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DOCUMENTATION SUPPORTING FEMP REMOVAL OF WASTE INVENTORIES - LOW LEVEL RADIOACTIVE WASTE AND THORIUM MANAGEMENT PROGRAM REMOVAL ACTION NUMBER 9 UPDATE JUNE 1994

06/22/94

DOE-FN 1138 REPORT

EPA

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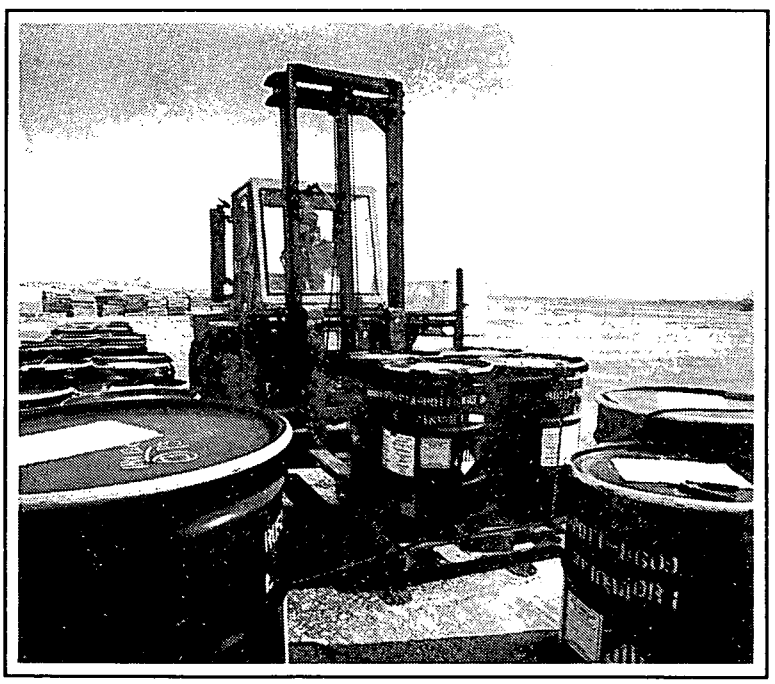
tation Supporting Environmental Management Project Removal of Waste Inventories

Low Level Radioactive Waste
and
Thorium Management Program
Removal Action Number 9



Update June 1994

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A. Program Overview

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B. Attachments

I. General Supporting Documentation

- DOE Order 5820.2A** - revised (10/28/93)
- IN-FMPC 6007, Site Document System - canceled (10/14/92) - replaced by SSOP-0103
- SSOP-0103, FEMP Site Document System - new (10/14/92)
- SDI-100, Site Document System Index* - new (monthly)
- DI-776, Remediation Support Operations Document Program Index* - new (quarterly)
- SSOP-0023, Deviation and Corrective Action Reporting* - revised (10/13/93)
- RM-FMPC 0002, Centralized Training Program Manual - canceled (01/19/94) - replaced by RM-0002
- RM-0002, Centralized Training Department Training Manual* - new (01/19/94)
- FMPC-2139, FMPC Quality Assurance Plan - canceled (09/27/91) - replaced by RM-0012
- RM-0012, FMPC Quality Assurance Program Description Rev.2 - revised (04/30/93)
- FEMP Site Health and Safety Plan** - revised to ES&H 1-1000 (02/15/94)
- Functional Requirements Document Management of PCBs and PCB Items* - new (11/93)

II. Implementing Procedures

Step 1. Generate Waste

- FMPC 307, Control and Accountability of Nuclear Materials - canceled (06/30/93) - replaced by PO 307
- PO 307, Control and Accountability of Nuclear Materials - new (06/30/93)
- SOP 1-C-604, Inspection of Containerized Refuse Material and Drummed Residues* - revised (12/28/93)

Step 2. Sample and Characterize

- SSOP-0002, Initiating Waste Characterization Activities Using the Material Evaluation Form (MEF), Rev.4* - revised (03/29/94)
- SOP 1-C-101, Sampling Residue and Waste Materials - canceled (05/18/93) - using SOP 20-C-805
- SOP 20-C-805, Sampling Drummed Waste for Hazard Identification* - new (12/16/93)
- SOP 20-C-625, Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment, Rev.1* - revised (02/04/94)
- Waste Characterization Manual* - new (07/21/93)

Step 3. Package for Storage

- FMPC 720, Control of Construction Waste - canceled (09/27/91) - using SSOP-0044
- SSOP-0044, Management of Excess Soil, Debris, and Waste from a Project, Rev.1* - revised (01/31/94)
- FMPC 314, Packaging, On-Site Movement and Off-Site Shipment of Material - canceled (12/20/91) - replaced by PP-314
- PP-314, Packaging, On-Site Movement and Off-Site Shipment of Material - new (12/20/91)
- SOP 20-C-600, Overpacking Defective Containers - revised (08/09/93)

- FMPC 2178, FMPC Lot Marking and Color Coding System - canceled (08/23/91) - replaced by RM-0005

- RM-0005, FEMP Lot Marking and Coding System, Rev.5* - revised (04/27/94)

- SOP 20-C-618, Completing the Low Level Radioactive Waste Container Data Sheet - canceled (03/18/93)

Step 4. Storage

- SOP 1-C-608, Storage of Radioactive Material* - revised (07/22/93)

Step 5. Package for Disposal

- SSOP-0024, Packaging of Low Level Radioactive Waste (LLRW) for Offsite Shipment - canceled (12/14/92) - replaced by SSOP-0075, -0078, and -0079

- SSOP-0075, Packaging of LLRW in Drums for Offsite Shipment - new (12/14/92)

- SSOP-0078, Packaging of LLRW in ISO Containers for Offsite Shipment - revised (04/05/93)

- SSOP-0079, Packaging of LLRW in Metal Boxes for Offsite Shipment*- revised (03/07/94)

- SSOP-1027, Managing PCBs and PCB Items* - revised (03/08/94)

- SOP 2-C-923, Trash Baler Operation* - revised (01/11/94)

- SOP 20-C-604, Control and Utilization of Contaminated Trash Dumpsters* -revised (01/11/94)

- EQP 12.07, Certification of Waste Package Examination and Sealing for Offsite Shipment - canceled (12/01/93) - replaced by QP 12.07

- QP 12.07, Certification of Waste Package Examination and Sealing for Offsite Shipment* - new (12/01/93)

Step 6. Loading and Transport

- SOP 1-C-602, Low Level Radioactive Waste Shipment Preparation* - revised (08/09/93)
- SOP TRF-46-C-110, Preparation and Shipment of Radioactive Materials (Low Level Waste) - inactive
- SOP 50-C-111, Traffic Documentation for Low Level Radioactive Waste to the Nevada Test Site*- new (04/15/94)
- SOP 50-C-112, Preperation of Documentation for Low Level Radioactive Waste to the Nevada Test Site*- new (04/15/94)
- SP-P-35-009, Radioactive Material Shipping and Receiving - canceled (10/14/93) - replaced by RCRDA-006
- RCRDA-006, Radiological Survey Requirements for Radioactive Material Shipping and Receiving* - new (10/14/93)
- EQP 12.04, Certification of Loading and Shipping of Low Level Radioactive Waste - canceled (12/11/93) - replaced by QP 12.04
- QP 12.04, Certification of Loading and Shipping of Low Level Radioactive Waste* - new (12/11/93)

Step 7. Disposal Facility Requirements and Criteria

- NVO-325, Nevada Test Site Defence Waste Acceptance Criteria, Certification, and Transfer Requirements, Rev.1** - revised (06/92)

Step 8. Fernald Site Obtains Approval to Ship for Disposal

- FEMP Application to Ship Waste the Nevada Test Low Level Site, Rev.5.2** - revised (12/93)
- Waste Certification Program Plan for Low Level Waste Characterization and Certification, Rev.7* - revised (12/93)
- FMPC 707, Audit Program - canceled (08/31/92) - replaced by SSOP-0049
- SSOP-0049, FEMP Quality Assurance Audit Program, Rev.1* - revised (10/18/93)

Step 9. Waste Analysis and Characterization Plans Developed and Implemented

- FMPC 2185, Sampling Plans for Drummed Waste at the FMPC - NC

Step 10. Waste Minimization Plans Developed

- Waste Minimization Plan - canceled (04/07/94) - replaced by PL-FMPC 3009
- PL-FMPC 3009, Waste Minimization Plan* - new (04/07/94)

Step 11. Waste Minimization Activities Fully Implemented

- SOP 01-104, Segregation of Wooden Pallets - canceled (10/10/91) - replaced by SOP 20-C-607
- SOP 20-C-607, Segregation of Wooden Pallets, Rev.1 - revised (08/09/93)

* Document new or revised since the last update and included in this submittal.

** Document available upon request

NC No Change, document not included

PURPOSE AND SCOPE

On August 30, 1991, the Department of Energy (DOE) submitted to the United States Environmental Protection Agency (US EPA) a compendium of existing procedures and documents, in lieu of a removal action work plan, for Removal Action No. 9. This submittal by June 30, 1994 of procedures, documents, and summaries are intended to update the 1991 deliverable and subsequent annual updates.

The organization of the material in this update is the same as that of the original submittal. New and revised procedures, documents, and summaries are indicated and the appropriate documentation are included (unless otherwise noted) if the change occurred since the last update. Documents that have not changed (NC) or have been canceled are noted but not included.

REMOVAL ACTION NUMBER 9 EXPANSION

The ongoing FEMP low-level radioactive waste and Thorium management programs, and associated waste shipment activities, were identified as Removal Action No. 9 by the Amended Consent Agreement of September 1991. The identification and management of PCBs and PCB items within OU3 has been identified by the DOE as a new element of Removal Action No. 9. This has been initiated to provide for this removal action to reduce the risk to human health, safety and the environment from the presence of on-site PCBs and PCB items.

The Functional Requirements Document (FRD) is a first step in the development of CERCLA removal documents and is included in this submittal. The FRD provides the following:

- general background information on the PCBs and PCB item removal;
- a discussion of the existing facilities in which PCBs and PCB items may exist;
- the scope of the intended removal action;
- functional objectives for the action;
- objectives for pre-removal action chacterization activities;
- the regulatory background and environment, the ARARs, safety requirements, DOE Orders and site standards;
- non-regulatory constraints;
- assumptions; and
- references used in the FRD.

The Site Standard Operating Procedure, SSOP-1027, Managing PCBs and PCB Items, has also been included in this submittal. This procedure provides instructions for managing PCBs and PCB items and applies to all personnel involved with the pre-removal action activities, planned maintenance activities, construction and/or demolition projects, closures, and removal/response actions that require the handling of PCBs and PCB items. Existing procedures and protocols that have been developed for related activities in Removal Action No. 9 will be utilized to maximize technical and cost effectiveness.

FY94 WASTE SHIPPING SCHEDULE

		Area Scrap			Construction			Residues To NTS			Residues To SEG			Contaminated Trash			Thorium 11 & 12			AMCCOM			Monthly Totals	
		DE's Proj.	DE's Actual	S/L	DE's Proj.	DE's Actual	WMB	DE's Proj.	DE's Actual	Drum	DE's Proj.	DE's Actual	Drum	DE's Proj.	DE's Actual	S/L	DE's Proj.	DE's Actual	WMB	DE's Proj.	DE's Actual	WMB	DE's Proj.	DE's Actual
October	4-8	0.0		0	0.0		0	0		0	395		0	182.3										
	11-15	364.6		0	221.6		0	641		0	395		0											
	18-22	546.9		0	221.6		0	641		0	395		0	182.3										
	25-29	546.9	1823.0	10	243.8	182.3	1	555	920.2	555	395		0											
	TOTAL	1823.0	1823.0	10	11.1	182.3	1	1837	920.2	555	1580	0.0	0	364.6									5615.7	2925.5
	Year To Date Totals:	1823.0	1823.0	10	11.1	182.3	1	1837	920.2	555	1580	0.0	0	364.6	0.0	0	0.0	0.0	0	0.0	0.0	0	5615.7	2925.5
November	1-5	364.6	545.7	4	144.0		0	550	671.1	550	360		0	0		0								
	8-12	364.6		0	144.0		0	361		0	360		0	182.3		0								
	15-19	364.6	1591.5	9	144.0	20.0	2	1457	1390.0	1457	360		0	0		0								
	22-26	546.9	716.9	3	110.8	182.3	1	375	360.0	375	216	0.0	0	182.3	0.0	0								
	29-12/3	364.6	2623.8	15	144.0	220.0	22	381	420.0	381	360		0	0		0								3263.8
	TOTAL	2005.3	5477.9	31	277.0	422.3	25	3124	2841.1	2763	1656	0.0	0	364.6	0.0	0							7426.9	8741.3
	Year To Date Totals:	3828.3	7300.9	41	288.1	604.6	26	4961	3761.3	3318	3236	0.0	0	729.2	0.0	0	0.0	0.0	0	0.0	0.0	0	13042.6	11666.8
December	6-10	364.6	170.0	1	166.2	175.4	17	486	510.0	486	360		0	0		0								
	13-17	364.6		0	177.3	0.0	0	481		0	360		0	182.3		0								
	20-24	0.0		0	0.0		0	0		0	360		0	0		0								
	27-31	1306.0	1306.0	11	0.0	908.9	52	743	820.0	743	360		0	182.3		0								
	TOTAL	2035.2	1476.0	12	764.5	1084.3	69	1710	1330.0	1229	1440	0.0	0	364.6	0.0	0			0			0	6314.3	3890.3
	Year To Date Totals:	5863.5	8776.9	53	1052.6	1688.9	95	6671	5091.3	4547	4676	0.0	0	1093.8	0.0	0	0.0	0.0	0	0.0	0.0	0	19356.9	15557.1
January	3-7	364.6		0	254.8	43.2	4	540	110.0	113	360		0	0		0	221.6		0	277.0		0		
	10-14	546.9	546.9	3	254.8	182.3	1	540	370.0	286	360		0	182.3		0	221.6		0	277.0		0		
	17-21	364.6	0.0	0	254.8	0.0	0	540	0.0	0	360		0	0		0	221.6		0	277.0		0		
	24-28	546.9	534.6	3	265.9	1396.9	8	543	370.0	393	360		0	182.3		0	221.6		0	277.0		0		
	TOTAL	1823.0	1081.5	6	1030.3	1622.4	13	2163	850.0	792	1440	0.0	0	364.6	0.0	0	886.4	0.0	0	1108.0	0.0	0	8815.3	3553.9
	Year To Date Totals:	7686.5	9858.4	59	2082.9	3311.3	108	8834	5941.3	5339	6116	0.0	0	1458.4	0.0	0	886.4	0.0	0	1108.0	0.0	0	28172.2	19111.0
February	1/31-4	364.6	1263.8	7	166.2	182.3	1	540		0	360		0	0		0	221.6		0	277.0		0		
	7-11	546.9	0.0	0	177.3	0.0	0	540	0.0	0	360		0	182.3		0	221.6		0	277.0		0		
	14-18	364.6	429.9	8	177.3	935.4	23	540	90.0	90	360		0	0		0	221.6		0	277.0		0		
	21-25	546.9	740.3	4	166.2	396.8	5	543	30.0	33	360	0.0	0	182.3		0	221.6		0	277.0		0		
	TOTAL	1823.0	2434.0	19	687.0	1514.5	29	2163	120.0	123	1440	0.0	0	364.6	0.0	0	886.4	0.0	0	1108.0	0.0	0	8472.0	4068.5
	Year To Date Totals:	9509.5	12292.4	78	2769.9	4825.8	137	10997	6061.3	5462	7556	0.0	0	1823	0.0	0	1772.8	0.0	0	2216.0	0.0	0	36644.2	23179.5
March	2/28-4	364.6	0.0	0	199.4	94.3	9	512	191.1	178	360		0	0		0	221.6		0	277.0		0		
	7-11	364.6	2905.0	*15	210.5	416.0	8	513		0	360		0	0		0	221.6		0	277.0		0		
	14-18	364.6	0.0	0	199.4	182.3	0	513	178.3	115	360		0	0		0	221.6		0	277.0		0		
	21-25	182.3	899.2	0	210.5	170.0	0	513	169.4	105	360		0	182.3		0	221.6		0	277.0		0		
	28-4/1	182.3	729.2	0	199.4	382.2	0	513	206.7	132	360		0	0		0	221.6		0	277.0		0		
	TOTAL	1458.4	4533.4	0	1019.2	1244.8	17	2564	745.5	530	1800	0.0	0	182.3	0.0	0	1108.0	0.0	0	1385.0	0.0	0	9516.9	6523.7
	Year To Date Totals:	10967.9	16825.8	93	3789.1	6070.6	154	13561	6806.8	5992	9356	0.0	0	2005.3	0.0	0	2880.8	0.0	0	3601.0	0.0	0	46161.1	29703.2

23-May-94

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FY94 WASTE SHIPPING SCHEDULE

		Area Scrap			Construction			Residues To NTS			Residues To SEG			Contaminated Trash			Thorium 11 & 12			AMCCOM			Monthly Totals	
		DE's Proj.	DE's Actual	S/L	DE's Proj.	DE's Actual	WMB	DE's Proj.	DE's Actual	Drum	DE's Proj.	DE's Actual	Drum	DE's Proj.	DE's Actual	S/L	DE's Proj.	DE's Actual	WMB	DE's Proj.	DE's Actual	WMB	DE's Proj.	DE's Actual
April	4–8	364.6	899.2	5	166.2	0.0	0	540	343.3	230	360		0	182.3		0	221.6		20	277.0		25		
	11–15	364.6	0.0	2	177.3	0.0	16	540	343.0	251	360		0	0	182.3	1	221.6		20	0.0		0		
	18–22	364.6	0.0	2	177.3	50.0	16	540	254.0	175	360		0	182.3	1276.1	7	221.6		20	0.0		0		
	25–29	364.6	364.6	2	166.2	437.8	15	543	62.2	54	115		0	0	364.6	2	221.6		20	0.0		0		
	TOTAL	1458.4	1263.8	11	687.0	487.8	47	2163	1002.5	710	1195	0.0	0	364.6	1823.0	10	886.4	0.0	80	277.0	0.0	25	7031.4	4577.1
Year To Date Totals:		12426.3	18089.6	104	4476.1	6558.4	201	15724	7809.3	6702	10551	0.0	0	2369.9	1823.0	10	3767.2	0.0	80	3878.0	0.0	25	53192.5	34280.3
May	2–6	364.6	0.0	0	166.2	0.0	0	540	0.0	0				182.3	0.0	0	221.6		20					
	9–13	364.6	10.0	1	177.3	415.7	7	540	190.8	132				0		0	221.6		20					
	16–20	364.6	193.4	2	177.3	192.2	3	540	160.0	144				182.3	364.6	2	221.6		20					
	23–27	364.6		2	177.3		16	540		540				0		0	221.6		20					
	TOTAL	1458.4	203.4	5	698.1	607.9	26	2160	350.8	816	0	0.0	0	364.6	364.6	2	886.4	0.0	80	0.0	0.0	0	5567.5	1526.7
Year To Date Totals:		13884.7	18293.0	109	5174.1	7166.3	227	17884	8160.1	7518	10551	0.0	0	2734.5	2187.6	12	4653.6	0.0	160	3878.0	0.0	25	58759.9	35807.0
June	5/31–6/3	182.3		1	133.0		12	513		513				182.3		1	221.6		20					
	6–10	364.6		2	144.0		13	513		513				0		0	221.6		20					
	13–17	364.6		2	133.0		12	513		513				182.3		1	221.6		20					
	20–24	364.6		2	144.0		13	513		513				0		0	221.6		20					
	27–7/1	364.6		2	133.0		12	513		513				182.3		1	221.6		20					
	TOTAL	1640.7	0.0	9	687.0	0.0	62	2565	0.0	2565	0	0.0	0	546.9	0.0	3	1108.0	0.0	100	0.0	0.0	0	6547.6	0.0
Year To Date Totals:		15525.4		118	5861.1		289	20449		10083	10551		0	3281.4		15	5761.6		260	3878.0		25	65307.5	
July	4–8	182.3		1	166.2		15	540		540				0		0	221.6		20					
	11–15	364.6		2	177.3		16	540		540				182.3		1	221.6		20					
	18–22	364.6		2	177.3		16	540		540				0		0	221.6		20					
	25–29	364.6		2	177.3		16	540		540				182.3		1	221.6		20					
	TOTAL	1276.1	0.0	7	698.0	0.0	63	2160	0.0	2160	0	0.0	0	364.6	0.0	2	886.4	0.0	80	0.0	0.0	0	5385.1	0.0
Year To Date Totals:		16801.5		125	6559.1		352	22609		12243	10551		0	3646		17	6648.0		340	3878.0		25	70692.6	
August	1–5	364.6		2	133.0		12	513		513				0		0	221.6		20					
	8–12	364.6		2	144.0		13	513		513				182.3		1	221.6		20					
	15–19	364.6		2	133.0		12	513		513				0		0	221.6		20					
	22–26	364.6		2	144.0		13	513		513				182.3		1	221.6		20					
	29–9/2	364.6		2	133.0		12	513		513				0		0	221.6		20					
	TOTAL	1823.0	0.0	10	687.0	0.0	62	2565	0.0	2565	0	0.0	0	364.6	0.0	2	1108.0	0.0	100	0.0	0.0	0	6547.6	0.0
Year To Date Totals:		18624.5		135	7246.1		414	25174		14808	10551		0	4010.6		19	7756.0		440	3878.0		25	77240.2	
September	5–9	364.6		2	221.6		20	540		540				182.3		1	221.6		20					
	12–16	364.6		2	221.6		20	540		540				0		0	221.6		20					
	19–23	364.6		2	243.8		22	540		540				182.3		1	221.6		20					
	TOTAL	1093.8	0.0	6	687.0	0.0	62	1620	0.0	1620	0	0.0	0	364.6	0.0	2	664.8	0.0	60	0.0	0.0	0	4430.2	0.0
Year To Date Totals:		19718.3		141	7933.1		476	26794		16428	10551		0	4375.2		21	8420.8		500	3878.0		25	81670.4	

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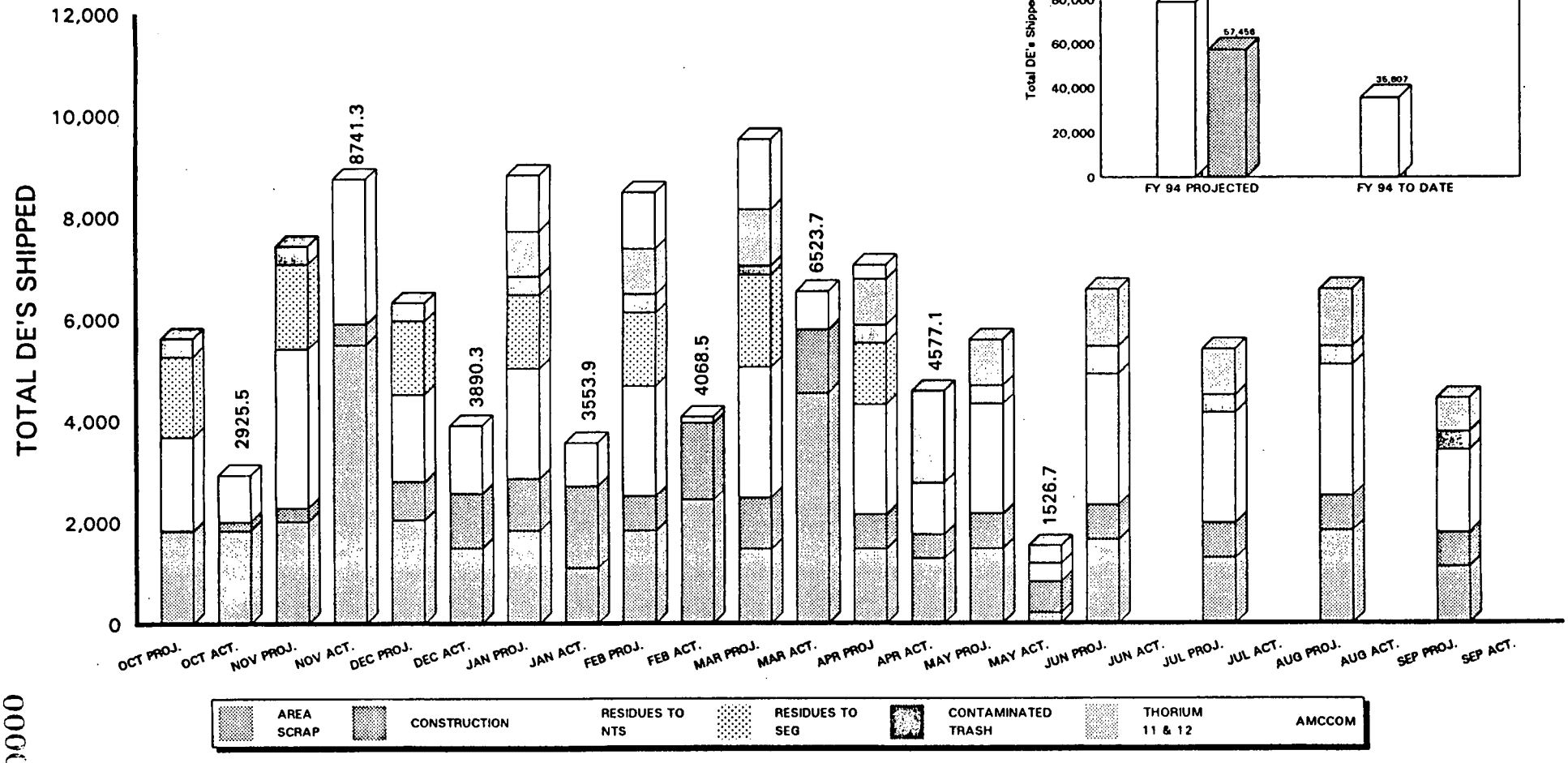
23-May-94

AS OF MAY 20, 1994

FY94 WASTE SHIPPING SCHEDULE TRACKING
Disposition 79,000 Drum Equivalents



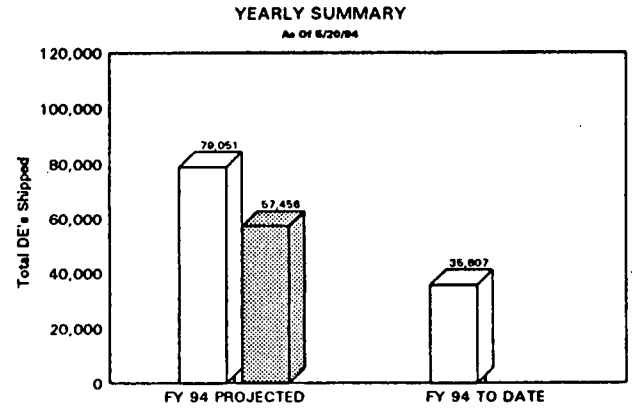


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Table 2

A waste stream identification number is a unique 13-character alphanumeric code which identifies generator and generator's waste stream code. The intent of this number is to clearly identify the waste generator and to separate waste streams. The following is a list of waste streams currently being used at the FEMP.

