency in implementation of the regulations and which requires neither an Environmental Impact Statement (EIS) nor an Environmental Assessment (EA). The list of actions for which categorical exclusions apply is published in the Federal Register.

3.4 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) - The act enabling the Environmental Protection Agency (EPA) to investigate and clean-up abandoned or uncontrolled hazardous waste sites.

3.5 CERCLA Remedial Actions - Responses to releases that are consistent with permanent remedy to prevent or minimize the release of hazardous substances, pollutants, or contaminants so they do not migrate to cause substantial danger to present or future public health or welfare of the environment.

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3.0 DEFINITIONS (cont.)

- 3.6 CERCLA Removal Action - Any appropriate action taken by a Lead Agency to abate, prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release to the environment.
- 3.7 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.
- 3.8 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 FONSI; (2) to aid an agency's compliance with the Act when no EIS is necessary; and (3) to facilitate the preparation of an EIS when one is necessary.
- 3.9 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 public review and comment, followed by a Record of Decision (ROD).
- 3.10 Finding of No Significant Impact (FONSI) - A document by a Federal agency that briefly presents the reasons why an action, not otherwise excluded, will not have a significant impact on the human environment and therefore will not require an EIS.
- 3.11 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 resource (including air and water), aesthetic, historic, cultural, economic, social or health whether adverse, beneficial, direct, indirect or cumulative.
- 3.12 Initiator - Any manager, supervisor, or engineer responsible for an FEMP project/activity.
- 3.13 Monitoring - The process by which the NEPA 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.

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3.0 DEFINITIONS (cont.)

- 3.14 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.
- 3.15 NEPA Documents - A CATEX, ADM, EA, FONSI, EIS, ROD, Mini-EA, NOI, or any documentation prepared pursuant to a requirement of NEPA, the 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.
- 3.16 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.
- 3.17 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.
- 3.18 Record of Decision (ROD) - A document containing a concise public record of the DOE's decision on a proposed action for which an EIS was prepared. It includes the alternatives considered, the environmentally preferable alternative, factors weighed in the decision, mitigation measures taken, and monitoring to minimize harm. The ROD should also state whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not.
- 3.19 Remedial Investigation/Feasibility Study (RI/FS) - "RI" means the investigation conducted to fully determine the nature and extent of the release or threat of release of hazardous substances, pollutants, contaminants, or hazardous constituents and to gather necessary data to support the feasibility study and the endangerment assessment. "FS" means the study that fully evaluates and develops remedial action alternatives to prevent or mitigate the migration or release of hazardous substances, pollutants, contaminants, or hazardous constituents at and from the site.
- 3.20 Resource Conservation and Recovery Act (RCRA) - The federal statute governing the treatment, storage, shipment, and disposal of hazardous waste and the facilities where such wastes have been treated, stored, or disposed.

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### 3.0 DEFINITIONS (cont.)

- 3.21 RCRA Closure - The manner in which a facility is closed that minimizes the need for further maintenance and controls, minimizes, or eliminates, to the extent necessary, the release or threat of release to the environment.
- 3.22 Significant - This term as used in NEPA requires considerations of both context and intensity. Context means the significance of an action must be analyzed in several ways such as society as a whole (human, national), the affected region, the affected interests and the locality. Intensity refers to the severity of impact on the environment (human or other, i.e., wetlands, floodplains, endangered or threatened species, etc.).
- 3.23 Tracking System - The process by which the NEPA Group follows the activities of each facility project. Tracking identifies where the project stands, at any point in time, relative to the document review, comment, and approval cycle.

### 4.0 RESPONSIBILITIES

- 4.1 The Environmental Quality Assurance Group within Environmental Compliance and Quality Assurance (EC&QA) Department shall be responsible for conducting compliance reviews of DOE Directives and NEPA procedures and auditing the NEPA Program.
- 4.2 The Initiator shall be responsible for transmitting a request for NEPA evaluation to the NEPA Group for any project/activity and assisting in the preparation and revision of NEPA documents.
- 4.3 The NEPA Coordinator shall be responsible for implementing and maintaining the NEPA program at the FEMP which includes the preparation and update of NEPA documents and NEPA procedures, interfacing with DOE, monitoring projects addressed in NEPA documents for NEPA compliance, evaluating the NEPA document process, resolving audit findings, and providing NEPA training to affected FEMP employees.
- 4.4 The NEPA Manager shall be responsible for developing and managing the NEPA Program for the FEMP, interfacing with the DOE/FO on NEPA matters, coordinating the NEPA program consistent with the requirements stated in 1.0, and ensuring CERCLA Program meetings and Project Management & Acquisition Construction status meetings are attended.
- 4.5 Centralized Training shall provide NEPA training to employees/contractors as requested and/or arranged by the NEPA Manager/NEPA Coordinator.

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## 5.0 GENERAL

### 5.1 NEPA Purpose/Program Description

5.1.1 The purpose of NEPA, which is supervised by an executive oversight body called the Council on Environmental Quality is to ensure that all Federal Agencies (including DOE) consider environmental impacts in the planning and decision-making phases of their projects. The DOE is required to adopt procedures for determining the type of NEPA documentation required, the content of the documentation, and the review and approval cycle for that documentation.

5.1.2 The NEPA Program implements federal environmental regulations applicable to the FEMP through issued NEPA documents, project monitoring for NEPA compliance, NEPA document tracking system, auditing, and NEPA training.

### 5.2 NEPA Program Support to CERCLA and RCRA

5.2.1 The NEPA Program shall support the integration of the NEPA and CERCLA environmental laws.

5.2.1.1 The FEMP NEPA/CERCLA integration will be accomplished by combining the RI/FS process of CERCLA with the EIS process of NEPA and issuing a single set of documents, a RI/FS-EIS. The NEPA Group shall review the RI/FS-EIS in support of the CERCLA remedial action.

5.2.1.2 The FEMP NEPA/CERCLA integration is also implemented by WEMCO addressing NEPA implications for CERCLA removal actions.

5.2.2 The NEPA Program shall support the integration of NEPA and RCRA regulations. RCRA Closure Plans are being developed with NEPA applicability being considered for the site.

5.2.3 Refer to Site Plan FD-1003 for further information on NEPA integration with CERCLA and RCRA.

## 6.0 PROCEDURE

### 6.1 NEPA Document Process

#### INITIATOR

**NOTE:** The details of the NEPA document process (including initiation, preparation, tracking, review, and approval of a NEPA document) are provided in SSOP-0031.

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		SITE POLICY AND PROCEDURE Page 6 of 9
Title: NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) PROGRAM		DOCUMENT NO: PP-0518 REVISION NO. 0
Authorization: W. H. Britton, President	Supersedes: FMPC-518, Dated 5-7-90, Rev. 1	Issue Date: 10-1-91

6.0 PROCEDURE (cont.)

**INITIATOR**

6.1.1 For any project/action, submit a request for NEPA evaluation to NEPA Group per SSOP-0031.

**NEPA GROUP**

6.1.2 Determine a NEPA document is required.

6.1.3 Prepare required NEPA documents and route for review and approval per SSOP-0031.

6.2 Evaluating NEPA Document Process

**NEPA GROUP**

6.2.1 Prepare, evaluate, and transmit as necessary to DOE/FO charts and/or graphs presenting the time required for each step of the tracking system and evaluate document process for improvement.

6.2.2 Prepare a monthly summary report identifying the status of NEPA documents and transmit to DOE/FSO and WEMCO staff.

6.3 Monitoring Projects for NEPA Compliance

NOTE: The details of the NEPA monitoring system are provided in the EC&QA department procedure titled "NEPA Monitoring System".

**NEPA GROUP**

6.3.1 Identify commitments and potential environmental impacts of the approved NEPA document.

6.3.2 Compare NEPA compliance with NEPA documentation.

6.3.3 Record project NEPA compliance or non-compliance with the environmental requirements of NEPA documentation.

6.3.4 Review project performance for cumulative effects.

**INITIATOR**

6.3.5 Respond/resolve non-compliance issues as applicable.

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## 6.0 PROCEDURE (cont.)

### 6.4 Auditing NEPA Process

#### ENVIRONMENTAL QA

6.4.1 Perform quarterly audits of the NEPA process per the QA Program.

#### NEPA GROUP

6.4.2 Resolve compliance issues and closeout commitments presented from audit results.

### 6.5 Training

#### NEPA GROUP

6.5.1 Provide a NEPA Interactive Training Program to the Training Department and updates to program as applicable.

6.5.2 Conduct or provide classroom NEPA training for site personnel.

#### TRAINING

6.5.3 Coordinate NEPA training as specified by NEPA Group for site personnel.

## 7.0 APPLICABLE DOCUMENTS

### 7.1 Drivers

7.1.1 DOE Order 5440.1D, "Implementation of the National Environmental Policy Act"

7.1.2 National Environmental Policy Act; 42 U.S.C.4321 et. seq./Council on Environmental Quality Regulations, 40 CFR 1500 - 1508

7.1.3 Secretary of Energy Notice SEN 15-90 "National Environmental Policy Act"

7.1.4 DOE NEPA Compliance Guide, October 1988

7.1.5 DOE Orders and Memorandums (NEPA related)

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7.0 APPLICABLE DOCUMENTS (cont.)

7.2 Reference Documents

7.2.1 SSOP-0031, "National Environmental Policy Act (NEPA) Document Process"

7.2.2 FD-1003, "National Environmental Policy Act Compliance Plan"

8.0 APPLICABLE FORMS

None

9.0 ATTACHMENTS

None

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
10-1-91	0	Procedure required for National Environmental Policy Act (NEPA) Program per Request No. P91-267, initiated by D. L. Rathgens.

FEMP WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		DEPARTMENT PROCEDURE Page 1 of 6 Revision No. 0	
SITE SERVICES PROCEDURE	PREPARATION AND IMPLEMENTATION OF WORK PACKAGE		PO-D-028
	DEPARTMENT PROCEDURE		
Authorization: <i>[Signature]</i> S. J. Dechter, Site Services <i>REC S.T.D</i>		Supercedes: None	Issue Date: 12/30/91

## 1.0 PURPOSE

The purpose of this procedure is to define the requirements for preparation of a work package for non-routine field activities conducted by Site Services personnel that is not identified by existing Site or Site Services Procedures.

## 2.0 SCOPE

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.

## 3.0 RESPONSIBILITIES

- 3.1 The Manager of Site Services Facilities Projects, Area Supervisor or designee shall be responsible for planning, preparation, and implementation of the work package.

## 4.0 DEFINITIONS

- 4.1 Non-routine Field Activity - A task required of Site Services personnel that is not identified by existing Site or Site Services Procedures.
- 4.2 Work Package - A compilation of requirements and procedures required to perform non-routine activities.
- 4.3 Critical Step - A procedure step that impacts worker health and safety, could have adverse effects on the environment and may involve laws and regulations.

## 5.0 REFERENCES

None

## 6.0 PROCEDURE

- 6.1 The preparer shall complete the "SITE SERVICES WORK PACKAGE CHECKLIST" (See Figure 1).
- 6.2 The preparer shall complete the work package including the following required sections and the identified checklist elements:
- 6.2.1 Introduction - Includes the location of the activity and background information.

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6.0 PROCEDURE (cont.)

- 6.2.2 Purpose - Describes the objectives of the activity.
- 6.2.3 Description of Non-routine Activity - Summarizes the task to be completed.
- 6.2.4 Responsibilities - Identifies the Site Services personnel responsible for the activity.
- 6.2.5 Applicable Procedures - Lists any applicable existing Site or Site Services Procedures.
- 6.2.6 Activity Procedure - Includes the procedure steps and Site Services personnel responsible for completing the activity.
- A sign-off line shall be included for critical steps. The Area Supervisor shall sign on this line when the task is completed. If an existing procedure is performed as part of the activity, the Site Services Supervisor shall sign on the sign-off line when the procedure is completed.
- 6.2.7 Work Permits Required - Lists the work, burn, or radiation work permits required. Also a line by each permit shall be included for the actual date the permit is obtained and signed by Site Services Supervisor or designee.
- 6.2.8 Safety Documentation - This section includes any safety items required by a Safety Assessment, Specific Health and Safety Plan, Risk Assessment Report, and/or Risk Management Plan. An Operational Readiness Review, if required, shall be noted in this section.
- 6.2.9 Special Equipment - Lists equipment required for this activity.
- 6.2.10 Shipping Orders and Purchases - Lists equipment is to be purchased or shipped off-site.
- 6.2.11 Training - Identifies additional training for the activity not required by Site requirements.

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## 6.0 PROCEDURE (cont.)

6.2.12 Compliance Documentation - Describes documents required for compliance with permits, RCRA, TSCA, CERCLA, DOT, or NEPA, if applicable. This section shall also include a sampling plan or Removal Site Evaluation (RSE) if required.

6.2.13 Schedule - Describes the estimated time for the activity and if the activity will require more than one shift coverage.

6.3 The work package shall be reviewed by Industrial, Radiological, Safety, and Training (IRS&T) and Environmental Compliance/Quality Assurance (EC/QA).

6.4 The work package shall be reviewed and approved by the Area Supervisor, Manager of Site Services Facilities Projects, and the Facility Owner.

6.5 The non routine field activity work shall be completed using the work package.

## 7.0 APPLICABLE FORMS

7.1 None

## 8.0 FIGURES

8.1 Figure 1, "Site Services Work Package Checklist."

SITE  
 SERVICES  
 PROCEDURE

PREPARATION AND IMPLEMENTATION OF WORK PACKAGE

PO-D-028

DEPARTMENT PROCEDURE

Authorization:  
 S. J. Dechter, Site Services

Supersedes:  
 None

Issue  
 Date: 12/30/91

Item	Work Package Elements	Required	Not Required
1.	Existing Site or Site Services Procedures		
	1.		
	2.		
	3.		
	4.		
	5.		
2.	Permits Required		
	1. Radiation Worker		
	2. Burn or Weld		
	3. Confined Space		
	4.		
	5.		
3.	Safety Documentation		
	1. Safety Assessment		
	2. Specific Health and Safety Plan		
	3. Operational Readiness Review		
	4. Risk Assessment Report		
	5. Risk Management Plan		
	6.		
	7.		
	8.		
4.	Special Equipment		
	1.		
	2.		
	3.		

Site Services Work Package Checklist  
 Figure 1 (Sheet 1 of 2)

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Item	Work Package Elements	Required	Not Required
5.	Purchases and Shipping Orders		
	1. Purchase Orders/Requisitions		
	a.		
	b.		
	c.		
	2. Shipping Requirements		
	a.		
	b.		
	c.		
6.	Training Plan		
7.	Sampling Plan		
8.	Removal Site Evaluation		
9.	Compliance Documentation		
	1. RCRA		
	2. TSCA		
	3. CERCLA		
	4. DOT		
	5. NEPA		
	6.		
	7.		

Prepared by: \_\_\_\_\_ Date: \_\_\_\_\_

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RECORD OF ISSUE/REVISIONS

<u>Date</u>	<u>REV. NO.</u>	<u>DESCRIPTION AND AUTHORITY</u>
12-30-91	0	Procedure required for preparation and completion of work using a work package, per Request No. P92-010, initiated by D. A. Palmer.

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		SITE STANDARD OPERATING PROCEDURE Page 1 of 29
Title: PACKAGING LOW LEVEL RADIOACTIVE WASTE (LLRW) FOR OFFSITE DISPOSAL		DOCUMENT NO: SSOP-0024 REVISION NO. 0
Authorization: (SOF) W. H. Britton, President	Supersedes: SOP 20-C-601, Dated 7-12-90, Rev. 1	Issue Date: 10-14-91

### 1.0 PURPOSE

This document provides the procedure for packaging low level radioactive waste (LLRW) for offsite disposal.

### 2.0 APPLICABILITY

This procedure is applicable to the packaging methods required for shipping LLRW off site at packaging areas.

### 3.0 RESPONSIBILITIES

3.1 The waste generator/packager shall be responsible for complying with this procedure.

3.2 The supervisor of the waste generation area or packager shall be responsible for the following:

3.2.1 Specifying applicable scale check procedures and standard tare weight of packages.

3.2.2 Ensuring packaging materials are available for operators.

3.2.3 Ensuring that trained personnel package waste material.

3.2.4 Determining disposition of material identified in this procedure.

3.2.5 Ensuring that personnel package waste for shipment to meet applicable NTS, DOT, and EPA regulations.

3.2.6 Contacting Industrial Hygiene or Radiological Safety to determine the appropriate respiratory protection for the process being performed.

3.2.7 Providing operators with the required respiratory protection.

3.2.8 Ensuring the lid on an unfilled waste container is secured when no packaging is occurring to prevent additions of unknown materials.

3.2.9 Ensuring waste packages are weather-protected before, during, and after use to prevent moisture build-up.

3.2.10 Contacting Radiological Safety prior to opening any drum of radioactive or unknown material.

3.2.11 Contacting Industrial Hygiene prior to opening any container suspected of containing asbestos.

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### 3.0 RESPONSIBILITIES (cont.)

- 3.3 Traffic shall be responsible for specifying the required waste container, transporting packaged waste to the applicable storage area, and weighing sea/land containers.
- 3.4 Materials Control and Accountability (MC&A) shall be responsible for completing a tally sheet for drums of non-RCRA wet and dried residues.

### 4.0 DEFINITIONS

- 4.1 Low Level Radioactive Waste (LLRW) - Waste that contains radioactivity and is not classified as high level waste, transuranic waste, or spent nuclear fuel or 11e(2) byproduct material as defined by DOE Order 5820.2A. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentration of transuranic is less than 100 n Ci/g.
- 4.2 Waste Generator - Organization (point of generation) at which waste is originated.
- 4.3 Overpack - A container into which one or more smaller containers are placed.
- 4.4 Waste Container - A container which meets DOT requirements and NTS acceptance criteria.
- 4.5 RCRA (Resource Conservation and Recovery Act) - 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 wastes.
- 4.6 Respirable Fines - Particulates and vapors capable of being inhaled.

### 5.0 GENERAL

- 5.1 The waste generator/packager shall package waste material in a container specified for disposal by Traffic.
- 5.2 Stencilling shall be 1-1/2 inch (minimum) legible block letters using waterproof ink/paint unless otherwise specified.



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## 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.
- 6.3 Respiratory protection provided by the supervisor shall be worn when required.
- 6.4 Leather-palm gloves shall be worn when handling drums/boxes/ containers, operating equipment, and when handling rough, sharp-edged, or contaminated material.
- 6.5 HEPA type filter vacuum cleaners or a vacuum system approved by IRS&T with a current DOP test label properly affixed to vacuum shall be used for cleaning.
- 6.6 Only trained personnel shall handle asbestos-containing materials.
- 6.7 Adequate ventilation must be provided when using silicone adhesive sealant.
- 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 IRS&T 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.

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**NOTE:** WARNINGS, CAUTIONS, and NOTES precede the step/item to which they apply.

## 7.0 PROCEDURE

**WARNING:** A RADIOLOGICAL SAFETY TECHNICIAN SHALL BE PRESENT PRIOR TO OPENING ANY CONTAINER OF UNKNOWN RADIOACTIVE MATERIAL.

**WARNING:** AN INDUSTRIAL HYGIENE REPRESENTATIVE SHALL BE PRESENT PRIOR TO OPENING ANY DRUM SUSPECTED OF CONTAINING ASBESTOS.

**CAUTION:** PRIOR TO PERFORMING THE PACKAGING OPERATION, EACH CONTAINER SHALL BE INSPECTED BY THE WASTE GENERATOR/PACKAGER TO ENSURE THE CONTAINER IS EMPTY.

**NOTE:** Items 7.1 through 7.3 shall be performed prior to the packaging of any waste.

### 7.1 Prohibited Material Check

#### WASTE GENERATOR/PACKAGER

7.1.1 Check that a "Prohibited Materials List" (Figure 1) is displayed in the loading area or on the container.

7.1.1.1 If the list is not posted, notify the supervisor.

#### WASTE GENERATOR AND QUALITY ASSURANCE

7.1.2 Ensure the waste to be packaged is not on the "Prohibited Materials List".

7.1.2.1 If the waste is listed on the "Prohibited Materials List", do not package this waste. Notify the supervisor for disposition.

#### SUPERVISOR

7.1.2.2 Dispose of the waste on a case by case basis.

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## 7.0 PROCEDURE (cont.)

### 7.2 Waste Characterization

#### WASTE GENERATOR/PACKAGER

7.2.1 Ensure a Material Evaluation Form (MEF), FMPC-OPR-3252 has been completed determining the material as RCRA/Non-RCRA and additional documentation from Environmental Compliance is provided specifying evaluation results for LLRW.

**NOTE:** A sample of the waste for TCLP may be required as requested by Operable Unit 3 (OU3) Compliance.

7.2.1.1 If an MEF has not been generated, obtain a numbered MEF from Waste Management Records and initiate a "Material Evaluation" per SSOP-0002.