Waste Stream Identification Number ONL0000000001
Contaminated Process Area Scrap Waste

Waste Stream Identification Number ONL0000000002
Contaminated Construction/Removal Action Waste

Waste Stream Identification Number ONL0000000006
Low/High Grade Residues

Waste Stream Identification Number ONL0000000007
Contaminated Trash

Waste Stream Identification Number ONL0000000008
Low/High Grade Residues - Subcontracted

Waste Stream Identification Number ONL0000000009
Metal Melt Waste

Waste Stream Identification Number ONL0000000010
Radioactively Contaminated Regulated Asbestos Containing Material

Waste Stream Identification Number ONL0000000011
Thorium Residues and Waste Not Amenable to Sampling

Waste Stream Identification Number ONL0000000012
Thorium Residues

Waste Stream Identification Number ONL0000000013
Depleted Uranium Metal

THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project PREPARED BY: J. G. Rowe DATE: 02/10/94

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters^3)
			TYPE	SIZE	NUMBER		
FY-1994 01/01-03/31	ONL0000000013	LLW	Metal Box	4'x 4'x 7'	80	16	257
04/01-06/30	ONL0000000013	LLW	Metal Box	4'x 4'x 7'	260	52	834
07/01-09/30	ONL00000000013	LLW	Metal Box	4'x 4'x 7'	0	0	0
FY-1995	ONL00000000013	LLW	Metal Box	4'x 4'x 7'	0	0	0
FY-1996	ONL00000000013	LLW	Metal Box	4'x 4'x 7'	0	0	0

REMARKS: Pending Waste Stream Approval

000013

5690

THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project **PREPARED BY:** J. G. Rowe **DATE:** 02/10/94

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters^3)
			TYPE	SIZE	NUMBER		
FY-1994 01/01-03/31	ONL00000000012	LLW	Sea/Land®	8'x 8'x 20'	1	1	36
			Metal Box	4'x 4'x 7'	0	0	0
04/01-06/30	ONL00000000012	LLW	Metal Box	4'x 4'x 7'	200	40	640
07/01-09/30	ONL00000000012	LLW	Metal Box	4'x 4'x 7'	200	40	640
FY-1995	ONL00000000012	LLW	Metal Box	4'x 4'x 7'	200	40	640
FY-1996	ONL00000000012	LLW	Metal Box	4'x 4'x 7'	0	0	0

REMARKS: Pending Waste Stream Approval

5690

000014

THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project PREPARED BY: J. G. Rowe DATE: 02/10/94

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters^3)
			TYPE	SIZE	NUMBER		
FY-1994 01/01-03/31	ONL00000000011	LLW	Sea/Land®	8'x 8'x 20'	3	2	109
			Metal Box	4'x 4'x 7'	45	9	144
04/01-06/30	ONL00000000011	LLW	Sea/Land®	8'x 8'x 20'	3	2	109
			Metal Box	4'x 4'x 7'	45	9	144
07/01-09/30	ONL00000000011	LLW	Sea/Land®	8'x 8'x 20'	3	3	109
			Metal Box	4'x 4'x 7'	45	9	144
FY-1995	ONL00000000011	LLW	Sea/Land®	8'x 8'x 20'	3	3	109
			Metal Box	4'x 4'x 7'	45	9	144
FY-1996	ONL00000000011	LLW	Sea/Land®	8'x 8'x 20'	4	4	145
			Metal Box	4'x 4'x 7'	45	2	144

REMARKS: Pending Waste Stream Approval

THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project **PREPARED BY:** J. G. Rowe **DATE:** 02/10/94

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters³)
			TYPE	SIZE	NUMBER		
FY-1994 01/01-03/31	ONL00000000010	LLW	Drums	55-Gallon	98	10	20
			Metal Box	4'x 4'x 7'	50	40	161
			Sea/Land®	8'x 8'x 20'	20	10	363
04/01-06/30	ONL00000000010	LLW	Drums	55-Gallon	198	20	40
			Metal Box	4'x 4'x 7'	50	5	161
			Sea/Land®	8'x 8'x 20'	20	10	363
07/01-09/30	ONL00000000010	LLW	Drums	55-Gallon	98	2	20
			Metal Box	4'x 4'x 7'	20	2	64
			Sea/Land®	8'x 8'x 20'	1	1	36
FY-1995	ONL00000000010	LLW	Drums	55-Gallon	250	4	99
			Metal Box	4'x 4'x 7'	20	2	64
			Sea/Land®	8'x 8'x 20'	1	1	36
FY-1996	ONL00000000010	LLW	Metal Box	4'x 4'x 7'	15	2	48
			Sea/Land®	8'x 8'x 20'	4	2	145

REMARKS:

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THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project PREPARED BY: J. G. Rowe DATE: 02/10/94

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters^3)
			TYPE	SIZE	NUMBER		
FY-1994 01/01-03/31	ONL0000000009	LLW	Metal Box	4'x 4'x 7'	8	2	26
04/01-06/30	ONL0000000009	LLW	Metal Box	4'x 4'x 7'	8	2	26
07/01-09/30	ONL0000000009	LLW	Metal Box	4'x 4'x 7'	0	0	0
FY-1995	ONL0000000009	LLW	Metal Box	4'x 4'x 7'	0	0	0
FY-1996	ONL0000000009	LLW	Metal Box	4'x 4'x 7'	0	0	0

REMARKS:

000017

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THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project PREPARED BY: J. G. Rowe DATE: 02/10/94

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters^3)
			TYPE	SIZE	NUMBER		
FY-1994 01/01-03/31	ONL0000000008	LLW	Drums	85-Gallon	0	0	0
			Metal Box	4'x 4'x 7'	0	0	0
04/01-06/30	ONL0000000008	LLW	Drums	85-Gallon	2000	28	792
			Metal Box	4'x 4'x 7'	0	0	0
07/01-09/30	ONL0000000008	LLW	Drums	85-Gallon	1000	14	396
			Metal Box	4'x 4'x 7'	0	0	0
FY-1995	ONL0000000008	LLW	Drums	85-Gallon	0	0	0
			Metal Box	4'x 4'x 7'	0	0	0
FY-1996	ONL0000000008	LLW	Drums	85-Gallon	0	0	0
			Metal Box	4'x 4'x 7'	0	0	0

REMARKS:

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000018

THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project PREPARED BY: J. G. Rowe DATE: 02/10/94

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters^3)
			TYPE	SIZE	NUMBER		
FY-1994 01/01-03/31	ONL0000000007	LLW	Sea/Land®	8'x 8'x 20'	12	6	432
			Metal Box	4'x 4'x 7'	5	1	16
04/01-06/30	ONL0000000007	LLW	Sea/Land®	8'x 8'x 20'	7	4	252
			Metal Box	4'x 4'x 7'	10	2	32
07/01-09/30	ONL0000000007	LLW	Sea/Land®	8'x 8'x 20'	6	3	216
			Metal Box	4'x 4'x 7'	10	2	32
FY-1995	ONL0000000007	LLW	Sea/Land®	8'x 8'x 20'	4	2	145
			Metal Box	4'x 4'x 7'	30	6	96
FY-1996	ONL0000000007	LLW	Sea/Land®	8'x 8'x 20'	4	2	145
			Metal Box	4'x 4'x 7'	30	6	96

REMARKS:

000019

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THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project PREPARED BY: J. G. Rowe DATE: 02/10/94

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters^3)
			TYPE	SIZE	NUMBER		
FY-1994 01/01-03/31	ONL0000000006	LLW	Drums	85-Gallon	100	2	40
			Metal Box	4'x 4'x 7'	200	40	640
04/01-06/30	ONL0000000006	LLW	Drums	85-Gallon	100	2	40
			Metal Box	4'x 4'x 7'	200	40	640
07/01-09/30	ONL0000000006	LLW	Drums	85-Gallon	100	2	40
			Metal Box	4'x 4'x 7'	200	40	640
FY-1995	ONL0000000006	LLW	Drums	85-Gallon	2000	30	792
			Metal Box	4'x 4'x 7'	600	122	1925
FY-1996	ONL0000000006	LLW	Drums	85-Gallon	500	8	198
			Metal Box	4'x 4'x 7'	150	17	480

REMARKS:

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000020

THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project **PREPARED BY:** J. G. Rowe **DATE:** 02/10/94

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters³)
			TYPE	SIZE	NUMBER		
FY-1994 01/01-03/31	ONL0000000002	LLW	Sea/Land®	8'x 8'x 20'	5	5	182
			Metal Box	4'x 4'x 7'	155	31	496
04/01-06/30	ONL0000000002	LLW	Sea/Land®	8'x 8'x 20'	25	25	908
			Metal Box	4'x 4'x 7'	245	49	784
07/01-09/30	ONL0000000002	LLW	Sea/Land®	8'x 8'x 20'	20	20	726
			Metal Box	4'x 4'x 7'	256	50	800
FY-1995	ONL0000000002	LLW	Sea/Land®	8'x 8'x 20'	30	30	1089
			Metal Box	4'x 4'x 7'	2800	127	8960
FY-1996	ONL0000000002	LLW	Sea/Land®	8'x 8'x 20'	100	60	3630
			Metal Box	4'x 4'x 7'	1000	90	3208

REMARKS: _____

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THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project **PREPARED BY:** J. G. Rowe **DATE:** 02/10/94

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters^3)
			TYPE	SIZE	NUMBER		
FY-1994 01/01-03/31	ONL0000000001	LLW	Sea/Land®	8'x 8'x 20'	28	18	1017
04/01-06/30	ONL0000000001	LLW	Sea/Land®	8'x 8'x 20'	25	17	907
07/01-09/30	ONL0000000001	LLW	Sea/Land®	8'x 8'x 20'	23	15	835
FY-1995	ONL0000000001	LLW	Sea/Land®	8'x 8'x 20'	41	28	1488
FY-1996	ONL0000000001	LLW	Sea/Land®	8'x 8'x 20'	50	40	1815

REMARKS:

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FY94 WASTE SHIPPING SCHEDULE

	Area Scrap			Construction			Residues To NTS			Residues To SEG			Contaminated Trash			Thorium 11 & 12			AMCCOM			Monthly Totals	
	DE's Proj.	DE's Actual	S/L	DE's Proj.	DE's Actual	WMB	DE's Proj.	DE's Actual	Drum	DE's Proj.	DE's Actual	Drum	DE's Proj.	DE's Actual	S/L	DE's Proj.	DE's Actual	WMB	DE's Proj.	DE's Actual	WMB	DE's Proj.	DE's Actual
4-8	364.6	899.2	5	166.2	0.0	0	540	343.3	230	360		0	182.3		0	221.6		20	277.0		25		
11-15	364.6	0.0	2	177.3	0.0	16	540	343.0	251	360		0	0	182.3	1	221.6		20	0.0		0		
18-22	364.6	0.0	2	177.3	50.0	16	540	254.0	175	360		0	182.3	1276.1	7	221.6		20	0.0		0		
25-29	364.6	364.6	2	166.2	437.8	15	543	62.2	54	115		0	0	364.6	2	221.6		20	0.0		0		
TOTAL	1458.4	1263.8	11	687.0	487.8	47	2163	1002.5	710	1195	0.0	0	364.6	1823.0	10	886.4	0.0	80	277.0	0.0	25	7031.8	4577.1
Year To Date Totals:	12426.3	18089.6	104	4476.1	6558.4	201	15724	7809.3	6702	10551	0.0	0	2369.9	1823.0	10	3767.2	0.0	80	3878.0	0.0	25	53192.5	34280.3
2-6	364.6	0.0	2	166.2	0.0	15	540	0.0	540				182.3	0.0	1	221.6		20					
9-13	364.6		2	177.3		16	540		540				0		0	221.6		20					
16-20	364.6		2	177.3		16	540		540				182.3		1	221.6		20					
23-27	364.6		2	177.3		16	540		540				0		0	221.6		20					
TOTAL	1458.4	0.0	8	698.0	0.0	63	2160	0.0	2160	0	0.0	0	364.6	0.0	2	886.4	0.0	80	0.0	0.0	0	5567.4	0.0
Year To Date Totals:	13884.7		112	5174.1		264	17884		8862	10551		0	2734.5		12	4653.6		160	3878.0		25	58759.9	34280.3
5/31-6/3	182.3		1	133.0		12	513		513				182.3		1	221.6		20					
6-10	364.6		2	144.0		13	513		513				0		0	221.6		20					
13-17	364.6		2	133.0		12	513		513				182.3		1	221.6		20					
20-24	364.6		2	144.0		13	513		513				0		0	221.6		20					
27-7/1	364.6		2	133.0		12	513		513				182.3		1	221.6		20					
TOTAL	1640.7	0.0	9	687.0	0.0	62	2565	0.0	2565	0	0.0	0	546.9	0.0	3	1108.0	0.0	100	0.0	0.0	0	6547.6	0.0
Year To Date Totals:	15525.4		121	5861.1		326	20449		11427	10551		0	3281.4		15	5761.6		260	3878.0		25	65307.5	
4-8	182.3		1	166.2		15	540		540				0		0	221.6		20					
11-15	364.6		2	177.3		16	540		540				182.3		1	221.6		20					
18-22	364.6		2	177.3		16	540		540				0		0	221.6		20					
25-29	364.6		2	177.3		16	540		540				182.3		1	221.6		20					
TOTAL	1276.1	0.0	7	698.0	0.0	63	2160	0.0	2160	0	0.0	0	364.6	0.0	2	886.4	0.0	80	0.0	0.0	0	5385.1	0.0
Year To Date Totals:	16801.5		128	6559.1		389	22609		13587	10551		0	3646		17	6648.0		340	3878.0		25	70692.6	
1-5	364.6		2	133.0		12	513		513				0		0	221.6		20					
8-12	364.6		2	144.0		13	513		513				182.3		1	221.6		20					
15-19	364.6		2	133.0		12	513		513				0		0	221.6		20					
22-26	364.6		2	144.0		13	513		513				182.3		1	221.6		20					
29-9/2	364.6		2	133.0		12	513		513				0		0	221.6		20					
TOTAL	1823.0	0.0	10	687.0	0.0	62	2565	0.0	2565	0	0.0	0	364.6	0.0	2	1108.0	0.0	100	0.0	0.0	0	6547.6	0.0
Year To Date Totals:	18624.5		138	7246.1		451	25174		16152	10551		0	4010.6		19	7756.0		440	3878.0		25	77240.2	
September 5-9	364.6		2	221.6		20	540		540				182.3		1	221.6		20					
12-16	364.6		2	221.6		20	540		540				0		0	221.6		20					
19-23	364.6		2	243.8		22	540		540				182.3		1	221.6		20					
TOTAL	1093.8	0.0	6	687.0	0.0	62	1620	0.0	1620	0	0.0	0	364.6	0.0	2	664.8	0.0	60	0.0	0.0	0	4438.2	0.0
Year To Date Totals:	19718.3		144	7933.0		513	26794		17772	10551		0	4375.2		21	8420.8		500	3878.0		25	81678.3	

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FY94 WASTE SHIPPING SCHEDULE

		Area Scrap			Construction			Residues To NTS			Residues To SEG			Contaminated Trash			Thorium 11 & 12			AMCCOM			Monthly Totals	
		DE's Proj.	DE's Actual	S/L	DE's Proj.	DE's Actual	WMB	DE's Proj.	DE's Actual	Drum	DE's Proj.	DE's Actual	Drum	DE's Proj.	DE's Actual	S/L	DE's Proj.	DE's Actual	WMB	DE's Proj.	DE's Actual	WMB	DE's Proj.	DE's Actual
October	4-8	0.0		0	0.0		0	0		0	395		0	182.3										
	11-15	364.6		0	221.6		0	641		0	395		0											
	18-22	546.9		0	221.6		0	641		0	395		0	182.3										
	25-29	546.9	1823.0	10	243.8	182.3	1	555	920.2	555	395		0											
	TOTAL	1823.0	1823.0	10	11.1	182.3	1	1837	920.2	555	1580	0.0	0	364.6									5615.7	2925.5
Year To Date Totals:		1823.0	1823.0	10	11.1	182.3	1	1837	920.2	555	1580	0.0	0	364.6	0.0	0	0.0	0.0	0	0.0	0.0	0	5615.7	2925.5
November	1-5	364.6	545.7	4	144.0		0	550	671.1	550	360		0	0		0								
	8-12	364.6		0	144.0		0	361		0	360		0	182.3		0								
	15-19	364.6	1591.5	9	144.0	20.0	2	1457	1390.0	1457	360		0	0		0								
	22-26	546.9	716.9	3	110.8	182.3	1	375	360.0	375	216	0.0	0	182.3	0.0	0								3263.8
	29-12/3	364.6	2623.8	15	144.0	220.0	22	381	420.0	381	360		0	0		0							7426.9	8741.3
	TOTAL	2005.3	5477.9	31	277.0	422.3	25	3124	2841.1	2763	1656	0.0	0	364.6	0.0	0							13042.6	11666.8
Year To Date Totals:		3828.3	7300.9	41	288.1	604.6	26	4961	3761.3	3318	3236	0.0	0	729.2	0.0	0	0.0	0.0	0	0.0	0.0	0	13042.6	11666.8
December	6-10	364.6	170.0	1	166.2	175.4	17	486	510.0	486	360		0	0		0								
	13-17	364.6		0	177.3	0.0	0	481		0	360		0	182.3		0								
	20-24	0.0		0	0.0		0	0		0	360		0	0		0								
	27-31	1306.0	1306.0	11	0.0	908.9	52	743	820.0	743	360		0	182.3		0			0			0	6314.3	3890.3
	TOTAL	2035.2	1476.0	12	764.5	1084.3	69	1710	1330.0	1229	1440	0.0	0	364.6	0.0	0								
Year To Date Totals:		5863.5	8776.9	53	1052.6	1688.9	95	6671	5091.3	4547	4676	0.0	0	1093.8	0.0	0	0.0	0.0	0	0.0	0.0	0	19356.9	15557.1
January	3-7	364.6		0	254.8	43.2	4	540	110.0	113	360		0	0		0	221.6		0	277.0		0		
	10-14	546.9	546.9	3	254.8	182.3	1	540	370.0	286	360		0	182.3		0	221.6		0	277.0		0		
	17-21	364.6	0.0	0	254.8	0.0	0	540	0.0	0	360		0	0		0	221.6		0	277.0		0		
	24-28	546.9	534.6	3	265.9	1396.9	8	543	370.0	393	360		0	182.3		0	221.6		0	277.0		0		
	TOTAL	1823.0	1081.5	6	1030.3	1622.4	13	2163	850.0	792	1440	0.0	0	364.6	0.0	0	886.4	0.0	0	1108.0	0.0	0	8815.3	3553.9
Year To Date Totals:		7686.5	9858.4	59	2082.9	3311.3	108	8834	5941.3	5339	6116	0.0	0	1458.4	0.0	0	886.4	0.0	0	1108.0	0.0	0	28172.2	19111.0
February	1/31-4	364.6	1263.8	7	166.2	182.3	1	540		0	360		0	0		0	221.6		0	277.0		0		
	7-11	546.9	0.0	0	177.3	0.0	0	540	0.0	0	360		0	182.3		0	221.6		0	277.0		0		
	14-18	364.6	429.9	8	177.3	935.4	23	540	90.0	90	360		0	0		0	221.6		0	277.0		0		
	21-25	546.9	740.3	4	166.2	396.8	5	543	30.0	33	360	0.0	0	182.3		0	221.6		0	277.0		0		
	TOTAL	1823.0	2434.0	19	687.0	1514.5	29	2163	120.0	123	1440	0.0	0	364.6	0.0	0	886.4	0.0	0	1108.0	0.0	0	8472.0	4068
Year To Date Totals:		9509.5	12292.4	78	2769.9	4825.8	137	10997	6061.3	5462	7556	0.0	0	1823	0.0	0	1772.8	0.0	0	2216.0	0.0	0	36644.2	23179.3
March	2/28-4	364.6	0.0	0	199.4	94.3	9	512	191.1	178	360		0	0		0	221.6		0	277.0		0		
	7-11	364.6	2905.0	*15	210.5	416.0	8	513		0	360		0	0		0	221.6		0	277.0		0		
	14-18	364.6	0.0	0	199.4	182.3	0	513	178.3	115	360		0	0		0	221.6		0	277.0		0		
	21-25	182.3	899.2	0	210.5	170.0	0	513	169.4	105	360		0	182.3		0	221.6		0	277.0		0		
	28-4/1	182.3	729.2	0	199.4	382.2	0	513	206.7	132	360		0	0		0	221.6		0	277.0		0		
	TOTAL	1458.4	4533.4	0	1019.2	1244.8	17	2564	745.5	530	1800	0.0	0	182.3	0.0	0	1108.0	0.0	0	1385.0	0.0	0	9516.9	6523.7
Year To Date Totals:		10967.9	16825.8	93	3789.1	6070.6	154	13561	6806.8	5992	9356	0.0	0	2005.3	0.0	0	2880.8	0.0	0	3601.0	0.0	0	46161.1	29703.2

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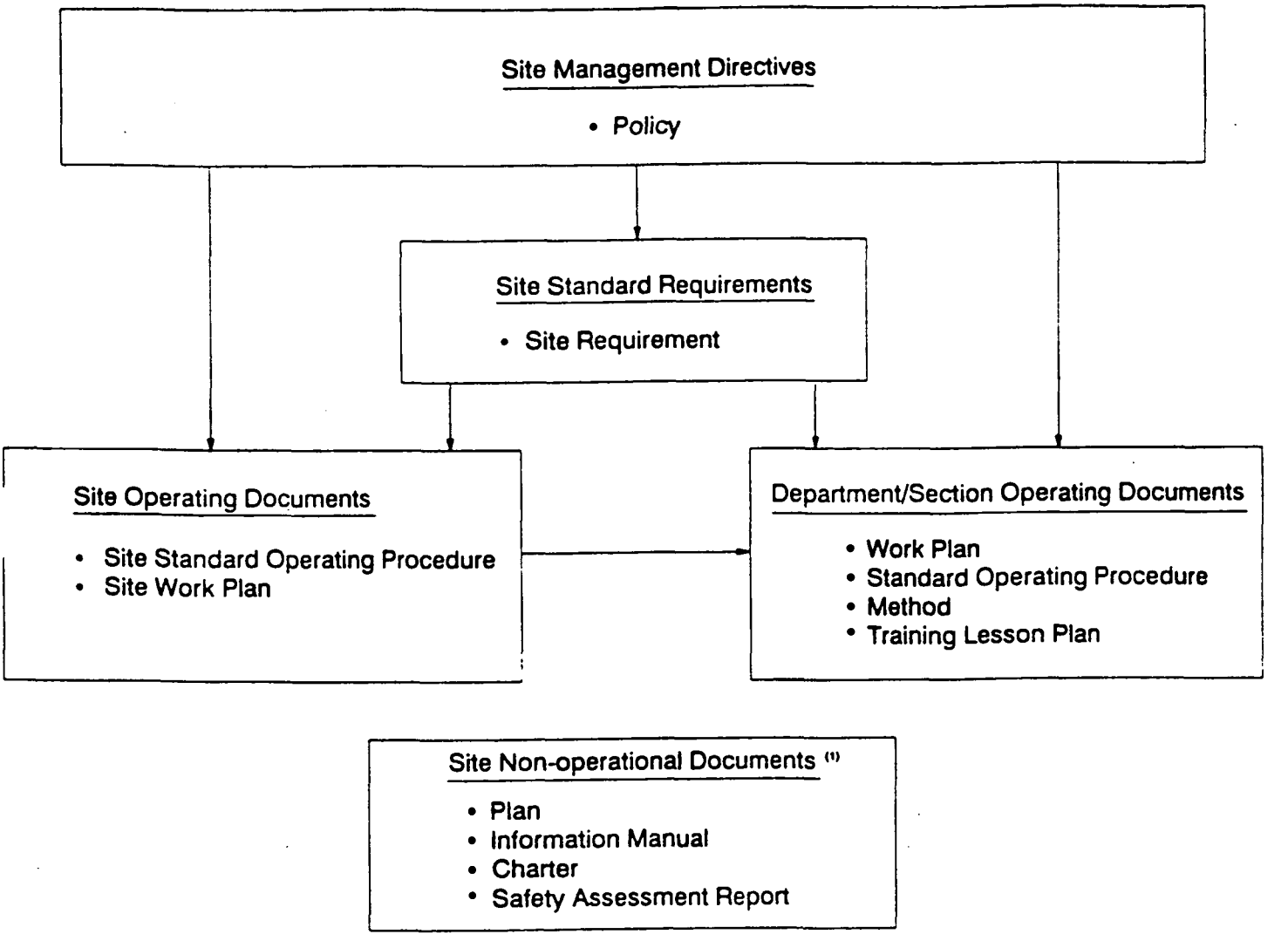
31-Mar-94

FEMP DOCUMENT HIERARCHY



(1) *Site Non-Operational documents may or may not be developed based on a hierarchial driver. It is possible that there will be a need for one of these documents without being driven by policy, requirement, or other documents.*

Figure 1 - FEMP Document Hierarchy

SDI-100

Fernald Environmental
FERMCO
Restoration Management Corporation

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT (FEMP)

SITE DOCUMENT INDEX

MARCH 1, 1994

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(Supersedes Index Dated February 1, 1994)

Forms and Procedures Development
Administration Division

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SITE DOCUMENT INDEX
March 1, 1994

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SITE DOCUMENT INDEX
March 1, 1994

INTRODUCTION

The Site Document Index is a multiple listing of current site documents. The index is divided into four sections.

Sections 1 and 2 provide two different presentations of the current site documents. Section 1 is a list of the site documents sorted alphanumerically. Section 2 is a list of the site documents sectioned by document type and sorted numerically. Section 3 is a list of the current Site Document Changes (SDC). Section 4 is a listing of Site Documents produced by Divisions. These documents did not go through the F&PD section or the Site Document System for development.

The index is distributed monthly. As documents are issued, revised, or cancelled, it is suggested that a manual update be made in the index until the issuance of a new index.

Site Document Stations are being established to provide a reference area for site documents at central locations for employee accessibility. Several stations are in place and are listed on the following page.

Direct questions pertaining to the index to Forms & Procedures Development, 648-6441.

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SITE DOCUMENT INDEX
March 1, 1994

LIST OF SITE DOCUMENT STATIONS

NUMBER	LOCATION
SDS-0001	Seven Plex North (44D) T-24 Center Library
SDS-0002	West Trailer T-44 (DOE)
SDS-0003	Springdale Center 4th floor F&PD, Cube 4-144
SDS-0004	Ten-Plex (T-81)

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SECTION 1

ALPHANUMERIC LISTING

DOCUMENT NO.	TYPE OF DOCUMENT	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
CH-0203	SITE-CH	ALARA COMMITTEE CHARTER	10/18/93	1	SCHILLING	PAINE	CH-FMPC-0203
CH-0208	SITE-CH	SUBCONTRACT REVIEW COMMITTEE CHARTER	02/22/94	0	NOXSEL	FRASER	FMPC-0208
CH-0210	SITE-CH	BEST MANAGEMENT PRACTICES COMMITTEE FOR CLEAN WATER	05/26/92	0	BECKMAN	ALKEMA	FMPC-0210
CH-0220	SITE-CH	CONTROLLER DEPARTMENT CHARTER	06/05/92	0	REED	FRASER	CH-FMPC-0220
CH-0222	SITE-CH	OFFICE OF COUNSEL CHARTER	11/02/92	0	GREULICH	CURTIS	CH-FMPC-222
CH-0230	SITE-CH	INDUSTRIAL, RADIOLOGICAL SAFETY, AND TRAINING DEPARTMENT CHARTER	08/19/92	0	GABBARD	PAINE	CH-FMPC-0230
CH-0233	SITE-CH	TRANSPORTATION SAFETY COMMITTEE CHARTER	08/18/93	1	STAPLETON	MCGUIRE	CH-0233
CH-2000	SITE-CH	COMMUNICATIONS DEPARTMENT CHARTER	05/05/92	0	JACKSON	HOOPES	CH-FMPC-2000
CH-2005	SITE-CH	ASBESTOS MANAGEMENT COMMITTEE CHARTER	04/20/92	0	MCCULLOUGH	PAINE	NONE
CH-2007	SITE-CH	FERNALD ENVIRONMENTAL MANAGEMENT PROJECT (FEMP) LEVEL 3 REVIEW BOARD	06/01/93	2	ALDRICH	CLAUSS	CH-2007
CH-2008	SITE-CH	RESOURCE PLANNING, SCHEDULING, AND INTEGRATION	03/02/92	0	DEN HERDER	COSSEL	CH-2003
CH-2010	SITE-CH	ENVIRONMENTAL MANAGEMENT DEPARTMENT CHARTER	10/02/92	0	RITCHIE		NONE
CH-2012	SITE-CH	ENVIRONMENTAL RESTORATION DEPARTMENT CHARTER	08/31/92	0	WAGNER	HOPPER	NONE
CH-2013	SITE-CH	INTERNAL AUDIT ORGANIZATION CHARTER	09/04/92	0	BURNS	BURNS	NONE
CH-2015	SITE-CH	QUALITY ASSURANCE (QA) DIVISION CHARTER	04/01/93	0	PONKE	ABERNATHY	CH-0226 CH-2006
CH-2016	SITE-CH	CONFIGURATION MANAGEMENT CHARTER	07/07/93	0	BECKETT	CLAUSS	NONE
CH-2020	SITE-CH	RADON PROJECT SUPPORT COMMITTEE CHARTER	02/25/94	0	SHANKS	PAINE	NONE
CH-FMPC-0209	SITE-CH	INDEPENDENT SAFETY REVIEW COMMITTEE CHARTER	01/31/91	0	BOGAR		FMPC-0209
CH-FMPC-0215	SITE-CH	SITE SERVICES DEPARTMENT CHARTER	07/05/91	0	EMMERT	MCGUIRE	FMPC-0215
ED-0001	SITE-SSOP	EVENT NOTIFICATION AND OCCURRENCE REPORTING PROCEDURE	08/20/93	2	DULEY	PAINE	ED-0001 SSOP-4006
FMPC-0101	SITE-PP	WMCO MANAGEMENT PHILOSOPHY	01/12/90	1	DEN HERDER	COSSEL	NONE

DOCUMENT NO.	TYPE OF DOCUMENT	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC OWNER	SUPERSEDES
FMPC-0102	SITE-PP	TRAINING	01/16/91	1	HOFFMAN	ZOBRIST	NONE
FMPC-0106	SITE-PP	EMPLOYMENT AND INDOCTRINATION OF NEW PERSONNEL	04/04/88	0	CRISLER	ZOBRIST	NONE
FMPC-0110	SITE-PP	DRUG-FREE WORKPLACE/SUBSTANCE ABUSE	08/18/89	1	CRISLER	ZOBRIST	NONE
FMPC-0113	SITE-PP	WORKERS' COMPENSATION CLAIMS	12/16/88	0	CRISLER	ZOBRIST	NONE
FMPC-0122	SITE-PP	OPEN COMMUNICATION OF EMPLOYEE CONCERNS	02/26/90	1	CRISLER	ZOBRIST	NONE
FMPC-0211	SITE-CH	PATENT REVIEW COMMITTEE CHARTER	07/19/90	1	GALPER		NONE
FMPC-0212	SITE-CH	ENVIRONMENTAL COUNCIL CHARTER	11/03/89	0	FARMER	PAINE	NONE
FMPC-0223	SITE-CH	SITE REMEDIATION DEPARTMENT CHARTER	07/29/88	0	FARMER	PAINE	NONE
FMPC-0231	SITE-CH	COMPUTER SYSTEMS STEERING COMMITTEE CHARTER	04/12/90	0	STERLING	CLAUSS	NONE
FMPC-0232	SITE-CH	WMCO TOTAL QUALITY COUNCIL CHARTER	02/12/90	0	MOHR		NONE
FMPC-0302	SITE-PP	REQUEST FOR PURCHASE	10/30/92	4	HESTER	FRASER	FMPC-0302
FMPC-0304	SITE-PP	HANDLING OF CONTROLLED SUBSTANCES AND SELECTED CHEMICALS	10/19/88	0	CRISLER	ZOBRIST	NONE
FMPC-0306	SITE-PP	CONTRACT ADMINISTRATION	02/01/88	0	REED	FRASER	NONE
FMPC-0316	SITE-PP	8 (A) VENDOR PROGRAM	06/04/90	2	REED	FRASER	NONE
FMPC-0319	SITE-PP	MATERIAL COMPATIBILITY PRACTICES	01/26/90	0	FLEMING	PAINE	NONE
FMPC-0412	SITE-PP	MANAGEMENT CONTROL SYSTEM POLICY	12/02/88	0	REED	FRASER	NONE
FMPC-0508	SITE-PP	SAFETY ANALYSIS DOCUMENTATION PROGRAM	10/31/88	1	BOGAR	PAINE	NONE
FMPC-0511	SITE-PP	CONTROL OF ENTRY TO THE WASTE STORAGE AREA	08/24/90	1	DECHTER	MCGUIRE	NONE
FMPC-0512	SITE-PP	CONFIGURATION CONTROL OF SAFETY SYSTEMS, DESIGN FEATURES FOR SAFETY, AND OSR-AFFECTED PROCEDURES	10/31/88	0	BOGAR	PAINE	NONE
FMPC-0516	SITE-PP	CONTROL OF PERMITS FOR ACCOMPLISHING HAZARDOUS WORK	04/23/91	2	FLEMING	PAINE	NONE
FMPC-0519	SITE-PP	MANAGEMENT OF HAZARDOUS WASTE	07/28/89	0	COYLE	PAINE	NONE
FMPC-0603	SITE-PP	REQUESTING INFORMATION SYSTEMS SERVICES	11/21/89	0	REED	FRASER	NONE
FMPC-0604	SITE-PP	PROTECTION OF SENSITIVE UNCLASSIFIED INFORMATION	10/15/87	0	REED	FRASER	NONE

DOCUMENT NO.	TYPE OF DOCUMENT	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
FMPC-0605	SITE-PP	DOE DIRECTIVES ADMINISTRATION	11/30/89	1	AMAN	COSSEL	NONE
FMPC-0608	SITE-PP	PREPARATION AND RELEASE OF TECHNICAL INFORMATION	03/08/90	3	NEYER		NONE
FMPC-0702	SITE-PP	DEVELOPMENT AND CONTROL OF DESIGN	03/05/90	1	SIMI	HECK	NONE
FMPC-0708	SITE-PP	PERSONNEL CERTIFICATION	12/15/89	2	HOFFMAN	ZOBRIST	NONE
FMPC-0718	SITE-PP	MEASURING AND TEST EQUIPMENT CALIBRATION AND CONTROL	01/12/90	2	DECHTER	MCGUIRE	NONE
FMPC-2040	SITE-PL	FMPC WASTE MANAGEMENT PLAN	12/31/86	1	HEISLER		NONE
FMPC-2055	SITE-RM	CLASSIFICATION GUIDE FOR THE FMPC	09/23/86	0	NEYER		NONE
FMPC-2066	SITE-RM	T-HOPPER SHIPPING CONTAINER HANDLING PROCEDURES AND CONTAINER CRITERIA	08/31/87	0	GARDNER	MCGUIRE	NONE
FMPC-2070	SITE-IM	STYLE AND FORMAT GUIDE FOR SCIENTIFIC AND TECHNICAL REPORTS AND PAPERS	06/01/90	1	BECKMAN	COSSEL	NONE
FMPC-2081	SITE-IM	SUPERVISOR'S EMPLOYEE RELATIONS MANUAL	06/01/87	0	CRISLER	ZOBRIST	NONE
FMPC-2092	SITE-RM	FMPC WELDING PROGRAM	05/01/88	0	ROMINE	MCGUIRE	NONE
FMPC-2100	SITE-RM	OPERATIONAL SAFETY REQUIREMENTS FOR THE SOUTH AMMONIA STORAGE FACILITY	11/01/87	0	GARDNER	MCGUIRE	NONE
FMPC-2113	SITE-IM	PRINCIPLES OF NUCLEAR SAFETY	07/08/87	0	BOGAR	PAINE	NLCO-1179
FMPC-2116	SITE-RM	IMPLEMENTING FMPC POLICIES AND PROCEDURES FOR SYSTEM SAFETY ANALYSIS	01/01/89	0	BOGAR		NLCO-1172
FMPC-2128	SITE-RM	FMPC INDUSTRIAL HYGIENE AND SAFETY MANUAL	04/04/89	0	WENTZEL	PAINE	NONE
FMPC-2171	SITE-RM	STANDARD SPECIFICATIONS FOR DUST COLLECTOR EQUIPMENT	05/13/92	5	PALMER	HECK	NONE
FMPC-2175	SITE-PL	ABANDONED-IN-PLACE (AIP) EQUIPMENT PROGRAM WORK PLAN	06/01/89	0	DEN HERDER		NONE
FMPC-2176	SITE-RM	OPERATIONAL SAFETY REQUIREMENTS FOR THE REMOVAL AND OVERPACKING PROGRAM FOR THE 212 CONTAINERS OF THORIUM METALS	12/01/89	0	FARMER	PAINE	NONE

DOCUMENT NO.	TYPE OF DOCUMENT	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
FMPC-2185	SITE-PL	SAMPLING PLAN FOR DRUMMED WASTE AT THE FMPC	10/01/89	0	ANGERT	PAINE	NONE
FMPC-2214	SITE-PL	ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT SITE SPECIFIC PLAN	07/01/90	0	JOHNSON	COSSEL	NONE
IM-6001	SITE-IM	SAFE SHUTDOWN PROGRAM PLANNING AND IMPLEMENTATION MANUAL	12/02/93	0	OGG	KING	NONE
IM-6010	SITE-IM	DEFENSE NUCLEAR FACILITIES SAFETY BOARD (DNFSB)	01/12/94	0	WADE	COSSEL	NONE
IM-7001	SITE-IM	DECONTAMINATION MANUAL	12/27/93	1	ALLEN	PAINE	IM-7001
IM-7006	SITE-IM	INCIDENT BUILDING EVACUATION MANUAL	02/22/94	1	DULEY	PAINE	IM-7006
OM-0003	SITE-OM	TEST AUTHORIZATION	04/03/92	0	VOYLES	HECK	FMPC-2181
OM-0005	SITE-OM	ASBESTOS OPERATIONS AND MAINTENANCE WORK PRACTICES	08/01/92	0	MCCULLOUGH	PAINE	OM-0005I
OM-2136	SITE-OM	FERMCO PROJECT CONTROL SYSTEM - APPLICATION GUIDE - VOLUME 1: SYSTEM DESCRIPTION	10/01/93	0	LESTER	CLAUSS	FMPC-2136
PL-1002	SITE-PL	FERNALD SITE ENVIRONMENTAL MONITORING PLAN	05/31/93	1	SNYDER	PAINE	PL-1002
PL-2194	SITE-PL	FERMCO SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC) PLAN	04/30/93	0	MERCADAL	PAINE	FMPC-2194
PL-3006	SITE-PL	MATERIALS CONTROL AND ACCOUNTABILITY PLAN	12/07/93	0	LOWER	FRASER	PL-FMPC-3006
PL-3007	SITE-PL	NPDES PERMIT COMPLIANCE PLAN	09/10/91	0	JOHNSTON	ALKEMA	NONE
PL-3008	SITE-PL	QUALITY ASSURANCE PROJECT PLAN (QAPP) FOR RADIONUCLIDE EMISSION MEASUREMENTS	11/30/93	2	PALMER	PAINE	PL-3008
PL-3010	SITE-PL	FY-1992 ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT SITE SPECIFIC PLAN	09/11/91	0	MCDONALD	COSSEL	NONE
PL-3018	SITE-PL	FEMP ASBESTOS MANAGEMENT PLAN	09/24/93	1	JOHNS	PAINE	PL-3018
PL-3020	SITE-PL	FEMP EMERGENCY PLAN	03/22/93	0	SCHOLZ	PAINE	PL-3020I.1
PL-3022	SITE-PL	URANIUM SOILS INTEGRATED DEMONSTRATION: SITE CHARACTERIZATION DEMONSTRATION PLAN	08/02/93	0	NUHFER	ALKEMA	NONE

DOCUMENT NO.	TYPE OF DOCUMENT	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
PL-3025	SITE-PL	NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE PLAN	12/30/93	1	HOMER	ALKEMA	FD-1003
PL-3027	SITE-PL	FINANCIAL ACCOUNTABILITY PROGRAM DESCRIPTION	10/01/93	0	HOGE	COSSEL	NONE
PL-3032	SITE-PL	FERNALD SITE WIDE TRAINING PLAN	02/22/94	0	MERWIN	ZOBRIST	NONE
PL-3033	SITE-PL	MOTOR VEHICLE PLAN	02/28/94	0	GILBERT	MCGUIRE	NONE
PL-FMPC-3001	SITE-PL	LABORATORY CHEMICAL HYGIENE PLAN	01/15/91	0	MENGEL	PAINE	NONE
PL-FMPC-3009	SITE-PL	WASTE MINIMIZATION & POLLUTION PREVENTION AWARENESS PLAN	04/30/91	0	ALLMON	MCGUIRE	FMPC-2205
PO-0307	SITE-PO	CONTROL AND ACCOUNTABILITY OF NUCLEAR MATERIAL	06/30/93	0	DUNAWAY	FRASER	NONE
PO-0518	SITE-PO	NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) PROGRAM	12/06/93	1	HOMER	ALKEMA	PP-0518
PO-0712	SITE-PO	RISK ASSESSMENT AND MANAGEMENT (RAM) SYSTEM POLICY	01/25/92	0	WERNER	ALKEMA	IN-6034
PO-1003	SITE-PO	ASBESTOS CONTROL POLICY	08/20/92	0	BEIRNE	PAINE	NONE
PO-1011	SITE-PO	SITE ACCESS POLICY	07/09/93	0	MILLER	ZOBRIST	NONE
PO-1013	SITE-PO	WASTE MINIMIZATION AND POLLUTION PREVENTION POLICY	10/14/93	0	PFAHLES-HUTCH	MCGUIRE	NONE
PO-1014	SITE-PO	ALARA POLICY	10/18/93	0	CALHOUN	PAINE	NONE
PO-FMPC-1001	SITE-PO	CONDUCT OF OPERATIONS POLICY	08/24/90	0	DECHTER	MCGUIRE	NONE
PP-0309	SITE-PP	MANAGEMENT OF WEMCO SITE PRECIOUS METALS	05/19/92	0	TAYLOR	FRASER	FMPC-0309
PP-0310	SITE-PP	PERSONAL COMPUTER PROCUREMENT	09/12/91	0	WILLIS	CLAUSS	NONE
PP-0314	SITE-PP	PACKAGING, ON-SITE MOVEMENT AND OFF-SITE SHIPMENT OF MATERIAL	12/20/91	0	MCGROGAN	MCGUIRE	FMPC-0314
PP-0408	SITE-PP	TRAVEL AND SEMINAR AUTHORIZATION AND REPORTING	02/03/92	0	CALDWELL	FRASER	IN-6037
PP-0710	SITE-PP	QUALITY ASSURANCE PLANS	11/14/91	0	MERRIMAN	ABERNATHY	IN-6012
PP-0721	SITE-PP	TEST AUTHORIZATION	04/06/92	0	VOYLES	HECK	FMPC-0721
PP-0722	SITE-PP	REQUESTING ENGINEERING SERVICES	11/06/91	0	SIMI	HECK	FMPC-0722

DOCUMENT NO.	TYPE OF DOCUMENT	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC OWNER	SUPERSEDES
PP-5009	SITE-PP	BUSINESS MEETING/TRAINING ARRANGEMENTS AND EXPENDITURES	11/04/91	1	TAYLOR	ZOBRIST	PP-5009
PP-5023	SITE-PP	FIRE PROTECTION POLICY	09/20/91	0	STEMEN	PAINE	NONE
PP-5030	SITE-PP	CHANGE PROPOSAL PROCEDURE	10/29/91	0	ALDRICH	CLAUSS	NONE
PP-5031	SITE-PP	NUCLEAR MATERIALS DISPOSITION ORDER MANAGEMENT SYSTEM	10/29/91	0	DUNAWAY	MCGUIRE	IN-6009
PP-5034	SITE-PP	COST REDUCTION PROGRAM	03/16/92	0	GRUMSKI	FRASER	IN-6011
PP-FMPC-0610	SITE-PP	PATENT AND INVENTION DISCLOSURE	07/31/91	0	CHEN		NONE
PP-FMPC-5004	SITE-PP	RESPONSE TO PUBLIC INFORMATION REQUESTS	11/16/90	0	WALKER	HOOPES	FMPC-0618
PP-FMPC-5010	SITE-PP	MANAGEMENT OF LOW-LEVEL WASTE (LLW)	12/26/90	0	ALLMON	MCGUIRE	NONE
PP-FMPC-5012	SITE-PP	MANAGEMENT OF TELECOMMUNICATIONS EQUIPMENT AND SERVICES	01/31/91	0	GIBSON	FRASER	NONE
PP-FMPC-5013	SITE-PP	ACQUISITION OF AUTOMATED DATA PROCESSING EQUIPMENT, SOFTWARE, AND SERVICE	04/16/91	0	GIBSON	FRASER	NONE
RM-0003	SITE-RM	UNCLASSIFIED COMPUTER SECURITY PROGRAM MANUAL	10/09/91	0	GIBSON	FRASER	IN-RM-FMPC-0003
RM-0004	SITE-RM	TECHNICAL SUPPORT STAFF SELECTION, TRAINING, AND QUALIFICATION PROGRAM	02/07/92	0	WERNER		NONE
RM-0005	SITE-RM	FEMP LOT MARKING AND COLOR CODING SYSTEM	08/23/93	4	DUNAWAY	FRASER	RM-0005
RM-0006	SITE-RM	INDUSTRIAL SAFETY	09/04/92	1	CONNELL	PAINE	RM-0006
RM-0007	SITE-RM	FEMP RESPIRATORY PROTECTION REQUIREMENTS MANUAL	09/01/92	0	MENGEL	PAINE	FMPC-2152
RM-0011	SITE-RM	CONTROL OF OCCUPATIONAL EXPOSURE OF BLOODBORNE PATHOGENS	12/27/93	1	SESSLER	PAINE	RM-0011
RM-0012	SITE-RM	QUALITY ASSURANCE PROGRAM DESCRIPTION	04/30/93	2	TURNER	ABERNATHY	PL-3014
RM-0013	SITE-RM	FIRE PROTECTION REQUIREMENTS MANUAL	10/27/92	0	CONNELL	PAINE	
RM-2086	SITE-RM	CHEMICAL HAZARD COMMUNICATION PROGRAM	07/10/92	0	KRUCHAN	PAINE	NONE
RM-FMPC-0001	SITE-RM	FMPC GENERAL DESIGN CRITERIA MANUAL	09/28/90	0	SIMI	HECK	FMPC-2069
SM-0001	SITE-SM	RISK ASSESSMENT AND MANAGEMENT (RAM) SYSTEM MANUAL	01/25/92	0	WERNER	ALKEMA	IN-6035 IN-6036

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DOCUMENT NO.	TYPE OF DOCUMENT	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
SR-0002	SITE-SR	LARGE PROJECT ASBESTOS WORK PRACTICES	06/28/93	0	MCCULLOUGH	PAINE	NONE
SR-0004	SITE-SR	ESTABLISHMENT AND MANAGEMENT OF RADIOACTIVE MATERIAL MANAGEMENT AREAS (RMMAS)	10/13/93	0	WELLS	PAINE	NONE
SR-2117	SITE-SR	NUCLEAR CRITICALITY SAFETY REQUIREMENTS	06/16/93	0	BROWN		FMPC-2117
SSOP-0002	SITE-SSOP	COMPLETING THE MATERIAL EVALUATION FORM	10/22/91	3	HAMBLIN	PAINE	NONE
SSOP-0003	SITE-SSOP	RECEIVING, ON-SITE MOVEMENT AND OFF-SITE SHIPMENT OF NON-RADIOACTIVE HAZARDOUS MATERIAL	04/30/92	1	STAPLETON	MCGUIRE	NONE
SSOP-0007	SITE-SSOP	FERMCO DISBURSEMENT SIGNATURE AUTHORIZATION PROCEDURE	02/24/94	2	CALDWELL	FRASER	SSOP-0007
SSOP-0008	SITE-SSOP	PREPARING AND TRANSFERRING UNCHARACTERIZED WASTE TO THE CONTROLLED HOLDING AREA	01/13/92	1	OGG	MCGUIRE	NONE
SSOP-0011	SITE-SSOP	QUALIFICATION OF HEPA FILTER TEST PERSONNEL	08/28/91	0	PALMER	MCGUIRE	NONE
SSOP-0013	SITE-SSOP	EXEMPTION FROM INITIAL TRAINING	02/22/94	1	MERWIN	ZOBRIST	SSOP-0013
SSOP-0014	SITE-SSOP	DOCUMENTATION OF A SUBJECT MATTER EXPERT (SME)	06/03/91	0	WERNER	ALKEMA	NONE
SSOP-0018	SITE-SSOP	PROCESSING THE SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD FOR SAMPLE CONTROL	02/14/94	3	MILLER	MCGUIRE	SSOP-0018
SSOP-0022	SITE-SSOP	QUALIFICATION PROGRAM TRAINING COMPLETION DOCUMENTATION	01/24/92	0	HOFFMAN	ZOBRIST	NONE
SSOP-0023	SITE-SSOP	DEVIATION AND CORRECTIVE ACTION REPORT PROCESSING	10/13/93	3	LOCKERD	ABERNATHY	PP-FMPC-0706
SSOP-0027	SITE-SSOP	CONTROL OF BOX-TYPE CONTAINERS	02/07/92	0	DUNBAR	MCGUIRE	NONE
SSOP-0028	SITE-SSOP	CONTROLLING PORTABLE VENTILATION DEVICES AND VACUUM CLEANERS	12/20/91	0	GRIFFITH	MCGUIRE	NONE
SSOP-0030	SITE-SSOP	ACQUISITION OF PERSONAL COMPUTERS, PERIPHERAL EQUIPMENT AND SOFTWARE	09/12/91	0	WILLIS	CLAUSS	FMPC-0310
SSOP-0031	SITE-SSOP	NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DOCUMENT PROCESS	12/21/93	2	HOMER	ALKEMA	SSOP-0031
SSOP-0034	SITE-SSOP	NUCLEAR MATERIALS DISPOSITION ORDER MANAGEMENT	10/29/91	0	KAUSHIVA	MCGUIRE	IN-6010

DOCUMENT NO.	TYPE OF DOCUMENT	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC.OWNER	SUPERSEDES
SSOP-0035	SITE-SSOP	SATELLITE ACCUMULATION AREAS AND INTERIM CONTAINERS FOR HAZARDOUS WASTES	09/28/93	1	ENNEKING	MCGUIRE	SSOP-0035
SSOP-0036	SITE-SSOP	QUALITY ASSURANCE PROJECT PLANS	11/14/91	0	MERRIMAN	ABERNATHY	IN-6014
SSOP-0039	SITE-SSOP	HANDLING CONTAINERS OF UNIDENTIFIED MATERIAL	09/30/92	0	MURRIN	MCGUIRE	NONE
SSOP-0044	SITE-SSOP	MANAGEMENT OF EXCESS SOIL, DEBRIS, AND WASTE FROM A PROJECT	01/31/94	1	WEESE	KING	SSOP-0044I
SSOP-0045	SITE-SSOP	IDENTIFYING QUALITY ASSURANCE PROGRAM REQUIREMENTS FOR QUALITY (RISK) LEVELS	10/28/93	1	PONKE	ABERNATHY	FMPC-0711
SSOP-0048	SITE-SSOP	CONTACTS WITH REGULATORY AGENCIES	08/10/92	0	KO	ALKEMA	FMPC-0612
SSOP-0049	SITE-SSOP	FEMP QUALITY ASSURANCE AUDIT PROGRAM	10/18/93	1	PONKE	ABERNATHY	FMPC-0707
SSOP-0051	SITE-SSOP	CONTROLLING ACCESS TO THE FERNALD ENVIRONMENTAL MANAGEMENT PROJECT (FEMP)	09/04/92	0	NETON	PAINE	FMPC-105
SSOP-0052	SITE-SSOP	CORRESPONDENCE DIRECTIVE	10/09/92	0	MCDONOUGH	CLAUSS	PP-FMPC-5003
SSOP-0053	SITE-SSOP	SNOW AND ICE REMOVAL	04/19/93	1	PENNIX	MCGUIRE	SSOP-0053
SSOP-0055	SITE-SSOP	ESTABLISHMENT AND MAINTENANCE OF FEMP ADMINISTRATIVE RECORD	06/26/92	0	WALTERS	CLAUSS	NONE
SSOP-0057	SITE-SSOP	RELEASE OF INFORMATION TO THE PUBLIC CONCERNING EMERGENCY AND NON-ROUTINE EVENTS	07/20/92	0	WALKER	HOOPES	NONE
SSOP-0058	SITE-SSOP	PERFORMING TYPE A, B, AND C INVESTIGATIONS	07/10/92	0	CORNWELL	PAINE	PP-FMPC-5007
SSOP-0059	SITE-SSOP	CONTROL AND TRACKING OF CHEMICAL SUBSTANCES	05/26/92	0	OGG	MCGUIRE	NONE
SSOP-0060	SITE-SSOP	PACKAGING AND LOADING RADIOACTIVE MATERIAL FOR OFFSITE SHIPMENT	06/18/93	4	OGG	KING	SSOP-0060
SSOP-0061	SITE-SSOP	FEMP WORK REQUEST/ORDER PROCEDURE	09/17/92	0	MILLER	MCGUIRE	FMPC-715
SSOP-0066	SITE-SSOP	FOREIGN TRAVEL	07/27/93	0	TAYLOR	FRASER	FMPC-0402
SSOP-0067	SITE-SSOP	SPILL INCIDENT REPORTING AND CLEAN-UP	11/20/92	0	PONKE	PAINE	FMPC-0503

DOCUMENT NO.	TYPE OF DOCUMENT	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC OWNER	SUPERSEDES
SSOP-0068	SITE-SSOP	INSPECTION OF PROCURED MATERIAL, EQUIPMENT, WORK IN PROCESS AND COMPLETED ITEMS	08/31/92	0	PONKE	ABERNATHY	FMPC-0717
SSOP-0069	SITE-SSOP	FREON MANAGEMENT	07/09/92	0	BATCHELOR	MCGUIRE	NONE
SSOP-0075	SITE-SSOP	PACKAGING LOW LEVEL RADIOACTIVE WASTE (LLRW) IN DRUMS FOR OFFSITE SHIPMENT	12/14/92	0	HUNDLEY	MCGUIRE	SSOP-0024
SSOP-0076	SITE-SSOP	REVIEWING THE FERNALD SITE ENVIRONMENTAL MONITORING PROGRAM	11/06/92	0	SNYDER	PAINE	NONE
SSOP-0077	SITE-SSOP	BUILDING EMERGENCY PROCEDURE	02/16/94	2	DULEY	PAINE	SSOP-0077
SSOP-0078	SITE-SSOP	PACKAGING LOW LEVEL RADIOACTIVE WASTE (LLRW) INTO ISO CONTAINERS FOR OFFSITE SHIPMENT	12/14/92	0	HUNDLEY	MCGUIRE	SSOP-0024
SSOP-0079	SITE-SSOP	PACKAGING LOW-LEVEL RADIOACTIVE WASTE (LLRW) IN METAL BOXES FOR OFFSITE SHIPMENT	12/14/92	0	HUNDLEY	MCGUIRE	SSOP-0024
SSOP-0081	SITE-SSOP	RADIOLOGICALLY NON-CONTAMINATED ASBESTOS CONTAINING MATERIAL WASTE (ACM) DISPOSITION	09/03/92	0	JOHNS	PAINE	NONE
SSOP-0082	SITE-SSOP	QUALITY IMPROVEMENT	10/30/92	0	LAMBERT	ZOBRIST	NONE
SSOP-0086	SITE-SSOP	PERFORMING PERSONNEL MONITORING	04/08/93	0	ARP	PAINE	NONE
SSOP-0088	SITE-SSOP	FERNALD ENVIRONMENTAL MANAGEMENT PROJECT (FEMP) OFFSITE EMERGENCY WARNING SYSTEM	05/03/93	1	DULEY	PAINE	SSOP-0088
SSOP-0089	SITE-SSOP	PERSONNEL ACCOUNTABILITY	02/16/94	1	SCHOLZ	PAINE	SSOP-0089I
SSOP-0093	SITE-SSOP	WELDING PERFORMANCE QUALIFICATION	12/21/93	1	ROMINE	MCGUIRE	SSOP-0093
SSOP-0095	SITE-SSOP	CRITICALITY SAFETY ANALYSIS AND APPROVAL PROCESS	06/16/93	0	BROWN		FMPC-0517
SSOP-0096	SITE-SSOP	DOCUMENT FILING SYSTEM	11/30/93	0	HAWLEY	CLAUSS	NONE
SSOP-0097	SITE-SSOP	PROCESSING EMPLOYEE STATUS CHANGES	08/18/93	0	VANBIBBER	ZOBRIST	NONE
SSOP-0099	SITE-SSOP	VISITOR TOUR ACCESS	09/16/93	0	JACKSON	HOOPES	NONE
SSOP-0103	SITE-SSOP	FEMP SITE DOCUMENT SYSTEM	10/14/92	0	HESTER	ZOBRIST	PP-0103