**NOTE:** RCRA waste shall not be shipped.

7.2.1.2 If the waste is determined to be RCRA, notify the supervisor for disposition.

7.2.1.3 If the waste is determined to be non-RCRA, proceed to 7.2.2.

7.2.2 If notified by the supervisor a sample is required for major radionuclides and other suspected nuclides, obtain a sample of the waste per SOP 1-C-101.

### 7.3 Waste Inspection

#### WASTE GENERATOR/PACKAGER

7.3.1 Check waste for free liquid.

7.3.1.1 If free liquid is present which exceeds 0.5% of the material volume, notify supervisor.

7.3.1.2 If free liquid exists which does not exceed 0.5% of the material volume, proceed to the applicable packaging section of this SSOP.

7.3.2 When weather drops below 32°F, carefully inspect waste for ice.

7.3.2.1 If ice is present in waste, notify supervisor.

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## 7.0 PROCEDURE (cont.)

### 7.4 Filling 55 and 85 Gallon Drums

#### WASTE GENERATOR/PACKAGER

7.4.1 Inspect the empty drum for damage, such as corrosion, dents, holes or other defects (Refer to Tables 1 and 2).

7.4.1.1 If damaged, mark the lids or side of the damaged drums with a red "X" and refer to Tables 1 and 2 for corrective action, as applicable.

7.4.2 Stencil on the drum the lot and drum number in accordance with the FEMP Lot Marking and Color-Coding System, RM-0005 or apply designated preprinted label (See Figure 2).

7.4.3 Weigh the empty drum per substeps 7.4.3.1 through 7.4.3.5.

#### SUPERVISOR

7.4.3.1 Specify the scale and the method of transporting the drum to the scale.

#### WASTE GENERATOR/PACKAGER

**NOTE:** The scale shall be inspected and operated in accordance with the SOP applicable to the area.

7.4.3.2 Inspect the scale to be used.

7.4.3.3 Move the drum on to the scale.

7.4.3.4 Obtain the tare weight.

7.4.3.5 Remove the drum from the scale and move to the loading area.

7.4.4 Stencil the tare weight on the drum (See Figure 2).

7.4.5 Record the data from the drum on to "Item Production/Certification/Identification" XX Card, Form FMPC-CONT-1945-XX.

Page 1 of 1

FEMP  
SITE DOCUMENT SYSTEM

SDC No. SC92-006

Effective Date: 04-29-92

Expiration Date: 10-29-92

## SITE DOCUMENT CHANGE

1. AFFECTED DOCUMENT NUMBER  
SSOP-0024

2. AFFECTED DOCUMENT PAGE NUMBER  
7

3. TITLE OR SUBJECT:  
Packaging Low Level Radioactive Waste (LLRW) for Offsite Disposal

4. OPERATION AND AREA AFFECTED:  
Waste Packaging/Disposal

5. SAFETY SYSTEM INVOLVED:      YES      NO  
        

6. APPROVAL:      S. J. Dechter

DEPARTMENT:      Site Services

7. CHANGE:

1) Step 7.4.13 is revised to read as follows:

7.4.13 If the drum contains fine particulates, overpack per SOP 20-C-600.

8. DOCUMENTATION CONTROL REQUIRED DOCUMENT ACTION

[ ] No Procedure Action

[X] Revise affected procedure/specification  
per this document.

FILING INSTRUCTIONS: File facing page 7, Document No. SSOP-0024  
(Effective Date: 10-14-91, Revision No. 0)

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7.0 PROCEDURE (cont.)

## WASTE GENERATOR/PACKAGER

7.4.6 Remove the drum lock ring and lid.

**CAUTION:** DO NOT FILL THE DRUM ABOVE THREE INCHES FROM THE TOP.**NOTE:** Because density varies according to material type, the volume of material to be packed will vary.

7.4.7 By estimation, fill the 55 gallon drum to a maximum of 1,200 pounds (plus tare weight) and the 85 gallon drum to 1,000 pound maximum (plus tare weight).

7.4.8 Place a lid on the drum.

7.4.9 Secure the drum lid by installing a bolt-type lock ring and tighten the bolt.

7.4.10 Weigh drum per Item 7.5.

7.4.11 Mark the drum with the gross weight and net weight using two inch (minimum) letters.

## WASTE GENERATOR/PACKAGER

7.4.12 Complete the "Item Production/Certification/Identification" XX Card, Form FMPC-CONT-1945-XX by entering the gross and net weights and transmit card to MC&amp;A.

7.4.13 If the drum contains respirable fines, overpack per SOP 20-C-600.

7.4.14 Using the hoist/crane and barrel grab or equipment specified by supervisor, place the drum with bolt of lock ring facing outward on a pallet.

## TRAFFIC

7.4.15 Strap the drum(s) and move the pallet(s) to the storage area designated by the supervisor.

## WASTE GENERATOR/PACKAGER

7.4.16 When the operation is complete and all pallets are stored, notify the supervisor that the drums are ready to be moved to the designated waste staging area.

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7.0 PROCEDURE (cont.)

7.5 Weighing Singlepack/Overpack Drums

SUPERVISOR

7.5.1 Specify the scale and the method of transporting the drum.

WASTE GENERATOR/PACKAGER

NOTE: The scale shall be inspected and operated in accordance with the SOP applicable to the area.

7.5.2 If not already completed, inspect the scale to be used as specified by the supervisor.

7.5.3 Notify supervisor the drum is ready to be moved to scale.

SUPERVISOR

7.5.4 As applicable, notify Traffic that a Motor Vehicle Operator (MVO) is required.

MVO/PACKAGER

7.5.5 Move the drum onto the scale.

WASTE GENERATOR/PACKAGER

7.5.6 Obtain the gross weight of the drum.

WARNING: MAXIMUM WEIGHT OF DRUMS SHALL BE 700 POUNDS FOR A 30 GALLON OVERPACK AND 1,200 POUNDS FOR 55 GALLON OVERPACKS, 55 GALLON SINGLEPACKS, AND 85 GALLON OVERPACKS. MAXIMUM WEIGHT OF 85 GALLON SINGLEPACKS SHALL BE 1,000 POUNDS.

7.5.7 If the drum is over the specified weight limit, proceed as follows:

7.5.7.1 Remove lock ring(s) and lid(s) from the drums.

NOTE: The removed material may be included in an underweight drum of the same lot or packaged in another drum of the same lot.

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FEMP  
SITE DOCUMENT SYSTEM

SDC No. SC92-007
Effective Date: 04-29-92
Expiration Date: 10-29-92

# SITE DOCUMENT CHANGE

1. AFFECTED DOCUMENT NUMBER SSOP-0024	2. AFFECTED DOCUMENT PAGE NUMBER 9
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3. TITLE OR SUBJECT:  
Packaging Low Level Radioactive Waste (LLRW) for Offsite Disposal

4. OPERATION AND AREA AFFECTED:  
Waste Packaging/Disposal

5. SAFETY SYSTEM INVOLVED:      YES      NO  
        

6. APPROVAL:      S. J. Dechter      *[Signature]*      DEPARTMENT:      Site Services

7. CHANGE:

1) Step 7.5.9 is revised to read as follows:

7.5.9 If the drum contains fine particulates, install lever lock ring or bolt with a wire seal, record the seal number and date on Form FMPC-CONT-1945-XX, and overpack per SOP 20-C-600.

8. DOCUMENTATION CONTROL REQUIRED DOCUMENT ACTION

[ ] No Procedure Action

[X] Revise affected procedure/specification per this document.

*[Signature]*

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		SITE STANDARD OPERATING PROCEDURE Page 9 of 29
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Authorization: W. H. Britton, President	Supersedes: SOP 20-C-601, Dated 7-12-90, Rev. 1	Issue Date: 10-14-91

7.0 PROCEDURE (cont.)

## WASTE GENERATOR/PACKAGER

7.5.7.2 Remove material from the drum until the drum is within limit. Place the removed material in an approved container.

7.5.7.3 Place lid securely on the drum.

## MVO/PACKAGER

7.5.8 Remove the drum from the scale.

## WASTE GENERATOR/PACKAGER

7.5.9 If the drum contains respirable fines, install lever lock ring or bolt with a wire seal, record the seal number and date on Form FMPC-CONT-1945-XX, and overpack per SOP 20-C-600.

7.6 Filling Metal Boxes With Loose Material

## WASTE GENERATOR/PACKAGER

7.6.1 Visually inspect boxes for rust, dents, or holes, including the bottom per Tables 1 and 2.

7.6.1.1 If damaged, mark side of box with a red "X" and complete corrective action per Tables 1 and 2.

7.6.2 If the bottom of the box has a drain plug, ensure plug is securely in place.

## SUPERVISOR

7.6.3 Specify the scale and the method of transporting the box.

## WASTE GENERATOR/PACKAGER

7.6.4 Move the empty metal box to the staging area.

7.6.5 Remove banding and cardboard packing material from the metal box and place in a designated container.

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7.0 PROCEDURE (cont.)

WASTE GENERATOR/PACKAGER

7.6.6 Tare weigh each twentieth box to verify standard tare weight as follows:

NOTE: The scale shall be inspected and operated in accordance with the SOP applicable to the area.

7.6.6.1 If scale to be used as specified by the supervisor has not been checked, inspect scale.

7.6.6.2 Place box on the scale, obtain tare weight.

7.6.7 Record the weight on a "Box Tare Weight Check", Form FMPC-PRO-2867.

7.6.8 Remove box from the scale.

7.6.9 Remove lid and place in a designated location to prevent damage.

7.6.10 Add one fifty-pound bag of uncalcined diatomaceous earth spread evenly or sheets of wet-strength polypropylene pulp, super-absorbent fabric in the bottom of the box.

7.6.11 Place a clean, used skid over dicalite or fabric in the bottom of the box.

CAUTION: MATERIAL SHALL NOT BE LOADED IN BOX ABOVE THREE INCHES FROM THE TOP.

7.6.12 Load loose materials in box as tightly as possible.

7.6.13 When box is full, place lid on box and notify supervisor box is loaded.

SUPERVISOR

7.6.14 Specify the scale to be used and the method of transporting the box to the scale.

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## 7.0 PROCEDURE (cont.)

### WASTE GENERATOR/PACKAGER

**NOTE:** The scale shall be inspected and operated in accordance with the applicable scale procedure for the area of the packaging operation.

- 7.6.15 If not already completed, perform scale check according to the applicable SOP in the area of the packaging operation.
- 7.6.16 Move the box on to the scale.
- 7.6.17 Weigh the box including box pins and other hardware to ensure gross weight does not exceed 6000 lbs.
- 7.6.18 Remove the box from the scale.
- 7.6.19 Mark the side of the box with the gross weight and content description in 1-1/2 inch (minimum) block letters (See Figure 4).
- 7.6.20 Affix a Hazardous Waste Label (See Figure 3) on the box as shown in Figure 4.
- 7.6.21 Notify QA the box is ready for certification.

### QUALITY ASSURANCE

- 7.6.22 Certify the box per applicable department procedures.
  - 7.6.22.1 If the box does not meet certification requirements, complete a DCAR per SSOP-0023, tag the box for correction, and notify the generator.

### WASTE GENERATOR/PACKAGER

- 7.6.23 Fill out an "Item Production/Certification/Identification card, Form FMPC-CONT-1945-XX, including standard tare weight specified by the supervisor, and the content description and transmit to MC&A.
- 7.6.24 Using fabric strapping or closure bolts, secure lid on the box for interplant shipment.
- 7.6.25 Notify the supervisor that boxes are ready to be moved to the Waste Management staging area.

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Authorization: W. H. Britton, President	Supersedes: SOP 20-C-601, Dated 7-12-90, Rev. 1	Issue Date: 10-14-91

7.0 PROCEDURE (cont.)

7.7 Loading Drums in Metal Boxes

WASTE GENERATOR/PACKAGER

- 7.7.1 Prior to completing Item 7.7, proceed to 7.10 or 7.11 (as applicable) for drum inspection.
- 7.7.2 Visually inspect boxes for corrosion, holes, or dents per Tables 1 and 2.
  - 7.7.2.1 If damage is found, mark side of box with a red "X" and complete corrective action per Tables 1 and 2.
- 7.7.3 Place empty metal box in staging area.
- 7.7.4 Remove the banding and cardboard packing material from box and place in designated container.
- 7.7.5 Tare weigh each twentieth box per 7.6.6.1 through 7.6.6.2.
- 7.7.6 Record the weight on a "Box Tare Weight Check", Form FMPC-PRO-2867.
- 7.7.7 Remove lid from metal boxes.
- 7.7.8 Add a 50 lb bag of uncalcined diatomaceous earth or sheet(s) of wet-strength polypropylene pulp, super-absorbent fabric to the floor of the box.
- 7.7.9 Using a forklift, move box to a designated location to prevent damage.
- 7.7.10 Check drums to ensure that lever lock rings are closed.
  - 7.7.10.1 If the drum contains respirable fines, install wire seal through lever lock ring.
- 7.7.11 Complete an "Item Production/Certification/Identification Card", Form FMPC-CONT-1945-XX per drum and insert the drum lot number and tare weight on the card and transmit to MC&A.

NOTE: Inspect and operate the hoist/crane in accordance with the applicable SOP for the area.

284 7.12 Ensure that the hoist/crane to be used has been inspected.

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FEMP  
SITE DOCUMENT SYSTEM

SDC No. SC92-008

Effective Date: 04-29-92

Expiration Date: 10-29-92

## SITE DOCUMENT CHANGE

1. AFFECTED DOCUMENT NUMBER  
SSOP-0024

2. AFFECTED DOCUMENT PAGE NUMBER  
12

3. TITLE OR SUBJECT:  
Packaging Low Level Radioactive Waste (LLRW) for Offsite Disposal

4. OPERATION AND AREA AFFECTED:  
Waste Packaging/Disposal

5. SAFETY SYSTEM INVOLVED:      YES      NO  
        

6. APPROVAL:      S. J. Dechter      *S. J. Dechter*

DEPARTMENT:      Site Services

CHANGE:

1) Step 7.7.10.1 is revised to read as follows:

7.7.10.1      If the drum contains fine particulates, install wire seal through lever lock ring.

8.      DOCUMENTATION CONTROL REQUIRED DOCUMENT ACTION

- [ ] No Procedure Action
- [X] Revise affected procedure/specification per this document.

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7.0 PROCEDURE (cont.)

## WASTE GENERATOR/PACKAGER

7.7.13 Place barrel grab over drum.

7.7.14 Attach the lifting device specified by the supervisor on each side of the drum ring.

7.7.15 Position drum over the top of the box.

7.7.16 Lower drum into box and remove the lifting device.

**CAUTION: DO NOT EXCEED A MAXIMUM GROSS WEIGHT OF 6,000 POUNDS.**

7.7.17 Ensuring the weight does not exceed 6,000 pounds, repeat steps 7.7.1 through 7.7.16 until enough drums are loaded to fill a box.

7.7.18 When the box is filled, add a fifty-pound bag of uncalcined diatomaceous earth or sheets of wet-strength polypropylene pulp, super-absorbent fabric to the top of drums if condensation/frost is present or could develop on exterior of drums.

7.7.19 Place the lid on the box.

7.7.20 Obtain tabulated tare weight of box and contents. Record the tabulated tare box weight, contents, and gross weight on the FMPC-CONT-1945 card.

7.7.21 Stencil on the box the shipment log number, box identification, and gross weight (See Figure 4).

7.7.22 Affix a Hazardous Material Warning Label (See Figure 3) as shown in Figure 4.

7.7.23 Notify QA the box is ready for certification.

## QUALITY ASSURANCE

7.7.24 Certify the box per the applicable department procedure.

7.7.24.1 If the box is not certified, complete a DCAR per SSOP-0023, tag the box for correction, and notify the generator.

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## 7.0 PROCEDURE (cont.)

### WASTE GENERATOR/PACKAGER

7.7.25 Using fabric strapping, secure lid on the box for interplant shipment.

7.7.26 Notify the supervisor that boxes are ready to be moved to the Waste Management staging area.

## 7.8 Loading Asbestos in Boxes

### WASTE GENERATOR/PACKAGER

**WARNING: ONLY CERTIFIED PERSONNEL SHALL HANDLE AND LOAD ASBESTOS-CONTAINING MATERIAL.**

7.8.1 Visually inspect boxes for rust, holes, or dents.

7.8.1.1 If damage is found, mark the side of the box with a red "X".

7.8.1.2 Notify the supervisor of damaged box condition and request instructions.

7.8.1.3 Move damaged boxes to designated area.

7.8.2 Move the empty box to the staging area.

7.8.3 Remove banding and cardboard packing material and place in a designated container.

7.8.4 Tare weigh each twentieth box per 7.6.6.1 through 7.6.6.2.

7.8.5 Record the weight on a "Box Tare Weight Check", Form FMPC-PRO-2867.

7.8.6 Remove and place box lid in a designated location to prevent damage.

7.8.7 Stencil lot number per FEMP Lot Marking and Color Coding System or content description on the box (See Figure 4).

7.8.8 Affix a Hazardous Material Warning Label (See Figure 3) to box in location shown in Figure 4.

7.8.9 Add a minimum of one fifty-pound bag of uncalcined diatomaceous earth spread evenly in the bottom of the box.

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7.0 PROCEDURE (cont.)

## WASTE GENERATOR/PACKAGER

- 7.8.10 Adhere "Danger-Asbestos" stickers on two sides and lid of box.
- 7.8.11 Check to ensure that asbestos is double-bagged in labeled asbestos disposal bags.
- 7.8.12 Load asbestos in box ensuring not to exceed maximum gross weight.
- CAUTION: DO NOT EXCEED MAXIMUM GROSS WEIGHT OF 6,000 POUNDS FOR METAL BOXES/5,000 POUNDS FOR WOODEN BOXES.**
- 7.8.13 Place lid on the box.
- 7.8.14 Using fabric strapping, secure lid on the box for interplant shipment.
- 7.8.15 Perform scale check per the applicable SOP in the area of the packaging operation.
- 7.8.16 As directed by the supervisor, move box to scale.
- 7.8.17 Weigh the box.
- 7.8.18 Fill out an "Item Production/Certification/Identification" card, Form FMPC-CONT-1945-XX and transmit to MC&A.
- 7.8.19 Notify the supervisor that boxes are ready to be moved to the Waste Management staging area.

7.9 Packaging Material into Sea/Land Containers

## WASTE GENERATOR/PACKAGER

**NOTE:** Do not place containers directly on ground.

- 7.9.1 Check the container for damage such as structurally affecting dents, stress cracks, flaking paint, rust, holes, and water leaks.
- 7.9.1.1 If container is damaged, mark a red "X" on the side of the container, notify supervisor of damage and request disposition of damaged container. Move unacceptable container to area designated by Waste Shipping.

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- 8NA 7.9.1.2 If the container is free from damage, proceed to 7.9.2.

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## 7.0 PROCEDURE (cont.)

### WASTE GENERATOR/PACKAGER

- 7.9.2 Notify Waste Shipping that the container is ready for shipping preparation.
- 7.9.3 Attach a Prohibited Materials List (See Figure 1) to the container in a visible location.

**WARNING: VAPOR FROM SILICONE ADHESIVE IS HAZARDOUS.**

**NOTE:** Adhesive shall be applied to the farthest inside section first and outward from container to minimize inhalation of vapor.

**NOTE:** The bead of sealant shall be a minimum of 1/4 inch.

- 7.9.4 In a well ventilated area, apply a continuous bead of GE RTV SILICONE RUBBER ADHESIVE SEALANT, or equivalent, on all seams and corners of the container interior.
- 7.9.5 Check to ensure all vents are closed and sealed.
- 7.9.6 Line the container floor with wet-strength polypropylene/pulp super-absorbent fabric, blotter paper, or uncalcined diatomaceous earth.
- 7.9.7 Cover the absorbent fabric, blotter paper or uncalcined diatomaceous earth with a 0.006 inch thick plastic sheet that extends at least 36 inches up each side of the container.
- 7.9.8 Place plywood on the container floor and up to approximately four feet in height on all sides.
- 7.9.9 Remove all container outside markings not related to load (See Figure 5).

**CAUTION:** THE GROSS WEIGHT OF THE CONTAINER SHALL NOT EXCEED 42,000 LBS.

**CAUTION:** AN UNSEALED CONTAINER SHALL BE LOCKED OR TEMPORARILY SEALED WHEN NOT ATTENDED.

- 7.9.10 Load the container. Use all the space in the container.

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7.0 PROCEDURE (cont.)

## WASTE GENERATOR/PACKAGER

7.9.11 After the container has been filled, clean the back ledge of the container.

7.9.12 Add a roll of wet-strength polypropylene/pulp super absorbent fabric extending width of container on base of lid/door.

7.9.12.1 If moisture is still present, add additional uncalcined diatomaceous earth or sheets of wet-strength polypropylene, super-absorbent fabric as needed.

7.9.13 Shut the container doors.

7.9.14 Complete applicable sections of the "Item Production/Certification/Identification" card, Form FMPC-CONT-1945-XX and transmit to MC&A.