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DOCUMENT NO.	TYPE OF DOCUMENT	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
SSOP-0315	SITE-SSOP	CONTROLLING THE PURCHASE OF SUPPLIES AND SERVICES	07/12/93	1	TURNER	FRASER	SSOP-0315
SSOP-0317	SITE-SSOP	INITIATING AND PREPARING A TECHNICAL EVALUATION OF A PROPOSAL	08/21/92	0	CRAIG	FRASER	FMPC-0317
SSOP-0609	SITE-SSOP	RECORDS MANAGEMENT	03/05/93	0	HAWLEY	CLAUSS	FMPC-0609
SSOP-0611	SITE-SSOP	FORM DEVELOPMENT AND CONTROL	06/10/93	0	SCHLEMMER	ZOBRIST	FMPC-0611
SSOP-0614	SITE-SSOP	UNCLASSIFIED COMPUTER SECURITY PROGRAM	01/25/94	0	HODSON	CLAUSS	FMPC-0614
SSOP-0709	SITE-SSOP	CONDUCT OF INDEPENDENT SURVEILLANCE ACTIVITY	07/30/93	0	PONKE	ABERNATHY	PP-0709
SSOP-0716	SITE-SSOP	CONTROL OF PROCESSES	03/17/93	0	HUEY	MCGUIRE	FMPC-0716
SSOP-0719	SITE-SSOP	FERMCO LOCKOUT/TAGOUT (HAZARDOUS ENERGY AND MATERIAL CONTROL) PROCEDURE	02/14/94	1	MILLER	MCGUIRE	PP-FMPC-0719
SSOP-1000	SITE-SSOP	OBTAINING WORD PROCESSING SUPPORT	04/17/93	0	SPAHR	ZOBRIST	NONE
SSOP-1003	SITE-SSOP	BOMB THREAT PROCEDURE	03/01/93	0	DULEY	PAINE	NONE
SSOP-1004	SITE-SSOP	FEMP DATA VALIDATION PROCEDURE	06/23/93	0	GILL	CLAY	NONE
SSOP-1007	SITE-SSOP	OFFSITE EMERGENCY PROCEDURE	06/23/93	0	CAMPBELL	PAINE	NONE
SSOP-1009	SITE-SSOP	PREGNANCY REPORTING AND EMBRYO/FETUS RADIOLOGICAL PROTECTION	06/21/93	0	NETON	PAINE	NONE
SSOP-1011	SITE-SSOP	REQUISITIONING TEMPORARY CLERICAL SUPPORT	06/30/93	0	SPAHR	ZOBRIST	NONE
SSOP-1012	SITE-SSOP	RESTRICTIONS FOR WORKERS CONTAMINATED WITH RADIOPHARMACEUTICALS	07/27/93	0	LEVY	PAINE	NONE
SSOP-1013	SITE-SSOP	TRACKING EXTERNAL ACTIONS AND MILESTONE (TEAM) MANAGEMENT	07/07/93	0	GESSENDORF	CLAUSS	SSOP-0602
SSOP-1016	SITE-SSOP	ESTABLISHMENT AND CONTROL OF HEAT STRESS STATIONS IN CONTAMINATION AREAS	12/29/93	0	LEVY	PAINE	NONE
SSOP-1017	SITE-SSOP	MAINTENANCE OF STANDARDS/REQUIREMENTS IDENTIFICATION DOCUMENTS (S/RIDS)	12/23/93	0	BECKMAN	COSSEL	NONE

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DOCUMENT NO.	TYPE OF DOCUMENT	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
SSOP-1018	SITE-SSOP	EVENT CATEGORIZATION/CLASSIFICATION PROCEDURE	10/15/93	0	CAMPBELL	PAINE	NONE
SSOP-1020	SITE-SSOP	QA/QC TAGGING	10/19/93	0	FORD	ABERNATHY	NONE
SSOP-1021	SITE-SSOP	DISPOSITION OF SAFE SHUTDOWN EXCESS PERSONAL PROPERTY	10/15/93	0	RATHGENS	MCGUIRE	NONE
SSOP-1027	SITE-SSOP	MANAGING PCBS AND PCB ITEMS	03/08/94	0	KASTER	KING	NONE
SSOP-1033	SITE-SSOP	JOINT INFORMATION CENTER	03/02/94	0	JACKSON	HOOPES	OM-0004
SSOP-1035	SITE-SSOP	UNREVIEWED SAFETY QUESTION (USQ) DETERMINATION AND SAFETY EVALUATION SYSTEM	02/01/94	0	KLINE	COSSEL	NONE
SSOP-1038	SITE-SSOP	SECURITY INSPECTIONS	12/07/93	0	MACY	PAINE	NONE
SSOP-1041	SITE-SSOP	FINANCIAL ACCOUNTABILITY PROCEDURE	10/01/93	0	HOGE	COSSEL	NONE
SSOP-1044	SITE-SSOP	MANAGEMENT OF GOVERNMENT PROPERTY	09/30/93	0	KLEMKO	FRASER	NONE
SSOP-1045	SITE-SSOP	SELF-ASSESSMENT DATABASE USER PROCEDURE	01/18/94	0	REIMANN	COSSEL	NONE
SSOP-1063	SITE-SSOP	CONDUCTING A JOB AND TASK ANALYSIS	02/17/94	0	MERWIN	ZOBRIST	NONE
SSOP-1067	SITE-SSOP	INITIATING ENERGY ISOLATION AND HAZARDOUS MATERIAL PLANS	02/24/94	0	MAURER	PAINE	NONE
SSOP-1068	SITE-SSOP	THE FERMCO EXTERNAL AUDIT AND APPRAISAL MANAGEMENT SYSTEM	03/01/94	0	LOCKERD	ABERNATHY	NONE
SSOP-1069	SITE-SSOP	INSTRUCTOR QUALIFICATION	02/28/94	0	MERWIN	ZOBRIST	NONE
SSOP-1075	SITE-SSOP	SITEWIDE LESSONS LEARNED	02/28/94	0	HOOD	PAINE	NONE
SSOP-5013	SITE-SSOP	ACQUISITION OF AUTOMATED DATA PROCESSING EQUIPMENT, SOFTWARE, AND SERVICES	02/25/94	0	GIBSON	CLAUSS	SSOP-0005, SSOP-0006
SSOP-5014	SITE-SSOP	MANAGEMENT INSPECTION OF FACILITIES PROGRAM (MIFP)	02/16/94	0	HOLLIDAY	MCGUIRE	NONE
SSOP-6003	SITE-SSOP	OFFICE MACHINE ACQUISITION CONTROL	11/23/93	0	CAMPBELL	ZOBRIST	PP-6003

SECTION 2

DOCUMENT TYPE LISTING

- Charters
- Interims
- Manuals
- Plans
- Policies And Procedures
- Site Standard Operating Procedures

CHARTERS

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
CH-0203	ALARA COMMITTEE CHARTER	10/18/93	1	SCHILLING	PAINE	CH-FMPC-0203
CH-0208	SUBCONTRACT REVIEW COMMITTEE CHARTER	02/22/94	0	NOXSEL	FRASER	FMPC-0208
CH-FMPC-0209	INDEPENDENT SAFETY REVIEW COMMITTEE CHARTER	01/31/91	0	BOGAR		FMPC-0209
CH-0210	BEST MANAGEMENT PRACTICES COMMITTEE FOR CLEAN WATER	05/26/92	0	BECKMAN	ALKEMA	FMPC-0210
FMPC-0211	PATENT REVIEW COMMITTEE CHARTER	07/19/90	1	GALPER		NONE
FMPC-0212	ENVIRONMENTAL COUNCIL CHARTER	11/03/89	0	FARMER	PAINE	NONE
CH-FMPC-0215	SITE SERVICES DEPARTMENT CHARTER	07/05/91	0	EMMERT	MCGUIRE	FMPC-0215
CH-0220	CONTROLLER DEPARTMENT CHARTER	06/05/92	0	REED	FRASER	CH-FMPC-0220
CH-0222	OFFICE OF COUNSEL CHARTER	11/02/92	0	GREULICH	CURTIS	CH-FMPC-222
FMPC-0223	SITE REMEDIATION DEPARTMENT CHARTER	07/29/88	0	FARMER	PAINE	NONE
CH-0230	INDUSTRIAL, RADIOLOGICAL SAFETY, AND TRAINING DEPARTMENT CHARTER	08/19/92	0	GABBARD	PAINE	CH-FMPC-0230
FMPC-0231	COMPUTER SYSTEMS STEERING COMMITTEE CHARTER	04/12/90	0	STERLING	CLAUSS	NONE
FMPC-0232	WMCO TOTAL QUALITY COUNCIL CHARTER	02/12/90	0	MOHR		NONE
CH-0233	TRANSPORTATION SAFETY COMMITTEE CHARTER	08/18/93	1	STAPLETON	MCGUIRE	CH-0233
CH-2000	COMMUNICATIONS DEPARTMENT CHARTER	05/05/92	0	JACKSON	HOOPES	CH-FMPC-2000
CH-2005	ASBESTOS MANAGEMENT COMMITTEE CHARTER	04/20/92	0	MCCULLOUGH	PAINE	NONE
CH-2007	FERNALD ENVIRONMENTAL MANAGEMENT PROJECT (FEMP) LEVEL 3 REVIEW BOARD	06/01/93	2	ALDRICH	CLAUSS	CH-2007
CH-2008	RESOURCE PLANNING, SCHEDULING, AND INTEGRATION	03/02/92	0	DEN HERDER	COSSEL	CH-2003
CH-2010	ENVIRONMENTAL MANAGEMENT DEPARTMENT CHARTER	10/02/92	0	RITCHIE		NONE
CH-2012	ENVIRONMENTAL RESTORATION DEPARTMENT CHARTER	08/31/92	0	WAGNER	HOPPER	NONE

CHARTERS

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
CH-2013	INTERNAL AUDIT ORGANIZATION CHARTER	09/04/92	0	BURNS	BURNS	NONE
CH-2015	QUALITY ASSURANCE (QA) DIVISION CHARTER	04/01/93	0	PONKE	ABERNATHY	CH-0226 CH-2006
CH-2016	CONFIGURATION MANAGEMENT CHARTER	07/07/93	0	BECKETT	CLAUSS	NONE
CH-2020	RADON PROJECT SUPPORT COMMITTEE CHARTER	02/25/94	0	SHANKS	PAINE	NONE

INTERIMS

DOCUMENT NO.	TITLE	EFFECTIVE DATE	EXPIRATION DATE	SME	DOC OWNER	SUPERSEDES

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MANUALS

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV NO.	SME	DOC OWNER	SUPERSEDES
SM-0001	RISK ASSESSMENT AND MANAGEMENT (RAM) SYSTEM MANUAL	01/25/92	0	WERNER	ALKEMA	IN-6035 IN-6036
RM-FMPC-0001	FMPC GENERAL DESIGN CRITERIA MANUAL	09/28/90	0	SIMI	HECK	FMPC-2069
SR-0002	LARGE PROJECT ASBESTOS WORK PRACTICES	06/28/93	0	MCCULLOUGH	PAINE	NONE
OM-0003	TEST AUTHORIZATION	04/03/92	0	VOYLES	HECK	FMPC-2181
RM-0003	UNCLASSIFIED COMPUTER SECURITY PROGRAM MANUAL	10/09/91	0	GIBSON	FRASER	IN-RM-FMPC-0003
SR-0004	ESTABLISHMENT AND MANAGEMENT OF RADIOACTIVE MATERIAL MANAGEMENT AREAS (RMMAS)	10/13/93	0	WELLS	PAINE	NONE
RM-0004	TECHNICAL SUPPORT STAFF SELECTION, TRAINING, AND QUALIFICATION PROGRAM	02/07/92	0	WERNER		NONE
OM-0005	ASBESTOS OPERATIONS AND MAINTENANCE WORK PRACTICES	08/01/92	0	MCCULLOUGH	PAINE	OM-0005I
RM-0005	FEMP LOT MARKING AND COLOR CODING SYSTEM	08/23/93	4	DUNAWAY	FRASER	RM-0005
RM-0006	INDUSTRIAL SAFETY	09/04/92	1	CONNELL	PAINE	RM-0006
RM-0007	FEMP RESPIRATORY PROTECTION REQUIREMENTS MANUAL	09/01/92	0	MENGEL	PAINE	FMPC-2152
RM-0011	CONTROL OF OCCUPATIONAL EXPOSURE OF BLOODBORNE PATHOGENS	12/27/93	1	SESSLER	PAINE	RM-0011
RM-0012	QUALITY ASSURANCE PROGRAM DESCRIPTION	04/30/93	2	TURNER	ABERNATHY	PL-3014
RM-0013	FIRE PROTECTION REQUIREMENTS MANUAL	10/27/92	0	CONNELL	PAINE	
FMPC-2055	CLASSIFICATION GUIDE FOR THE FMPC	09/23/86	0	NEYER		NONE
FMPC-2066	T-HOPPER SHIPPING CONTAINER HANDLING PROCEDURES AND CONTAINER CRITERIA	08/31/87	0	GARDNER	MCGUIRE	NONE
FMPC-2070	STYLE AND FORMAT GUIDE FOR SCIENTIFIC AND TECHNICAL REPORTS AND PAPERS	06/01/90	1	BECKMAN	COSSEL	NONE

MANUALS

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC OWNER	SUPERSEDES
FMPC-2081	SUPERVISOR'S EMPLOYEE RELATIONS MANUAL	06/01/87	0	CRISLER	ZOBRIST	NONE
RM-2086	CHEMICAL HAZARD COMMUNICATION PROGRAM	07/10/92	0	KRUCHAN	PAINE	NONE
FMPC-2092	FMPC WELDING PROGRAM	05/01/88	0	ROMINE	MCGUIRE	NONE
FMPC-2100	OPERATIONAL SAFETY REQUIREMENTS FOR THE SOUTH AMMONIA STORAGE FACILITY	11/01/87	0	GARDNER	MCGUIRE	NONE
FMPC-2113	PRINCIPLES OF NUCLEAR SAFETY	07/08/87	0	BOGAR	PAINE	NLCO-1179
FMPC-2116	IMPLEMENTING FMPC POLICIES AND PROCEDURES FOR SYSTEM SAFETY ANALYSIS	01/01/89	0	BOGAR		NLCO-1172
SR-2117	NUCLEAR CRITICALITY SAFETY REQUIREMENTS	06/16/93	0	BROWN		FMPC-2117
FMPC-2128	FMPC INDUSTRIAL HYGIENE AND SAFETY MANUAL	04/04/89	0	WENTZEL	PAINE	NONE
OM-2136	FERMCO PROJECT CONTROL SYSTEM - APPLICATION GUIDE - VOLUME 1: SYSTEM DESCRIPTION	10/01/93	0	LESTER	CLAUSS	FMPC-2136
FMPC-2171	STANDARD SPECIFICATIONS FOR DUST COLLECTOR EQUIPMENT	05/13/92	5	PALMER	HECK	NONE
FMPC-2176	OPERATIONAL SAFETY REQUIREMENTS FOR THE REMOVAL AND OVERPACKING PROGRAM FOR THE 212 CONTAINERS OF THORIUM METALS	12/01/89	0	FARMER	PAINE	NONE
IM-6001	SAFE SHUTDOWN PROGRAM PLANNING AND IMPLEMENTATION MANUAL	12/02/93	0	OGG	KING	NONE
IM-6010	DEFENSE NUCLEAR FACILITIES SAFETY BOARD (DNFSB)	01/12/94	0	WADE	COSSEL	NONE
IM-7001	DECONTAMINATION MANUAL	12/27/93	1	ALLEN	PAINE	IM-7001
IM-7006	INCIDENT BUILDING EVACUATION MANUAL	02/22/94	1	DULEY	PAINE	IM-7006

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PLANS

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
PL-1002	FERNALD SITE ENVIRONMENTAL MONITORING PLAN	05/31/93	1	SNYDER	PAINE	PL-1002
FMPC-2040	FMPC WASTE MANAGEMENT PLAN	12/31/86	1	HEISLER		NONE
FMPC-2175	ABANDONED-IN-PLACE (AIP) EQUIPMENT PROGRAM WORK PLAN	06/01/89	0	DEN HERDER		NONE
FMPC-2185	SAMPLING PLAN FOR DRUMMED WASTE AT THE FMPC	10/01/89	0	ANGERT	PAINE	NONE
PL-2194	FERMCO SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC) PLAN	04/30/93	0	MERCADAL	PAINE	FMPC-2194
FMPC-2214	ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT SITE SPECIFIC PLAN	07/01/90	0	JOHNSON	COSSEL	NONE
PL-FMPC-3001	LABORATORY CHEMICAL HYGIENE PLAN	01/15/91	0	MENGEL	PAINE	NONE
PL-3006	MATERIALS CONTROL AND ACCOUNTABILITY PLAN	12/07/93	0	LOWER	FRASER	PL-FMPC-3006
PL-3007	NPDES PERMIT COMPLIANCE PLAN	09/10/91	0	JOHNSTON	ALKEMA	NONE
PL-3008	QUALITY ASSURANCE PROJECT PLAN (QAPP) FOR RADIONUCLIDE EMISSION MEASUREMENTS	11/30/93	2	PALMER	PAINE	PL-3008
PL-FMPC-3009	WASTE MINIMIZATION & POLLUTION PREVENTION AWARENESS PLAN	04/30/91	0	ALLMON	MCGUIRE	FMPC-2205
PL-3010	FY-1992 ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT SITE SPECIFIC PLAN	09/11/91	0	MCDONALD	COSSEL	NONE
PL-3018	FEMP ASBESTOS MANAGEMENT PLAN	09/24/93	1	JOHNS	PAINE	PL-3018
PL-3020	FEMP EMERGENCY PLAN	03/22/93	0	SCHOLZ	PAINE	PL-3020I.1
PL-3022	URANIUM SOILS INTEGRATED DEMONSTRATION: SITE CHARACTERIZATION DEMONSTRATION PLAN	08/02/93	0	NUHFER	ALKEMA	NONE
PL-3025	NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)	12/30/93	1	HOMER	ALKEMA	FD-1003

PLANS

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
	COMPLIANCE PLAN					
PL-3027	FINANCIAL ACCOUNTABILITY PROGRAM DESCRIPTION	10/01/93	0	HOGE	COSSEL	NONE
PL-3032	FERNALD SITE WIDE TRAINING PLAN	02/22/94	0	MERWIN	ZOBRIST	NONE
PL-3033	MOTOR VEHICLE PLAN	02/28/94	0	GILBERT	MCGUIRE	NONE

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POLICIES AND PROCEDURES

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC OWNER	SUPERSEDES
FMPC-0101	WMCO MANAGEMENT PHILOSOPHY	01/12/90	1	DEN HERDER	COSSEL	NONE
FMPC-0102	TRAINING	01/16/91	1	HOFFMAN	ZOBRIST	NONE
FMPC-0106	EMPLOYMENT AND INDOCTRINATION OF NEW PERSONNEL	04/04/88	0	CRISLER	ZOBRIST	NONE
FMPC-0110	DRUG-FREE WORKPLACE/SUBSTANCE ABUSE	08/18/89	1	CRISLER	ZOBRIST	NONE
FMPC-0113	WORKERS' COMPENSATION CLAIMS	12/16/88	0	CRISLER	ZOBRIST	NONE
FMPC-0122	OPEN COMMUNICATION OF EMPLOYEE CONCERNS	02/26/90	1	CRISLER	ZOBRIST	NONE
FMPC-0302	REQUEST FOR PURCHASE	10/30/92	4	HESTER	FRASER	FMPC-0302
FMPC-0304	HANDLING OF CONTROLLED SUBSTANCES AND SELECTED CHEMICALS	10/19/88	0	CRISLER	ZOBRIST	NONE
FMPC-0306	CONTRACT ADMINISTRATION	02/01/88	0	REED	FRASER	NONE
PO-0307	CONTROL AND ACCOUNTABILITY OF NUCLEAR MATERIAL	06/30/93	0	DUNAWAY	FRASER	NONE
PP-0309	MANAGEMENT OF WEMCO SITE PRECIOUS METALS	05/19/92	0	TAYLOR	FRASER	FMPC-0309
PP-0310	PERSONAL COMPUTER PROCUREMENT	09/12/91	0	WILLIS	CLAUSS	NONE
PP-0314	PACKAGING, ON-SITE MOVEMENT AND OFF-SITE SHIPMENT OF MATERIAL	12/20/91	0	MCGROGAN	MCGUIRE	FMPC-0314
FMPC-0316	8 (A) VENDOR PROGRAM	06/04/90	2	REED	FRASER	NONE
FMPC-0319	MATERIAL COMPATIBILITY PRACTICES	01/26/90	0	FLEMING	PAINE	NONE
PP-0408	TRAVEL AND SEMINAR AUTHORIZATION AND REPORTING	02/03/92	0	CALDWELL	FRASER	IN-6037
FMPC-0412	MANAGEMENT CONTROL SYSTEM POLICY	12/02/88	0	REED	FRASER	NONE
FMPC-0508	SAFETY ANALYSIS DOCUMENTATION PROGRAM	10/31/88	1	BOGAR	PAINE	NONE
FMPC-0511	CONTROL OF ENTRY TO THE WASTE STORAGE AREA	08/24/90	1	DECHTER	MCGUIRE	NONE
FMPC-0512	CONFIGURATION CONTROL OF SAFETY SYSTEMS, DESIGN FEATURES FOR SAFETY, AND OSR-AFFECTED PROCEDURES	10/31/88	0	BOGAR	PAINE	NONE

POLICIES AND PROCEDURES

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
FMPC-0516	CONTROL OF PERMITS FOR ACCOMPLISHING HAZARDOUS WORK	04/23/91	2	FLEMING	PAINE	NONE
PO-0518	NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) PROGRAM	12/06/93	1	HOMER	ALKEMA	PP-0518
FMPC-0519	MANAGEMENT OF HAZARDOUS WASTE	07/28/89	0	COYLE	PAINE	NONE
FMPC-0603	REQUESTING INFORMATION SYSTEMS SERVICES	11/21/89	0	REED	FRASER	NONE
FMPC-0604	PROTECTION OF SENSITIVE UNCLASSIFIED INFORMATION	10/15/87	0	REED	FRASER	NONE
FMPC-0605	DOE DIRECTIVES ADMINISTRATION	11/30/89	1	AMAN	COSSEL	NONE
FMPC-0608	PREPARATION AND RELEASE OF TECHNICAL INFORMATION	03/08/90	3	NEYER		NONE
PP-FMPC-0610	PATENT AND INVENTION DISCLOSURE	07/31/91	0	CHEN		NONE
FMPC-0702	DEVELOPMENT AND CONTROL OF DESIGN	03/05/90	1	SIMI	HECK	NONE
FMPC-0708	PERSONNEL CERTIFICATION	12/15/89	2	HOFFMAN	ZOBRIST	NONE
PP-0710	QUALITY ASSURANCE PLANS	11/14/91	0	MERRIMAN	ABERNATHY	IN-6012
PO-0712	RISK ASSESSMENT AND MANAGEMENT (RAM) SYSTEM POLICY	01/25/92	0	WERNER	ALKEMA	IN-6034
FMPC-0718	MEASURING AND TEST EQUIPMENT CALIBRATION AND CONTROL	01/12/90	2	DECHTER	MCGUIRE	NONE
PP-0721	TEST AUTHORIZATION	04/06/92	0	VOYLES	HECK	FMPC-0721
PP-0722	REQUESTING ENGINEERING SERVICES	11/06/91	0	SIMI	HECK	FMPC-0722
PO-FMPC-1001	CONDUCT OF OPERATIONS POLICY	08/24/90	0	DECHTER	MCGUIRE	NONE
PO-1003	ASBESTOS CONTROL POLICY	08/20/92	0	BEIRNE	PAINE	NONE
PO-1011	SITE ACCESS POLICY	07/09/93	0	MILLER	ZOBRIST	NONE
PO-1013	WASTE MINIMIZATION AND POLLUTION PREVENTION POLICY	10/14/93	0	PFAHLES-HUTC	MCGUIRE	NONE
PO-1014	ALARA POLICY	10/18/93	0	CALHOUN	PAINE	NONE

POLICIES AND PROCEDURES

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
PP-FMPC-5004	RESPONSE TO PUBLIC INFORMATION REQUESTS	11/16/90	0	WALKER	HOOPES	FMPC-0618
PP-5009	BUSINESS MEETING/TRAINING ARRANGEMENTS AND EXPENDITURES	11/04/91	1	TAYLOR	ZOBRIST	PP-5009
PP-FMPC-5010	MANAGEMENT OF LOW-LEVEL WASTE (LLW)	12/26/90	0	ALLMON	MCGUIRE	NONE
PP-FMPC-5012	MANAGEMENT OF TELECOMMUNICATIONS EQUIPMENT AND SERVICES	01/31/91	0	GIBSON	FRASER	NONE
PP-FMPC-5013	ACQUISITION OF AUTOMATED DATA PROCESSING EQUIPMENT, SOFTWARE, AND SERVICE	04/16/91	0	GIBSON	FRASER	NONE
PP-5023	FIRE PROTECTION POLICY	09/20/91	0	STEMEN	PAINE	NONE
PP-5030	CHANGE PROPOSAL PROCEDURE	10/29/91	0	ALDRICH	CLAUSS	NONE
PP-5031	NUCLEAR MATERIALS DISPOSITION ORDER MANAGEMENT SYSTEM	10/29/91	0	DUNAWAY	MCGUIRE	IN-6009
PP-5034	COST REDUCTION PROGRAM	03/16/92	0	GRUMSKI	FRASER	IN-6011

SITE-STANDARD-OPERATING-PROCEDURES

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
ED-0001	EVENT NOTIFICATION AND OCCURRENCE REPORTING PROCEDURE	08/20/93	2	DULEY	PAINE	ED-0001 SSOP-4006
SSOP-0002	COMPLETING THE MATERIAL EVALUATION FORM	10/22/91	3	HAMBLIN	PAINE	NONE
SSOP-0003	RECEIVING, ON-SITE MOVEMENT AND OFF-SITE SHIPMENT OF NON-RADIOACTIVE HAZARDOUS MATERIAL	04/30/92	1	STAPLETON	MCGUIRE	NONE
SSOP-0007	FERMCO DISBURSEMENT SIGNATURE AUTHORIZATION PROCEDURE	02/24/94	2	CALDWELL	FRASER	SSOP-0007
SSOP-0008	PREPARING AND TRANSFERRING UNCHARACTERIZED WASTE TO THE CONTROLLED HOLDING AREA	01/13/92	1	OGG	MCGUIRE	NONE
SSOP-0011	QUALIFICATION OF HEPA FILTER TEST PERSONNEL	08/28/91	0	PALMER	MCGUIRE	NONE
SSOP-0013	EXEMPTION FROM INITIAL TRAINING	02/22/94	1	MERWIN	ZOBRIST	SSOP-0013
SSOP-0014	DOCUMENTATION OF A SUBJECT MATTER EXPERT (SME)	06/03/91	0	WERNER	ALKEMA	NONE
SSOP-0018	PROCESSING THE SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD FOR SAMPLE CONTROL	02/14/94	3	MILLER	MCGUIRE	SSOP-0018
SSOP-0022	QUALIFICATION PROGRAM TRAINING COMPLETION DOCUMENTATION	01/24/92	0	HOFFMAN	ZOBRIST	NONE
SSOP-0023	DEVIATION AND CORRECTIVE ACTION REPORT PROCESSING	10/13/93	3	LOCKERD	ABERNATHY	PP-FMPC-0706
SSOP-0027	CONTROL OF BOX-TYPE CONTAINERS	02/07/92	0	DUNBAR	MCGUIRE	NONE
SSOP-0028	CONTROLLING PORTABLE VENTILATION DEVICES AND VACUUM CLEANERS	12/20/91	0	GRIFFITH	MCGUIRE	NONE
SSOP-0030	ACQUISITION OF PERSONAL COMPUTERS, PERIPHERAL EQUIPMENT AND SOFTWARE	09/12/91	0	WILLIS	CLAUSS	FMPC-0310
SSOP-0031	NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DOCUMENT	12/21/93	2	HOMER	ALKEMA	SSOP-0031

SITE-STANDARD-OPERATING-PROCEDURES

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
	PROCESS					
SSOP-0034	NUCLEAR MATERIALS DISPOSITION ORDER MANAGEMENT	10/29/91	0	KAUSHIVA	MCGUIRE	IN-6010
SSOP-0035	SATELLITE ACCUMULATION AREAS AND INTERIM CONTAINERS FOR HAZARDOUS WASTES	09/28/93	1	ENNEKING	MCGUIRE	SSOP-0035
SSOP-0036	QUALITY ASSURANCE PROJECT PLANS	11/14/91	0	MERRIMAN	ABERNATHY	IN-6014
SSOP-0039	HANDLING CONTAINERS OF UNIDENTIFIED MATERIAL	09/30/92	0	MURRIN	MCGUIRE	NONE
SSOP-0044	MANAGEMENT OF EXCESS SOIL, DEBRIS, AND WASTE FROM A PROJECT	01/31/94	1	WEESE	KING	SSOP-0044I
SSOP-0045	IDENTIFYING QUALITY ASSURANCE PROGRAM REQUIREMENTS FOR QUALITY (RISK) LEVELS	10/28/93	1	PONKE	ABERNATHY	FMPC-0711
SSOP-0048	CONTACTS WITH REGULATORY AGENCIES	08/10/92	0	KO	ALKEMA	FMPC-0612
SSOP-0049	FEMP QUALITY ASSURANCE AUDIT PROGRAM	10/18/93	1	PONKE	ABERNATHY	FMPC-0707
SSOP-0051	CONTROLLING ACCESS TO THE FERNALD ENVIRONMENTAL MANAGEMENT PROJECT (FEMP)	09/04/92	0	NETON	PAINE	FMPC-105
SSOP-0052	CORRESPONDENCE DIRECTIVE	10/09/92	0	MCDONOUGH	CLAUSS	PP-FMPC-5003
SSOP-0053	SNOW AND ICE REMOVAL	04/19/93	1	PENNIX	MCGUIRE	SSOP-0053
SSOP-0055	ESTABLISHMENT AND MAINTENANCE OF FEMP ADMINISTRATIVE RECORD	06/26/92	0	WALTERS	CLAUSS	NONE
SSOP-0057	RELEASE OF INFORMATION TO THE PUBLIC CONCERNING EMERGENCY AND NON-ROUTINE EVENTS	07/20/92	0	WALKER	HOOPES	NONE
SSOP-0058	PERFORMING TYPE A, B, AND C INVESTIGATIONS	07/10/92	0	CORNWELL	PAINE	PP-FMPC-5007
SSOP-0059	CONTROL AND TRACKING OF CHEMICAL SUBSTANCES	05/26/92	0	OGG	MCGUIRE	NONE
SSOP-0060	PACKAGING AND LOADING RADIOACTIVE MATERIAL FOR OFFSITE SHIPMENT	06/18/93	4	OGG	KING	SSOP-0060

SITE-STANDARD-OPERATING-PROCEDURES

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
SSOP-0061	FEMP WORK REQUEST/ORDER PROCEDURE	09/17/92	0	MILLER	MCGUIRE	FMPC-715
SSOP-0066	FOREIGN TRAVEL	07/27/93	0	TAYLOR	FRASER	FMPC-0402
SSOP-0067	SPILL INCIDENT REPORTING AND CLEAN-UP	11/20/92	0	PONKE	PAINE	FMPC-0503
SSOP-0068	INSPECTION OF PROCURED MATERIAL, EQUIPMENT, WORK IN PROCESS AND COMPLETED ITEMS	08/31/92	0	PONKE	ABERNATHY	FMPC-0717
SSOP-0069	FREON MANAGEMENT	07/09/92	0	BATCHELOR	MCGUIRE	NONE
SSOP-0075	PACKAGING LOW LEVEL RADIOACTIVE WASTE (LLRW) IN DRUMS FOR OFFSITE SHIPMENT	12/14/92	0	HUNDLEY	MCGUIRE	SSOP-0024
SSOP-0076	REVIEWING THE FERNALD SITE ENVIRONMENTAL MONITORING PROGRAM	11/06/92	0	SNYDER	PAINE	NONE
SSOP-0077	BUILDING EMERGENCY PROCEDURE	02/16/94	2	DULEY	PAINE	SSOP-0077
SSOP-0078	PACKAGING LOW LEVEL RADIOACTIVE WASTE (LLRW) INTO ISO CONTAINERS FOR OFFSITE SHIPMENT	12/14/92	0	HUNDLEY	MCGUIRE	SSOP-0024
SSOP-0079	PACKAGING LOW-LEVEL RADIOACTIVE WASTE (LLRW) IN METAL BOXES FOR OFFSITE SHIPMENT	12/14/92	0	HUNDLEY	MCGUIRE	SSOP-0024
SSOP-0081	RADIOLOGICALLY NON-CONTAMINATED ASBESTOS CONTAINING MATERIAL WASTE (ACM) DISPOSITION	09/03/92	0	JOHNS	PAINE	NONE
SSOP-0082	QUALITY IMPROVEMENT	10/30/92	0	LAMBERT	ZOBRIST	NONE
SSOP-0086	PERFORMING PERSONNEL MONITORING	04/08/93	0	ARP	PAINE	NONE
SSOP-0088	FERNALD ENVIRONMENTAL MANAGEMENT PROJECT (FEMP) OFFSITE EMERGENCY WARNING SYSTEM	05/03/93	1	DULEY	PAINE	SSOP-0088
SSOP-0089	PERSONNEL ACCOUNTABILITY	02/16/94	1	SCHOLZ	PAINE	SSOP-0089I
SSOP-0093	WELDING PERFORMANCE QUALIFICATION	12/21/93	1	ROMINE	MCGUIRE	SSOP-0093
SSOP-0095	CRITICALITY SAFETY ANALYSIS AND APPROVAL PROCESS	06/16/93	0	BROWN		FMPC-0517

SITE-STANDARD-OPERATING-PROCEDURES

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
SSOP-0096	DOCUMENT FILING SYSTEM	11/30/93	0	HAWLEY	CLAUSS	NONE
SSOP-0097	PROCESSING EMPLOYEE STATUS CHANGES	08/18/93	0	VANBIBBER	ZOBRIST	NONE
SSOP-0099	VISITOR TOUR ACCESS	09/16/93	0	JACKSON	HOOPES	NONE
SSOP-0103	FEMP SITE DOCUMENT SYSTEM	10/14/92	0	HESTER	ZOBRIST	PP-0103
SSOP-0315	CONTROLLING THE PURCHASE OF SUPPLIES AND SERVICES	07/12/93	1	TURNER	FRASER	SSOP-0315
SSOP-0317	INITIATING AND PREPARING A TECHNICAL EVALUATION OF A PROPOSAL	08/21/92	0	CRAIG	FRASER	FMPC-0317
SSOP-0609	RECORDS MANAGEMENT	03/05/93	0	HAWLEY	CLAUSS	FMPC-0609
SSOP-0611	FORM DEVELOPMENT AND CONTROL	06/10/93	0	SCHLEMMER	ZOBRIST	FMPC-0611
SSOP-0614	UNCLASSIFIED COMPUTER SECURITY PROGRAM	01/25/94	0	HODSON	CLAUSS	FMPC-0614
SSOP-0709	CONDUCT OF INDEPENDENT SURVEILLANCE ACTIVITY	07/30/93	0	PONKE	ABERNATHY	PP-0709
SSOP-0716	CONTROL OF PROCESSES	03/17/93	0	HUEY	MCGUIRE	FMPC-0716
SSOP-0719	FERMCO LOCKOUT/TAGOUT (HAZARDOUS ENERGY AND MATERIAL CONTROL) PROCEDURE	02/14/94	1	MILLER	MCGUIRE	PP-FMPC-0719
SSOP-1000	OBTAINING WORD PROCESSING SUPPORT	04/17/93	0	SPAHR	ZOBRIST	NONE
SSOP-1003	BOMB THREAT PROCEDURE	03/01/93	0	DULEY	PAINE	NONE
SSOP-1004	FEMP DATA VALIDATION PROCEDURE	06/23/93	0	GILL	CLAY	NONE
SSOP-1007	OFFSITE EMERGENCY PROCEDURE	06/23/93	0	CAMPBELL	PAINE	NONE
SSOP-1009	PREGNANCY REPORTING AND EMBRYO/FETUS RADIOLOGICAL PROTECTION	06/21/93	0	NETON	PAINE	NONE
SSOP-1011	REQUISITIONING TEMPORARY CLERICAL SUPPORT	06/30/93	0	SPAHR	ZOBRIST	NONE
SSOP-1012	RESTRICTIONS FOR WORKERS CONTAMINATED WITH RADIOPHARMACEUTICALS	07/27/93	0	LEVY	PAINE	NONE
SSOP-1013	TRACKING EXTERNAL ACTIONS AND MILESTONE (TEAM)	07/07/93	0	GESSENDORF	CLAUSS	SSOP-0602

SITE-STANDARD-OPERATING-PROCEDURES

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC OWNER	SUPERSEDES
	MANAGEMENT					
SSOP-1016	ESTABLISHMENT AND CONTROL OF HEAT STRESS STATIONS IN CONTAMINATION AREAS	12/29/93	0	LEVY	PAINE	NONE
SSOP-1017	MAINTENANCE OF STANDARDS/REQUIREMENTS IDENTIFICATION DOCUMENTS (S/RIDS)	12/23/93	0	BECKMAN	COSSEL	NONE
SSOP-1018	EVENT CATEGORIZATION/CLASSIFICATION PROCEDURE	10/15/93	0	CAMPBELL	PAINE	NONE
SSOP-1020	QA/QC TAGGING	10/19/93	0	FORD	ABERNATHY	NONE
SSOP-1021	DISPOSITION OF SAFE SHUTDOWN EXCESS PERSONAL PROPERTY	10/15/93	0	RATHGENS	MCGUIRE	NONE
SSOP-1027	MANAGING PCBS AND PCB ITEMS	03/08/94	0	KASTER	KING	NONE
SSOP-1033	JOINT INFORMATION CENTER	03/02/94	0	JACKSON	HOOPES	OM-0004
SSOP-1035	UNREVIEWED SAFETY QUESTION (USQ) DETERMINATION AND SAFETY EVALUATION SYSTEM	02/01/94	0	KLINE	COSSEL	NONE
SSOP-1038	SECURITY INSPECTIONS	12/07/93	0	MACY	PAINE	NONE
SSOP-1041	FINANCIAL ACCOUNTABILITY PROCEDURE	10/01/93	0	HOGE	COSSEL	NONE
SSOP-1044	MANAGEMENT OF GOVERNMENT PROPERTY	09/30/93	0	KLEMKO	FRASER	NONE
SSOP-1045	SELF-ASSESSMENT DATABASE USER PROCEDURE	01/18/94	0	REIMANN	COSSEL	NONE
SSOP-1054	AWARD FEE PROCEDURE	11/15/93	0	WALKER	COSSEL	NONE
SSOP-1063	CONDUCTING A JOB AND TASK ANALYSIS	02/17/94	0	MERWIN	ZOBRIST	NONE
SSOP-1067	INITIATING ENERGY ISOLATION AND HAZARDOUS MATERIAL PLANS	02/24/94	0	MAURER	PAINE	NONE
SSOP-1068	THE FERMCO EXTERNAL AUDIT AND APPRAISAL MANAGEMENT SYSTEM	03/01/94	0	LOCKERD	ABERNATHY	NONE
SSOP-1069	INSTRUCTOR QUALIFICATION	02/28/94	0	MERWIN	ZOBRIST	NONE

S I T E - S T A N D A R D - O P E R A T I N G - P R O C E D U R E S

DOCUMENT NO.	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
SSOP-1075	SITEWIDE LESSONS LEARNED	02/28/94	0	HOOD	PAINE	NONE
SSOP-5013	ACQUISITION OF AUTOMATED DATA PROCESSING EQUIPMENT, SOFTWARE, AND SERVICES	02/25/94	0	GIBSON	CLAUSS	SSOP-0005, SSOP-0006
SSOP-5014	MANAGEMENT INSPECTION OF FACILITIES PROGRAM (MIFP)	02/16/94	0	HOLLIDAY	MCGUIRE	NONE
SSOP-6003	OFFICE MACHINE ACQUISITION CONTROL	11/23/93	0	CAMPBELL	ZOBRIST	PP-6003

SECTION 3

SITE DOCUMENT CHANGES (SDC)

SITE DOCUMENT CHANGES

SDC NO.	AFFECTED DOCUMENT	AFFECTED DOCUMENT TITLE	EFFECTIVE DATE	EXPIRATION DATE	SME	DOC.OWNER
SC93-018	RM-0005	FEMP LOT MARKING AND COLOR CODING SYSTEM	09/01/93	03/01/94	DUNAWAY	FRASER
SC93-019	RM-0005	FEMP LOT MARKING AND COLOR CODING SYSTEM	09/01/93	03/01/94	DUNAWAY	FRASER
SC93-020	RM-0005	FEMP LOT MARKING AND COLOR CODING SYSTEM	09/01/93	03/01/94	DUNAWAY	FRASER
SC93-022	SSOP-0027	CONTROL OF BOX-TYPE CONTAINERS	12/27/93	06/27/94	HARPER	MCGUIRE
SC94-001	RM-0005	FEMP LOT MARKING AND COLOR CODING SYSTEM	01/25/94	07/25/94	DUNAWAY	FRASER
SC94-002	RM-0005	FEMP LOT MARKING AND COLOR CODING SYSTEM	01/25/94	07/25/94	DUNAWAY	FRASER
SC94-003	RM-0005	FEMP LOT MARKING AND COLOR CODING SYSTEM	01/25/94	07/25/94	DUNAWAY	FRASER
SC94-004	RM-0005	FEMP LOT MARKING AND COLOR CODING SYSTEM	01/25/94	07/25/94	DUNAWAY	FRASER
SC94-005	RM-0005	FEMP LOT MARKING AND COLOR CODING SYSTEM	01/25/94	07/25/94	DUNAWAY	FRASER

SECTION 4

DIVISION PRODUCED SITE DOCUMENTS

DIVISION-PRODUCED-SITE-DOCUMENTS

DIVISI	DOCUMENT NO.	TYPE OF DOCUMENT	TITLE	EFFECTIVE DATE	REV. NO.	SME	DOC. OWNER	SUPERSEDES
ADM	RM-0002	DIV	TRAINING DEPARTMENT PROGRAM MANUAL	01/19/94	0	MERWIN	ZOBRIST	RM-FMPC-0002
ES&H	ESH-1-1000	DIV	COMPREHENISVE ENVIRONMENTAL OCCUPATIONAL SAFETY AND HEALTH PROGRAM	02/15/93	0.2	TOUSIGNANT	PAINE	NONE
ES&H	PL-3028	DIV	ENVIRONMENTAL PROTECTION IMPLEMENTATION PLAN	12/03/93	0	VALIMONT	PAINE	NONE
ES&H	RM-0015	DIV	FEMP ALARA PROGRAM MANUAL	01/31/94	0	SCHILLING	PAINE	NONE
P&CC	IM-6005	DIV	BASELINE REFERENCE MANUAL	09/27/93	0	KAUFMAN	CLAUSS	NONE
P&CC	IM-6006	DIV	ESTIMATING REFERENCE MANUAL	12/13/93	1	KAUFMAN	CLAUSS	IM-6006
P&CC	SR-0008	DIV	FEMP BASELINE SUMMARY	12/13/93	1	KAUFMAN	CLAUSS	SR-0008
P&CC	SR-0009	DIV	FEMP BASELINE BOOKS	12/13/93	1	KAUFMAN	CLAUSS	SR-0009
P&CC	SR-0010	DIV	FEMP ESTIMATING BOOKS	12/13/93	1	KAUFMAN	CLAUSS	SR-0010
QA	IM-6011	DIV	DATA QUALITY OBJECTIVES	01/31/94	0	DAVIS	ABERNATHY	NONE
RP	CH-2018	DIV	NUCLEAR CRITICALITY SAFETY COMMITTEE CHARTER	10/28/93	0	MARBLE	ALKEMA	NONE
RP	IM-2112	DIV	FEMP NUCLEAR CRITICALITY SAFETY GUIDE		0	BROWN	ALKEMA	FMPC-2112
RSO	CH-0235	DIV	CONDUCT OF OPERATIONS BOARD CHARTER	12/01/93	1	DOHERTY	MCGUIRE	FMPC-0235
SI&A	RM-0016	DIV	MANAGEMENT PLAN FERMCO POLICIES AND REQUIREMENTS MANUAL		0	SOLOMON	COSSEL	NONE
SI&A	SM-0005	DIV	FERMCO OPERATIONAL READINESS MANUAL	12/20/93	1	KILBERG	COSSEL	SSOP-0100
SI&A	SSOP-1054	DIV	AWARD FEE PROCEDURE	11/15/93	0	WALKER	COSSEL	NONE

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REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM INDEX

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION

NON-CONTROLLED COPY

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

FEBRUARY 1, 1994

Supersedes Index Dated November 1, 1993

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REMEDIATION SUPPORT OPERATIONS DIVISION DOCUMENT PROGRAM INDEX

February 1, 1994

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REMEDIATION SUPPORT OPERATIONS DIVISION
DOCUMENT PROGRAM INDEX

February 1, 1994

INTRODUCTION

Information and dates listed in the Document Index are current as of February 1, 1994. It is suggested that the user of this index enter changes manually as new, reissued, or revised procedures are transmitted.

TYPE OF DOCUMENT

DEPT	-	Administrative Documents
DIV	-	Division Documents
EOP	-	Emergency Operating Procedures
MANUAL	-	Applicable Subject
METH	-	Method
PLAN	-	Applicable Subject
SECT	-	Section Documents
SOP	-	Standard Operating Procedure
SP	-	Specification

Lists of canceled documents, expired or canceled CIOs, and documents with a status of "ON HOLD" are no longer included in the RSO Document Program Index. Lists of canceled documents, or expired or canceled CIOs are available from Procedure Administration, Extensions 8461/6126.

The RSO Document Program Index is issued once a month.

An index of Quality Assurance Analyses and Quality Assurance Plans are available for the year 1987 and earlier. For information call Extensions 6751/6126.

Questions pertaining to the Document Index may be directed to Procedure Administration, Extensions 6751/6126.

DOCUMENT LIST

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REMEDIATION SUPPORT OPERATIONS
PROGRAM INDEX

DOCUMENT.NO.	TYPE OF DOCUMENT	TITLE	DOC.OWNER	PTR LAST.NAME	ISSUE DATE	REV. NO.	REVISION DATE	SUPERSEDES
01-108	SOP	OPERATION OF ANTHES MODEL RZ-40 ROTO-ZOOM AERIAL LIFT	PETERS	ROMINE	12/22/87	2	11/23/93	04-C-912
01-C-305	SOP	BALING SCRAP METAL DRUMS	BAILEY	ROWE	01/07/94	0		NONE
01-C-306	SOP	CRUSHING SCRAP DRUMS	BAILEY	ROWE	01/07/94	0		NONE
01-C-602	SOP	LOW LEVEL RADIOACTIVE WASTE (LLRW) SHIPMENT PREPARATION	BAILEY	HURST	11/12/91	3	08/09/93	NONE
01-C-604	SOP	INSPECTION AND EVALUATION OF CONTAINERIZED LOW LEVEL RADIOACTIVE WASTE (LLRW)	BAILEY	MOORE	12/05/91	3	12/28/93	NONE
01-C-606	SOP	HAZARDOUS WASTE SHIPMENT PREPARATION	HAZLEWOOD	BAARLAER	01/06/94	0		NONE
01-C-608	SOP	STORAGE OF RADIOACTIVE MATERIAL	BAILEY	GLASSMEYER	07/22/93	0		NONE
01-C-803	SOP	PREPARATION OF ENRICHED URANIUM COMPOUNDS (<20% U235) FOR OFFSITE SHIPMENT	BAILEY	ROWE	01/20/94	0		NONE
01-C-902	SOP	DISPOSAL OF PLANT 1 EFFLUENT	BAILEY	ROWE	07/19/93	0		NONE
01-C-905	SOP	PRODUCTION NUCLEAR MATERIALS(NM) RECEIVING, STORING, AND HANDLING	BAILEY	ROWE	09/01/88			NONE
01-C-915	SOP	CLEANING OF CONTAMINATED METAL AND EQUIPMENT	PETERS	HUNDLEY	12/28/87	4	06/04/93	NONE
01-C-916	SOP	PLANT 1 HOISTS AND CRANES	BAILEY	ROMINE	05/09/88			NONE
01-C-918	SOP	THORIUM OVERPACKING	PETERS	GLASSMEYER	06/21/93	0		NONE
02-C-307	SOP	UNH BLENDING AND NEUTRALIZATION	PETERS	GLASSMEYER	09/12/93			
02-C-420	SOP	SAMPLING UNH TANKS	PETERS	GLASSMEYER	07/14/92	0		NONE
02-C-601	SOP	REFINERY SUMP	PETERS	GLASSMEYER	04/10/91	0		NONE
02-C-910	SOP	INSPECTING REFINERY CONTROL FLOOR AREAS AND SUMPS AND OPERATING MANUAL SUMP PUMPS	PETERS	ARNOLD	01/31/92	0		NONE
02-C-923	SOP	TRASH BALER OPERATION	PETERS	PARMER	10/18/93	0		NONE
02-C-924	SOP	PLANT 2/3 HOISTS AND CRANES	PETERS	ROMINE	06/07/88	0		NONE
04-C-810	SOP	LOADING DHF DUMPSTER AT THE TANK FARM	PETERS	GLASSMEYER	09/20/91	0		NONE
04-C-900	SOP	TANK FARM SUMP	PETERS	GLASSMEYER	05/17/93	0		NONE
04-C-905	SOP	INSPECTING PLANT 4 FLOOR CONTROL AREAS AND SUMPS	PETERS	GLASSMEYER	05/18/93	0		NONE
04-C-906	SOP	INSPECTING AND SHIPPING UO3 T-HOPPERS	PETERS	GLASSMEYER	12/07/88			NONE
04-C-910	SOP	PLANT 4 HOISTS AND CRANES	PETERS	ROMINE	07/15/88			NONE
05-C-209	SOP	COLLECTION AND DISPOSITION OF RESIDUES IN THE REMELT AREA	PETERS	COPENHEFER	05/17/93	0		NONE
05-C-703	SOP	PLANT 5 CARTRIDGE FILTER DUST COLLECTION SYSTEM	PETERS	PALMER	04/10/89			NONE
05-C-901	SOP	INSPECTING FLOOR CONTROL AREA AND SUMPS DAILY AND QUARTERLY	PETERS	GLASSMEYER	10/21/93	0		NONE
05-C-903	SOP	SUMP SYSTEM	PETERS	GLASSMEYER	12/19/79		06/04/84	NONE
05-C-910	SOP	PLANT 5 HOISTS AND CRANES	PETERS	ROMINE	11/23/88			NONE

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06-C-301	SOP	WATER TREATMENT	PETERS	GLASSMEYER	07/24/92	0		NONE
06-C-906	SOP	PLANT 6 HOISTS AND CRANES	PETERS	ROMINE	10/13/88			NONE
06-C-910	SOP	INSPECTING PLANT 6 FLOOR CONTROL AREAS, TRENCHES, AND SUMPS DAILY AND QUARTERLY	PETERS	GLASSMEYER	08/27/92	0		NONE
06-C-911	SOP	PLANT 6 PERCHED GROUNDWATER EXTRACTION REMOVAL SYSTEM OPERATING PROCEDURE	HUEY	ARNOLD	02/14/92	0		NONE
08-BN/E-490-02	SP	DISPOSAL OF WASTE FILTRATE AND EFFLUENTS	HUEY	ARNOLD	02/25/92	0		NONE
08-C-104	SOP	MAKEUP OF PRECOAT SLURRY AND PRECOATING ROTARY VACUUM FILTERS	HUEY	ARNOLD	10/06/92	0		NONE
08-C-115	SOP	LARGE EIMCO FILTER OPERATION	HUEY	ARNOLD	08/25/93	0		NONE
08-C-200	SOP	PLANT 8 PERCHED GROUNDWATER VOLATILE ORGANIC COMPOUND (VOC) TREATMENT SYSTEM	HUEY	ARNOLD	11/19/93	0		08-C-117
08-C-213	SOP	NORMAL OPERATING AND OPERATIONAL SAFETY REQUIREMENTS (OSR) LOGS ROTARY KILN FACILITY	HUEY	ARNOLD	09/22/92	1	08/09/93	NONE
08-C-215	SOP	TREATING SUMP WATER IN PLANT 8 WITH TRU/CLEAR	HUEY	ARNOLD	10/22/93	0		C93-477
08-C-600	SOP	SEWAGE SLUDGE TREATMENT AND FILTRATION	PETERS	GLASSMEYER	02/01/94	0		NONE
08-C-602	SOP	LARGE EIMCO FILTER OPERATION - PLANT 8 WASTEWATER PROCESSING SYSTEM	PETERS	HUEY	12/29/93	0		08-C-607
08-C-605	SOP	EIMCO FILTER OPERATION	HUEY	ARNOLD	06/21/93	0		NONE
08-C-606	SOP	PLANT 8 PERCHED GROUNDWATER EXTRACTION SYSTEM	HUEY	ARNOLD	03/09/93	0		NONE
08-C-913	SOP	INSPECTING PLANT 8 FLOOR CONTROL AREAS AND SUMPS	HUEY	ARNOLD	11/15/91	0		NONE
09-C-700	SOP	EXHAUST AIR AND OFF-SITE SYSTEMS FAN OPERATION	PETERS	WALTON	08/10/93	0		NONE
09-C-902	SOP	SOUTHEAST AND NORTHWEST PADS AND PAD SUMPS	PETERS	GLASSMEYER	10/21/93	0		NONE
09-C-905	SOP	INSPECTING PLANT 9 FLOOR CONTROL AREAS AND SUMPS	PETERS	GLASSMEYER	08/05/93	0		NONE
09-C-910	SOP	PLANT 9 HOISTS AND CRANES	PETERS	ROMINE	06/01/89			NONE
09-C-911	SOP	PLANT 9 PERCHED GROUNDWATER EXTRACTION SYSTEM	HUEY	ARNOLD	03/09/93	0		NONE
10-C-103	SOP	LABORATORY BUILDING NUCLEAR MATERIALS INVENTORY	MILLER	BURK	12/05/89	0		NONE
1001	METH	THE DETERMINATION OF OIL AND GREASE IN WATER AND WASTES USING THE PARTITION-GRAVIMETRIC METHOD	MILLER	REED	08/14/91	0		NONE
1004	METH	APPARENT DENSITY	MILLER	REED	10/14/86			NONE
1005	METH	DETERMINATION OF SPECIFIC GRAVITY GRAVIMETRIC METHOD	MILLER	REED	01/12/87			NONE
1026	METH	GRAPHITE FURNACE ATOMIC ABSORPTION METHOD FOR THE DETERMINATION OF HEXAVALENT CHROMIUM IN NPDES WATER SAMPLES	MILLER	MEYER	04/16/87	1	11/03/92	NONE