7.9.15 Notify the supervisor that sea/land containers are ready to be weighed.

## WASTE GENERATOR SUPERVISOR

7.9.16 Notify Traffic to transport containers to Waste Management staging area.

## TRAFFIC (HEAVY EQUIPMENT)

7.9.17 Move containers to Waste Management staging area per applicable department procedures.

7.9.18 Weigh the containers per applicable department procedure.

7.9.19 Deliver weigh ticket to Waste Shipping Coordinator.

7.10 Inspecting Drums Containing Non-RCRA Dried Residues

## WASTE GENERATOR/PACKAGER

7.10.1 For a drum not in an overpack, proceed to step 7.10.3.

7.10.2 For an overpacked drum, complete the following:

8AL 7.10.2.1 Inspect the hoist/crane to be used if not previously completed.

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7.0 PROCEDURE (cont.)

WASTE GENERATOR/PACKAGER

NOTE: The supervisor shall specify the hoist/crane to be used.

NOTE: Hoists/cranes shall be inspected and operated in accordance with the SOP applicable to the area.

7.10.2.2 Remove overpack lid.

7.10.2.3 Install a barrel grab over the drum in the overpack.

7.10.2.4 Attach the barrel grab to the hoist/crane, lift the drum from overpack, and lower on to the floor.

7.10.2.5 Remove barrel grab from the drum.

7.10.3 Notify MC&A the drum(s) are ready for inspection and re-packaging.

MC&A

7.10.4 Complete a MC&A tally sheet for the drum(s).

WASTE GENERATOR/PACKAGER

7.10.5 Remove lid from the drum and inspect drum interior for free-standing liquid.

7.10.5.1 If free-standing liquid is present at the top of the drum, pump liquid from the drum or drain the liquid from the drum using a drainage lid into the facilities sump system.

7.10.6 Replace lid on the drum.

7.10.7 Using a forklift, move drum to the scale specified by the supervisor.

7.10.7.1 If not already completed, perform scale check according to the applicable SOP in the area of the packaging operation.

NOTE: The scale shall be inspected and operated in accordance with the applicable scale procedure for the area of the packaging operation.

YAA

7.10.8 Weigh the drum and compare this weight to the weight stencilled on the drum.

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## 7.0 PROCEDURE (cont.)

### WASTE GENERATOR/PACKAGER

7.10.8.1 If the drum weighs more than the stencilled weight, remove drum lid and add one pound of Dicalite for every two pounds above the weight.

7.10.8.2 If the drum weighs less than the stenciled weight, proceed to 7.10.9.

7.10.9 Place lid on the drum and secure lever/lock rings onto the drum.

7.10.10 Using forklift, remove drum from scale and load drum into metal box per 7.7.

NOTE: A packager assigned to handle non-RCRA wet residues shall perform the procedural steps in the Plant 1 Mill Area.

## 7.11 Inspecting Drums Containing Non-RCRA Wet Residues

### SUPERVISOR

7.11.1 Contact Traffic to transport drum(s) to Plant 1 Mill Area for inspection.

### TRAFFIC

7.11.2 Deliver transport drum(s) to Plant 1 Mill Area per applicable department procedure.

### PACKAGER

7.11.3 After delivery of drums to Plant 1 Mill Area, notify MC&A the drum(s) are ready for inspection and re-packaging.

### MC&A

7.11.4 Complete a MC&A tally sheet for the drum(s).

### PACKAGER

7.11.5 Remove the lid from drum and inspect for free-standing liquid.

7.11.5.1 If the drum contains oil, use a forklift and move drum to designated area. Notify supervisor for disposition of drum 449

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## 7.0 PROCEDURE (cont.)

### PACKAGER

7.11.5.2 If the drum contains other free-standing liquids, complete steps 7.11.6 through 7.11.12.

7.11.5.3 If no free-standing liquid is present in the drum, proceed to 7.11.12.

7.11.6 Obtain a drainage lid and place on the drum.

7.11.7 Using forklift, rotate drum approximately at a 45 degree angle, drain liquid from drum into the Plant 1 Sump System until no liquid flows from drainage lid, and lower drum to floor.

7.11.8 Inspect and drain the remaining drums per steps 7.11.5 through 7.11.7.

7.11.9 After draining the drums, inspect each drum for damage.

7.11.9.1 If drum is damaged, complete 7.11.10 and then using a forklift, move damaged drum to holding area, as specified by supervisor, for disposal.

7.11.9.2 If drum is not damaged, proceed to 7.11.10.

7.11.10 Using a forklift, transfer the drained material into another drum of drained material filling the drum approximately six inches from the top.

**NOTE:** Steps 7.11.11 through 7.11.12 are applicable to filled and partially filled drums of drained material.

7.11.11 Add a minimum of one inch of dicalite to each drum.

7.11.12 Replace lid on the drum, close lever lock/bolt ring, and load the drum into a metal box per Item 7.8.

7.11.13 Using a forklift, move any empty drums to holding area for disposal.

## 8.0 REFERENCE DOCUMENTS

8.1 SSOP-0002, "Completing the Material Evaluation Form"

8.2 SSOP-0023, "Deviation and Corrective Action Reporting"

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## 8.0 REFERENCE DOCUMENTS (cont.)

8.3 RM-0005, "FEMP Lot Marking and Color-Coding System"

8.4 20-C-600, "Overpacking Defective Containers"

## 9.0 APPLICABLE FORMS

9.1 FMPC-CONT-1945-XX, "Item Production/Certification/Identification"

9.2 FMPC-PRO-2867, "Box Tare Weight Check"

9.3 FMPC-OPR-3252, "Material Evaluation"

## 10.0 FIGURES

10.1 Figure 1, "Prohibited Materials List"

10.2 Figure 2, Diagram of LLRW Drum Labeling

10.3 Figure 3, Diagram of Hazardous Waste Label

10.4 Figure 4, Diagram of Metal Box Identification

10.5 Figure 5, Diagram of Sea/Land Identification

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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.  <b>NOTE:</b> The drum requires disposition as directed by supervision within 24 hours.
B	Corrosion with shallow pitting and/or mild metal flaking		X	1. Proceed as directed by the supervisor.  <b>NOTE:</b> Disposition 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. Proceed as directed by the supervisor. Repainting shall be scheduled by supervisor.

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Authorization: W. H. Britton, President	Supersedes: SOP 20-C-601, Dated 7-12-90, Rev. 1	Issue Date: 10-14-91

TABLE 2  
LLRW CONTAINER INSPECTION

INSPECTION ITEM	INSPECTION CRITERIA	CORRECTIVE ACTION REQUIRED
Hole	An opening in the container including breach, gouge, puncture or leak.	Notify supervisor of condition and request disposition instructions.
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.	Notify supervisor of condition and request disposition instructions.
Bulge	A swollen area, a convex distortion, an outward bend which jeopardizes the integrity of the container.	Notify supervisor of condition and request disposition instructions.

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PACKAGING GUIDELINES  
FOR  
WASTE GENERATOR

PACKAGE HAS BEEN PROPERLY PREPARED FOR CLOSING:  
 NO LIQUIDS OF ANY KIND HAVE BEEN PLACED IN CONTAINER  
 HEAVY/BULKY ITEMS HAVE BEEN SECURED WITHIN CONTAINER  
 ALL AVAILABLE SPACE HAS BEEN UTILIZED EFFICIENTLY  
 PROHIBITED MATERIALS HAVE BEEN EXCLUDED (SEE BELOW)  
 PACKAGING HAS NOT BEEN DAMAGED DURING LOADING  
 LINER IS IN PLACE AND PROPERLY LAPPED AND SEALED

PROHIBITED MATERIALS

- COMPRESSED GASES  
(UNPUNCTURED AEROSOL CANS INCLUDED)
- EXPLOSIVES
- FREE LIQUIDS
- FINE PARTICULATES (RESPIRABLE FINES)
- HAZARDOUS WASTE  
(SUSPECT RCRA MATERIALS INCLUDED)
- CORROSIVE MATERIALS
- ETIOLOGIC AGENTS

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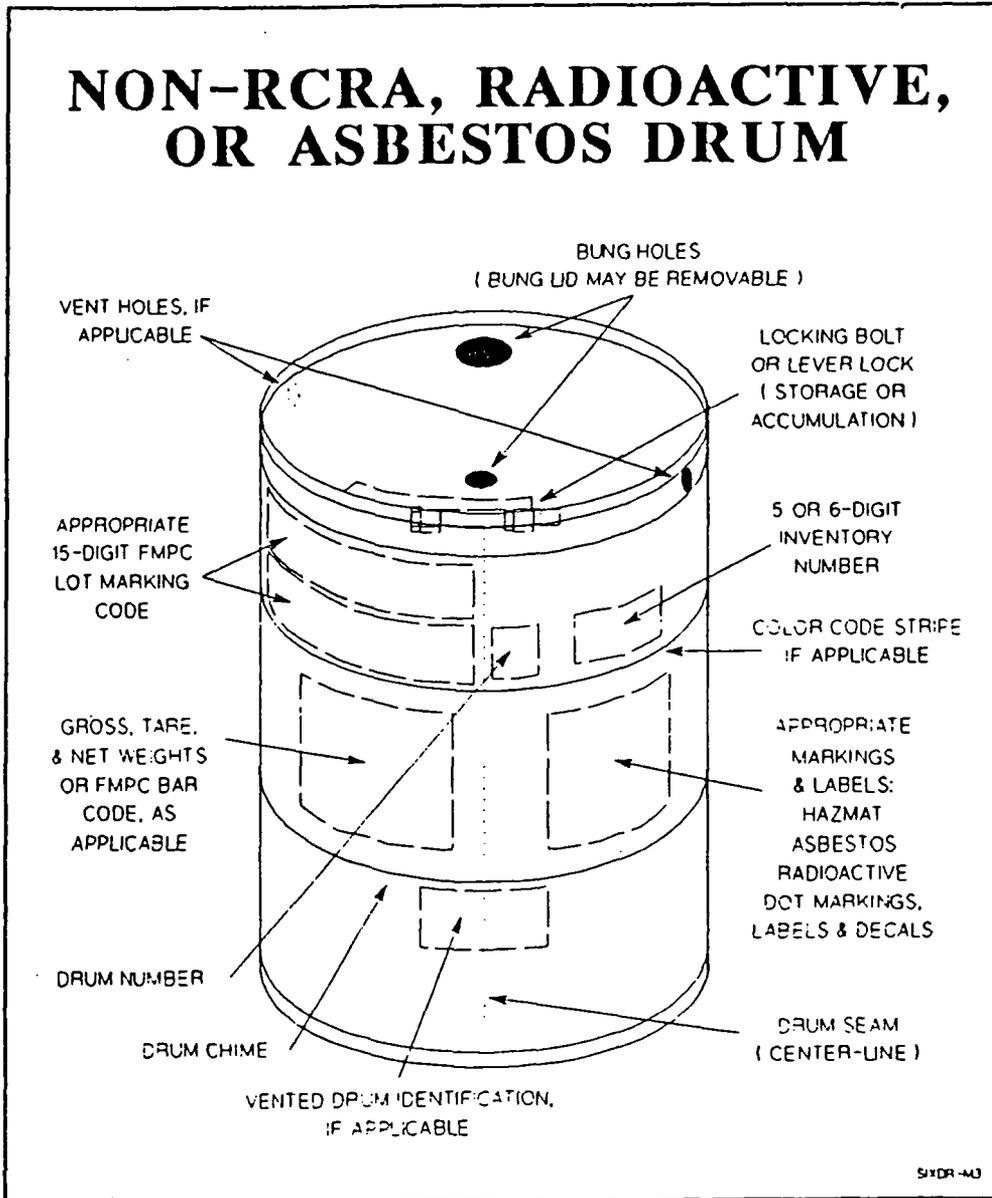
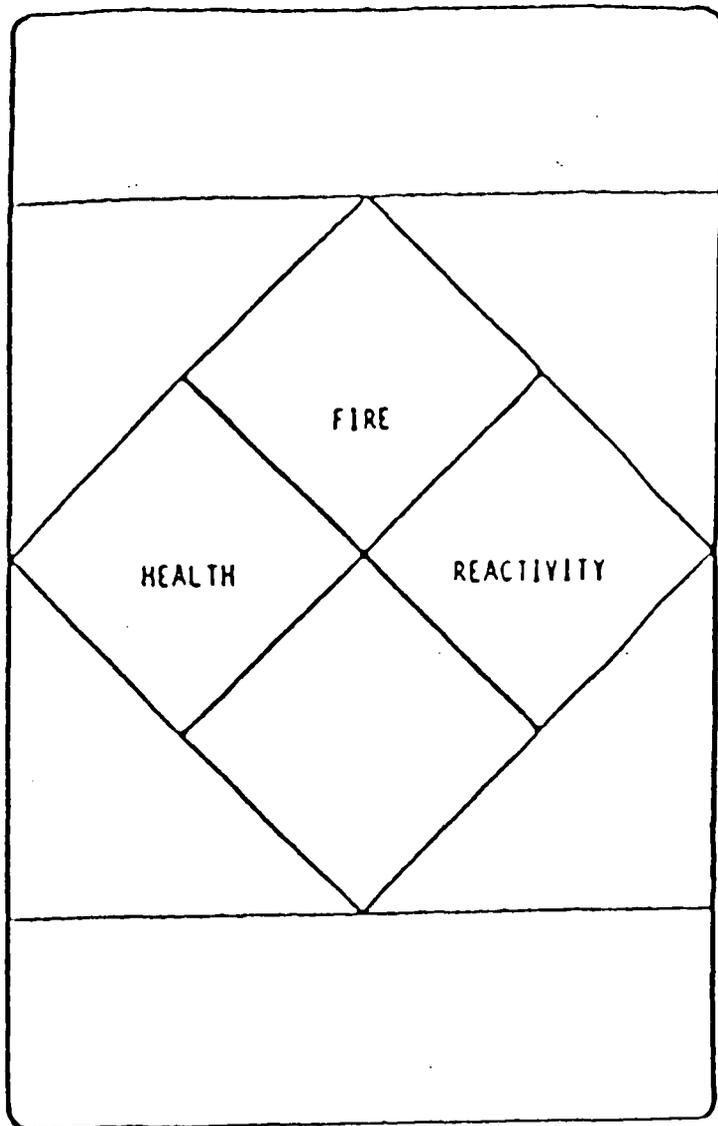


DIAGRAM OF LLRW DRUM LABELING  
Figure 2

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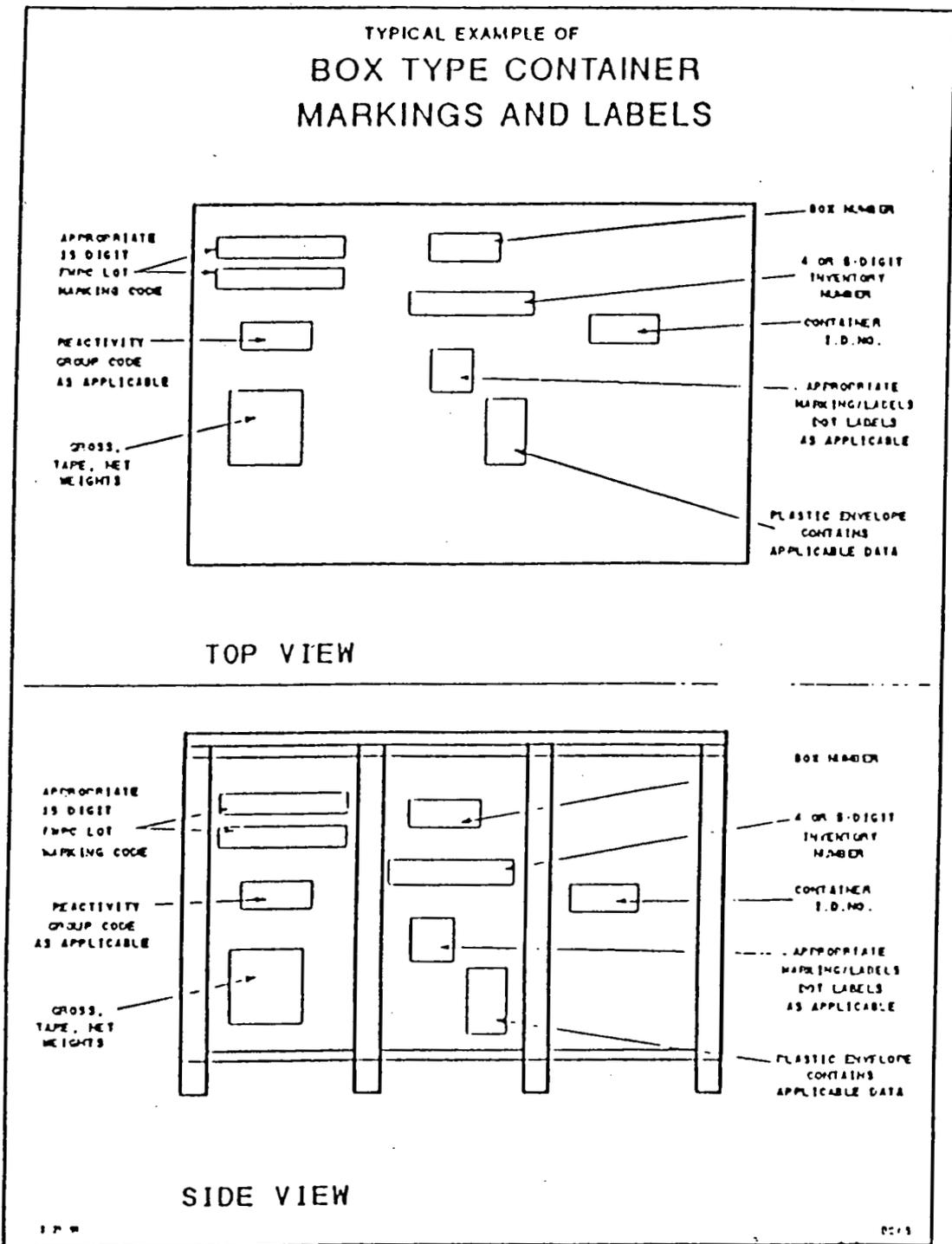


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DIAGRAM OF HAZARDOUS WASTE LABEL  
Figure 3

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DIAGRAM OF METAL BOX IDENTIFICATION  
Figure 4

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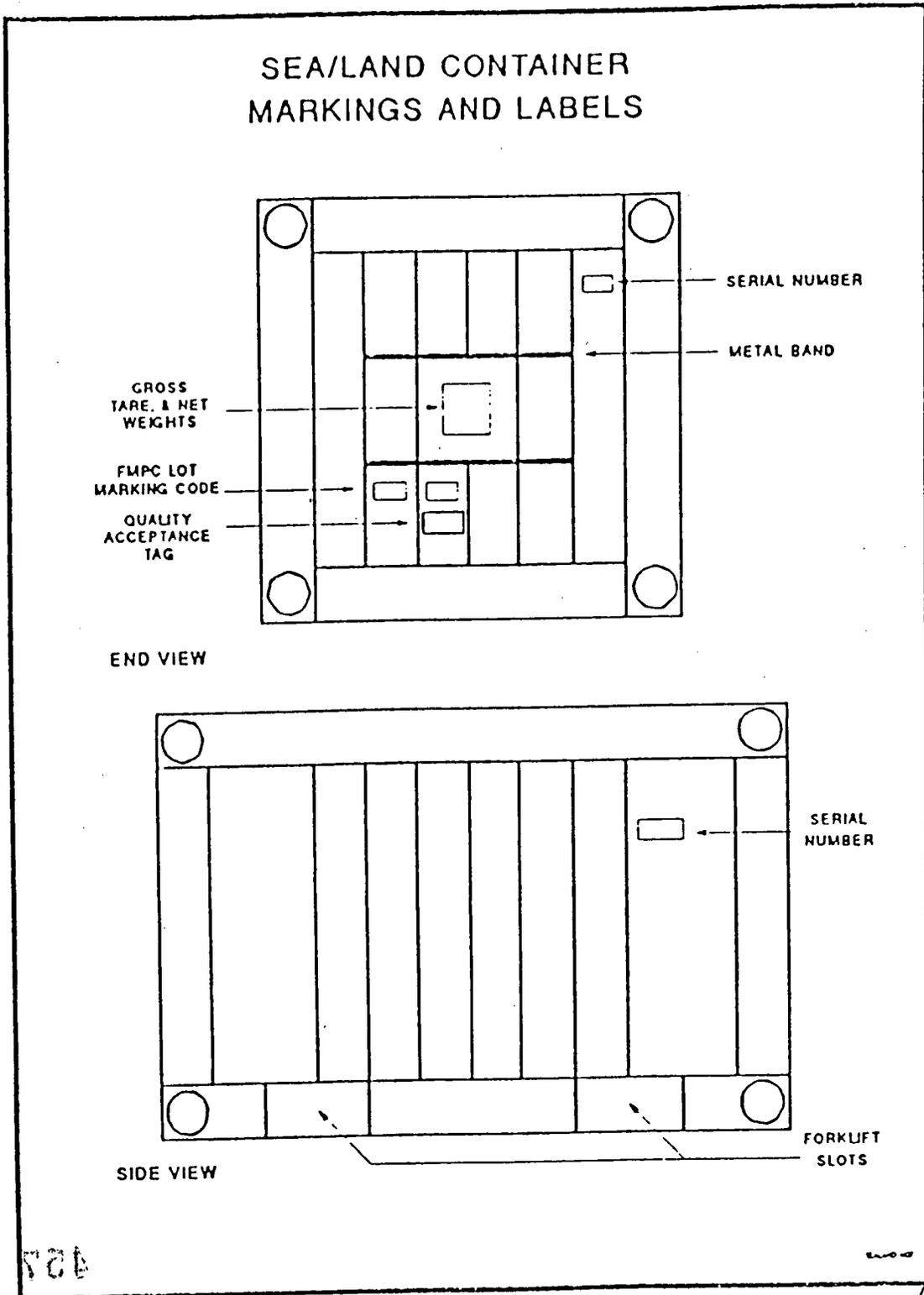


DIAGRAM OF SEA/LAND IDENTIFICATION  
Figure 5

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
10-14-91	0	New site procedure required to replace SOP 20-C-601 per Request No. P91-196, initiated by S. Brown.

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Authorization: <i>W. H. Britton</i> W. H. Britton, President	Supersedes: FMPC-314, Dated 12-31-90; Rev. 2	Issue Date: 12-20-91

## 1.0 POLICY

It is the policy of the Westinghouse Environmental Management Company of Ohio (WEMCO) 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 WEMCO policies and procedures.

## 2.0 SCOPE

This procedure identifies, defines, and establishes the policies and responsibilities that govern the packaging, on-site movement, and off-site shipment of materials. Provisions of this document are applicable to all WEMCO Sections involved in the packaging, on-site movement, and off-site shipment of non-hazardous materials and hazardous materials, including hazardous substances, hazardous wastes, nuclear, and radioactive materials.

## 3.0 DEFINITIONS

- 3.1 Carrier - Any person engaged in the transportation of passengers or property as common, contract, or private charter, or freight forwarder, as defined in the Interstate Commerce Act, as amended, or by the United States Postal Service.
- 3.2 Consignee - The person or organization designated in the shipping papers to receive a shipment.
- 3.3 Hazardous Material - A material or substance, including a hazardous substance, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, or property during transport.
- 3.4 Hazardous Substance - A material, including its mixtures and solutions, as defined in 49 CFR 171.8, section 101 (14) and 102 of CERCLA, section 311 (b) (2) (a) of the CWA.
- 3.5 Hazardous Waste - Any waste material that is designated as hazardous by the Administrator of the Environmental Protection Agency (EPA) in 40 CFR Part 261 and that is subject to the Hazardous Waste Manifest requirements of 40 CFR Part 262.
- 3.6 Material - For purposes of this procedure, any material classified as non-hazardous items or hazardous materials, including hazardous substances, hazardous wastes, nuclear, and radioactive materials.

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### 3.0 DEFINITIONS (cont.)

- 3.7 Off-Site - All areas outside the main perimeter security fence that are not controlled at all times by guards and security gates.
- 3.8 On-Site - All areas inside the main perimeter security fence that are controlled at all times by guards and security gates to gain entrance to the Fernald Environmental Management Project (FEMP) Site.
- 3.9 Package - A packaging plus its contents as presented for transportation.
- 3.10 Packaging - The assembly of one or more containers and any other components necessary to ensure compliance with the minimum packaging requirements of 49 CFR.
- 3.11 Radioactive Material - Any material having a specific activity greater than 0.002 microcuries per gram per 49 CFR.
- 3.12 Radioactive Source - For the purpose of this procedure any source used as a standard for the radiation it emits sealed in a capsule or having a bonded cover in which the capsule or cover is strong enough to prevent contact with, or dispersion of, the radioactive material under normal conditions of use, including a one-meter drop onto an unyielding surface.
- 3.13 Radioactive Waste - Solid, liquid, or gaseous material that contains radionuclides regulated under the Atomic Energy Act of 1954, as amended, and of negligible economic value when the costs of recovery are considered.
- 3.14 Shipment Originator - The person, or WEMCO Section, who initiates an on-site movement or off-site shipment of material.
- 3.15 Waste Originator - Any person, or WEMCO Section, whose operation or process generates hazardous waste, radioactive waste, or a mixed waste.
- 3.16 Nuclear Material - Collective term that includes all such materials designated by the DOE. A listing of designated nuclear materials may be found in DOE Order 5633.3; however, at the FEMP site, nuclear materials shall mean depleted, normal, or enriched (less than 20% U-235 by weight) uranium or thorium.

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#### 4.0 RESPONSIBILITIES

- 4.1 Centralized Training - Responsible for the proper development of training activities to comply with mandatory training requirements and to enable employees to qualify, requalify, or enhance their ability to perform job duties and tasks. Responsible for appropriate documentation and maintenance of training activities, development of in-house audio/video training aids, providing assistance in the development/section training, maintaining and administering the TRMS', maintaining the TMR, including the maintenance of subcontractor training records supplied to centralized training by technical instructors or by the manager of the contracting department.
- 4.2 Maintenance/Garage - Responsible for the inspection of inbound carrier vehicles that will be used for outbound shipments, providing for the inspection used for on-site shipments, and the preventative maintenance of all such government vehicles at FEMP, and documenting all maintenance and inspections.
- 4.3 Radiological Safety - Responsible for conducting radiological surveys of materials, packages, and carrier vehicles that will be used for outbound shipments, documenting results of surveys, and providing copies of the results as required. Radiological Safety is also to be notified so surveys can be performed on all on-site movements of materials.
- 4.4 Facilities and Warehousing - Responsible for packaging materials for on-site movement, packaging uranium metals, oxides, and related products for off-site shipment, providing support documentation, and assigning the personnel and equipment required for on-site movements, loading off-site shipments, and spotting/loading carrier trailers and freight containers.
- 4.5 Material Control and Accountability - Responsible for the nuclear materials control and accountability program at FEMP.
- 4.6 Procurement/Materials Management - Responsible for the review and approval of off-site miscellaneous shipping documentation.
- 4.7 Analytical Section (of Site Services) - Responsible for providing analytical documentation of material samples and the packaging of samples for off-site analysis.
- 4.8 Logistics Administration - Responsible for developing and updating transportation related procedures ensuring compliance with all Federal, State and Local regulations, Doe Orders and Directives.

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#### 4.0 RESPONSIBILITIES (cont.)

- 4.9 Site-Wide Quality Assurance - Responsible for verifying the packaging processes for uranium metals, oxides, and other related materials and for conducting periodic inspections of packaging operations. Coordinate all required Quality Assurance review activities including conducting annual audits of the packaging and transportation of hazard material shipments.
- 4.10 Radioactive Source Controller - Responsible for controlling and the coordination of radioactive source for shipment off-site.
- 4.11 Safeguards and Security - Responsible for the coordination of security and safeguard measures for off-site shipments.
- 4.12 Shipment Originator - Responsible for preparing documentation of materials for on-site movement or off-site shipment.
- 4.13 Transportation Safety Committee - Responsible for the evaluation of WEMCO policies and procedures for packaging and transport of all materials, exchange knowledge and experience in resolution of transportation safety problems, uniform interpretation and implementation of Federal, State, and Local regulations, including OSHA safety requirements, DOE Orders, and WEMCO guidelines as applicable to transportation safety.
- 4.14 Traffic Control - Responsible for providing guidance on the requirements for the on-site movement of hazardous materials. Responsible for preparing bills of lading, coordinating the loading of off-site shipments, and coordinating the scheduling of off-site shipments.
- 4.15 Waste Originator - Responsible for accumulating and packaging waste for storage or disposal and for making the proper notifications when accumulated wastes must be transported to on-site storage facilities.
- 4.16 Facilities and Material Evaluation - Responsible for providing assistance to waste generators, arranging for waste sampling, and categorizing waste.
- 4.17 Waste Operations - Responsible for packaging hazardous and radioactive wastes for off-site shipment.
- 4.18 Waste Shipping Coordinator - Responsible for preparing and reviewing waste shipment documentation for off-site shipments.
- 4.19 Waste Shipping - Responsible for preparing waste packages and packaging waste for off-site shipment.

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#### 4.0 RESPONSIBILITIES (cont.)

4.20 Safe Shutdown - Responsible for controlling order requirements for nuclear materials disposition activities at the FEMP for off-site shipment.

#### 5.0 GENERAL

5.1 Sections responsible for the activities assigned herein shall develop implementing procedures, and perform operational and oversight functions that are consistent with internal WEMCO operating policies and procedures.

5.2 Shipment generators for off-site shipments must prepare a nuclear, radioactive, hazardous material/hazardous waste - non-nuclear, or miscellaneous shipping order and have the order processed and approved by the appropriate sections before material will be set up for off-site shipment. In addition, all packages must have been monitored by the Radiological Safety section for removable contamination, radiation levels, per the applicable departmental procedures and provide appropriate documentation to Traffic Control.

#### 5.3 PACKAGING PROVISIONS

<u>Package Description Per Pkg.</u>	<u>Material Description</u>	<u>Authorized Gross Weight</u>
DOT Spec 17C metal 5-gal. drum (DOT 7A Type A)	samples, bulk type radioactive material	100 lbs.
DOT Spec 17H metal 30-gal. drum (DOT 7A Type A)	samples, bulk type radioactive material	500 lbs.
DOT Spec 17H metal 55-gal. drum (DOT 7A Type A)	samples, bulk type radioactive material	900 lbs.
FEMP Family of wooden Boxes DOT 7A Type A:		
Model No. G-4214	uranium metal products	1,260 lbs.
Model No. G-4245	uranium metal products	225 lbs.
Model No. G-4255	uranium metal products	1,470 lbs.
Model No. G-4273-5	uranium metal products	3,045 lbs.
Model No. G-4273-6	uranium metal products	3,540 lbs.
Model No. G-4292	uranium metal products	1,330 lbs.
Strong Tight Containers	LSA Material consigned as exclusive use Limited Quantity Material	Dependent on container per applicable department procedure

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## 5.0 GENERAL (cont.)

- 5.3.1 No special packaging provisions are required for the on-site movement and off-site shipment of nonhazardous miscellaneous materials.
- 5.3.2 PCB substances which are regulated by the Toxic Substances Control Act (TSCA) and the Clean Air Act (CAA) and shall be controlled the same as RCRA waste material.
- 5.3.3 WEMCO shall respond to incoming emergency calls concerning an accident involving hazardous materials shipped from the FEMP or in transit in the area, supporting the agency with authority, as requested per FMPC-125, "Emergency Management."

## 6.0 PROCEDURE

### 6.1 Packaging Operations

#### CENTRALIZED TRAINING

- 6.1.1 Approve departmental lesson plans for the personnel in each organization that are involved with the packaging of hazardous materials, hazardous wastes, and radioactive materials.
- 6.1.2 Verify that the results of lesson plans are documented and that training qualifications records are included in the employee's personnel record and entered into Centralized Training computer files.

#### ANALYTICAL SECTION (of Site Services)

- 6.1.3 Analyze the samples to determine the hazardous constituents of the waste.
- 6.1.4 Document the waste analysis results on the Report of Analysis form.
- 6.1.5 Provide analytical data to Environmental Management, and the Project Engineer (if requested) for use in characterizing the waste.
- 6.1.6 Package samples in accordance with applicable Sampling Plan and Departmental procedures. Ensure compatibility of materials in one package meets all criteria of Title 49 CFR, Subpart C, 177.848.

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6.0 PROCEDURE (cont.)

## ANALYTICAL SECTION (of Site Services)

- 6.1.7 Request that Radiological Safety monitor the samples and packages according to departmental procedures and provide the appropriate documentation.

## SITE-WIDE QUALITY ASSURANCE

- 6.1.8 For all hazardous and radioactive packaging, verifies compliance with regulations, specifications, plans and procedures through review of documentation, witnessing of activities, and examination. Verifies identification of packaged uranium metals, oxide and related products against the Shipping Order for Nuclear Material. Conduct internal and independent audits of the packaging of hazardous materials including hazardous substances, hazardous wastes, and nuclear and radioactive materials according to the appropriate DOE requirements.
- 6.1.9 Conduct periodic inspections of packaging operations per applicable departmental procedures, to verify compliance with applicable DOT/DOE/EPA regulations, WEMCO policies and procedures, and document inspections.
- 6.1.10 Verify that radiological surveys have been conducted for materials.
- 6.1.11 Review radiological survey results and verify that the radiation readings for packages are within the limits established by 49 CFR; document the review on Form FEMP-IRS&T-1993.

## TRAFFIC CONTROL

- 6.1.12 Verify that hazardous material is packaged for off-site shipment according to the applicable Safety Analysis Report for Packaging and Certificate of Compliance supplied by the Traffic Control.

## SHIPMENT ORIGINATOR

- 6.1.13 Verify that personnel have been properly trained to package hazardous materials, hazardous substances, hazardous wastes, and nuclear and radioactive materials.

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## 6.0 PROCEDURE (cont.)

### SHIPMENT ORIGINATOR

- 6.1.14 Obtain approval from Nuclear Safety before packaging off-site shipments of enriched radioactive materials to ensure criticality concerns are addressed according to applicable regulations. Verify that each package used for on-site movement or off-site shipment of hazardous materials, hazardous substances, hazardous wastes, nuclear and radioactive materials is correctly assembled and that all components of the packaging are sufficiently secured.
- 6.1.15 Ensure packaging is free of rust, dents or other conditions making it unsuitable for loading material.
- 6.1.16 Package non-hazardous materials, hazardous materials, hazardous substances, hazardous wastes, and nuclear and radioactive materials for on-site movement or off-site shipment per applicable WEMCO procedures.
- 6.1.17 Inspect all hazardous materials packages to verify that it has been packaged properly. Notify supervisor if any defects or deficiencies are detected.
- 6.1.18 Verify that packaging has the capability that will enable the use of mechanical loading equipment, items may be placed on pallets to meet this requirement.
- 6.1.19 Verify that a radiological survey has been conducted on all packagings that will be used for the off-site shipment of nuclear or radioactive material before the packaging is used.

**NOTE:** Packagings that are contaminated above the levels specified in Title 49 CFR 173.443 may not be used for off-site shipments unless they are cleaned or refurbished.

- 6.1.20 Verify that inner packaging is suitably cushioned in the outer packaging with an adequate quantity of material to prevent breaking and shifting during transport, as directed by Traffic Control.

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6.0 PROCEDURE (cont.)

## SHIPMENT ORIGINATOR

6.1.21 Apply and Verify that all packages for on-site movement or off-site shipping, including samples, are marked and/or labeled according to the requirements of 49 CFR and the written instructions provided by the Traffic Control.

**NOTE:** Selection of the proper DOT shipping name is based on process knowledge of the waste stream, laboratory analysis, or the Material Evaluation Form provided by EA & QA.

6.1.22 Verify that all packages of material are monitored for external removal contamination and radiation levels.

## RADIOACTIVE SOURCE CONTROLLER

6.1.23 Request Radiological Safety to conduct radiological surveys of the radioactive source material and packaging.

6.1.24 Review radiological survey results to verify compliance with applicable regulations.

6.1.25 Maintain constant surveillance of radioactive source material.

## WASTE ORIGINATOR

6.1.26 Accumulate and package waste for storage and/or disposal according to all applicable EPA/DOT/DOE regulations and WEMCO procedures.

6.1.27 Notify Facilities and Materials Evaluation when accumulated waste is packaged for on-site storage facilities.

6.1.28 Request radiological surveys of wastes and packages as necessary.

6.1.29 Provide waste tally sheet to Environmental Compliance for use in preparing Material Evaluation forms.

## FACILITIES AND MATERIALS EVALUATION

6.1.30 Provide assistance to waste generators with characterization and packaging of wastes for storage and/or disposal.

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## 6.0 PROCEDURE (cont.)

### ENVIRONMENTAL COMPLIANCE

- 6.1.31 Characterize waste according to Resource Conservation and Recovery Act (RCRA) guidelines and DOE requirements based on the results of the waste analysis conducted by Analytical Laboratories.

### RADIOLOGICAL SAFETY

- 6.1.32 Conduct radiological surveys of materials and packages.
- 6.1.33 Document survey results on the appropriate forms according to departmental procedures.
- 6.1.34 Forward copies of the surveys to the Shipment Originator, Waste Originator, and Site-Wide Quality Assurance as required.

### TRANSPORTATION SAFETY COMMITTEE

- 6.1.35 Evaluate policies for packaging safety at the FEMP for compliance with applicable federal, state and local regulations.
- 6.1.36 Ensure packaging policies and practices are conducted in accordance with all FEMP and OSHA safety requirements.

### WASTE OPERATIONS

- 6.1.37 Package hazardous waste and radioactive waste.
- 6.1.38 Ensure that hazardous waste has been packaged according to EPA/DOT/DOE regulations and WEMCO Guidelines.
- 6.1.39 Verify that hazardous waste, radioactive, or mixed waste is packaged according to 49 CFR.
- 6.1.40 Request radiological surveys of packaged waste as required.

### WASTE SHIPPING

- 6.1.41 Prepare waste packaging for use by the Waste Originator according to departmental procedures.
- 6.1.42 Prepare packages of waste according to departmental procedures and specific consignee requirements.
- 6.1.43 Request radiological surveys of waste containers as required.

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## 6.0 PROCEDURE (cont.)

### 6.2 On-Site Movements

#### CENTRALIZED TRAINING

- 6.2.1 Approve departmental lesson plans for the personnel in each organization involved with the loading, and transporting of hazardous materials on site, hazardous wastes, and radioactive materials.
- 6.2.2 Verify that the results of lesson plans are documented and that training qualifications records are included in the employee's personnel record and entered into Centralized Training computer files.

#### ANALYTICAL SECTION (of Site Services)

- 6.2.3 Ensure that samples are properly identified and quantified in order to determine on-site transport requirements.
- 6.2.4 Ensure that temporary storage of samples incidental to transport complies with existing requirements in applicable operating procedures and Nuclear Safety guidelines.
- 6.2.5 Contact Traffic Control if further guidance is needed when offering samples for on-site movement.

#### SITE-WIDE QUALITY ASSURANCE

- 6.2.6 Conduct periodic inspections of on-site shipping operations per applicable departmental procedures to verify compliance with applicable DOT/DOE/EPA regulations, WEMCO policies and procedures, and document inspections. Also conduct internal and independent audits of the on-site transportation of hazardous materials including hazardous substances, hazardous wastes, and nuclear and radioactive materials according to the appropriate DOE requirements.
- 6.2.7 Sign checksheet/release verifying that all Site-Wide Quality Assurance/Quality Certification functions have been performed and documented for on-site movement as required.

#### TRANSPORTATION SAFETY COMMITTEE

- 6.2.8 Evaluate policies for on-site transportation safety at the FEMP for compliance with applicable Federal, State and Local regulations.

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## 6.0 PROCEDURE (cont.)

### TRANSPORTATION SAFETY COMMITTEE

- 6.2.9 Ensure on-site transportation policies and practices are conducted in accordance with all FEMP and OSHA safety requirements.

### SHIPMENT ORIGINATOR

- 6.2.10 Verify that the material is properly identified and quantified to determine on-site movement requirements.
- 6.2.11 Notify Facilities and Warehousing when the material is ready to be moved.
- 6.2.12 Attach appropriate transfer documents from Material Control and Accountability when required. Initiate appropriate transfer documents for on-site movement of material from one area to another.
- 6.2.13 Verify that the storage of materials incidental to transport complies with current requirements contained in the appropriate operating procedures and Nuclear Safety guidelines.
- 6.2.14 Contact the Traffic Control if further guidance is required when material is moved on-site.
- 6.2.15 When shipping nonradioactive hazardous materials, initiate form FMPC-OPR-3292, "Hazardous Material Transfer On-site Shipment."
- 6.2.16 Attach the completed form FMPC-OS&H-1993-1 to the Traffic Control copy of Form FMPC-OPR-3292.
- 6.2.17 Ensure a signed "Nonradioactive Hazardous Materials Shipment Approval Tag," form FMPC-OPR-2947 is attached to each package when shipping on radioactive hazardous materials on-site.

### WASTE ORIGINATOR

- 6.2.18 Notify Facilities Services, Site-Wide Quality Assurance and MC&A when accumulated packaged waste must be transported to on-site storage facilities.
- 6.2.19 Request radiological surveys of wastes and packages as required.
- 6.2.20 Notify Facilities and Warehousing when packaged waste is ready to be transported to on-site storage facility.

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6.0 PROCEDURE (cont.)**MAINTENANCE/GARAGE**

- 6.2.21 Inspect, perform preventative maintenance, and repair all government vehicles used for on-site movement of material at FEMP.
- 6.2.22 Maintain records of services.
- 6.2.23 Notify government vehicle custodians of scheduled preventative maintenance and safety inspection services.