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1039	METH	THE DETERMINATION OF URANIUM BY FERROUS REDUCTION, TITRIMETRIC, POTENTIOMETRIC ENDPOINT METHOD	MILLER	REED	09/18/89			NONE
1042	METH	SAMPLE PREPARATION PROCEDURE FOR THE DETERMINATION OF URANIUM IN DRY RESIDUE TYPE SAMPLES	MILLER	REED	07/23/87	1	06/18/91	NONE
1054	METH	EXTRACTION PROCEDURE TOXICITY	MILLER	MEYER	05/19/88			NONE
1080	METH	THE COLORIMETRIC DETERMINATION OF THORIUM IN URANIUM-BASE MATERIALS (TTA EXTRACTION-COLORIMETRIC THORIN METHOD)	MILLER	REED	09/26/89			NONE
11-C-217	SOP	OPERATION OF PILOT PLANT SUMP SYSTEM	PETERS	GLASSMEYER	02/01/94	0		NONE
11-C-243	SOP	INSPECTING PILOT PLANT FLOOR CONTROL AREAS AND SUMPS DAILY AND QUARTERLY	PETERS	GLASSMEYER	04/08/92	0		NONE
11-C-901	SOP	PILOT PLANT HOIST AND CRANES	PETERS	ROMINE	08/16/89	0		NONE
1250	METH	CLP/ACID DIGESTION OF SOIL AND SEDIMENT SAMPLES FOR METALS ANALYSES	MILLER	MEYER	10/28/91	0		NONE
1251	METH	CLP/ACID DIGESTION OF WATER SAMPLES FOR METAL ANALYSIS	MILLER	MEYER	10/28/91	0		NONE
20-C-001	SOP	CHANGES TO FORM ENTRIES	PETERS	GLASSMEYER	05/17/93	0		NONE
20-C-003	SOP	ULTRASONIC TESTING OF DEPLETED URANIUM MARK 31 INNER AND OUTER CORES	PETERS	GLASSMEYER	10/06/92	0		NONE
20-C-004	SOP	PACKAGING OF DEPLETED URANIUM FOUR INCH THICK FLAT BILLETS	PETERS	GLASSMEYER	10/27/92	0		NONE
20-C-006	SOP	INSPECTION AND DISPOSITION OF DEPLETED AND NORMAL URANIUM DERBIES FOR OFF-SITE SHIPMENT	PETERS	GLASSMEYER	09/14/92	0		NONE
20-C-007	SOP	PACKAGING DEPLETED URANIUM TWO-INCH THICK FLAT BILLETS	PETERS	GLASSMEYER	09/14/92	1	08/09/93	NONE
20-C-008	SOP	PACKAGING OF DEPLETED URANIUM MARK 31 INGOTS AND CORES	PETERS	GLASSMEYER	09/14/92	1	08/09/93	NONE
20-C-009	SOP	RESPONDING TO STORM SEWER PH ALARMS	PETERS	GLASSMEYER	05/24/93	0		02-C-914
20-C-010	SOP	ESTABLISHMENT OF AN ENGINEERING CONTROL AREA (ECA) FOR DISPOSITION OF SAMPLE RESIDUES	HAZLEWOOD	BAARLAER	11/06/92	1	08/09/93	NONE
20-C-011	SOP	PHYSICAL INVENTORY OF NUCLEAR MATERIALS	PETERS	DUNAWAY	04/01/93	0		C92-164
20-C-014	SOP	WET AND DRY SYSTEMS CLEAN-OUT	PETERS	EVANS	02/18/93	1	12/03/93	NONE
20-C-015	SOP	OPERATING THE KELLY DECONTAMINATION SYSTEM	PETERS	EVANS	08/10/93			NONE
20-C-017	SOP	MOVEMENT OF RCRA AND HAZARDOUS WASTE	HAZLEWOOD	BAARLAER	09/24/93	0		PO-S-06-001
20-C-100	SOP	MOVING AND STORING DEPLETED, NORMAL, AND ENRICHED URANIUM MATERIALS <20% AND THORIUM METAL AND MATERIALS	BAILEY	MOORE	02/16/93	0		20-C-101 20-C-102
20-C-104	SOP	OPERATION OF ALLEGANY TECHNOLOGY ELECTRONIC PORTABLE HANGING	PETERS	ROMINE	04/26/93	0		NONE

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		SCALE MODEL CM30K						
20-C-106	SOP	RADVAC 2000 WET VACUUM SYSTEM OPERATION	HENRY	COPENHEFER	12/29/93	0		NONE
20-C-108	SOP	PACKAGING AND OFF-SITE SHIPMENT OF DEPLETED URANIUM DERBIES	PETERS	OGG	12/30/93	0		20-C-005
20-C-201	EOP	UNSCHEDULED OR EMERGENCY NUCLEAR MATERIAL INVENTORY	BAILEY	KNUE	08/20/90	0		NONE
20-C-500	SOP	INSPECTING RCRA WASTE LOAD/UNLOAD AND STAGING AREAS	HAZLEWOOD	BAARLAER	04/14/92	1	08/09/93	NONE
20-C-501	SOP	BOILER PLANT ASH LOADING AND TRANSPORTING FOR OFF-SITE DISPOSAL	PETERS	MORRIS	10/01/92	1	09/12/93	NONE
20-C-505	SOP	PLANT 2/3 AND PLANT 8 PERCHED GROUNDWATER EXTRACTION SYSTEM	HUEY	ARNOLD	02/05/92	1	08/09/93	C91-071
20-C-506	SOP	PLANT 2/3 PERCHED GROUNDWATER EXTRACTION SYSTEM	HUEY	ARNOLD	04/06/93	0		NONE
20-C-510	SOP	REMOVAL, TRANSPORT, AND STORAGE OF DECANT SUMP LIQUID FROM K-65 SILOS 1 AND 2	PENNINGTON	HENSLEY	01/04/93	0		NONE
20-C-600	SOP	OVERPACKING DEFECTIVE CONTAINERS	HAZLEWOOD	BAARLAER	03/06/91	2	08/09/93	01-C-804
20-C-602	SOP	INSPECTION AND OPERATION OF NILFISK PORTABLE VACUUM UNITS	PETERS	PALMER	07/09/90	1	01/24/93	NONE
20-C-603	SOP	REMOVAL AND REPLACEMENT OF NILFISK PORTABLE VACUUM UNIT FILTERS AND DUST BAG	PETERS	PALMER	06/15/88			NONE
20-C-604	SOP	CONTROL AND UTILIZATION OF CONTAMINATED TRASH DUMPSTERS	PETERS	GILBERT	10/18/93	0		NONE
20-C-606	EOP	HAZARDOUS MATERIAL SPILL CLEAN-UP	HAZLEWOOD	BAARLAER	07/28/93	0		NONE
20-C-607	SOP	SEGREGATION OF WOODEN PALLETS	PETERS	BISCHOFF	10/10/91	1	08/09/93	
20-C-609	SOP	INSPECTION OF SAFETY BELTS, HARNESSES, AND LANYARDS	PETERS	LENARDUZZI	01/16/91	0		01-102
20-C-610	SOP	BIRD CARCASS AND DROPPING REMOVAL	PETERS	PARMER	05/18/93	0		NONE
20-C-611	SOP	ASSEMBLY/DISASSEMBLY OF SCAFFOLDING	PETERS	PARMER	02/15/91	0		01-101
20-C-612	SOP	INDUSTRIAL CLEANING	PETERS	PARMER	01/06/93	0		01-103
20-C-613	SOP	EMPTYING LIQUID HAZARDOUS WASTE STORAGE CONTAINERS	HAZLEWOOD	BAARLAER	08/05/93	0		NONE
20-C-614	SOP	OPERATION OF GENIE LIFT MODEL PL36PDC	PETERS	ROMINE	09/21/92	1	08/09/93	01-107
20-C-615	SOP	CONTROLLED HOLDING AREA	HAZLEWOOD	HARPER	08/28/91	1	03/08/93	NONE
20-C-616	SOP	INSPECTION OF HAZARDOUS WASTE MANAGEMENT UNITS	BAILEY	BAARLAER	12/15/92	2	09/16/93	NONE
20-C-619	SOP	PACKAGING SOIL BORING MATERIAL FOR TRANSFER TO THE 90-DAY STORAGE AREA	HAZLEWOOD	HARPER	09/26/91	1	08/09/93	NONE
20-C-620	SOP	90-DAY STORAGE AREA	HAZLEWOOD	HARPER	09/20/91	0		NONE
20-C-625	SOP	EVALUATING LOW LEVEL RADIOACTIVE WASTE (LLRW) BULK WASTE STREAMS FOR SHIPMENT	WEST	PHILPOT	12/15/93	0		NONE
20-C-630	SOP	RECEIPT INSPECTION, STORAGE, AND STORAGE INSPECTION OF HAZARDOUS WASTE	HAZLEWOOD	HARPER	06/05/92	1	03/28/93	01-C-605

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DOCUMENT.NO.	TYPE OF DOCUMENT	TITLE	DOC.OWNER	PTR LAST.NAME	ISSUE DATE	REV. NO.	REVISION DATE	SUPERSEDES
20-C-700	SOP	NORCLEAN PORTABLE VACUUM OPERATION	PETERS	PALMER	05/30/91	0		NONE
20-C-701	SOP	OPERATION OF SPENCER AND HOFFMAN PORTABLE DUST COLLECTORS	PETERS	LENARDUZZI	07/05/89	2	12/14/92	NONE
20-C-704	SOP	CHANGING HEPA FILTERS AND PREFILTERS	PETERS	PALMER	03/17/89	2	01/24/93	NONE
20-C-705	SOP	CHANGING DUST COLLECTOR MODULE AND SECONDARY SEPARATOR CARTRIDGE FILTERS	PETERS	PALMER	09/24/90	1	02/03/93	NONE
20-C-707	SOP	DOP TESTING OF IN-PLACE HEPA FILTERS	PETERS	PALMER	05/07/90	1	12/10/92	NONE
20-C-709	SOP	BAGHOUSE TYPE DUST COLLECTOR REMOVAL/REPLACEMENT	PETERS	GLASSMEYER	07/26/93	0		NONE
20-C-711	SOP	HAKO MINUTEMAN PORTABLE VACUUM CLEANER OPERATION	PETERS	PALMER	08/05/93	0		NONE
20-C-801	SOP	STORAGE OF ENRICHED MATERIAL	BAILEY	MOORE	06/02/90	2	11/13/91	NONE
20-C-805	SOP	SAMPLING DRUMMED WASTE FOR HAZARD IDENTIFICATION	RAMIREZ	GNOOSE	12/16/93	0		NONE
20-C-807	SOP	INSPECTION OF PLANT 2/3 (REFINERY) AND PLANT 8 SAFETY SHOWER/EYE BUBBLER STATIONS	PETERS	ARNOLD	01/06/93	0		08-C-915 02-C-918
20-C-810	SOP	DISPOSITION OF SAMPLE RESIDUES	HAZLEWOOD	BAARLAER	07/01/92	1	08/17/93	NONE
20-C-902	SOP	INSPECTING AND OPERATING LIQUID PROPANE GAS (LPG) POWERED HANDSTACKERS AND TUGGERS	PETERS	PARMER	09/13/93	0		NONE
20-C-903	SOP	GUIDELINES FOR THE PREVENTION OF URANIUM METAL FIRES	BAILEY	ROWE	03/10/88	0		NONE
20-C-904	SOP	GENERAL NUCLEAR SAFETY REQUIREMENTS	BAILEY	GLASSMEYER	05/18/93	0		NONE
20-C-908	SOP	RCRA WAREHOUSE PORTABLE CRANE OPERATION	HAZLEWOOD	HARPER	07/09/90	1	03/09/93	NONE
20-C-909	SOP	PORTABLE VENTILATION UNIT OPERATION	PETERS	PALMER	06/06/91	0		NONE
20-C-910	SOP	VENTING POTENTIALLY EXPLOSIVE DRUMS	BAILEY	ROWE	04/08/92	1	05/20/93	NONE
20-C-912	SOP	CHECKING SCALE OPERATION	PETERS	ROMINE	09/01/91	0		01-C-904 02-C-909 04-C-901 05-C-902 08-C-905 09-C-904 11-C-230
20-C-916	SOP	CLEANING SUMP SYSTEMS	PETERS	GLASSMEYER	07/09/92	1	08/09/93	NONE
20-C-917	SOP	HYDROGEN MONITORING AND REMOVING NUCFIL VENT PLUGS FROM DRUMS	BAILEY	ROWE	07/13/92	3	08/09/93	NONE
20-C-918	SOP	PREPARATION FOR AND MOVEMENT OF UNVENTED DRUMS	PETERS	HAMPSHIRE	02/01/94	0		NONE
20-PS-300-03	SP	SODA ASH (COMMERCIAL GRADE)	PETERS	GLASSMEYER	03/04/93	0		NONE

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20-PS-300-05	SP	MAGNESIUM OXIDE (MGO)	PETERS	PATTON	08/25/93	0		NONE
20-PS-300-10	SP	AQUEOUS SODIUM HYDROXIDE (COMMERCIAL GRADE)	PETERS	PATTON	04/12/93	0		NONE
20-PS-300-19	SP	FILTER AID	PETERS	GLASSMEYER	04/26/93	0		NONE
20-PS-300-20	SP	HYDRATED LIME (COMMERCIAL GRADE)	PETERS	PATTON	07/06/89	0		NONE
20-PS-300-22	SP	FLAKE CAUSTIC SODA (TECHNICAL GRADE)	PETERS	GLASSMEYER	03/04/93	0		NONE
20-PS-400-20	SP	WOOL/NYLON FILTER BAGS FOR THE UNITED CONVEYOR DUST COLLECTOR	PENNINGTON	PALMER	03/19/93	0		NONE
20-PS-400-25	SP	VENDOR SPECIFICATION AND CERTIFICATION REQUIREMENTS FOR POLYPROPYLENE FELT FITER BAGS - HOFFMAN PORTABLE VACUUM UNITS	PETERS	PALMER	10/27/87			NONE
20-PS-400-29	SP	HEPA FILTER ELEMENTS FOR GENERAL DYNAMICS PORTABLE HEPA FILTRATION DEVICE	PETERS	PALMER	09/13/93	0		NONE
20-PS-400-30	SP	HEPA FILTER ELEMENTS FOR BARTLETT PORTABLE VENTILATION DEVICES	PETERS	PALMER	05/23/91	0		NONE
20-PS-400-31	SP	HIGH HUMIDITY TYPE HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTER ELEMENTS	PETERS	PALMER	07/26/93	0		NONE
20-PS-400-32	SP	FLUID SEAL TYPE HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTER ELEMENTS	PETERS	PALMER	07/26/93	0		NONE
20-PS-400-33	SP	MEDIUM EFFICIENCY PARTICULATE AIR (MEPA) FILTER ELEMENTS FOR 4000 CFM CSC F-SERIES (FLUID SEAL) FILTRATION DEVICE	PETERS	PALMER	07/26/93	0		NONE
2002	METH	GAS CHROMATOGRAPHIC DETERMINATION OF METHANOL IN BIODENITRIFICATION PROCESS LIQUORS	MILLER	MEYER	09/26/89			NONE
256-S-0001	SOP	CLP PESTICIDE/PCB SOIL EXTRACTION	MILLER	MEYER	02/25/93	0		9037
256-S-0004	SOP	MEDIUM LEVEL PESTICIDE/PCB SOIL EXTRACTION	MILLER	MEYER	03/12/93	0		9035
256-S-0005	SOP	CLP PESTICIDE/PCB WATER EXTRACTION	MILLER	MEYER	02/25/93	1		9041
256-S-0006	METH	QUALITATIVE AND SEMI-QUANTITATIVE IDENTIFICATION OF ALPHA AND GAMMA EMITTING RADIONUCLIDES IN VARIOUS MATRICES	DANAHY	HUMPHREY	03/11/93	0		4023
256-S-0007	METH	ANALYSIS OF WATER AND WASTEWATER FOR TOTAL ORGANIC CARBON	MILLER	MEYER	03/17/93	0		
256-S-0008	SOP	PESTICIDE/PCB WATER EXTRACTION	MILLER	MEYER	03/23/93	0		9047
256-S-0009	SOP	CLP SEMIVOLATILE WATER EXTRACTION	MILLER	MEYER	02/25/93	0		9042
256-S-0011	METH	GENERAL METHOD FOR THE DETERMINATION OF WATER (WEIGHT LOSS AT 110OC), GRAVIMETRIC METHOD	MILLER	MEYER	04/12/93	0		C92-173
256-S-0012	METH	DETERMINATION OF SOLUBLE URANIUM IN WATER: KPA-11 KINETIC	DANAHY	CORLEANCA	06/03/93	0		C92-178

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		PHOSPHORESCENCE ANALYSIS						
256-S-0065	SOP	LOW LEVEL SEMIVOLATILE AND PESTICIDE/PCB SOIL EXTRACTION	MILLER	MEYER	03/26/93	0		9010
256-S-0117	METH	PROCESS CONTROL DETERMINATION OF SOLUBLE COPPER IN WATER USING PERKIN-ELMER MODEL 2380 ATOMIC ABSORPTION SPECTROPHOTOMETER	MILLER	REED	06/09/93	0		3005
256-S-0118	METH	PROCESS CONTROL DETERMINATION OF TOTAL COPPER IN WATER USING PERKIN-ELMER MODEL 2380 ATOMIC ABSORPTION SPECTROPHOTOMETER	MILLER	REED	06/09/93	0		3005
256-S-0119	SOP	NEODYMIUM FLUORIDE MOUNTING PROCEDURE FOR ALPHA SPECTROMETRY	DANAHY	HUMPHREY	06/01/93	0		NONE
256-S-0120	SOP	OPERATION OF THE TECATOR DS 20 DIGESTION SYSTEM FOR ACID DIGESTION OF WATER, SOIL, SEDIMENT, AND TCLP EXTRACT SAMPLES FOR METAL ANALYSIS	MILLER	MEYER	06/01/93	0		NONE
256-S-0121	SOP	ZERO-HEADSPACE EXTRACTION (ZHE) FOR VOLATILE ORGANIC COMPOUNDS	MILLER	MEYER	06/01/93	0		2050
256-S-0122	SOP	REUSE OF EMPTY REAGENT BOTTLES	DANAHY	DANAHY	06/01/93	0		SAP-P-34-021
256-S-0123	SOP	CALIBRATION AND OPERATION OF A COMPUTER GAMMA SPECTOMETRY SYSTEM	DANAHY	HUMPHREY	06/11/93	0		NONE
256-S-0130	METH	GAS CHROMATOGRAPHY/MASS SPECTROMETRY FOR VOLATILE ORGANICS	MILLER	WAGHER	06/30/93	0		9002
256-S-1002	METH	DETERMINATION OF URANIUM IN WATER: FLUOROMETRIC FUSION METHOD	DANAHY	HAYES	11/05/93	0		ESH-P-34-004
256-S-2001	SOP	URANIUM ISOTOPIC ANALYSIS OF VARIOUS MATRICES BY THERMAL MASS SPECTROMETRY	DANAHY	HUMPHREY	12/14/93	0		6006 ANL-33-0044
256-S-3001	SOP	OPERATING PROCEDURE FOR THE TENNELEC LB4100 LOW BACKGROUND A/B PROPORTIONAL COUNTER	DANAHY	HUMPHREY	12/15/93	0		NONE
256-S-5003	SOP	OPERATION OF THE PERKIN-ELMER 5100 ZL FURNACE MODULE	MILLER	MADSEN	10/08/93	0		NONE
256-S-6000	SOP	USE OF THE NICOLET MODEL 5DXB FOURIER TRANSFORM INFRARED SPECTROPHOTOMETER	MILLER	REED	07/12/93	0		NONE
256-S-6001	METH	OPERATION OF 5890 GAS CHROMATOGRAPH/MASS SPECTROMETER DETECTOR INSTRUMENT	MILLER	MEYER	07/19/93	0		9000
256-S-6010	METH	DETERMINATION OF FLASH POINT BY AUTOMATED PENSKY-MARTENS CLOSED TESTER HERZOG MODEL	MILLER	ANGERT	09/29/93	0		9066
256-S-6012	SOP	THE DETERMINATION OF NITRATE, NITRITE, AND PHOSPHATE IN WATER BY AN AUTOMATED CONTINUOS FLOW ANLAYZER	MILLER	REED	09/23/93	0		3051

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257-D-0001	SOP	ANALYTICAL LABORATORY SERVICES DOCUMENT PROCESSING AND IMPLEMENTATION	SUTTON	KELLEY	02/16/93	0		PO-S-08-001
257-D-0002	SOP	CONTROL OF SPECIAL SOURCE MATERIALS FOR THE ANALYTICAL LABORATORY SERVICES DEPARTMENT	MILLER	KELLEY	05/11/93	0		NONE
257-D-0003	DEPT	SCQ ANALYTICAL METHOD AND PERFORMANCE CRITERIA	MILLER	KELLEY	09/23/93	0		NONE
3001	METH	THE DETERMINATION OF AMMONIA-NITROGEN IN WASTEWATER USING THE POTENTIONMETRIC AMMONIA SENSING ELECTRODE METHOD	MILLER	REED	10/20/86			NONE
3002	METH	THE COLORIMETRIC (BRPADAP) DETERMINATION OF URANIUM USING AN AUTOANALYZER	MILLER	REED	05/01/84	2	02/21/93	NONE
3018	METH	GENERAL METHOD FOR THE DETERMINATION OF ACID CONCENTRATION, VOLUMETERIC METHOD	MILLER	REED	01/12/87			NONE
3024	METH	GENERAL METHOD FOR THE DETERMINATION OF ALKALI CONCENTRATION, VOLUMETRIC METHOD	MILLER	REED	02/23/87			NONE
3043	METH	THE DETERMINATION OF SPECIFIC GRAVITY USING A METTLER/PAAR DENSITY METER, MODEL DMA-46	MILLER	REED	08/11/87			NONE
3062	METH	DETERMINATION OF TRACE URANIUM BY KINETIC PHOSPHORESCENCE ANALYSIS	MILLER	REED	08/30/89			NONE
3064	METH	DETERMINATION OF FLASH POINT BY PENSKY - MARTENS CLOSED TESTER	MILLER	REED	12/12/89			NONE
4002	METH	THE RADIOMETRIC DETERMINATION OF RADIUM-226 AND RADIUM-228 IN VARIOUS MATRICES	DANAHY	HUMPHREY	11/14/91	0		NONE
4003	METH	RADIOMETRIC PROCEDURE FOR THE DETERMINATION OF NEPTUNIUM-237	DANAHY	HUMPHREY	12/16/86		09/26/89	NONE
4004	METH	ALPHA SPECTROMETER OPERATING PROCEDURE UTILIZING SILICON SURFACE BARRIER DETECTORS	DANAHY	HUMPHREY	02/07/87		09/26/89	NONE
4006	METH	RADIOMETRIC PROCEDURE FOR THE DETERMINATION OF CESIUM-137	DANAHY	HUMPHREY	09/25/89			NONE
4007	METH	RADIOMETRIC PROCEDURE FOR THE DETERMINATION OF TECHNETIUM-99	DANAHY	HUMPHREY	03/25/91	0		NONE
4012	METH	OPERATING PROCEDURE FOR THE AUTOMATIC LOW BACKGROUND ALPHA/BETA PROPORTIONAL COUNTER	DANAHY	HUMPHREY	09/26/89			NONE
4013	METH	RADIOMETRIC SCREENING METHOD FOR DETERMINING TOTAL RADIOACTIVITY IN VARIOUS MATRICES	DANAHY	HUMPHREY	06/10/91	0		NONE
4022	METH	THE RADIOMETRIC DETERMINATION OF TH-234 AND PA-234M IN EFFLUENTS	DANAHY	HUMPHREY	12/07/88			NONE
43-BE-410-02	SP	BIODENITRIFICATION FACILITY OPERATION	PENNINGTON	LESLIE	08/04/92	1	08/09/93	NONE

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DOCUMENT.NO	TYPE OF DOCUMENT	TITLE	DOC.OWNER	PTR LAST.NAME	ISSUE DATE	REV. NO.	REVISION DATE	SUPERSEDES
43-C-100	SOP	CLEANING GLASS AND PLASTIC LABORATORY WARE	PENNINGTON	PENNINGTON	09/22/92	0		NONE
43-C-101	SOP	STORING AND HANDLING CHEMICALS	PENNINGTON	PENNINGTON	11/12/92	1	08/09/93	NONE
43-C-102	SOP	SAMPLE PRESERVATION BY ACID ADDITION	PENNINGTON	PENNINGTON	09/08/93	0		NONE
43-C-103	SOP	STORMWATER RETENTION BASIN (SWRB) VALVE HOUSE	PENNINGTON	WALTON	09/21/93	0		NONE
43-C-300	SOP	ELECTRODIALYSIS REVERSAL (EDR)	PENNINGTON	HENSLEY	12/09/93	0		NONE
43-C-301	SOP	WATER TREATMENT PLANT OPERATION	PENNINGTON	PENNINGTON	05/28/93	0		NONE
43-C-303	SOP	COOLING WATER TOWER OPERATION	PENNINGTON	HALCOMB	05/05/93	0		NONE
43-C-304	SOP	GRAVER WATER SOFTENERS	PENNINGTON	HALCOMB	05/11/92	0		NONE
43-C-305	SOP	WATER PLANT LABORATORY PROCEDURES	PENNINGTON	HALCOMB	01/03/94	0		NONE
43-C-306	SOP	STORM SEWER LIFT STATION	PENNINGTON	HALCOMB	08/13/93	0		NONE
43-C-308	SOP	RESPONDING TO INDICATIONS OF OUT-OF-SPECIFICATION EXCURSIONS OF STORM SEWER WATER QUALITY	PENNINGTON	HENSLEY	08/13/93	0		NONE
43-C-310	SOP	SAMPLING DRINKING WATER FOR TOTAL COLIFORM DETERMINATION	PENNINGTON	PENNINGTON	10/14/93	0		NONE
43-C-311	SOP	WATER PLANT BLOWDOWN OPERATION	PENNINGTON	HALCOMB	05/05/93	0		NONE
43-C-313	SOP	STORMWATER RETENTION BASIN SLUDGE REMOVAL	PENNINGTON	HALCOMB	08/17/93	0		NONE
43-C-315	SOP	BIODENITRIFICATION FACILITY ROUTINE CHECKS	PENNINGTON	OLBERDING	08/09/93	0		NONE
43-C-316	EOP	CORRECTIVE ACTIONS FOR MALFUNCTIONS OF THE BIODENITRIFICATION FACILITY	PENNINGTON	PENNINGTON	08/13/93	0		NONE
43-C-318	SOP	SURGE LAGOON UNDERDRAIN SYSTEM	PENNINGTON	LESLIE	04/19/93	0		NONE
43-C-319	SOP	SURGE LAGOON INSPECTION	PENNINGTON	LESLIE	08/06/90	1	02/19/93	NONE
43-C-320	SOP	BIODENITRIFICATION FACILITY OPERATION	PENNINGTON	PENNINGTON	07/06/93	0		NONE
43-C-322	SOP	FILLING THE METHANOL STORAGE TANK	PENNINGTON	LESLIE	04/06/93	0		NONE
43-C-323	SOP	WATER PLANT TEMPORARY TANKS	PENNINGTON	OLBERDING	05/13/93	0		NONE
43-C-324	SOP	SAMPLING FMPC WATER SUPPLIES	PENNINGTON	HENSLEY	09/20/93	0		NONE
43-C-325	SOP	BIODENITRIFICATION HIGH NITRATE TANK	PENNINGTON	HENSLEY	09/21/93	0		NONE
43-C-326	SOP	STORMWATER RETENTION BASIN CONTROL SYSTEM OPERATION	PENNINGTON	HENSLEY	08/13/93	0		NONE
43-C-327	SOP	EFFLUENT TREATMENT SYSTEM NORMAL	PENNINGTON	LESLIE	03/23/93	0		NONE
43-C-329	EOP	BIODENITRIFICATION FACILITY AND EFFLUENT TREATMENT EMERGENCIES	PENNINGTON	LESLIE	08/15/90	1	08/09/93	NONE
43-C-330	SOP	MEDRO WATER SOFTENER OPERATION	PENNINGTON	HALCOMB	05/05/92	0		NONE
43-C-332	SOP	OPERATION OF THE HACH DR/3000 SPECTROPHOTOMETER	PENNINGTON	PENNINGTON	01/21/92	0		NONE
43-C-333	SOP	SAMPLING DRINKING WATER CONTAINING TOTAL OR FECAL COLIFORM	PENNINGTON	KOCH	08/05/93	0		NONE
43-C-334	SOP	OPERATION OF THE HACH DR/2000 SPECTROPHOTOMETER	PENNINGTON	PENNINGTON	05/28/92	0		NONE