**FACILITIES AND WAREHOUSING**

- 6.2.24 Verify that on-site motor vehicle operators possess a valid state driver's license with the appropriate endorsements.
- 6.2.25 Verify that on-site motor vehicle operators have been properly trained and qualified according to the responsibilities to be performed.
- 6.2.26 Motor vehicle operator shall document the inspection results on the appropriate vehicle inspection form (Form OPR 2414), sign the inspection form and submit it to their supervision, and notify supervision of any defective or unsafe vehicle conditions.

**NOTE:** All defective or unsafe vehicle conditions must be corrected before the vehicle can be used.

- 6.2.27 Ensure that all packages are marked per applicable departmental procedures.

**NOTE:** If package markings are illegible or missing, notify supervision per applicable departmental procedure.

- 6.2.28 Ensure that all hazardous waste packages are labeled with the applicable DOT/EPA/OSHA labels and/or markings.

**NOTE:** If package labels are illegible or missing, notify supervision per applicable departmental procedure.

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## 6.0 PROCEDURE (cont.)

### FACILITIES AND WAREHOUSING

6.2.29 Load the material properly on the transport vehicle and ensure that the material is adequately distributed for weight distribution, stable and secured against shifting during transport.

NOTE: Hazardous materials shall be loaded onto a transport vehicle according to the guidelines provided in the DOT Hazardous Materials Segregation/Separation Chart and in compliance with all applicable Nuclear Safety guidelines.

6.2.30 Deliver the material to the designated delivery point by using the most direct and least congested route.

6.2.31 Prepare depleted, normal, or enriched uranium and other nuclear or radioactive material for on-site movement.

NOTE: Material Control and Accountability (MC&A) documentation must accompany the shipment from one area to the next area when necessary.

6.2.32 Request radiological surveys of materials and packages if not already available.

6.2.33 Review and verify radiological survey results for compliance with the appropriate regulatory requirements.

6.2.34 Assign personnel and equipment for on-site movement as requested.

6.2.35 Provide personnel and equipment for special emergency on-site movement as requested.

### TRAFFIC CONTROL

6.2.36 Provide guidance for the required documents, packaging, marking, labeling, and the requirements for the placarding of hazardous materials for on-site movement.

6.2.37 Verify that the appropriate Federal and State Regulations and WEMCO Guidelines are followed for personnel and environmental safety.

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## 6.0 PROCEDURE (cont.)

### RADIOLOGICAL SAFETY

- 6.2.38 Conduct radiological surveys of materials, packages and vehicles on site.
- 6.2.39 Document the survey results on the appropriate forms according to departmental procedures.
- 6.2.40 Forward copies of the surveys to the Shipment Originator, Waste Originator, Traffic Control, and Site-Wide Quality Assurance as required.

### MATERIAL CONTROL AND ACCOUNTABILITY (MC&A)

- 6.2.41 Prepare MC&A documentation for on-site movement of material as required.

**NOTE:** MC&A documents shall be used for verification of the materials and will serve as the shipping papers for on-site movement.

## 6.3 Off-Site Shipments

### CENTRALIZED TRAINING

- 6.3.1 Approve departmental lesson plans for the personnel in each organization involved with the off-site loading, and transporting of hazardous materials, hazardous wastes, and radioactive materials.
- 6.3.2 Verify that the results of lesson plans are documented and that training qualification records are included in the employee's personnel record and entered into Centralized Training computer files.

### ANALYTICAL SECTION (of Site Services)

- 6.3.3 Notify Material Control and Accountability and the Traffic Control when a sample containing nuclear radioactive material is to be shipped off-site.
- 6.3.4 Initiate Shipping Order for Nuclear Material Form, FEMP CONT-558, for samples that are to be shipped to off-site laboratories for analysis

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## 6.0 PROCEDURE (cont.)

### ANALYTICAL SECTION (of Site Services)

- 6.3.5 Forward the shipping order to Material Control and Accountability.
- 6.3.6 Initiate Shipping Order for Hazardous Material/ Hazardous Waste Non-Nuclear Form, FEMP CONT-3388, for samples that are to be shipped to off-site laboratories for analysis.
- 6.3.7 Forward the shipping order to Material Control and Accountability.
- 6.3.8 Verify that the waste samples are in proper packaging for off-site shipment according to departmental procedures.
- 6.3.9 Generate Form No. FMPC-OPR-2595, Off-Site Loading and Tie Down Inspection.
- 6.3.10 Maintain and verify the chain of custody transfer for off-site shipment according to applicable procedures.
- 6.3.11 Request that Radiological Safety monitor the samples and packages according to departmental procedures and provide the appropriate documentation to Traffic Control.

### SITE-WIDE QUALITY ASSURANCE

- 6.3.12 Verify the identification of packaged uranium metals, oxides, and related products with the Shipping Order for Nuclear Material.
- 6.3.13 Conduct periodic inspections of the shipping operations per applicable departmental procedures to verify compliance with applicable DOT/DOE/EPA regulations and WEMCO policies and procedures and document inspections.
- 6.3.14 Review the Garage Section incoming vehicle inspection form for vehicle defects or deficiencies.
- 6.3.15 Attach the Quality Assurance Inspection Sheet, Form QAC-891010-1, Rev 1, to the support documentation for each vehicle loaded.
- 6.3.16 Verify that radiological surveys have been conducted for each carrier trailer and the materials for off-site shipment.

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6.0 PROCEDURE (cont.)

## SITE-WIDE QUALITY ASSURANCE

- 6.3.17 Verify that the exclusive use trailers have been sealed by Radiological Safety and document verification on Form FEMP-ES&H-1956-1.
- 6.3.18 Review the radiological survey results and verify that radiation readings for packages and the carrier vehicles are within the limits established by 49 CFR; document the review on Form FEMP-IRS&T-1993.
- 6.3.19 Verify, during the loading of carrier vehicles, that the packaging, marking, labeling, and placarding of off-site shipments are in compliance with 49 CFR; document compliance on appropriate form.
- 6.3.20 Review all documentation that supports each off-site shipment, including Quality Assurance documentation; document this review on Form QAC-890601-1, Rev. 0.
- 6.3.21 Sign the appropriate consignee shipment certification (NVO-211) certifying that Low Level Radioactive Waste shipments comply with the waste acceptance criteria established by the consignee.
- 6.3.22 Sign the shipping order verifying that all Site-Wide Quality Assurance/Quality Certification functions have been performed and documented for off-site shipments as required.
- 6.3.23 Coordinate all Quality Assurance review activities with the appropriate WEMCO sections and conduct internal and independent audits of the packaging and transportation of hazardous materials including hazardous substances, hazardous wastes, and nuclear and radioactive materials according to the appropriate DOE requirements.

## RADIOLOGICAL SAFETY

- 6.3.24 Conduct radiological surveys of materials and packages in accordance with applicable departmental procedures.
- 6.3.25 Coordinate the radiological survey of inbound carrier vehicles, with the Traffic Control, before and after loading, and prior to release from FEMP.

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6.0 PROCEDURE (cont.)

**RADIOLOGICAL SAFETY**

- 6.3.26 Document the survey results on the appropriate forms according to departmental procedures.
- 6.3.27 Forward copies of the surveys to the Shipment Originator, Waste Originator, Traffic Control, and Site-Wide Quality Assurance as required.

**SHIPMENT ORIGINATOR**

- 6.3.28 Provide the Traffic Control with the required advance notification of off-site shipment.
- 6.3.29 Verify that material is properly identified and quantified.
- 6.3.30 Provide the Traffic Control with the information required to determine the appropriate DOT requirements for the shipment.
- 6.3.31 Notify Facilities and Warehousing when the material is prepared for loading or movement to the designated area for off-site shipment.
- 6.3.32 Provide Facilities and Warehousing with the documentation that designates the location on-site where the material for off-site shipment is to be picked up, location on-site where the material for off-site shipment is to be delivered, and the name and quantity of the material to be moved.
- 6.3.33 Provide any additional information required to the transporter to facilitate the safe loading and movement of material.
- 6.3.34 Verify that the temporary storage of materials incidental to off-site transport is in compliance with the existing requirements of the appropriate operating procedures and Nuclear Safety guidelines.
- 6.3.35 Prepares Product Order per FMPC-714 for proposed shipments of nuclear product material.
- 6.3.36 Initiate Shipping Order for Nuclear Material (Form FMPC Cont-558) for nuclear materials that are to be shipped off-site and forward shipping order to Material Control and Accountability.

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6.0 PROCEDURE (cont.)

**SHIPMENT ORIGINATOR**

- 6.3.37 Initiate Shipping Order for hazardous Material/Hazardous Waste - non-nuclear (Form FMPC Cont-3388) for all hazardous non-nuclear material that is to be shipped off site and forward shipping order to Material Control and Accountability.
- 6.3.38 Initiates Miscellaneous Shipping Order (FMPC-ADMS-871) and obtains applicable approvals for all non-nuclear nonhazardous material shipments. Forwards approved Miscellaneous Shipping Order (MSO) to the Traffic Control.
- 6.3.39 Request radiological survey results of materials and packages to ensure compliance with applicable regulations and site procedures.
- 6.3.40 Notify and obtain approval of site-wide Quality Assurance/Quality Certification for shipments of nuclear material.
- 6.3.41 Obtain Radiological Safety sign-off for nonradioactive material on a Miscellaneous Shipping Order.
- 6.3.42 Obtain Environmental Compliance sign-off for nonhazardous material on a Miscellaneous Shipping Order.
- 6.3.43 Provide Traffic Control with the information necessary to the applicable DOT requirements and prepare the bill of lading.
- 6.3.44 Contact the Traffic Control for further guidance when preparing material for off-site shipment.

**FACILITIES AND WAREHOUSING**

- 6.3.45 Verify that the transport vehicle is appropriate for the weight and center of gravity of the material to be loaded.
- 6.3.46 Inspect the transport vehicle and record the findings of the inspection.
- 6.3.47 Accept or reject equipment based on the vehicle inspection.
- 6.3.48 Position packages on the vehicle so that the weight is equally distributed over the width and length of the vehicle and as equally as possible among the vehicle's axles.

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6.0 PROCEDURE (cont.)

FACILITIES AND WAREHOUSING

- 6.3.49 Ensure the load is placed on the vehicle in such a manner that it does not obscure the driver's view ahead or to the right or left sides, interfere with the free movement of his arms or legs, prevent his free and ready access to accessories required for emergencies, or prevent the free and ready exit of any person from the vehicle's cab or driver's compartment.
- 6.3.50 Ensure that all loading of hazardous materials, hazardous substances, hazardous wastes, and radioactive materials is conducted according to the guidelines provided in the DOT Hazardous Materials Segregated/Separation Chart in compliance with all applicable Nuclear Safety guidelines.
- 6.3.51 Block and brace all packages on or in the vehicle to prevent shifting or changing of position during normal transportation conditions, and in such a manner that the packages will remain stable after the restraints are removed prior to unloading the packages.
- NOTE: Do not rely upon the ends, sides, or doors of the vehicle to prevent shifting of heavy loads unless they are specifically designed for this purpose.
- 6.3.52 Ensure that all sides, sideboards, rear endgates and endboards capable of preventing packages shifting are in their proper place and are strong enough and high enough to ensure that packages will not shift upon, or fall from the vehicle.
- 6.3.53 Use as many tiedown assemblies to secure all packages being transported on vehicles which are not equipped with sides or sideboards, and rear endgate or endboard as directed by applicable FEMP procedures.
- 6.3.54 Use only tiedown assemblies that conform to the rules of 49 CFR 393.102; plastic or fiber rope, any material with unknown strength or any damaged materials shall not be used as components of a tiedown system.
- 6.3.55 Tiedown assemblies will be installed to ensure the load will not move or shift during normal transport.

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## 6.0 PROCEDURE (cont.)

### FACILITIES AND WAREHOUSING

- 6.3.56 Ensure the principal tiedown forces are transmitted to the vehicle's frame rather than the wood or metal decking, and that the strength of the tiedown attachment points on the vehicle are equal to or greater than the strength of the tiedowns.
- 6.3.57 Ensure that flexible tiedowns (e.g., rope, strap, chain, etc.) are free from contact with any other stationary objects when they are taut to prevent chafing and damage during transport.
- 6.3.58 Visually check all packages before loading to ensure no defects are present.
- 6.3.59 Complete and submit the Off-Site Loading and Tie-Down Inspection Form to the Traffic Control when necessary.
- 6.3.60 Review and verify the radiological survey results for compliance with the appropriate regulatory requirements.
- 6.3.61 Submit appropriate paperwork to Traffic Control after loading.
- 6.3.62 Assign personnel and equipment for loading off-site shipments as required.
- 6.3.63 Assign personnel and equipment for spotting/loading of carrier trailers and freight containers used for off-site shipments.

### PROCUREMENT/MATERIALS MANAGEMENT

- 6.3.64 Review and approve Miscellaneous Shipping Orders (MSO) and other documentation for off-site shipment of non-hazardous materials.
- 6.3.65 Forward approved copies of the Miscellaneous Shipping Order (MSO) to the Traffic Control.
- 6.3.66 Verify, using the appropriate shipping order, that the packages of material are identified as on the shipping order.
- 6.3.67 Attach the required markings, labels, and tally sheet to the packages of hazardous materials adhering to departmental procedures and direction by Traffic Control.

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6.0 PROCEDURE (cont.)

MAINTENANCE/GARAGE

- 6.3.68 Inspect the inbound carrier vehicles that will be used for off-site shipments according to Federal Motor Carrier Safety Regulations and WEMCO procedures.
- 6.3.69 Document the inspection results on the FEMP Preliminary Visual Trailer Inspection Form with appropriate comments.
- 6.3.70 Forward copies of the maintenance and inspection documents to Site-Wide Quality Assurance and Facility Service and Support Sections.
- 6.3.71 Inspect, lubricate, perform the preventative maintenance for, and repair all government vehicles used for loading off-site shipments at FEMP.
- 6.3.72 Maintain records of services.
- 6.3.73 Notify the government vehicle custodians of scheduled preventative maintenance and safety inspection services.

TRAFFIC CONTROL

- 6.3.74 Provide guidance for the required documents and the requirements for the placarding of off-site shipments.
- 6.3.75 Verify compliance with appropriate Federal and State Regulations and WEMCO Guidelines.
- 6.3.76 Coordinate the scheduling of off-site shipment with the Shipment Originator, Site Services, and the carrier.
- 6.3.77 Coordinate the loading of off-site shipment with Site Services, Facilities and Warehousing, and the carrier.
- 6.3.78 Review shipping documents for completeness, proper authorization(s), and compliance with WEMCO policy, procedures, and accounting requirements.
- 6.3.79 Ensure that all off-site shipments are in compliance with legal restrictions on weight and dimension prior to release.

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6.0 PROCEDURE (cont.)

## TRAFFIC CONTROL

- 6.3.80 Prepare the Uniform Hazardous Waste Manifest according to the requirements of 40 CFR and the appropriate departmental procedures using documentation provided by the Shipping Originator and WEMCO support sections.
- 6.3.81 Prepare and sign the bill of lading according to the requirements of 49 CFR using documents provided by the Shipping Originator and WEMCO support sections.
- 6.3.82 Obtain the signature of the carrier's agent (driver) on all bills of lading and hazardous waste manifests to acknowledge receipt of the shipment by the carrier.
- 6.3.83 Use only ICC and PUCO approved commercial or contract carriers according to the appropriate DOE requirements.
- NOTE:** Commercial or contract carriers must have received an identification number from the Administrator of the USEPA. Additionally, State EPA identification numbers must be obtained from the Administrator of the State EPA Office when required.
- 6.3.84 Issue the appropriate shipment notifications to consignees.
- 6.3.85 Return the shipping order and notify Material Control and Accountability when a shipment of hazardous material, hazardous waste (non-nuclear), or nuclear material is shipped from FEMP.

## TRANSPORTATION SAFETY COMMITTEE

- 6.3.86 Evaluate policies for off-site transportation safety at the FEMP for compliance with applicable Federal, State and Local regulations.
- 6.3.87 Ensure off-site transportation policies and practices are conducted in accordance with all FEMP and OSHA safety requirements. Conduct periodic inspections and evaluations of all activities associated with the handling and transporting of hazardous materials for off-site shipments.

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## 6.0 PROCEDURE (cont.)

### SAFEGUARDS AND SECURITY

- 6.3.88 Provide interpretation and advice concerning the security and safeguard measures required for off-site shipment of classified or strategic nuclear materials.
- 6.3.89 Coordinate with Traffic Control to spot incoming carrier vehicles for inspection by the Maintenance Garage and to have the radiological survey conducted.
- 6.3.90 Verify that vehicle doors are properly secured.
- 6.3.91 Verify that the seal number, when recognizable, matches the serial number on the bill of lading before the shipment leaves the FEMP site.
- 6.3.92 Verify that the bill of lading has been signed by the Traffic Control authorizing the shipment to be released.
- 6.3.93 Coordinate emergency response activities for off-site shipments with the Emergency Operations Center as required.

### MATERIAL CONTROL AND ACCOUNTABILITY (MC&A)

- 6.3.94 Verify that the consignee is authorized to receive the specific nuclear materials before the materials are shipped.
- 6.3.95 Process, verify the type of material and lot numbers, and approve the Shipping Order for Nuclear Material Form, FEMP CONT-558, for off-site shipment of nuclear material.
- 6.3.96 Forward the shipping order to the Traffic Control.
- 6.3.97 Process, verify the type of material and lot numbers, and approve the Shipping Order for Hazardous Material/ Hazardous Waste Non-Nuclear Form, FEMP CONT-3388, for off-site shipment of material.
- 6.3.98 Forward the shipping order to the Traffic Control.
- 6.3.99 Receive shipping order from Traffic Control.
- 6.3.100 Notify the consignee that the preparation for off-site shipment has been completed.

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## 6.0 PROCEDURE (cont.)

### MATERIAL CONTROL AND ACCOUNTABILITY (MC&A)

6.3.101 Prepare and forward to the consignee, DOE/NRC Nuclear Materials Transaction Report, Form 741, for off-site shipments.

**NOTE:** These documents are used for verification of materials and shipping paper by Facility Site Services for material transport.

### RADIOACTIVE SOURCE CONTROLLER

6.3.102 Notify the Traffic Control of the intent to ship radioactive source material off-site.

6.3.103 Provide copy of the purchase order to the Traffic Control.

6.3.104 Request Radiological Safety to conduct radiological 48-hour surveys of the radioactive source material and packaging.

6.3.105 Review the radiological survey results to verify compliance with applicable departmental procedures.

6.3.106 Initiate Shipping Order for Hazardous Material/Hazardous Waste Non-Nuclear Form, FEMP CONT-3388, after approval from EC&QA.

6.3.107 Notify the Traffic Control when the packaged material is ready to be shipped off-site.

6.3.108 Maintain constant surveillance of radioactive source material until it is loaded onto the transport vehicle for off-site shipment.

6.3.109 Remove the radioactive source material shipped from the inventory list.

### WASTE OPERATIONS

6.3.110 Package hazardous waste and radioactive waste for off-site shipments.

6.3.111 Verify that hazardous waste for off-site shipment has been packaged according to EPA/DOT/DOE regulations and WEMCO Guidelines.

6.3.112 Request radiological surveys of packaged waste as required per applicable departmental procedures.

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## 6.0 PROCEDURE (cont.)

### WASTE SHIPPING COORDINATOR

6.3.113 Prepare and forward the Storage and Disposal Data Sheet, the Tally Sheet, and other documents as required to Site-Wide Quality Certification for review and approval.

6.3.114 Prepare additional shipping documentation according to consignee requirements.

**NOTE:** Consignee requirements must exceed the requirements of 49 CFR.

6.3.115 Receive the documentation associated with off-site shipment from the appropriate departments.

6.3.116 Forward the documentation to Site-Wide Quality Assurance for review.

### WASTE SHIPPING

6.3.117 Prepare waste packaging for use by the Waste Originator according to departmental procedures.

6.3.118 Prepare packages of waste for off-site shipping according to departmental procedures and specific consignee requirements.

6.3.119 Request the radiological survey of waste containers as required.

### SAFE SHUTDOWN

6.3.120 Prepares Nuclear Materials Disposition Order (NMDO) per PP-5031 for proposed shipments of nuclear materials.

6.3.121 Acts as liaison internally to facilitate shipment and externally to ensure customer satisfaction.

6.3.122 Tracks NMDO through completion, issues completion notice and maintains documentation on activity.

## 7.0 APPLICABLE DOCUMENTS

### 7.1 Drivers

7.1.1 DOE 1540.1, "Materials Transportation and Traffic Control Management"

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## 7.0 APPLICABLE DOCUMENTS (cont.)

- 7.1.2 OR 1540.1B, "Materials Transportation and Traffic Control Management"
- 7.1.3 DOE 1540.2, "Hazardous Material Packaging for Transport - Administrative Procedures"
- 7.1.4 DOE 1540.3, "Base Technology for Radioactive Material Transportation Packaging Systems"
- 7.1.5 DOE 5000.3A, "Occurrence Reporting and Processing of Operations Information"
- 7.1.6 DOE 5480.3, "Safety Requirements for the Packaging and Transportation of Hazardous Materials"
- 7.1.7 DOE 5632.1, "Physical Protection of Classified Matter and Information"
- 7.1.8 DOE 5632.2A, "Physical Protection of Special Nuclear Material and Vital Equipment"
- 7.1.9 DOE 5700.6B, "Quality Assurance"
- 7.1.10 DOE/EV 06194-3, "Explosives Safety Manual"
- 7.1.11 DOE 5480.19 "Conduct of Operations"
- 7.1.12 10 CFR Part 71, "Packaging of Radioactive Material for Transport and Transportation of Radioactive Material Under Certain Conditions"
- 7.1.13 40 CFR Parts 116 -117, "Designation of Hazardous Substances and Their Reportable Quantities"
- 7.1.13 40 CFR Parts 260-265, "Standards Applicable to Hazardous Wastes"
- 7.1.14 49 CFR Parts 100-199, "Hazardous Material Regulations"
- 7.1.15 49 CFR Parts 383-397, "Federal Motor Carrier Safety Regulations"
- 7.1.16 International Atomic Energy Agency (IAEA) "Safety Series No. 6," 1985 Edition, as amended

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Authorization: W. H. Britton, President	Supersedes: FMPC-314, Dated 12-31-90, Rev. 2	Issue Date: 12-20-91

7.0 APPLICABLE DOCUMENTS (cont.)

- 7.1.17 International Air Transport Association (IATA) "Dangerous Goods Regulations," 1991 Edition
- 7.1.18 International Civil Aviation Organization (ICAO) "Technical Instructions," 1985 Edition
- 7.1.19 American National Standards Institute (ANSI) N14 Series
- 7.1.20 Directory of DOE Certificates of Compliance for Radioactive Materials Packaging

7.2 Reference Documents

THIS SECTION WILL CONTAIN A LIST OF APPLICABLE WEMCO PROCEDURES.

8.0 APPLICABLE FORMS

THIS SECTION WILL CONTAIN A LIST OF APPLICABLE WEMCO FORMS AND FORM NUMBERS.

9.0 ATTACHMENTS

None

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
12-20-91	0	Document describing how on-site and off-site materials are packaged and moved per Request No. P91-387, initiated by J. McGrogan.

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Title: CONTROLLING PORTABLE VENTILATION DEVICES AND VACUUM CLEANERS		DOCUMENT NO: SSOP-0028 REVISION NO. 0
Authorization: W. H. Britton, President	Supersedes: None	Issue Date: 12-20-91

#### 1.0 PURPOSE

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).

#### 2.0 SCOPE

This procedure is applicable to all portable HEPA filter equipped vacuum cleaners and ventilation devices that are used by FEMP and subcontractor personnel.

#### 3.0 DEFINITIONS

- 3.1 Vacuum Cleaner (Portable Dust Collector) - A portable device that utilizes suction to collect residues and then filters the suction air stream to remove hazardous particles before the suction air is exhausted to the environment.
- 3.2 Portable Ventilation (Negative Air) Device/Machine - A device that prevents the escape of hazardous particles from an enclosed area (such as a room, enclosure, or glove box) by creating negative air pressure in the area and filtering the air being exhausted.
- 3.3 Project Coordinator - The Site Services Supervisor responsible for coordinating the portable vacuum cleaner/ventilation device control program.
- 3.4 Unit Owner - The individual or organization that is assigned a vacuum cleaner and/or ventilation device. May be used interchangeably with Facility Owner/Supervisor.

#### 4.0 RESPONSIBILITIES

4.1 Site Services shall be responsible for the following:

- 4.1.1 Ensuring that the requirements of this procedure are enforced.
- 4.1.2 Assigning portable vacuum cleaners/ventilation devices as required.
- 4.1.3 Acting as primary liaison when maintenance is required on units assigned to the General Use Pool.

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#### 4.0 RESPONSIBILITIES (cont.)

4.2 Facility Owners/Supervisors (unit owners) assigned portable HEPA filtered vacuums or ventilation units shall be responsible for the following:

- 4.2.1 Controlling the use and movement of the unit(s) within their area.
- 4.2.2 Ensuring that units are available for preventive maintenance (PM) and HEPA filter testing.
- 4.2.3 Returning units to Site Storage under Project Coordinator control within three days of completion of work requiring use of a portable vacuum/ventilation device.

4.3 Project Management and Acquisition shall be responsible for the following:

- 4.3.1 Coordinating the purchase of vacuum/ventilation units with Clean Air Programs.
- 4.3.2 Ensuring that subcontractors assigned vacuum cleaners and/or ventilation devices control the use and movement of the units.

4.4 Environmental Management shall be responsible for the following:

- 4.4.1 Ensuring that HEPA filtered vacuum/ventilation units that are to be purchased for use at the FEMP meet established functional, safety, and environmental requirements.
- 4.4.2 Ensuring that new units are equipped with a tested, certified HEPA filter.

#### 5.0 GENERAL

5.1 Vacuum cleaners currently in use at the FEMP are HOFFMAN, SPENCER, NILFISK, HAKO, PULLMAN-HOLT, and NORCLEAN (Power Products).

5.2 Ventilation devices being used are GENERAL DYNAMICS, BARTLETT NUCLEAR, AIR SYSTEMS (Fibertrap), and CRITICAL SYSTEMS.

5.3 Vacuum cleaners consist of a flexible hose for residue pickup, a canister to contain residues, internal cloth and/or paper filters for removing particles from the air stream, a motor driven fan that provides a negative pressure to create the required suction, and a high efficiency particle air (HEPA) filter installed in the air exhaust stream.

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## 5.0 GENERAL (cont.)

- 5.4 Ventilation devices are similar to a vacuum cleaner except that the intake (or suction) hose is a larger diameter and residue particles are collected on a filter instead of in a canister.
- 5.5 Ventilation devices shall be used for removing airborne contamination, not for bulk quantity removal. The HEPA Filter will fail when overloaded.
- 5.6 The Program Coordinator will be an individual appointed by the Facilities and Warehousing Manager.
- 5.7 Personnel using portable vacuum/ventilation units shall move and use the devices in accordance with this procedure and all applicable Standard Operating Procedures (SOPs).
- 5.8 Unit owners or unit owner representatives shall be a supervisor or higher management.
- 5.9 Personnel and equipment shall be frisked prior to leaving a control zone and before moving from one building to another.
- 5.10 Approval shall be obtained on the "Portable Dust Collector and Ventilation Device Check Out/Check In Log," Form FMPC-SS-3378 (See Figure 1) before a unit is moved from the assigned building or area for use in another building or area.
- 5.11 Portable vacuum cleaners/ventilation devices assigned to a unit owner shall be stored in a lockable area when not in use. Each building shall have only one designated storage area.
- 5.12 Portable vacuum/ventilation devices being used in a control zone may remain in the zone until work is completed.
- 5.13 The unit, from issue to return to Site Storage, is the responsibility of the unit owner. Responsibility includes safe storage of the unit and assumption of costs incurred due to damage or loss.

## 6.0 PROCEDURE

### 6.1 Obtaining a Portable Vacuum/Ventilation Unit

REQUESTOR - SUPERVISOR/FACILITY OWNER

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- SOP 6.1.1 Fill out a "Portable Vacuum/Ventilation Device Request and Evaluation," Form FMPC-SS-3379 (See Figure 2) for the desired unit.

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Title: CONTROLLING PORTABLE VENTILATION DEVICES AND VACUUM CLEANERS		DOCUMENT NO: SSOP-002 REVISION NO: 0
Authorization: W. H. Britton, President	Supersedes: None	Issue Date: 12-20-91

6.0 PROCEDURE (cont.)

REQUESTOR - SUPERVISOR/FACILITY OWNER

6.1.2 Submit the request form to the Project Coordinator.

PROJECT COORDINATOR

6.1.3 Evaluate the request per the Request and Evaluation form.

6.1.4 If a vacuum/ventilation device is available, fill out the applicable portions of a "Portable Dust Collector and Ventilating Device Check Out/Check In Log," Form FMPC-SS-3378 (See Figure 1).

6.1.5 Inform the Requestor that vacuum/ventilation device assignment is approved or disapproved as applicable.

REQUESTOR - FACILITY OWNER/SUPERVISOR

6.1.6 Upon notification that the unit issuance has been approved, contact the Project Coordinator and arrange for unit pickup.

6.1.7 Complete the applicable portions of the Check Out/Check In Log and sign the log.

PROJECT COORDINATOR

6.1.8 Sign the Check Out/Check In Log

REQUESTOR - FACILITY OWNER/SUPERVISOR

6.1.9 Affix a Hazard Communication (NFPA) Label (See Figure 3) to the unit.

6.1.9.1 Enter, on the label, the hazard level the unit is approved for, unit owner, and the assigned location of use.

6.2 Moving Assigned Vacuum/Ventilation Devices from the Designated Use Area

UNIT OWNER

6.2.1 If the unit is assigned to the Laboratory, proceed per Item 6.4.

6.2.2 Fill out a "Portable Vacuum/Ventilation Device Request and Evaluation," Form FMPC-SS-3379 (See Figure 2) for moving the desired unit.

6.2.3 Submit the request form to the Project Coordinator.

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6.0 PROCEDURE (cont.)

## PROJECT COORDINATOR

6.2.4 Evaluate the movement request per the Request and Evaluation form.

6.2.5 Approve or disapprove the movement request.

6.2.6 Inform the unit owner and prospective unit owner of approval (if granted).

## PROSPECTIVE UNIT OWNER

6.2.7 Upon notification that unit movement has been approved, contact the Project Coordinator.

6.2.8 Complete the applicable portions of the Check Out/Check In Log and sign the log.

## PROJECT COORDINATOR

6.2.9 Sign the Check Out/Check In Log

## NEW UNIT OWNER

6.2.10 Check the unit to ensure that the unit is clean.

6.2.11 Contact IRS&T and request that the unit be frisked.

6.2.12 At the direction of IRS&T, repeat cleaning or wrap the unit.

6.2.13 Move the unit to the new location of use.

6.2.14 Check the hazard label on the unit.

6.2.14.1 If the material and/or hazard level is different, affix a new Hazard Communication (NFPA) Label to the unit.

6.2.14.2 Enter, on the label, the hazard level the unit is approved for, unit owner, and the assigned location of use.

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## 6.0 PROCEDURE (cont.)

### 6.3 Returning Portable Vacuum/Ventilation Devices to Site Storage

#### FACILITY OWNER/SUPERVISOR

- 6.3.1 Ensure that the unit has been cleaned per the applicable SOP and frisked.
- 6.3.2 Ensure that all prefilters on portable ventilation devices have been replaced.
- 6.3.2.1 If not, direct operators to replace prefilters per the applicable standard operating procedure for the unit being returned.
- 6.3.3 Ensure that the differential pressure on the unit HEPA filter is less than 3.0 inches.
- 6.3.3.1 If not, have the HEPA filter replaced and then DOP tested.
- 6.3.4 Notify the Project Coordinator that the unit is being returned.

#### PROJECT COORDINATOR

- 6.3.5 Inspect the unit.
- 6.3.6 Notify the unit owner of discrepancies or grant permission to return the unit, depending on the unit condition.

NOTE: Damaged or lost units shall be repaired or replaced, utilizing funds from the unit owner/user cost center, with an equivalent unit.

NOTE: Unit ownership is not officially transferred until the Project Coordinator signs the Check Out/Check In Log.

#### PROJECT COORDINATOR

- 6.3.7 Sign the Check Out/Check In Log to acknowledge receipt of the unit.

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6.0 PROCEDURE (cont.)6.4 Moving Portable Vacuum/Ventilation Devices Within the Laboratory

## FACILITY OWNER

NOTE: After being assigned a unit, the Laboratory Facility Owner may transfer ownership of portable vacuum/ventilation devices to personnel in the Laboratory.

6.4.1 Fill out the applicable portions of a new "Portable Dust Collector and Ventilation Device Check Out/Check In Log," Form FMPC-SS-3378 (See Figure 1).

6.4.2 Transfer the unit to the designee.

## DESIGNATED OWNER

6.4.3 Sign the Check Out/Check In Log.

6.4.4 Inspect the unit condition and storage weekly.

## DESIGNATED OWNER

6.4.5 If the unit is to be moved to another room, proceed as follows:

NOTE: Units issued to the laboratory and are designated for use in a specific room shall not be used in another room unless the unit is reassigned.

6.4.5.1 Notify the Facility Owner of transfer.

## FACILITY OWNER

6.4.5.2 Inspect the unit to ensure the unit is clean and undamaged.

6.4.5.3 Sign the new Check Out/Check In Log for the new designated owner.

6.4.5.4 Issue the unit to the new designated owner.

## DESIGNATED OWNER

6.4.5.5 Sign the Check Out/Check In Log.

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## 7.0 APPLICABLE FORMS

7.1 FMPC-SS-3378, "Portable Dust Collector/Ventilation Device Check  
Out/Check In Log"

7.2 FMPC-SS-3379, "Portable Vacuum/Ventilation Device Request"

## 8.0 DRIVERS

8.1 INPO 88-20, "Use of Vacuum Cleaners in Radiologically Controlled  
Areas"



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FMPC  
PORTABLE VACUUM/VENTILATION DEVICE  
REQUEST AND EVALUATION

SECTION I - REQUESTOR	
DATE OF REQUEST:	DATE UNIT REQUIRED:
REQUESTOR'S NAME:	TITLE:
BADGE NUMBER:	PHONE EXTENSION:
TYPE OF UNIT REQUIRED: <input type="checkbox"/> Vacuum <input type="checkbox"/> Ventilation	UNIT WILL BE USED: <input type="checkbox"/> Inside <input type="checkbox"/> Outside
Unit approved for outside use _____ Radiological Safety	Date _____
Unit approved for outside use _____ Industrial Hygiene	Date _____
Unit approved for outside use _____ Fire & Safety	Date _____
Unit approved for outside use _____ Site-wide Compliance	Date _____
KIND OF MATERIAL TO BE VACUUMED: <input type="checkbox"/> Powder <input type="checkbox"/> Liquid <input type="checkbox"/> Damp Residue	MATERIAL IS: <input type="checkbox"/> Radioactive <input type="checkbox"/> Hazardous <input type="checkbox"/> Neither
ESTIMATE LENGTH OF USE: <input type="checkbox"/> Days _____ <input type="checkbox"/> Months _____	UNIT IS CURRENTLY IN MY POSSESSION: <input type="checkbox"/> Yes <input type="checkbox"/> No
TYPE OF MATERIAL TO BE VACUUMED: <input type="checkbox"/> Asbestos <input type="checkbox"/> Radionuclide <input type="checkbox"/> RCRA	
RCRA Material _____	
Other _____	
UNIT OPERATORS	BADGE NUMBER
PROPOSED LOCATION(S) OF USE: _____ _____	

VBA

(Continued on Reverse)

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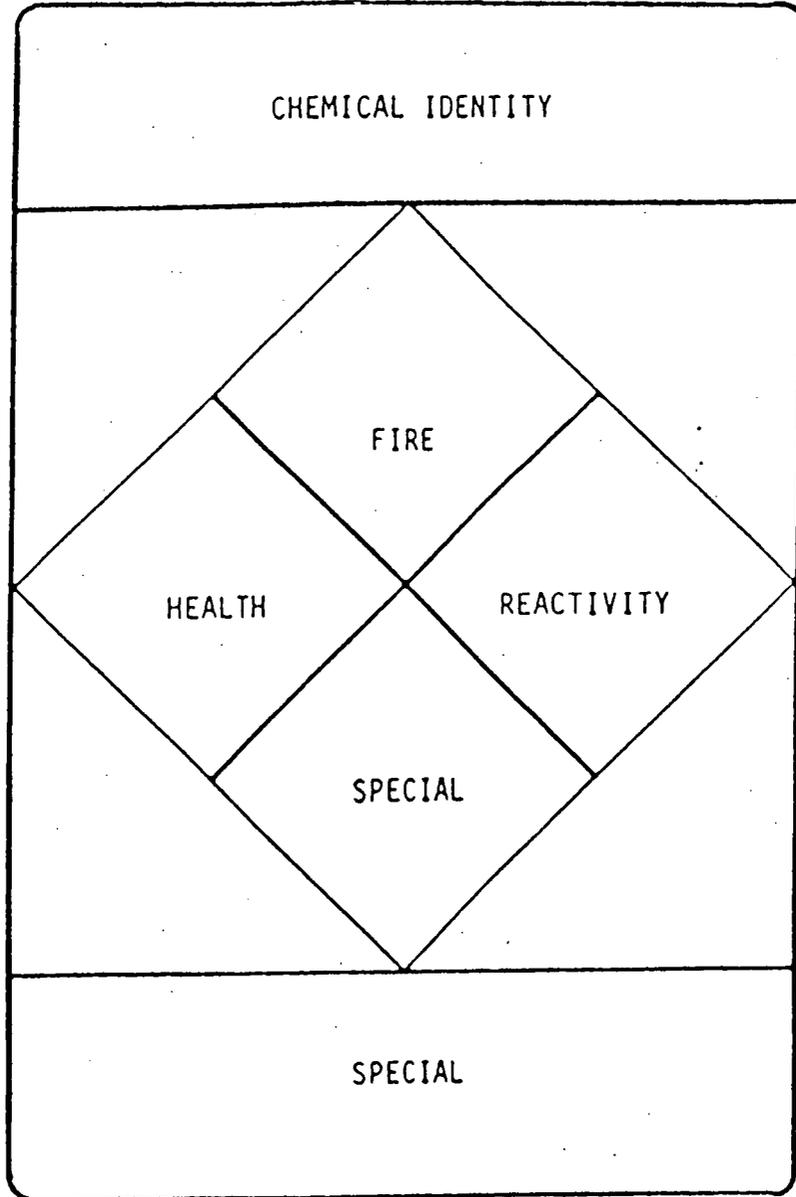
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SECTION II - PROJECT COORDINATOR

DATE:		TIME:	
EVALUATED BY:		BADGE NUMBER:	
OPERATOR QUALIFICATIONS VERIFIED: <input type="checkbox"/> Yes <input type="checkbox"/> No		UNIT AVAILABLE: <input type="checkbox"/> Yes <input type="checkbox"/> No	
UNIT ASSIGNED: <input type="checkbox"/> Yes <input type="checkbox"/> No		SERIAL NUMBER: Model _____ Make _____	
DATE UNIT ASSIGNED:		DATE OF UNIT'S NEXT PM:	
COMMENTS _____ _____ _____ _____			
<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved	PROJECT COORDINATOR'S SIGNATURE:		DATE:

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HAZARD COMMUNICATION (NFPA) LABEL  
Figure 3

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
12-20-91	0	Procedure required or control of portable vacuum cleaners and ventilation devices per Request No. P91-148, initiated by C. R. Palmer.

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SITE SERVICES MANUFACTURING SPECIFICATION	DISPOSAL OF WASTE FILTRATE AND EFFLUENTS	MS 8-BN/E-490-2
	<i>[Signature]</i>	AREA: Plant 8
Authorization: R. L. Gardner, Facilities and Warehousing	Supersedes: MS 8-BN/E-490-2, Dated 3-13-86	Issue Date: 02/25/92

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1	Nuclear Safety Requirements 1.25% Maximum
2	Materials Control and Accountability and Record Requirements
3	Raw Materials, Process, and Product Specifications

REPORTING RADIATION EXPOSURE

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 IRS&T Radiological Safety Section for evaluation. The involved personnel shall report to the Urine Sampling Station at the end of their shift to complete a Incident Investigation Report (IIR) (Form FMPC-ES&H-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 Safety Section.

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Revision No. 0SITE SERVICES  
MANUFACTURING  
SPECIFICATION

DISPOSAL OF WASTE FILTRATE AND EFFLUENTS

MS 8-BN/E-490-2

AREA: Plant 8

Authorization: R. L. Gardner,  
Facilities and WarehousingSupersedes: MS 8-BN/E-490-2,  
Dated 3-13-86Issue  
Date: 02/25/92SECTION 1.0 - NUCLEAR SAFETY REQUIREMENTS1.1 Material Types1.1.1 Feed Material

**NOTE:** Unlimited rating is based on a U density  $\leq 400$  U g/l (25 lb U/ft<sub>3</sub>) and free U metal content  $\leq 10\%$  by weight.

1.1.1.1 Feed consists of contaminated water or sump liquor, nonchloride, MTC 012, Unlimited.

1.1.1.2 Maximum enrichment shall be 1.25% U235.

1.1.2 Product Material

**NOTE:** Unlimited rating is based on a U density  $\leq 400$  U g/l (25 lb U/ft<sub>3</sub>) and free U metal content  $\leq 10\%$  by weight.

1.1.2.1 Product consists of wet filter cake, uranium bearing, MTC 069, unlimited.

1.2 Spacing Requirements, Container Color Coding and Identification, and Equipment Identification

1.2.1 Refer to SOP 20-C-904.

1.3 References

1.3.1 20-C-904, "General Nuclear Safety Requirements"

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## SECTION 2.0 - MATERIALS CONTROL AND ACCOUNTABILITY AND RECORD REQUIREMENTS

### 2.1 Nuclear Materials Control

2.1.1 Filtrate discard limit shall be a maximum of 0.0004 lb U/gal.

### 2.2 Record Requirements

2.2.1 For record purposes, the Plant 8 Control Room uses the "Plant 8 Sample Log" (FMPC-PRO-1632), "Report of Chemical Analysis" (FMPC-PRO-200), and "Report of Isotopic Analysis" (FMPC-PRO-T-971).