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DOCUMENT.NO.	TYPE OF DOCUMENT	TITLE	DOC.OWNER	PTR LAST.NAME	ISSUE DATE	REV. NO.	REVISION DATE	SUPERSEDES
43-C-335	SOP	INTERIM ADVANCED WASTE WATER TREATMENT (STORMWATER RETENTION BASIN SYSTEM OPERATION)	PENNINGTON	LESLIE	06/19/92	1	03/12/93	NONE
43-C-336	SOP	INTERIM ADVANCED WASTEWATER TREATMENT - BIODENITRIFICATION EFFLUENT TREATMENT SYSTEM OPERATION	PENNINGTON	LESLIE	10/08/93	0		NONE
43-C-337	SOP	WASTE PIT AREA STORMWATER RUNOFF CONTROL SYSTEM (WPASRC) OPERATION	PENNINGTON	WADE	07/30/92	1	08/09/93	NONE
43-C-338	SOP	OPERATION, INSPECTION AND TEST OF K-65 SILOS NO. 1 AND NO. 2 EMERGENCY POWER SUPPLY (EPS) GENERATOR	PENNINGTON	PENNINGTON	11/04/92	1	07/16/93	NONE
43-C-339	SOP	OFF-NORMAL OPERATION (LOW TRAILER EFFLUENT PH) OF THE INTERIM ADVANCED WASTE WATER TREATMENT (STORMWATER RENTION BASIN) FACILITY	PENNINGTON	KNEIP	08/11/92	0		NONE
43-C-400	SOP	BOILER WATER AND FEED WATER TESTING	PENNINGTON	NABER	08/27/93	0		NONE
43-C-401	SOP	COAL HANDLING EQUIPMENT OPERATION	PENNINGTON	NABER	11/04/92	2	01/12/94	NONE
43-C-402	SOP	OPERATION OF STEAM GENERATING EQUIPMENT	PENNINGTON	PENNINGTON	11/16/93	1	11/30/93	NONE
43-C-403	SOP	BOILER COMBUSTION CONTROL	PENNINGTON	NABER	08/17/93	0		NONE
43-C-404	SOP	FEEDWATER DEAERATING HEATER OPERATION	PENNINGTON	NABER	08/25/93	0		NONE
43-C-405	SOP	BLOWING SOOT ON RILEY BOILERS	PENNINGTON	NABER	04/15/93	0		NONE
43-C-406	SOP	ASH REMOVAL SYSTEM OPERATION	PENNINGTON	NABER	09/21/93	0		NONE
43-C-407	SOP	AIR COMPRESSORS	PENNINGTON	NABER	03/16/89	0		NONE
43-C-408	SOP	COALYARD BULLDOZER AND ENDLOADER OPERATION	PENNINGTON	NABER	08/27/93	0		NONE
43-C-410	SOP	RECEIPT, SAMPLING, AND STORING COAL	PENNINGTON	NABER	08/23/93	0		NONE
43-C-411	SOP	ELECTROSTATIC PRECIPITATOR OPERATION	PENNINGTON	NABER	08/13/93	0		NONE
43-C-412	SOP	MANAGEMENT OF THE WATER COVER FOR WASTE PIT 6	PENNINGTON	NABER	08/08/91	0		NONE
43-C-413	SOP	HANDLING WASTE MATERIALS WITH THE INDUSTRIAL VACUUM LOADER TRUCK (SUPERSUCKER)	PENNINGTON	HENSLEY	11/09/92	0		NONE
43-C-415	SOP	COAL PILE RUNOFF CONTROL FACILITY OPERATION	PENNINGTON	PENNINGTON	07/16/92	1	10/01/93	NONE
43-C-418	SOP	OPERATION OF MODEL NOS-2A-67 WATERTUBE BOILER	PENNINGTON	PENNINGTON	07/30/92	0		NONE
43-C-419	SOP	ION EXCHANGE RESIN SLUICING AND ADDITION FOR THE INTERIM ADVANCED WASTEWATER TREATMENT BIODENITRIFICATION EFFLUENT TREATMENT SYSTEM	PENNINGTON	LESLIE	01/27/93	0		NONE
43-C-420	SOP	ION EXCHANGE RESIN DEWATERING AND DRUMMING	PENNINGTON	LESLIE	01/04/93	1	10/20/93	NONE
43-C-421	SOP	ION EXCHANGE RESIN SLUICING AND ADDITION FOR THE INTERIM ADVANCED WASTE WATER TREATMENT (STORMWATER RETENTION BASIN)	PENNINGTON	HENSLEY	01/04/93	0		NONE

DOCUMENT.NO.	TYPE OF DOCUMENT	TITLE	DOC.OWNER	PTR LAST.NAME	ISSUE DATE	REV. NO.	REVISION DATE	SUPERSEDES
		SYSTEM						
43-C-501	SOP	SANITARY SEWAGE TREATMENT PLANT OPERATION	PENNINGTON	HALCOMB	10/06/93	0		NONE
43-C-601	SOP	INSPECTION/OPERATION OF SURFACE IMPOUNDMENTS	PENNINGTON	HENSLEY	07/30/92	0		NONE
43-C-701	SOP	GENERAL SUMP OPERATION	PENNINGTON	LESLIE	11/17/93	1	02/02/94	NONE
43-C-702	SOP	RECEIVING BULK LIME	PENNINGTON	LESLIE	09/08/93	0		NONE
43-C-704	SOP	LIME SLAKER OPERATION	PENNINGTON	HALCOMB	04/08/92	0		NONE
43-C-705	SOP	LIME SLURRY DISTRIBUTION	PENNINGTON	PENNINGTON	04/22/92	0		NONE
43-C-801	DEPT	UTILITIES ENGINEER - GENERAL	BLANKENSHIP	PENNINGTON	08/30/92	0		NONE
43-C-802	SOP	EMERGENCY POWER SYSTEM	PENNINGTON	PENNINGTON	05/18/93	0		NONE
43-C-804	SOP	NATURAL GAS METERING STATION AND DISTRIBUTION SYSTEM	PENNINGTON	PENNINGTON	11/16/93	0		NONE
43-C-805	SOP	TESTING FIRE PROTECTION SYSTEM WATER PUMPS	PENNINGTON	PENNINGTON	11/05/93	0		NONE
43-C-806	SOP	WINTER OPERATION OF THE FIRE PROTECTION WATER STORAGE SYSTEM	PENNINGTON	PENNINGTON	07/16/91	0		NONE
43-C-902	SOP	OPERATION, INSPECTION, AND TEST OF THE EMERGENCY OPERATIONS CENTER GENERATOR	PENNINGTON	PENNINGTON	05/28/93	0		NONE
43-C-909	SOP	WATER TREATMENT PLANT DUST COLLECTOR	PENNINGTON	HENSLEY	06/23/93	0		NONE
43-C-910	SOP	UTILITIES HOISTS AND CRANES	PENNINGTON	PENNINGTON	08/27/93	0		NONE
43-M-1001	METH	DISSOLVED OXYGEN (DO) AZIDE MODIFICATION OF WINKLER METHOD	PENNINGTON	HUDSON	12/17/90	0		NONE
43-M-1002	METH	DISSOLVED OXYGEN (DO) MEMBRANE ELECTRODE METHOD	PENNINGTON	HUDSON	04/19/93	0		NONE
43-M-1003	METH	DPD METHOD FOR FREE AND TOTAL CHLORINE TEST	PENNINGTON	LESLIE	11/17/93	0		NONE
43-M-1004	METH	TOTAL COLIFORM TESTING BY MEMBRANE FILTER METHOD	PENNINGTON	HUDSON	01/26/94	0		NONE
43-M-1005	METH	FECAL COLIFORM TESTING OF WATER BY MEMBRANE FILTER METHOD	PENNINGTON	HUDSON	05/01/91	0		NONE
43-M-1006	METH	BRPADAP TEST FOR SOLUBLE URANIUM BY SPECTROPHOTOMETER	PENNINGTON	PENNINGTON	05/28/92			NONE
43-M-1007	METH	ALKALINITY (TOTAL AND PHENOLPHALEIN) TESTING OF WATER	PENNINGTON	PENNINGTON	04/10/91	1	05/28/92	NONE
43-M-1008	METH	TOTAL HARDNESS TESTING OF WATER BY EDTA TITRIMETRIC METHOD	PENNINGTON	HUDSON	09/20/93	0		NONE
43-M-1009	METH	TOTAL PHOSPHORUS TESTING OF WATER BY ASCORBIC ACID METHOD WITH PERSULFATE PREDIGESTION	PENNINGTON	PENNINGTON	05/28/92			NONE
43-M-1010	METH	STABILITY TEST OF WATER BY SATURATION WITH CALCIUM CARBONATE	PENNINGTON	PENNINGTON	11/16/93	0		NONE
43-M-1011	METH	PH (HYDROGEN ION) TESTING OF WATER BY ELECTROMETRIC METHOD	PENNINGTON	PENNINGTON	10/25/91	0		NONE
43-M-1012	METH	CONDUCTIVITY/RESISTIVITY TESTING OF WATER BY ELECTROMETERIC METHOD	PENNINGTON	PENNINGTON	07/22/91	0		NONE
43-M-1013	METH	SPECTROPHOTOMETRIC TEST FOR NITRATES IN WATER USING MODIFIED CADMIUM REDUCTION METHOD	PENNINGTON	PENNINGTON	10/01/92	0		NONE
43-M-1014	METH	TOTAL SUSPENDED (NON-FILTERABLE) SOLIDS IN WATER	PENNINGTON	PENNINGTON	10/09/91	0		NONE

DOCUMENT.NO.	TYPE OF DOCUMENT	TITLE	DOC.OWNER	PTR LAST.NAME	ISSUE DATE	REV. NO.	REVISION DATE	SUPERSEDES
43-M-1015	METH	TOTAL DISSOLVED (FILTERABLE) SOLIDS IN WATER	PENNINGTON	PENNINGTON	10/09/91	0		NONE
43-M-1016	METH	IGNITION TEST FOR VOLATILE AND FIXED SOLIDS IN WATER	PENNINGTON	PENNINGTON	10/09/91	0		NONE
43-M-1017	METH	TOTAL SOLIDS IN WATER	PENNINGTON	PENNINGTON	10/09/91	0		NONE
43-M-1018	METH	VOLUMETRIC MEASUREMENT OF SETTLEABLE SOLIDS IN WATER	PENNINGTON	PENNINGTON	10/09/91	0		NONE
43-M-1020	METH	CHEMICAL OXYGEN DEMAND OF WATER BY REACTOR DIGESTION METHOD WITH COLORIMETRIC DETERMINATION	PENNINGTON	HUDSON	11/10/93	0		NONE
43-M-1021	METH	BICINCHONINATE METHOD FOR TESTING COPPER IN WATER BY SPECTROPHOTOMETER	PENNINGTON	PENNINGTON	06/04/92	2	11/05/92	NONE
43-M-1022	METH	QUALITY TESTING OF REAGENT-GRADE WATER	PENNINGTON	PENNINGTON	11/04/92	0		NONE
43-M-1023	METH	BIOCHEMICAL OXYGEN DEMAND (BOD) AND CARBONACEOUS BIOCHEMICAL OXYGEN DEMAND (CBOD)	PENNINGTON	PENNINGTON	11/04/92	1	08/09/93	43-M-1000
46-C-101	SOP	LAUNDRY OPERATIONS	CULLEN	WEST	09/27/93	0		NONE
46-C-102	SOP	CISSEL DRYER OPERATION	CULLEN	WEST	05/13/93	0		NONE
46-C-103	SOP	CONTINUOUS BATCH WASHER SYSTEM OPERATION	CULLEN	WEST	06/17/93	0		NONE
46-C-104	SOP	CASCADEX WASHER/EXTRACTOR OPERATION	CULLEN	WEST	08/31/93	0		NONE
46-C-106	SOP	CONTINUOUS BATCH WASHER (CBW) SYSTEM MANUAL OPERATION	CULLEN	CULLEN	08/31/93	0		NONE
46-C-107	SOP	CISSELL DRYER AND MEPA/HEPA FILTER SYSTEMS OPERATION	CULLEN	WEST	07/12/93	0		NONE
46-C-108	SOP	LAUNDRY CLEANING SUPPLIES OPERATION	CULLEN	CULLEN	08/17/93	0		NONE
46-C-109	SOP	LUDLUM LAUNDRY MONITOR OPERATION	CULLEN	CULLEN	09/27/93	0		NONE
46-C-110	SOP	LAUNDRY ANCILLARY EQUIPMENT OPERATIONS	CULLEN	WEST	09/27/93	0		NONE
46-C-201	SOP	DISPOSAL OF NON-PROCESS AREA TRASH	TOWNSEND	DUNBAR	04/08/92	0		NONE
46-C-203	SOP	GENERAL PORTER OPERATIONS	CULLEN	HIX	11/03/93	1	01/14/94	NONE
46-C-301	SOP	CLEANING, INSPECTING AND RECONDITIONING RESPIRATORS	CULLEN	WEST	06/09/92	0		NONE
46-S-001	SECT	ISSUANCE AND CONTROL OF SAFETY SHOES	CULLEN	CULLEN	09/20/93	0		NONE
50-C-101	SOP	PREPARATION AND OFFSITE SHIPMENT OF URANIUM HEXAFLUORIDE LABORATORY CALIBRATION STANDARDS CYLINDERS	GILBERT	STAPLETON	07/30/92	1	03/04/93	NONE
50-C-105	SOP	RECEIPT OF MIXED/LOW LEVEL WASTE	WEST	WEST	10/01/92	0		50-C-100
50-C-106	SOP	ACM WASTE SHIPMENT RECORD PREPARATION	WEST	JOHNS	04/12/93	0		NONE
50-C-110	SOP	RECEIVING RADIOACTIVE AND NON-RADIOACTIVE HAZARDOUS MATERIAL	GILBERT	STAPLETON	01/13/93	0		NONE
52-S-0007	SOP	HANDLING AND STORING ETHERS AND OTHER PEROXIDIZABLE CHEMICALS	MILLER	BURK	04/28/93	0		C92-172
52-S-0008	SOP	HANDLING AND STORING CHEMICALS	MILLER	MILLER	03/23/93	0		9112
52-S-0014	SOP	MANAGEMENT OF ANALYTICAL LABORATORY SERVICES DEPARTMENT.	MILLER	KELLEY	06/09/93	0		NONE

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		OTHER SPECIAL MATERIALS						
52-S-0015	SOP	INSPECTION OF SAFETY SHOWER/EYEWASH STATIONS FOR THE ANALYTICAL LABORATORY SERVICES DEPARTMENT	MILLER	KELLEY	07/07/93			C93-567
55-C-100	SOP	OPERATION OF SUMP PUMP IN DECONTAMINATION & DECOMMISSIONING (D&D) BUILDING	PETERS	COMBS	06/25/93	0		NONE
55-C-101	SOP	OPERATION OF STEAM/DETERGENT CLEANER IN DECONTAMINATION & DECOMMISSIONING (D&D) BUILDING	PETERS	COMBS	06/25/93	0		NONE
60-0001	SOP	HIGH TEMPERATURE LIQUID PENETRANT EXAMINATION	TRUJILLO	HURLEY	12/09/93	0		NONE
60-0002	SOP	ENVIRONMENTAL INSPECTIONS	TRUJILLO	GRUMSKI	01/25/94	0		NONE
60-0102	SOP	ABBREVIATIONS, ACRONYMS, AND DEFINITIONS	TRUJILLO	MALONE	01/07/94	0		NONE
60-0401	SOP	DOCUMENT FILING SYSTEM	TRUJILLO	MALONE	12/09/93	0		NONE
60-0601	SOP	CONDUCT OF QC TRAINING, INDOCTRINATION, AND ORIENTATION	TRUJILLO	MALONE	01/07/94	0		NONE
60-0602	SOP	CERTIFICATION OF NDE AND CT PERSONNEL	TRUJILLO	MALONE	01/07/94	0		NONE
60-0702	SOP	DOCUMENT REVIEW	TRUJILLO	MALONE	12/09/93	0		NONE
60-0703	SOP	PARTICIPATION IN DESIGN REVIEWS	TRUJILLO	MALONE	11/05/93	0		NONE
60-0706	SOP	CONDUCTING INSPECTIONS, EXAMINATIONS, OVERVIEWS, AND TESTS	TRUJILLO	MALONE	01/06/94	0		NONE
60-0707	SOP	CONTROL AND CALIBRATION PROGRAM FOR MEASURING AND TEST EQUIPMENT (M&TE)	TRUJILLO	MALONE	12/15/93	1	01/18/94	NONE
60-0708	SOP	SOURCE INSPECTION	TRUJILLO	MALONE	01/31/94	1		NONE
60-0801	SOP	SUPPLIER DEVIATIONS	TRUJILLO	MALONE	09/30/93	0		NONE
60-0901	SOP	DESIGNATION, PREPARATION, STORAGE, AND MAINTENANCE OF QUALITY DOCUMENTS	TRUJILLO	MALONE	09/30/93	0		NONE
60-1101	SOP	LIQUID PENETRANT EXAMINATION	TRUJILLO	MALONE	10/06/93	0		NONE
60-1102	SOP	MAGNETIC PARTICLE EXAMINATION	TRUJILLO	MALONE	10/19/93	0		NONE
60-1103	SOP	ULTRASONIC THICKNESS EXAMINATION	TRUJILLO	MALONE	10/11/93	0		
60-1104	SOP	RADIOGRAPHIC INTERPRETATION	TRUJILLO	MALONE	01/07/94	0		NONE
60-1105	SOP	BUBBLE LEAK TEST	TRUJILLO	MALONE	01/07/94	0		NONE
60-1106	SOP	CONCRETE TESTING	TRUJILLO	MALONE	01/07/94	0		NONE
60-1107	SOP	VISUAL WELD EXAMINATION	TRUJILLO	MALONE	01/07/94	0		NONE
60-1108	SOP	ELECTRICAL EXAMINATION/TEST	TRUJILLO	MALONE	10/15/93	0		NONE
60-1109	SOP	FABRICATION, CLEANING AND INSTRALLATION OF PIPING SYSTEMS EXAMINATION	TRUJILLO	MALONE	10/15/93	0		NONE
60-1110	SOP	EXCAVATION, BACKFILL, AND SLOPE PROTECTION EXAMINATION	TRUJILLO	MALONE	10/11/93	0		NONE

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60-1112	SOP	VISUAL EXAMINATION	TRUJILLO	MALONE	10/15/93	0		NONE
60-1113	SOP	ARCHITECTURAL EXAMINATION	TRUJILLO	MALONE	09/30/93	0		NONE
60-1114	SOP	MECHANICAL EQUIPMENT AND SYSTEM EXAMINATION	TRUJILLO	MALONE	09/30/93	0		NONE
60-1115	SOP	PAINTING EXAMINATION	TRUJILLO	MALONE	09/30/93	0		NONE
60-1116	SOP	EXAMINATION OF BURIED PROCESS AND UTILITY PIPING	TRUJILLO	MALONE	09/30/93	0		NONE
60-1117	SOP	EXAMINATION OF FIRE PROTECTION SYSTEMS	TRUJILLO	MALONE	09/30/93	0		NONE
60-1118	SOP	STRUCTURAL STEEL EXAMINATION	TRUJILLO	MALONE	11/05/93	0		NONE
60-1119	SOP	CONSTRUCTION COMPONENT TESTING	TRUJILLO	MALONE	10/06/93	0		NONE
60-1120	SOP	SYSTEM OPERATIONAL TESTING	TRUJILLO	MALONE	10/06/93	0		NONE
60-1121	SOP	ELECTRICAL EXAMINATION OF PROTECTIVE PIPE COATINGS (HOLIDAY TEST)	TRUJILLO	MALONE	11/05/93	0		NONE
60-1122	SOP	HANDLING AND STORING EXAMINATION	TRUJILLO	MALONE	09/30/93	0		NONE
60-1123	SOP	CONTROL AND USE OF EXAMINATION STAMPS	TRUJILLO	MALONE	10/11/93	0		
60-1124	SOP	REAL TIME RADIOSCOPIC EXAMINATION	TRUJILLO	MALONE	11/05/93	0		NONE
60-601	SOP	CONDUCT OF QC TRAINING, INDOCTRINATION, AND ORIENTATION	TRUJILLO	MALONE	01/07/94	0		NONE
65-C-105	SOP	PREPARATION OF SILO SAMPLES FOR LONG TERM STORAGE	PETERS	GLASSMEYER	11/08/89	1	12/03/90	NONE
65-C-106	SOP	SILO WASTE HANDLING	PETERS	GLASSMEYER	11/09/89	0		NONE
65-C-201	EOP	K65 SILO NUMBERS 1 AND 2 AREA EMERGENCIES	GLASSEY	GLASSEY	09/10/90	1	05/13/91	65-C-107
66-C-101	SOP	OPERATION OF K65 RADON TREATMENT SYSTEM	PETERS	GLASSEY	07/03/91	1	12/09/92	NONE
66-C-909	EOP	RADON TREATMENT SYSTEM EMERGENCIES	PETERS	GLASSMEYER	09/11/90	1	05/13/91	NONE
7004	METH	QUANTITATIVE ANALYSIS OF URANIUM AND THORIUM IN CONCENTATE SAMPLES BY ENERGY DISPERSIVE X-RAY FLUORESCENCE (EDXRF) SPECTROSCOPY	MILLER	BOLIN	11/30/90	0		NONE
776-V-P001	PLAN	ANALYTICAL LABORATORY SERVICES LONG RANGE MANAGEMENT PLAN	SUTTON	SUTTON	03/10/93	0		NONE
776-V-P002	PLAN	ANALYTICAL LABORATORY SERVICES QUALITY ASSURANCE MANAGEMENT PLAN	MCGUIRE	KELLEY	11/24/93	0		NONE
9001	METH	GAS CHROMATOGRAPHY/MASS SPECTROMETRY FOR SEMI-VOLATILE ORGANICS:CAPILLARY COLUMN TECHNIQUE	DANAHY	MEYER	02/25/91	0		NONE
9006	METH	OPERATION OF LEEMAN PS3000 SERIES ICP	MILLER	MEYER	12/30/92	0		NONE
9007	SOP	LOGKEEPING	MILLER	DUNAWAY	10/28/91	1	07/20/92	NONE
9008	SOP	REFRIGERATION REQUIREMENTS FOR ENVIRONMENTAL SAMPLES AND STANDARDS	MILLER	MEYER	04/03/91	0		NONE
9009	METH	TOXICITY CHARACTERISTICS LEACHING PROCEDURE FOR ORGANIC	MILLER	MEYER	10/07/91	0		NONE

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DOCUMENT.NO.	TYPE OF DOCUMENT	TITLE	DOC.OWNER	PTR LAST.NAME	ISSUE DATE	REV. NO.	REVISION DATE	SUPERSEDES
		ANALYTES						
9011	METH	QUANTITATIVE ANALYSIS OF URANIUM AND THORIUM SAMPLES IN SOIL SAMPLES BY ENERGY DISPERSIVE FLOURESCENCE (EDXRF) SPECTROSCOPY	MILLER	BOLIN	04/17/91	0		NONE
9012	METH	TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP) FOR METALLIC ANALYTES	MILLER	MEYER	04/03/91	1		NONE
9013	METH	DETERMINATION OF PH USING AN ACCUMET 950 SELECTIVE ION ANALYZER FOR NPDES SAMPLES	MILLER	REED	08/06/92	0		NONE
9015	METH	SW846:6010/THE DETERMINATION OF CALCIUM, MAGNESIUM, POTASSIUM, AND SODIUM BY LEEMAN PLASMA SPEC III ICP	MILLER	MEYER	12/23/92	0		NONE
9016	METH	SW846:6010/THE DETERMINATION OF LEAD BY LEEMAN PLASMA SPEC III ICP	MILLER	MEYER	02/12/93	0		NONE
9017	METH	SW846:6010/THE DETERMINATION OF METALS BY LEEMAN PLASMA SPEC III ICP (SIMULTANEOUS OPERATION)	MILLER	MEYER	08/13/92	0		NONE
9019	METH	CLP 272.2/GFAA METHOD FOR THE DETERMINATION OF SILVER	MILLER	MEYER	06/10/92	0		NONE
9020	METH	CLP 239.2/GFAA METHOD FOR THE DETERMINATION OF LEAD	MILLER	MEYER	06/10/92	0		NONE
9021	METH	CLP 218.2/GFAA METHOD FOR THE DETERMINATION OF CHROMIUM	MILLER	MEYER	06/08/92	0		NONE
9022	METH	CLP 270.2/GFAA METHOD FOR THE DETERMINATION OF SELENIUM	MILLER	MEYER	06/04/92	1	01/12/93	NONE
9023	METH	MICROWAVE SAMPLE PREPARATION PROCEDURES	MILLER	DANAHY	11/14/91	0		NONE
9024	METH	CLP 213.2/GFAA METHOD FOR THE DETERMINATION OF CADMIUM	MILLER	MEYER	06/10/92	0		NONE
9025	METH	QUALITATIVE ANALYSIS OF SAMPLES BY ENERGY DISPERSIVE X-RAY FLOURESCENCE (EDXRF)	MILLER	BOLIN	05/03/91	0		NONE
9028	METH	CLP 210.2/GFAA METHOD FOR THE DETERMINATION OF BERYLLIUM	MILLER	MEYER	06/10/92	0		NONE
9029	SOP	CLP MEDIUM LEVEL SEMIVOLATILE SOIL EXTRACTION	MILLER	BOWN	06/10/91	0		NONE
9030	SOP	ANALYTICAL LABORATORIES SHIFT TURNOVER	MILLER	BURK	09/25/91	0		NONE
9031	SOP	MANAGEMENT AND REPORTING OF ANALYTICAL LABORATORY RESULTS	MILLER	ARICO	08/14/91	0		NONE
9032	METH	CLP 200.7/THE DETERMINATION OF METALS BY LEEMAN PS3000 ICP (SIMULTANEOUS OPERATION)	MILLER	MEYER	12/29/92	0		NONE
9034	SOP	SEMIVOLATILE WATER EXTRACTION	MILLER	MEYER	06/10/91	0		NONE
9038	METH	CLP 206.2/GFAA METHOD FOR THE DETERMINATION OF ARSENIC	MILLER	MEYER	06/10/92	0		NONE
9039	METH	CLP 279.2/GFAA METHOD FOR THE DETERMINATION OF THALLIUM	MILLER	MEYER	07/08/91	1	06/03/92	NONE
9040	METH	CLP 204.2/GFAA METHOD FOR THE DETERMINATION OF ANTIMONY	MILLER	MEYER	06/10/92	0		NONE
9043	METH	SW846:6010/THE DETERMINATION OF METALS BY LEEMAN PS3000 ICP	MILLER	MEYER	12/30/92	0		NONE