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Authorization: R. L. Gardner, Facilities and Warehousing	Supersedes: MS 8-BN/E-490-2, Dated 3-13-86	Issue Date: 02/25/92

### SECTION 3.0 - RAW MATERIAL, PROCESS, AND PRODUCT SPECIFICATIONS

#### 3.1 Raw Material

- 3.1.1 Raw materials include discard process residues and waste slurries. These include floor sump liquor; scrubber liquor; and sump liquors from Pilot Plant, Plant 1, Plant 4, Plant 8, Plant 9, Plant 2/3, Plant 6 Decontamination, General Sump sludge, fly ash from Boiler Plant, and sump cleanout from various sumps.

#### 3.2 Process Specifications

- 3.2.1 Effluents for discard shall have a pH of 10.0 to 11.0, a Cu content of 1.0 ppm maximum, and a U content of 0.0004 lb U/gal maximum.
- 3.2.2 Floor sump liquor for discard shall have a pH of 10.0 to 11.0.
- 3.2.3 Filtrate discard batch size (for pumping to General Sump) shall be 6000 gallons for Tanks 21A, 22A, and 28A and 22,000 gallons for Tank 25A.

#### 3.3 Product

- 3.3.1 Product consists of wet sump filter cake, MTC 069, from the Oliver filter and wet filter cake, MTC 069, from the East Eimco Filter and West Eimco Filter. Other MTC's may be specified by MC&A for special filter batches.

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
03-13-86	N/A	Request for new MS per MS Change Request No. P86-018, initiated by T. N. Huey.
04-25-86	N/A	Procedure revised to reflect processing and storing POOS material per MS Change Request P86-076, initiated by T. N. Huey.
05-16-86	N/A	Procedure revised to change material type code number for raffinate per MS Change Request No. P86-121, initiated by T. N. Huey.
05-16-86	N/A	Procedure revised to change Pu limits for discharge of effluent and to change material type code number for raffinate per MS Change Request No. P86-121, initiated by T. N. Huey.
02-25-92	0	Reissued to update Sections 1 and 3 for UNH removal action per Request No. P91-662, initiated by C. A. Glassmeyer.

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Title: RECEIVING, ON-SITE MOVEMENT AND OFF-SITE SHIPMENT OF NONRADIOACTIVE HAZARDOUS MATERIAL	DOCUMENT NO: SSOP-0003 REVISION NO. 1
Authorization:  H. F. Daugherty, President	Supersedes: None Effective Date: 04-30-92

## 1.0 PURPOSE

This document defines the procedure for receiving, on-site movement, and off-site shipment of nonradioactive hazardous material.

## 2.0 SCOPE

This procedure applies to organizations involved in the receiving, on-site movement, and off-site shipment of nonradioactive hazardous material.

## 3.0 DEFINITIONS

- 3.1 Control Person - A facility owner or designee accountable for nonradioactive hazardous material or receiving nonradioactive hazardous material at their facility.
- 3.2 Hazardous Material - A material or substance, including a hazardous substance, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, or property during transport.
- 3.3 Material Safety Data Sheet (MSDS) - A written document provided by the manufacturer of a chemical that identifies the constituents, health hazards, exposure limits, necessary precautions and controls, and emergency first aid procedures associated with the chemical.
- 3.4 Nonradioactive Hazardous Material - A material or substance, including a hazardous substance, that has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, or property during transport that has a specific activity of 0.002 microcuries per gram or less per DOT Regulations (Title 49 CFR).
- 3.5 Off-Site - All areas of the FEMP outside the boundaries of the main perimeter security fence that are not controlled at all times by guards and security fences allowing limited access.
- 3.6 On-Site - All areas of the FEMP inside the main perimeter security fence that are controlled at all times by guards and security gates allowing limited access.
- 3.7 Packaging - The assembly of containers and any other components attached thereto, including inner receptacles, absorbent material, supporting structure, thermal insulation, and supplementary attached equipment.
- 3.8 Package - The package, together with its contents, as presented for transportation.

OFF-SITE DOCUMENT PROGRAM		PROCEDURE Page 2 of 15
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### 3.0 DEFINITIONS (cont.)

- 3.9 Shipment Originator - The person or WEMCO section who initiates an on-site movement or off-site shipment of nonradioactive hazardous material.
- 3.10 Working Quantity - An amount of material that can be carried to the jobsite (for example, the quantity needed for one work day).

### 4.0 RESPONSIBILITIES

- 4.1 Facilities & Warehousing - Responsible for assigning personnel and equipment for receiving, on-site movement, and off-site shipment of nonradioactive hazardous materials.
- 4.2 Inventory Control and Warehousing - Responsible for Warehouse Attendants who inspect and verify the accuracy of shipments of nonradioactive hazardous material, affixes applicable placards to carrier trailer if required, and verifies marking and labeling of packages as required. Also responsible for receiving, inspecting and expediting incoming shipments of nonradioactive hazardous materials against applicable receiving document.
- 4.3 Logistics Administration (Traffic) - Responsible for ensuring compliance with all Federal, State and local regulations, DOE Orders and Directives, and for reviewing support documentation, preparing bill of lading and other shipping documentation as required, providing guidance on the requirements for packaging, marking, labeling, and shipping of nonradioactive hazardous materials including coordinating the scheduling of off-site shipment(s) with carriers.
- 4.4 Materials Control and Accountability - Responsible for reviewing all documentation associated with off-site shipments including quality assurance documentation.
- 4.5 Radiological Safety - Responsible for conducting radiological surveys of materials, packages, and carrier vehicles that will be used for off-site shipments, documenting results of surveys, and providing copies of the results as required.
- 4.6 Shipment Originator - Responsible for accumulating and coordinating the packaging of nonradioactive hazardous materials and preparing documentation for materials for off-site shipment.

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#### 4.0 RESPONSIBILITIES (cont.)

- 4.7 Site-Wide Quality Assurance - Responsible for verifying the packaging processes for nonradioactive hazardous materials and other related materials and for conducting periodic inspections of packaging operations. Coordinate all required Quality Assurance review activities including conducting annual audits of the packaging and transportation of hazardous material shipments.

#### 5.0 GENERAL

- 5.1 Nonradioactive hazardous materials received on-site in DOT specification packaging shall be transported on-site in the same packaging.
- 5.2 Empty DOT specification packaging(s) shall be retained at the on-site delivery point for use in future on-site movements of the same nonradioactive hazardous material.
- 5.3 WEMCO shall have a Material Safety Data Sheet (MSDS) for each nonradioactive hazardous material which is used. Copies of the required MSDS for each material shall be maintained in the workplace and be readily accessible during each work shift to employees when they are in their work areas.
- 5.4 All non-routine shipments and/or receipts not covered by specific procedure shall have formal plans developed that describe the process, requirements and organizational interface before work proceeds.

#### 6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

None

#### 7.0 PROCEDURE

##### 7.1 Receiving Material

##### SITE SERVICES, INVENTORY CONTROL & WAREHOUSING

- 7.1.1 Receive nonradioactive hazardous material per applicable department procedures.

##### 7.2 On-Site Movement of Nonradioactive Hazardous Material

##### SHIPMENT ORIGINATOR

- 7.2.1 Identify and quantify material by completing Form FMPC-OPR-3292 (See Figure 1).

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## 7.0 PROCEDURE (cont.)

### SHIPMENT ORIGINATOR

7.2.2 Contact Site Services or Inventory Control & Warehousing to package material.

7.2.3 Notify Radiological Safety when package is complete and ready for a radiological survey.

**NOTE:** A radiological survey does not have to be conducted if the material is being moved from a lower radiological control area to a higher radiological control area.

7.2.4 Complete a Nonradioactive Hazardous Material Shipment Approval Tag (FMPC-OPR-2947) (See Figure 2) and attach to the package.

7.2.5 Attach to the package the vendor supplied MSDS for the Nonradioactive Hazardous Material.

7.2.6 Attach a copy of the Radiological Survey Report (FS-F-1993-1) (See Figure 3) to Logistics Administration's copy of the WMO Hazardous Material Transfer On-Site Shipment (FMPC-OPR-3292) (See Figure 1).

7.2.7 Notify Facilities & Warehousing for movement of the material.

7.2.8 Provide Facilities & Warehousing with Form FMPC-OPR-3292 (See Figure 1).

7.2.9 If the material is not immediately moved, temporarily store material per the requirements of Table 1.

### FACILITIES & WAREHOUSING

7.2.10 Move packaged material per applicable department procedure.

## 7.3 Receipt of Requested Nonradioactive Hazardous Material from On-site Location

7.3.1 Check that the material received corresponds to the material identified by form FMPC-OPR-3292 (See Figure 1).

7.3.2 If discrepancies are found notify supervisor.

607.3.3 Ensure that the attached MSDS matches material as identified on form FMPC-OPR-3292 (See Figure 1).

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## 7.0 PROCEDURE (cont.)

7.3.4 Sign the WCMCO Hazardous Material Transfer On-Site Shipment (FMPC-OPR-3292) (See Figure 1) and distribute copies to the sections indicated on the lower left portion of the form.

## 7.4 Off-Site Shipment

### SHIPMENT ORIGINATOR

7.4.1 Provide Logistics Administration with minimum 24 hour advance notice of off-site shipment of material.

7.4.1.1 Identify and quantify material by completing form FMPC-CONT-3388 (See Figure 4).

7.4.1.2 Provide Logistics Administration with the information required to determine applicable shipping requirements.

7.4.1.3 Contact Facilities & Warehousing or Inventory Control & Warehousing to package material for shipment.

7.4.1.4 Notify Radiological Safety when the packaging is complete and ready for a radiological survey.

7.4.1.5 Obtain appropriate signatures from Radiological Safety on form FMPC-CONT-3388, indicating that packaged material is not radioactive.

7.4.1.6 Complete Nonradioactive Hazardous Materials Shipment Approval tag (FMPC-OPR-2947) (See Figure 2) and attach to the package.

7.4.1.7 Attach a vendor supplied MSDS to the package for nonradioactive hazardous material.

7.4.1.8 Submit the completed Shipping Order for Hazardous Materials/Hazardous Waste-Non-Nuclear (FMPC-CONT-3388) (See Figure 4) to Materials Control and Accountability for approval.

7.4.1.9 Attach a copy of the Radiological Survey Report (FS-F-1993-1) (See Figure 3) to the approved Shipping Order for Hazardous Materials/Hazardous Waste-Non-Nuclear (FMPC-CONT-3388) (See Figure 4) and forward the documentation to Site Services Logistics Administration so that a bill of lading may be prepared for off-site shipment.

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7.0 PROCEDURE (cont.)

SHIPMENT ORIGINATOR

- 7.4.1.10 Notify Facilities & Warehousing when the material is ready to be moved to the predetermined loading dock.
- 7.4.1.11 Provide Facilities & Warehousing with Form FMPC-CONT-3388 (See Figure 4).
- 7.4.1.12 If the material is not immediately moved, temporarily store per requirements of Table 1.

INVENTORY CONTROL & WAREHOUSING

- 7.4.2 Conduct inventory control activities of nonradioactive hazardous materials packages per applicable department procedure.

LOGISTICS ADMINISTRATION

- 7.4.3 Notify carrier to dispatch driver to FEMP for shipment pick-up when the load is ready for shipment.
- 7.4.4 Verify that the vehicle inspections are conducted and documented on the OFFSITE LOADING - TIE DOWN INSPECTION - VEHICLE INSPECTION (FMPC-SAML-2495) (See Figure 5).
- 7.4.5 Request Radiological Safety to conduct a radiological survey of the carrier vehicle trailer.
- 7.4.6 Verify that the Radiological survey results comply with applicable regulations and are documented on the Vehicle Radiation Monitoring Report (FS-IRS&T-1596-1).
- 7.4.7 Upon receipt of the Shipping Order for Hazardous Materials/Hazardous Waste-Non-Nuclear, prepare a bill of lading as applicable.

NOTE: A bill of lading is required for common carrier transportation.

- 7.4.8 Request Radiological Safety to conduct a radiological survey of carrier vehicle tractor prior to site departure as required per applicable departmental procedure(s).
- 7.4.9 Sign bill of lading and Shipping Order.

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## 7.0 PROCEDURE (cont.)

### MATERIALS CONTROL AND ACCOUNTABILITY

- 7.4.10 After receipt of all associated shipment documentation, review and document.
- 7.4.11 Sign shipping order to authorize release of off-site shipment of non-radioactive hazardous materials.

### RADIOLOGICAL SAFETY

- 7.4.12 Perform a radiological survey of transport vehicle tractor as required by applicable department procedure(s).
- 7.4.13 Complete Vehicle Radiation Monitoring Report (FS-IRS&T-1596-1) and forward to Logistics Administration.

### SHIPMENT ORIGINATOR

- 7.4.14 Sign the Shipping Order For Hazardous Materials/Hazardous Waste-Non-Nuclear (FMPC-CONT-3388) (See Figure 3) authorizing information provided on the form is correct.

### LOGISTICS ADMINISTRATION

- 7.4.15 Provide the Carrier/Driver with the written driver instruction packet, containing specific instructions regarding controls for hazardous material shipments if required.
- 7.4.16 Verify that applicable placards have been placed on the front and back, and opposite sides of carrier vehicle if applicable.
- 7.4.17 Complete and return Shipping Order for Hazardous Materials/Hazardous Waste-Non-Nuclear (FMPC-CONT-3388) (See Figure 1) to Materials Control and Accountability the day of shipment departure.

## 8.0 APPLICABLE DOCUMENTS

### 8.1 Drivers

- 8.1.1 DOE 1540.1, "Materials Transportation and Traffic Management"
- 8.1.2 OR 1540.1B, "Materials Transportation and Traffic Management"
- 8.1.3 DOE 1540.2, "Hazardous Material Packaging for Transport - Administrative Procedures"

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## 8.0 APPLICABLE DOCUMENTS (cont.)

- 8.1.4 DOE 5480.3, "Safety Requirements for the Packaging and Transportation of Hazardous Materials"
- 8.1.5 DOE 5700.6B, "Quality Assurance"
- 8.1.6 40 CFR Parts 116 -117, "Designation of Hazardous Substances and Their Reportable Quantities"
- 8.1.7 49 CFR Parts 100-199, "Hazardous Material Regulations"
- 8.1.8 49 CFR Parts 383-397, "Federal Motor Carrier Safety Regulations"

## 8.2 Reference Documents

None

## 9.0 APPLICABLE FORMS

- 9.1 Hazardous Material Transfer On-site Shipment, FMPC-OPR-3292 (Figure 1)
- 9.2 Nonradioactive Hazardous Materials Shipment Approval Tag, FMPC-OPR-2947 (Figure 2)
- 9.3 Radiological Survey Report, FS-F-1993-1 (Figure 3)
- 9.4 Shipping Order for Hazardous Material/Hazardous Waste-Non-Nuclear (Figure 4)
- 9.5 Off-Site Loading Tie-Down Inspection, Vehicle, Form FMPC-SAML-2495 (Figure 5)

## 10.0 FIGURES

- 10.1 Figure 1, "WACO Hazardous Material Transfer On-Site Shipment"
- 10.2 Figure 2, "Nonradioactive Hazardous Materials Shipment Approval"
- 10.3 Figure 3, "Radiological Survey Report"
- 10.4 Figure 4, "Shipping Order for Hazardous/Materials Waste-Non-Nuclear"
- 10.5 Figure 5, "Off-Site Loading Tie-Down Inspection, Vehicle"

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TABLE 1  
HAZARDOUS MATERIALS SEGREGATION/SEPARATION CHART

HAZARDOUS MATERIALS STORAGE REQUIREMENTS

(The Letter "X" Indicates that these Materials MUST NOT be Loaded or Stored Together"

NUMBER	HAZARDOUS MATERIAL	1	2	3	4	5	COMMENTS
1	Flammable Liquids or Flammable Gases; Flammable Liquid or Flammable Gas Label					X	*3-Corrosive liquids must not be loaded above or adjacent to flammable solids, or oxidizing materials, except that shippers loading truckload shipments of corrosive liquids and flammable solids or oxidizing materials packages and who have obtained prior approval from the Department may load such materials together when it is known that the mixture of contents would <u>not</u> cause a dangerous evolution of heat or gas.
2	Flammable Solids; Flammable Solid Label; Oxidizer; Oxidizer Label; Organic Peroxide; Organic Peroxide Label			X		X	
*3	Corrosive Liquids; Corrosive Label		X			X	
4	Nonflammable Gases; N.F.G. Label						
5	Poisonous Gases or Liquids in Tank Car Tanks, Cylinders; Poison Gas Labels	X	X	X			



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## Nonradioactive Hazardous Materials Shipment Approval

---

This shipment  
has been inspected  
and approved for  
shipment.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

FMPC-OPR-2947 (REV. 5/18/90)

Title: RECEIVING, ON-SITE MOVEMENT AND OFF-SITE  
 SHIPMENT OF NONRADIOACTIVE HAZARDOUS MATERIAL

DOCUMENT NO: SSOP-0003  
 REVISION NO. 1

Authorization:  
 H. F. Daugherty, President

Supersedes: None

Effective Date: 04-30-92

FMPC  
 ENVIRONMENT, SAFETY & HEALTH - ENVIRONMENTAL & RADIOLOGICAL MONITORING  
 RADIOLOGICAL SURVEY REPORT - PLANT 5

Date:	LOCATION: Plant 5	ERMT:	ROUTE TO: D. E. Ames A. B. Colquhoun
Time:	Production Offices		
REASON FOR SURVEY: <input checked="" type="checkbox"/> ROUTINE <input checked="" type="checkbox"/> SPECIAL REQUEST		SOP#	
COMMENTS: Weekly Contamination Survey of Plant 5 Production Offices		INSTRUMENTS	
		MODEL	SERIAL NUMBER
		BKRD.	EFF.
		ANALYZE FOR: <input checked="" type="checkbox"/> ALPHA <input checked="" type="checkbox"/> BETA-GAMMA	
		<input type="checkbox"/> TOTAL U <input type="checkbox"/> PARTICULATE	
		TYPE OF SURVEY: <input type="checkbox"/> CONTAMINATION <input type="checkbox"/> STACK FILTER	
		<input type="checkbox"/> RADIATION <input type="checkbox"/> OTHER	

SAMPLE NUMBER	ITEM NUMBER	DESCRIPTION	DOSE RATE		DPM ALPHA		DPM BETA-GAMMA	
			CONTACT	3 FT.	100 CM <sup>2</sup>   PROBE	100 CM <sup>2</sup>   PROBE		
	1	Step Off Pad						
	2	Cabinet Top						
	3	Floor						
	4	Desk Top						
	5	Top of Light Fixture						
	6	Cabinet Top						
	7	Floor						
	8	Floor						
	9	Desk Top						
	10	Floor						
	11	Floor						
	12	Window Sill						
	13	Ledge						
	14	Step Off Pad						
	15	Floor						
	16	Desk Top						

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
01-30-91	0	SSOP required for receiving and transporting nonradioactive hazardous material per Request No. P91-025, initiated by C. S. Stapleton.
04-30-92	1	Revision required to implement DOE Order 1540.1, Rev. 4 per Request No. S92-097, initiated by C. S. Stapleton.

FEMP WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		Page 1 of 7 Revision No. 0
SITE SERVICES PROCEDURE	INSPECTING RCRA WASTE LOAD/UNLOAD AND STAGING AREAS	SOP 20-C-500 AREA: As applicable
Authorization: R. L. Gardner Facilities & Warehousing Manager	Supersedes: None	Issue Date: 04-14-92

### 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 Department/Staff 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 Safety to determine the appropriate respiratory Protection for the process being performed.
- 3.1.6 Issuing 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.

#### 3.2 Operators shall be responsible for complying with this SOP.

#### 3.3 Environmental Compliance & Quality Assurance (EC&Q) 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.

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		AREA: As applicable
Authorization: R. L. Gardner, Facilities & Warehousing Manager	Supersedes: None	Issue Date: 04-14-92

#### 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.
- 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.
- 6.4 Respiratory protection issued by the supervisor shall be worn when required by IRS&T.
- 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.

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## 6.0 INDUSTRIAL HEALTH & SAFETY REQUIREMENTS (cont.)

- 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 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.

**NOTE:** Warnings, cautions, and notes precede the Item or Step to which they apply.

## 7.0 PROCEDURE

**NOTE:** Areas shall be inspected at the start of day shifts when loading/unloading material is scheduled.

### 7.1 Inspecting Loading/Unloading Areas

**NOTE:** Emergency equipment shall be accessible, intact, and have a current inspection or charge tag.

**NOTE:** 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:** Floors and curbs shall be free of debris and intact (no cracks, breaks, holes).

**NOTE:** Not Applicable (N/A) shall be entered when an item does not apply.

- 7.1.1 Inspect loading/unloading areas and containers per the "RCRA Waste Loading/Unloading Area Inspection Log", Form FMPC-OPR-3268 (See Figure 1).

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## 7.0 PROCEDURE (cont.)

### 7.2 Staging Area Inspection

**NOTE:** Only one inspection per day is required, before or after loading/unloading RCRA material.

- 7.2.1 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).

### 7.3 Record Distribution

**NOTE:** 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:** Completed inspection forms shall be distributed as required and maintained in a file for three years from the date of the inspection.

- 7.3.1 Turn the completed inspection forms over to the supervisor.

## 8.0 APPLICABLE FORMS

- 8.1 FMPC-OPR-3268, "RCRA Waste Loading/Unloading Area Inspection Log".
- 8.2 FMPC-OPR-3305, "Trailer Staging Area Pre- and Post Load/Unload (RCRA Material) Inspection Checksheet".

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<b>FEMP</b> <b>WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO</b> <b>SITE SERVICES DOCUMENT PROGRAM</b>		Page 5 of 7 Revision No. 0
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Authorization: R. L. Gardner, Facilities & Warehousing Manager		Supersedes: None  Issue Date: 04-14-92

FMPC  
RCRA WASTE LOADING/UNLOADING AREA INSPECTION LOG

Area: \_\_\_\_\_ Inspected By: \_\_\_\_\_ Badge No.: \_\_\_\_\_  
 Date: \_\_\_\_\_ Supervisor: \_\_\_\_\_ Badge No.: \_\_\_\_\_

ITEM	DESCRIPTION	ACCEPTABLE		DESCRIPTION OF UNACCEPTABLE CONDITION (1)	COMMENT
		YES	NO		
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.

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FMPC OPR 3268

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SITE  
 SERVICES  
 PROCEDURE

INSPECTING RCRA WASTE LOAD/UNLOAD  
 AND STAGING AREAS

SOP 20-C-500

AREA: As applicable

Authorization: R. L. Gardner,  
 Facilities & Warehousing Manager

Supersedes: None

Issue  
 Date: 04-14-92

FMP  
 TRAILER STAGING AREA PRE- AND POST-LOAD/UNLOAD (RCRA MATERIAL)  
 INSPECTION CHECKSHEET

DATE:	AREA:	INSPECTED BY:
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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 <sup>(1)</sup>							
Evidence of spill <sup>(2)</sup>							
Container condition <sup>(3)</sup>							

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 <sup>(4)</sup>							
Material stored in accordance with applicable SOPs							

- <sup>(1)</sup> Do not load or unload unless all spill equipment is accessible
- <sup>(2)</sup> Do not unload containers until spilled material has been removed and permission granted to unload
- <sup>(3)</sup> Do not load/unload damaged containers.
- <sup>(4)</sup> 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

FMP SOP 3305 (2-13-91)

FEMP WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE SERVICES DOCUMENT PROGRAM		Page 7 of 7 Revision No. 0
SITE SERVICES PROCEDURE	INSPECTING RCRA WASTE LOAD/UNLOAD AND STAGING AREAS	SOP 20-C-500
		AREA: As applicable
Authorization: R. L. Gardner, Facilities & Warehousing Manager		Supersedes: None Issue Date: 04-14-92

RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO.</u>	<u>DESCRIPTION AND AUTHORITY</u>
04-14-92	0	Procedure required for inspecting RCRA Loading/Unloading and Trailer Staging Areas per request P90-357, initiated by J. W. Ogg.

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Title: PREPARING AND TRANSFERRING UNCHARACTERIZED WASTE TO THE CONTROLLED HOLDING AREA		DOCUMENT NO: SSOP-0008 REVISION NO. 1
Authorization: <i>W. H. Britton</i> W. H. Britton, President	Supersedes: None	Effective Date: 01-13-92

### 1.0 PURPOSE

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.

### 2.0 APPLICABILITY

This procedure applies to uncharacterized waste (excluding exceptions stated in 5.0 of this procedure) from any source on site which requires holding in the CHA during the waste characterization period.

### 3.0 RESPONSIBILITIES

3.1 The Material Generator Supervisor shall be responsible for the following:

3.1.1 Contacting Industrial Hygiene or Radiological Safety to determine the appropriate respiratory protection for the process being performed.

3.1.2 Providing operators with the required respiratory protection and other protective safety equipment.

3.1.3 Ensuring the transport of uncharacterized waste to the CHA within three days from the date the container is declared full.

3.1.4 Obtaining required work permits.

3.2 The Material Generator shall be responsible for complying with this procedure.

3.3 Materials Control and Accountability (MC&A) shall be responsible for preparing and maintaining required documentation per this procedure.

3.4 Facilities Services shall be responsible for the following:

3.4.1 Signing for the waste shipment prior to transfer to the CHA.

3.4.2 Transporting containers to the CHA as requested.

3.5 Quality Assurance shall be responsible for performing periodic surveillance activity to verify requirements of this procedure are being met.

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#### 4.0 DEFINITIONS

- 4.1 Controlled Holding Area (CHA) - The area designated for storing uncharacterized waste and staging characterized waste.
- 4.2 Spill - Any unplanned event involving spilling, leaking, pumping, pouring, injection, escaping, emitting, emptying, leaching, releasing, dumping, discharging, or disposing of hazardous material on to the ground, into water, or into the air, within or beyond the boundaries of the FEMP.
- 4.3 Uncharacterized Waste - For this procedure, this term refers to emergency waste (i.e. spills), newly generated waste streams which require sampling, and newly identified backlog waste that requires evaluation.
- 4.4 Soil Boring Material - Residual material accumulated from soil drilling.
- 4.5 Assistant Emergency Duty Officer (AEDO) - The AEDO is the onsite management authority for all unplanned and unwanted events. This position is filled by a Utilities Engineer.
- 4.6 Newly Identified Backlog Waste - A waste stream identified after June 30, 1990 (e.g. previously not inventoried).
- 4.7 Newly Generated Waste - A waste stream which is generated after June 30, 1990.

#### 5.0 GENERAL

- 5.1 This procedure shall not be used for waste generated by a soil boring activity.
- R 5.2 This procedure excludes backlog waste, construction-generated waste, and  
R waste stored in tanks, silos, bins, or process equipment.
- 5.3 A "Material Evaluation", Form FMPC-OPR-3252 shall be initiated per SSOP-0002 prior to the generation of any waste streams, excluding waste streams generated by an emergency.

#### 6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

- 6.1 A defined safety system is not involved.
- 6.2 Personnel safety equipment (eyewash, fire extinguisher, safety showers) shall be available for emergencies.

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## 6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

- 6.3 Industrial Hygiene shall evaluate the work environment at the start of each lot sampling or the transfer of hazardous material from drums to tank storage.
- 6.4 Safety glasses shall be worn unless other eye protection is specified by IRS&T. Goggles or face shields shall be worn when handling caustic, acids, or any other chemical which could cause immediate skin damage upon contact.
- 6.5 Respiratory protection provided by the supervisor shall be worn when required.
- 6.6 Leather-palm gloves shall be worn while handling drums, operating equipment, and when handling rough, sharp-edged, or contaminated materials.
- 6.7 Neoprene rubber gloves shall be worn when skin contact with hazardous chemical waste is possible.
- 6.8 A rubber apron shall be worn when handling caustic, acids, or a chemical that could cause skin damage.
- 6.9 In case of contact with acid or caustic, contaminated clothing shall be removed immediately and the affected body area flushed with water for a minimum of 15 minutes in eye bubbler/safety shower. Injured personnel shall report to Medical Services immediately.
- 6.10 A spill of hazardous material shall be reported to the supervisor immediately, or in the supervisor's absence, the AEDO.
- 6.11 Any circumstance which could have resulted in an intake of radioactive material by inhalation, ingestion or absorption shall immediately be reported to a supervisor. The supervisor shall immediately report the circumstances of possible radioactive materials intake to IRS&T Radiological Safety Section for evaluation. The involved personnel shall report to the Urine Sampling Station at the end of their shift to complete a Incident Investigation Report (IIR) (Form FMPC-ES&H-1458), and submit an incident 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.

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## 7.0 PROCEDURE

### 7.1 Preparation of Uncharacterized Waste for Transfer to CHA

#### MATERIAL GENERATOR

- 7.1.1 Upon receipt of a container, contact Operable Unit 3 (OU3) Compliance to verify a Material Evaluation Form (MEF) has been initiated.
- 7.1.1.1 If a MEF has been initiated, obtain confirmation from OU3 Compliance for the disposition of the waste.
- 7.1.1.2 If a MEF has not been initiated, proceed to 7.1.2.
- 7.1.2 Obtain a numbered "Material Evaluation", Form FMPC-OPR-3252 from Waste Management Records and initiate the "Material Evaluation" per SSOP-0002.
- 7.1.3 For material in a container, complete the following:
- 7.1.3.1 Ensure the container lid is secure.
- 7.1.3.2 Obtain a clear, weather-resistant, self-adhesive envelope from FEMP stores and affix to the lid of the container.
- 7.1.3.3 Record the Material Evaluation Form (MEF) number in the upper right corner on an "Item Production/Certification/Identification" (65 Card), Form FMPC-CONT-1945-XX and a "Nuclear Material Transfer Record" (68/69 Card), Form FMPC-AC-1990.
- 7.1.3.4 Insert the 65 Card and the 68/69 Card into the plastic envelope on the container lid.
- 7.1.3.5 Proceed to Step 7.1.7.
- 7.1.4 For an uncharacterized waste spill, complete the following:
- 7.1.4.1 Report and control the spill per FMPC-0503.

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7.0 PROCEDURE (cont.)

7.1.4.2 Obtain an empty container as specified by the supervisor and move container near the applicable scale for weighing.

NOTE: If a scale is not available in the area, the container shall be weighed at the CHA by CHA personnel.

7.1.4.3 If not previously completed, inspect the scale to be used per the SOP applicable to the area.

7.1.4.4 Tare weigh the container per the SOP applicable to the area and remove from scale.

7.1.4.5 Stencil the tare weight on the side of the container as shown in Figure 1.

7.1.4.6 Obtain a clear, weather-resistant, self-adhesive envelope from FEMP stores and affix to the lid of the container.

7.1.4.7 Record the MEF number on a 65 Card and a 68/69 Card in the upper right corner.

7.1.4.8 Insert the 65 Card and the 68/69 Card into the plastic envelope on the container lid.

7.1.4.9 Remove container lid and fill container with waste material approximately three inches from the top of the container.

7.1.4.10 Install the lid and bolt-type lock ring on an open head container, or install the threaded bung plug on a bung head container and secure as follows:

7.1.4.10.1 Check gasket placement and condition of the lid (for open head drums). Replace damaged gaskets/lids.

7.1.4.10.2 Seat lid evenly on open head container or screw bung plug into bung hole tightly and evenly using a bung wrench.

7.1.4.10.3 Place locking bolt ring on lid of open head container ensuring the flanges point downward from lock ring (See Figure 2).

NOTE: Locking bolt shall be positioned no more than six inches from the seam of the container. 533

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7.0 PROCEDURE (cont.)

7.1.4.10.4 Install locking bolt shaft through unthreaded flange, locking nut, and then threaded flange (See Figure 2) so that the bolt head rests against unthreaded flange.

7.1.4.10.5 Manually tighten the locking nut against the threaded flange. Then using a wrench, tighten the nut against the flange an additional 1/4 turn.

7.1.5 Inspect the forklift to be used per the "Gas, LPG, Diesel Fuel Equipment Operators Check," Form FMPC-OPR-2414.

7.1.6 Using a forklift, move the filled container on to the scale for weighing.

**MATERIAL GENERATOR SUPERVISOR**

7.1.7 Specify the scale to be used and ensure the container is weighed prior to transferring the container to the CHA.

**MATERIAL GENERATOR**

7.1.8 Weigh the container to obtain the gross weight.

7.1.9 If the container is within the specified weight limit, proceed to Step 7.1.11.

NOTE: Maximum weight per 55 gallon drum is 1,200 pounds gross.

7.1.10 If the container is over the specified weight limit of 1,200 pounds gross, remove container from scale, transfer the excess waste to a new container and reweigh as follows:

7.1.10.1 Obtain a new container specified by the supervisor, obtain tare weight, and identify in accordance with this procedure.

7.1.10.2 Remove the lock ring and lid or bung head from container holding the waste.

7.1.10.3 Using scoop or approved removal device, remove waste from the container and place in the new container until the container is within limits or place material in an unweighed, underfilled drum of the same lot.

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## 7.0 PROCEDURE (cont.)

7.1.10.4 Seal both containers by installing a lid and bolt-type lock ring on an open head container, or install a threaded bung plug on a bung head container and secure by completing Substeps 7.1.4.10.1 through 7.1.4.10.5.

7.1.10.5 Using the forklift, move each container on to the scale and weigh separately ensuring each container is within the specified weight limit.

7.1.11 Remove the 65 Card from the envelope on the container lid.

7.1.12 Record the gross weight, net weight, lot sequence number, and badge number on the 65 Card.

7.1.13 Sign the area provided for the generator's signature on the 65 Card.

7.1.14 Using the forklift, move the container from the scale.

7.1.15 Stencil the gross weight, net weight, lot sequence number, and container number on the container as shown in Figure 1.

7.1.16 Notify supervisor the container is prepared for the CHA.

### MATERIAL GENERATOR SUPERVISOR

7.1.17 Record the date and time the container is declared full and sign the area provided for the supervisor's signature on the 65 Card.

7.1.18 Notify MC&A the 68/69 Card requires completion.

### MC&A REPRESENTATIVE

7.1.19 Complete the 68/69 Card and return to the material generator.

### MATERIAL GENERATOR

7.1.20 Upon receipt of the 68/69 Card from MC&A, notify the supervisor.

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## 7.0 PROCEDURE (cont.)

### MATERIAL GENERATOR SUPERVISOR

7.1.21 Sign the area indicated for the shipper signature on the 68/69 Card.

### MATERIAL GENERATOR

7.1.22 Upon receipt of the signed 65 Card and 68/69 Card, insert the cards into the envelope on the container lid.

7.1.23 Stencil the date that the container was declared full on the container in the area titled "Accumulation Start Date" as shown in Figure 4.

7.1.24 Notify the supervisor that the container is ready for transport to the CHA.

### MATERIAL GENERATOR SUPERVISOR

7.1.25 Notify Facilities Services and CHA Supervisor the container is ready for transport to the CHA.

### FACILITIES SERVICES

7.1.26 Obtain from IRS&T any protective equipment requirements for transporting container and ensure the MEF has been approved by IRS&T.

7.1.27 Transport the container per applicable department procedure to the CHA.

## 8.0 APPLICABLE DOCUMENTS

### 8.1 Drivers

8.1.1 DOE 5400.3, "Hazardous and Radioactive Mixed Waste Management"

### 8.2 Reference Documents

8.2.1 SSOP-0002, "Completing the Material Evaluation Form"

8.2.2 FMPC-0503, "FMPC Spill Incident Reporting and Cleanup"

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#### 9.0 APPLICABLE FORMS

- 9.1 FMPC-OPR-3252, "Material Evaluation"
- 9.2 FMPC-CONT-1945-XX, "Item Production/Certification/Identification"
- 9.3 FMPC-AC-1990, "Nuclear Material Transfer Record"
- 9.4 FMPC-OPR-2414, "Gas, LPG, Diesel Fuel Equipment Operators Check"

#### 10.0 FIGURES

- 10.1 Figure 1, Diagram of Container Identification
- 10.2 Figure 2, Diagram of Lock Ring

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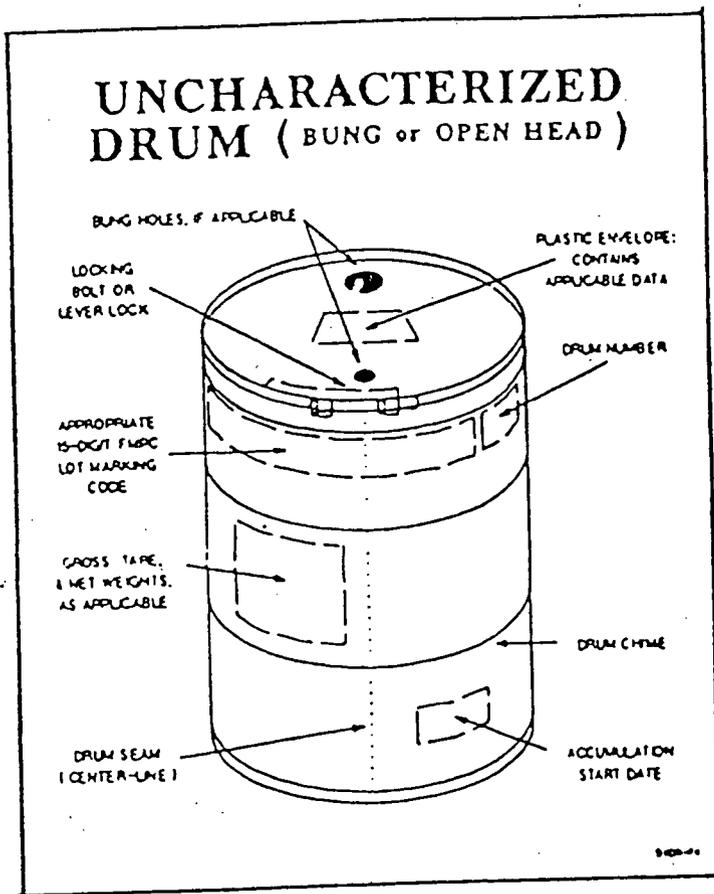
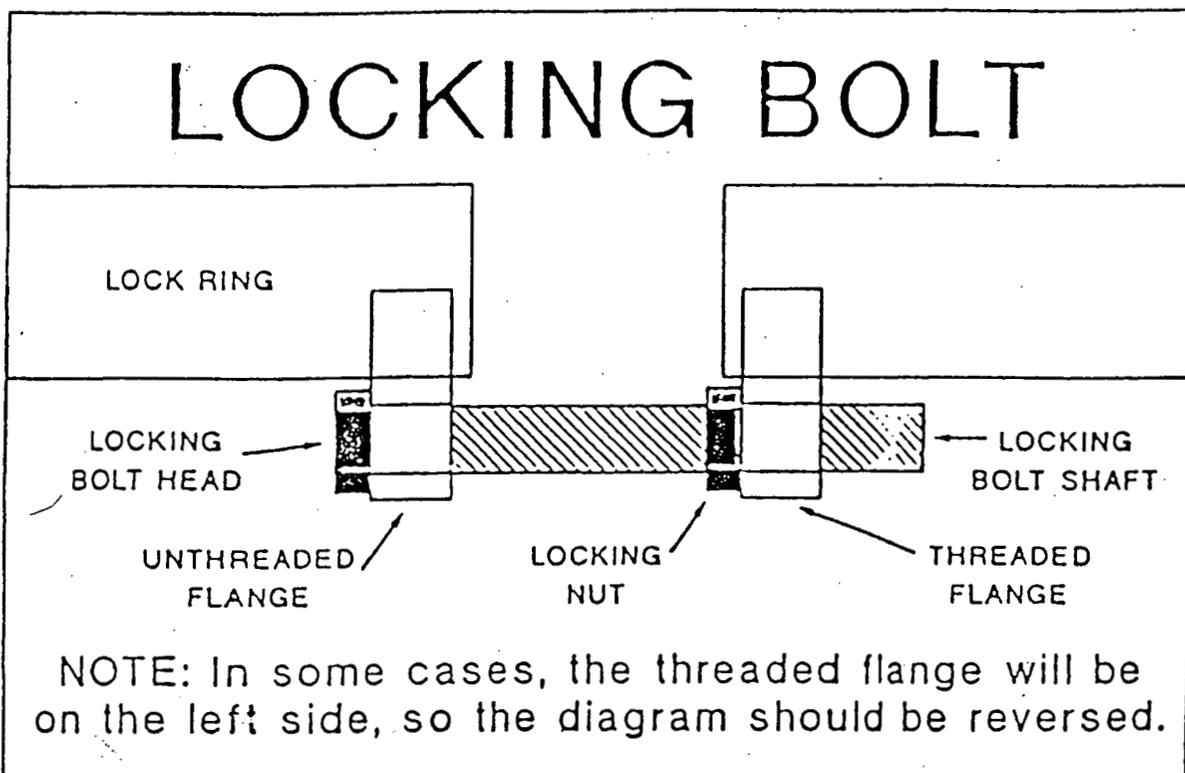


DIAGRAM OF CONTAINER IDENTIFICATION  
Figure 1

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RECORD OF ISSUE/REVISIONS

<u>DATE</u>	<u>REV. NO</u>	<u>DESCRIPTION AND AUTHORITY</u>
08-20-91	0	New procedure required for preparing and transferring uncharacterized waste to a holding area per Request No. P91-061, initiated by J. Ogg.
01-13-92	1	Incorporation of T91-015 per Request No. S92-030, initiated by J. Carr.

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