DOCUMENT.NO	TYPE OF DOCUMENT	TITLE	DOC.OWNER	PTR LAST.NAME	ISSUE DATE	REV. NO.	REVISION DATE	SUPERSEDES
		(SIMULTANEOUS OPERATIONS)						
9045	SOP	OPERATION OF THE PERKIN-ELMER 5100 ZEEMAN SERIES, FURNACE TECHNIQUE	MILLER	MEYER	11/03/92	0		NONE
9046	SOP	CLP LOW LEVEL SEMIVOLATILE SOIL EXTRACTION	MILLER	MEYER	07/08/91	1	02/15/93	NONE
9048	METH	ISOTOPIC ANALYSIS OF THORIUM AND URANIUM IN VARIOUS MATRICES	DANAHY	HUMPHREY	07/10/91			4024
9050	SOP	OPERATOR AID POSTING	MILLER	MEYER	10/02/91	0		NONE
9051	METH	SW846:3010,3020/ACID DIGESTION OF AQUEOUS SAMPLES AND EXTRACTS FOR TOTAL METALS ANALYSIS	MILLER	MEYER	12/15/92	0		NONE
9052	METH	SW846:3050/ACID DIGESTION OF SOILS, SEDIMENTS, AND SLUDGES FOR TOTAL METAL ANALYSES	MILLER	MEYER	11/09/92	0		NONE
9055	METH	SW846:3015,3051/MICROWAVE ASSISTED ACID DIGESTION OF AQUEOUS SAMPLES, EXTRACTS, SEDIMENTS, SLUDGES, SOILS, AND OILS	MILLER	MEYER	12/07/92	0		NONE
9056	METH	SW846:7470,7471/COLD VAPOR TECHNIQUE FOR DETERMINATION OF MERCURY UTILIZING THE MERCURY ANALYZER SYSTEM	MILLER	MEYER	09/28/92	0		NONE
9057	METH	CLP 245.1,245.5/COLD VAPOR TECHNIQUE FOR DETERMINATION OF MERCURY UTILIZING THE MERCURY ANALYZER SYSTEM	MILLER	MEYER	09/28/92	0		NONE
9058	SOP	CLP PROTOCOL FOR INORGANIC ANALYSIS OF METALLIC ANALYTES	MILLER	MEYER	07/18/91	0		NONE
9059	METH	DETERMINATION OF ASBESTOS TYPE IN BULK MATERIALS/POLARIZED LIGHT MICROSCOPY	DANAHY	ANDERSON	07/18/91	0		NONE
9060	METH	PERCENT SOLIDS DETERMINATION	MILLER	MEYER	06/22/92	1		NONE
9061	SOP	SW846 AND NPDES PROTOCOL FOR INORGANIC ANALYSIS OF METALLIC ANALYTES	MILLER	MEYER	12/15/92	0		NONE
9062	SOP	CARCINOGEN CONTROL FOR THE ANALYTICAL LABORATORIES	MILLER	BURK	12/22/92	0		NONE
9063	METH	DETERMINATION OF TOTAL ORGANIC HALIDES (TOX) IN WATER SAMPLES	MILLER	MEYER	01/13/93	0		NONE
9064	METH	SW846:9095 PAINT FILTER LIQUIDS TEST	MILLER	REED	12/29/92	0		1096
9065	METH	CLP/MICROWAVE DIGESTION PROCEDURE	MILLER	MEYER	08/14/91	0		NONE
9068	SOP	OPERATION OF LEEMAN PLASMA SPEC III ICP	MILLER	MEYER	08/14/91	0		NONE
9069	METH	CLP 200.7/THE DETERMINATION OF LEAD BY LEEMAN PLASMA SPEC III ICP	SUTTON	MEYER	08/14/91	0		NONE
9070	METH	CLP 200.71/THE DETERMINATION OF CALCIUM, MAGNESIUM, POTASSIUM, AND SODIUM BY LEEMAN PLASMA SPEC III ICP	SUTTON	MEYER	08/14/91	0		NONE
9071	METH	CLP 200.7/THE DETERMINATION OF METALS BY LEEMAN PLASMA SPEC	SUTTON	MEYER	08/14/91	0		NONE

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DOCUMENT.NO.	TYPE OF DOCUMENT	TITLE	DOC.OWNER	PTR LAST.NAME	ISSUE DATE	REV. NO.	REVISION DATE	SUPERSEDES
		III ICP (SIMULTANEOUS OPERATION)						
9072	SOP	REMOVAL AND DISPOSITION OF NON-RADIOACTIVE UNUSED CHEMICALS	MILLER	BURK	07/07/92	0		ANL-01-0045
9073	METH	SW846:7131/GFAA METHOD FOR THE DETERMINATION OF CADMIUM	MILLER	MEYER	09/28/92	0		NONE
9074	METH	SW846:7060/GFAA METHOD FOR THE DETERMINATION OF ARSENIC	MILLER	MEYER	12/15/92	0		NONE
9075	METH	SW846:7041/GFAA METHOD FOR THE DETERMINATION OF ANTIMONY	MILLER	MEYER	06/22/92	0		NONE
9076	METH	SW846:7841/GFAA METHOD FOR THE DETERMINATION OF THALLIUM	MILLER	MEYER	12/15/92	0		NONE
9077	METH	SW846:7091/GFAA METHOD FOR THE DETERMINATION OF BERYLLIUM	MILLER	MEYER	09/21/92	0		NONE
9078	METH	SW846:7740/GFAA METHOD FOR THE DETERMINATION OF SELENIUM	MILLER	MEYER	12/15/92	0		NONE
9079	METH	SW846:7421/GFAA METHOD FOR THE DETERMINATION OF LEAD	MILLER	MEYER	12/15/92	0		NONE
9080	METH	SW846:7761/GFAA METHOD FOR THE DETERMINATION OF SILVER	MILLER	MEYER	12/21/92	0		NONE
9081	METH	SW846:7191/GFAA METHOD FOR THE DETERMINATION OF CHROMIUM	MILLER	MEYER	06/22/92	0		NONE
9082	SOP	ADMINISTRATIVE REQUIREMENTS FOR REPAIR, CALIBRATION, AND PREVENTATIVE MAINTENANCE OF INSTRUMENTS AND EQUIPMENT IN THE ANALYTICAL LABORATORIES	DANAHY	DANAHY	09/15/92	0		NONE
9085	METH	CALIBRATION OF ALPHA AND BETA CHECK SOURCES	DANAHY	DANAHY	04/22/92	1	07/15/92	NONE
9086	METH	RADIOCHEMICAL DETERMINATION OF GROSS ALPHA PARTICLE ACTIVITY IN WATER	DANAHY	DANAHY	04/02/92	0		NONE
9087	METH	RADIOCHEMICAL DETERMINATION OF GROSS BETA PARTICLE ACTIVITY IN WATER - BIOASSAY LABORATORY	DANAHY	DANAHY	04/02/92	0		NONE
9092	METH	RADIOCHEMICAL DETERMINATION OF RADIUM IN ENVIRONMENTAL WATER SAMPLES	DANAHY	DANAHY	04/22/92	1	07/15/92	NONE
9093	METH	GRAVIMETRIC DETERMINATION OF AIRBORNE PARTICLES	DANAHY	DANAHY	12/29/92	0		NONE
9094	METH	EPA/160.2 DETERMINATION OF NON-FILTERABLE RESIDUE IN WATER, GRAVIMETRIC METHOD (TOTAL SUSPENDED SOLIDS)	MILLER	REED	12/21/92	1	08/13/93	NONE
9095	METH	CONDUCTIVITY OF WATER	MILLER	MEYER	06/10/92	0		NONE
9096	METH	DETERMINATION OF PURGEABLE ORGANIC HALIDES (POX) IN WATER SAMPLES	MILLER	MEYER	01/13/93	0		NONE
9098	SOP	DISPOSAL OF RADIOACTIVE LABORATORY SOLID WASTES	MILLER	BURK	08/03/92	0		NONE
9100	METH	QUANTITATIVE ANALYSIS OF LOW LEVEL GAS BY QUADRUPOLE MASS SPECTROMETRY	DANAHY	HELLMANN	11/09/92	0		9014
9103	METH	SW846:7470,7471/COLD VAPOR TECHNIQUE FOR THE DETERMINATION OF MERCURY IN LIQUID, SOIL, AND SEDIMENT SAMPLES USING THE LEEMAN PS200 AUTOMATED MERCURY ANALYZER	MILLER	MEYER	12/29/92	0		NONE

DOCUMENT.NO.	TYPE OF DOCUMENT	TITLE	DOC.OWNER	PTR LAST.NAME	ISSUE DATE	REV. NO.	REVISION DATE	SUPERSEDES
9104	SOP	OPERATION OF THE LIQUID NITROGEN WITHDRAWAL FACILITY NO. 2	MILLER	HELLMANN	09/21/92	0		NONE
9106	METH	DETERMINATION OF URANIUM IN URINE: FLUOROMETRIC FUSION METHOD	DANAHY	DANAHY	12/15/92	0		NONE
9108	SOP	OPERATION OF THE ANALYTICAL LABORATORY MEPA/HEPA DUST FILTER	DANAHY	HELLMANN	11/09/92	0		NONE
9109	METH	DETERMINATION OF GROSS ALPHA AND GROSS BETA RADIOACTIVE PARTICLES ACTIVITIES IN SURFACE AND GROUND WATER BY PROPORTIONAL ALPHA AND BETA COUNTING	DANAHY	CORLEANCA	07/23/92	0		NONE
9110	SOP	COLLIMATOR CLEANING AND MAINTENANCE FOR THE THERMAL MASS SPECTROMETER	DANAHY	HELLMANN	06/26/92	0		NONE
9111	SOP	PREPARATION OF RADIOACTIVE LABORATORY LIQUID WASTES FOR DISPOSAL	MILLER	BURK	06/26/92	0		ANL-01-0015
9113	SOP	QUALITY CONTROL OF RADIOACTIVITY COUNTING SYSTEMS	DANAHY	DANAHY	07/07/92	0		NONE
9114	EOP	LABORATORY BUILDING EMERGENCIES	MILLER	STAMPER	04/21/92	1	02/21/93	ANL-15-0062
9115	METH	URANIUM ISOLATION AND PURIFICATION FROM VARIOUS MATRICES FOR SUBSEQUENT URANIUM ISOTOPIC ANALYSIS	DANAHY	HUMPHREY	11/04/92	0		4018
9117	METH	EPA/160.2: DETERMINATION OF NON-FILTERABLE RESIDUE IN OIL, GRAVIMETRIC METHOD (TOTAL SUSPENDED SOLIDS)	MILLER	REED	01/26/93	0		1015
9127	SOP	LABORATORY PROCEDURE FOR CLEANING GLASSWARE	MILLER	REED	12/21/92	0		NONE
9128	METH	RADIOMETRIC PROCEDURE FOR THE DETERMINATION OF PLUTONIUM	DANAHY	HUMPHREY	11/30/92	0		4019
9136	METH	DETERMINATION OF URANIUM IN WATER: UA-3 LASER INDUCED PHOSPHORESCENCE METHOD	DANAHY	DANAHY	02/12/93	0		NONE
9145	METH	DETERMINATION OF FLUORIDE IN WASTEWATER, INCLUDING NPDES SAMPLES USING POTENTIOMETRIC, ION SELECTIVE ELECTRODE METHOD	MILLER	REED	01/06/93	0		3039
9158	METH	DETERMINATION OF PARTICLE-SIZE IN SOILS, SIEVE METHOD	MILLER	REED	02/15/93	0		C92-151
ANL-01-0017	SOP	PREPARATION OF REAGENTS AND STANDARDS	MILLER	MILLER	10/13/89			NONE
ANL-01-0035	SOP	USING ANALIS (INFO SYS)	MILLER	ARICO	06/30/88			NONE
ANL-01-0049	SOP	CHAIN OF CUSTODY FOR ENVIRONMENTAL SAMPLES	MILLER	KELLEY	09/05/89			NONE
ANL-01-0053	SOP	MANAGING HAZARDOUS WASTE SATELLITE ACCUMULATION AREAS IN ANALYTICAL LABORATORIES	MILLER	BURK	01/19/93	0		NONE
ANL-01-0054	SOP	TRAINING AND QUALIFICATIONS OF ANALYSTS WITHIN THE WMCO ANALYTICAL LABORATORIES	MILLER	ARICO	03/27/90	0		NONE
ANL-01-0060	SOP	INSPECTION AND LABELING OF COMPRESSED GASES IN THE ANALYTICAL LABORATORIES	MILLER	DEES	01/22/91	1	05/26/92	NONE

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DOCUMENT.NO.	TYPE OF DOCUMENT	TITLE	DOC.OWNER	PTR LAST.NAME	ISSUE DATE	REV. NO.	REVISION DATE	SUPERSEDES
ANL-10-0016	SOP	RECEIVING AND DELIVERING NPDES SAMPLES	COLE	FROST	01/26/88		09/18/89	NONE
ANL-15-0058	SOP	OPERATOR SCALE CHECKING IN THE LABORATORY	MILLER	BURK	03/26/90	0		10-C-104
ANL-23-0029	SOP	MAINTENANCE OF DRY GAS PURGE FOURIER TRANSFORM INFRA RED (FTIR) SPECTROMETER	DANAHY	DANAHY	07/13/87			NONE
ANL-33-0028	SOP	RADIOMETRIC RECORDS AND SAMPLE HANDLING	DANAHY	HUMPHREY	06/10/91	0		NONE
ANL-45-0061	SOP	OPERATION OF NUCLEAR MEASUREMENTS CORPORATION (NMC) MODEL PC-5 PROPORTIONAL COUNTERS	DANAHY	DANAHY	04/02/92	0		NONE
ANL-M-100	MANUAL	LABORATORY BUILDING RADIATION CONTROL REQUIREMENTS MANUAL	MILLER	ADKINS	10/31/90	0		FMPC-2164
ANL-SP-1001	PLAN	ANALYTICAL LABORATORY QUALITY ASSURANCE PLAN	MILLER	KELLEY	10/16/91	1	02/15/93	NONE
D10-00-001	DIV	INTERIM DOCUMENT (16)	MCGUIRE	WEICHOLD	02/18/93	0		NONE
D10-00-002	DIV	REMEDIATION SUPPORT OPERATIONS LESSONS LEARNED PROGRAM (14)	MCGUIRE	HOLLOWAY	09/09/93	0		PO-D-027
D10-00-007	DIV	REMEDIATION SUPPORT OPERATIONS DIVISION CONDUCT OF OPERATIONS POLICY	MCGUIRE	DOHERTY	01/28/94	0		NONE
D10-02-002	SECT	QUALITY CONTROL SAMPLE PREPARATION	TRUJILLO	MAPLE	09/29/93	0		ANL-10-0034
D10-02-003	SECT	CALCULATION OF CONFIDENCE LIMITS FOR QUALITY CONTROL SAMPLES	TRUJILLO	MAPLE	11/24/93	0		NONE
M-100	MANUAL	STANDARD FOR CONDUCT OF OPERATIONS AT THE FEED MATERIALS PRODUCTION CENTER	MCGUIRE		08/24/90	0		NONE
M-101	MANUAL	STANDARD FOR CONDUCT OF OPERATIONS AT THE FEED MATERIALS PRODUCTION CENTER FACILITY ASSESSMENT RECORDS	MCGUIRE		08/24/90	0		NONE
M-102	MANUAL	(RSO) SITE SERVICES TRANSPORTATION REQUIREMENTS MANUAL	GILBERT	STAPLETON	01/31/92	1	09/12/93	NONE
M-103	MANUAL	STANDING ORDERS FOR BOILER PLANT OPERATIONS	PENNINGTON	NABER	11/22/93	0		NONE
M-104	MANUAL	STANDING ORDERS FOR WATER TREATMENT PLANT OPERATIONS	PENNINGTON	HENSLEY	12/09/93	0		NONE
M-105	MANUAL	UTILITIES SERVICES TRAINING AND QUALIFICATION PROGRAM	PENNINGTON	PENNINGTON	12/09/93	0		NONE
OSH-P-34-003	SOP	DETERMINATION OF URANIUM IN URINE: FLUOROMETERIC FUSION METHOD	DANAHY	CORLEANCA	03/24/88	0		NONE
OSH-P-34-006	SOP	OPERATION OF TENNELEC LB-1000 MANUAL ALPHA/BETA PROPORTIONAL COUNTER - CHEMISTRY LABORATORY APPLICATIONS	DANAHY	CORLEANCA	01/11/89	0		NONE
PO-D-002	DIV	INITIATION, PROCESS, AND ISSUE OF A PROCEDURE (16)	MCGUIRE	WEICHOLD	05/01/92	0		NONE
PO-D-003	DIV	INITIATION, PROCESS, AND ISSUE OF A CHANGE IN OPERATION (CIO) (16)	MCGUIRE	WEICHOLD	05/01/92	1	04/26/93	NONE
PO-D-004	DIV	DOCUMENT FORMAT (16)	MCGUIRE	WEICHOLD	05/01/92	0		NONE
PO-D-006	SOP	CALCULATION OF DRUM EQUIVALENTS FOR FMPC WASTE VOLUMES	PETERS	WEICHOLD	02/17/88	0		NONE
PO-D-007	DIV	DOCUMENT PERIODIC REVIEW PROGRAM (1)	MCGUIRE	WEICHOLD	05/01/92	0		NONE

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DOCUMENT.NO.	TYPE OF DOCUMENT	TITLE	DOC.OWNER	PTR LAST.NAME	ISSUE DATE	REV. NO.	REVISION DATE	SUPERSEDES
PO-D-008	DIV	OPERATIONS PROJECTS WORK PROGRAM	MCGUIRE	WEICHOLD	12/21/88	0		NONE
PO-D-009	DIV	OPERATOR ACKNOWLEDGEMENT OF DOCUMENT/ISSUE CHANGES (16)	MCGUIRE	WEICHOLD	05/01/92	0		NONE
PO-D-011	DIV	DOCUMENT INCORPORATION OF SAFETY RELATED INFORMATION (16)	MCGUIRE	WEICHOLD	05/01/92	0		NONE
PO-D-012	DIV	FACILITY/PROCESS STARTUP	MCGUIRE	GLASSMEYER	12/17/90	0		NONE
PO-D-013	DIV	SAFETY AND HOUSEKEEPING (1)	MCGUIRE	GLASSMEYER	09/15/89	1	05/10/91	NONE
PO-D-014	DIV	OPERATIONS ORGANIZATIONS AND RESPONSIBILITIES (1)	MCGUIRE	CULLEN	08/24/90	0		NONE
PO-D-015	DIV	SHIFT ROUTINES AND OPERATING PRACTICES (2)	MCGUIRE		08/24/90	0		NONE
PO-D-016	DIV	COMMUNICATIONS (4)	MCGUIRE		08/24/90	0		NONE
PO-D-017	DIV	INVESTIGATION OF ABNORMAL EVENTS (6)	MCGUIRE		08/24/90	0		NONE
PO-D-018	DIV	NOTIFICATIONS - REPORTING OF NON-ROUTINE EVENTS (7)	MCGUIRE		08/24/90	0		NONE
PO-D-019	DIV	EQUIPMENT STATUS AND CONTROL (9)	MCGUIRE		08/24/90	0		NONE
PO-D-020	DIV	INDEPENDENT VERIFICATION (10)	MCGUIRE		08/24/90	0		NONE
PO-D-021	DIV	LOGKEEPING (11)	MCGUIRE		08/24/90	0		NONE
PO-D-022	DIV	SHIFT TURNOVER (12)	MCGUIRE		08/24/90	0		NONE
PO-D-023	DIV	SHIFT ORDERS (15)	MCGUIRE		08/24/90	0		NONE
PO-D-024	DIV	CONTROL OF OPERATOR AIDS (17)	MCGUIRE		08/24/90	0		NONE
PO-D-025	DIV	EQUIPMENT LABELING (18)	MCGUIRE		08/24/90	0		NONE
PO-D-026	DIV	(RSO)SITE SERVICES DOCUMENT PROGRAM (1)	MCGUIRE	WEICHOLD	05/01/92	0		PO-D-001
PO-D-028	DIV	(RSO) PREPARATION AND IMPLEMENTATION OF WORK PACKAGE	MCGUIRE	GLASSMEYER	12/30/91	0		NONE
PO-D-030	DIV	(RSO) SITE SERVICES FACILITIES EVALUATIONS (10)	MCGUIRE		09/28/92	0		PO-D-029
PO-D-031	DIV	INTERNAL EVALUATION PROGRAM (10)	MCGUIRE		09/30/92	0		NONE
PO-D-032	DIV	REQUIRED READING (14)	MCGUIRE	EMMERT	10/02/92	0		NONE
PO-D-035	SOP	SHIPMENT OF LOW LEVEL RADIOACTIVE WASTE (LLRW) REQUIREMENTS	WEST	WEST	02/28/92	0		NONE
PO-S-01-001	DEPT	STORAGE AND HANDLING OF EMPTY LOW LEVEL RADIOACTIVE WASTE CONTAINERS	BAILEY	ROWE	09/30/87	0		NONE
PO-S-01-002	DEPT	INTERNAL AUDIT PROGRAM (5480.1A & 5482.1A)	PETERS	GLASSMEYER	09/29/87	0		NONE
PO-S-01-003	DEPT	INTERNAL INSPECTION (WASTE OPER)	PETERS	GLASSMEYER	09/20/87	0		NONE
PO-S-01-004	EOP	COAL BUNKER FIRE CASUALTY	PENNINGTON	NABER	03/19/93	0		43-C-416
PO-S-03-001	DEPT	REAL PROPERTY FACILITIES INSPECTION	TOWNSEND	TOWNSEND	11/04/88	0		NONE
PO-S-04-001	EOP	EMISSION CONTROL ACTION PROGRAM AIR POLLUTION EMERGENCY EPISODES	PENNINGTON	NABER	04/26/93	0		NONE
PO-S-04-002	DEPT	CONTROLLING FOODSTUFFS IN THE BOILER/WATER TREATMENT PLANTS	PENNINGTON	PENNINGTON	04/14/92	0		NONE
PO-S-04-003	DEPT	VIOLATION OPACITY REPORTING	PENNINGTON	NABER	01/31/92	0		NONE

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DOCUMENT.NO	TYPE OF DOCUMENT	TITLE	DOC.OWNER	PTR LAST.NAME	ISSUE DATE	REV. NO.	REVISION DATE	SUPERSEDES
PO-S-04-005	SECT	RSO WATER TREATMENT PLANT LABORATORY QUALITY ASSURANCE PLAN	PENNINGTON	PENNINGTON	08/13/93	1	12/13/93	DPL-1000
PO-S-04-006	SOP	AERATION FACILITY	PENNINGTON	BUTTERFIELD	08/17/93	0		NONE
PO-S-04-007	SOP	RECOVERY WELL FIELD	PENNINGTON	BUTTERFIELD	08/06/93	0		NONE
PO-S-06-002	DEPT	PREPARING "UNIFORM HAZARDOUS WASTE MANIFEST"	WEST	WEST	01/29/90	0		NONE
SAM-SS-001	SOP	PROCESSING SAMPLES THROUGH THE PROCESSING LAB	COLE	LUKEN	12/01/92	0		NONE
SAM-SS-002	SOP	SHIPPING SAMPLES TO OFF-SITE LABORATORIES	COLE	LUKEN	12/01/92	0		NONE

CIO LIST

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CIO.NO.	DOCUMENT AFFECTED	TITLE	DOC.OWNER	ASSIGNED.PA	EFFECTIVE DATE	EXPIRATION DATE
C93-537	20-C-619	PACKAGING SOIL BORING MATERIAL FOR TRANSFER TO THE 90-DAY STORAGE AREA	BAILEY	KLAG	09/28/93	03/28/94
C93-538	20-C-619	PACKAGING SOIL BORING MATERIAL FOR TRANSFER TO THE 90-DAY STORAGE AREA	BAILEY	KLAG	10/07/93	04/07/94
C93-574	20-C-619	PACKAGING SOIL BORING MATERIAL FOR TRANSFER TO THE 90-DAY STORAGE AREA	BAILEY	KLAG	09/28/93	03/28/94
C93-592	1001	USEPA 413.1/THE DETERMINATION OF OIL AND GREASE IN WATER AND WASTES USING THE PARTITION-GRAVIMETRIC METHOD	MILLER	KELLEY	09/30/93	03/30/94
C93-593	1001	USEPA 413.1/THE DETERMINATION OF OIL AND GREASE IN WATER AND WASTES USING THE PARTITION-GRAVIMETRIC METHOD	MILLER	KELLEY	09/30/93	03/30/94
C93-594	1026	GRAPHITE FURNANCE ATOMIC ABSORPTION METHOD FOR THE DETERMINATION OF HEXAVALENT CHROMIUM IN NPDES WATER SAMPLES	MILLER	KELLEY	09/30/93	03/30/94
C93-595	1026	GRAPHITE FURNACE ATOMIC ABSORPTION METHOD FOR THE DETERMINATION OF HEXAVALENT CHROMIUM IN NPDES WATER SAMPLES	MILLER	KELLEY	09/30/93	03/30/94
C93-596	1039	THE DETERMINATION OF URANIUM BY FERROUS REDUCTION, TITRIMETRIC, POTENTIOMETRIC ENDPOINT METHOD	MILLER	KELLEY	09/30/93	03/30/94
C93-597	1039	THE DETERMINATION OF URANIUM BY FERROUS REDUCTION, TITRIMETRIC, POTENTIOMETRIC ENDPOINT METHOD	MILLER	KELLEY	09/30/93	03/30/94
C93-598	3001	THE DETERMINATION OF AMMONIA-NITROGEN IN WASTEWATER USING THE POTENTIOMETRIC AMMONI SENSING ELECTRODE METHOD	MILLER	KELLEY	09/30/93	03/30/94
C93-599	3001	THE DETERMINATION OF AMMONIA-NITROGEN IN WASTEWATER USING THE POTENTIOMETRIC AMMONIA SENSING ELECTRODE METHOD	MILLER	KELLEY	09/30/93	03/30/94
C93-600	3002	THE COLORIMETRIC (BRPADAP) DETERMINATION OF URANIUM USING AN AUTOANALYZER	MILLER	KELLEY	09/30/93	03/30/94
C93-601	3002	THE COLORIMETRIC (BRPADAP) DETERMINATION OF URANIUM USING AN AUTOANALYZER	MILLER	KELLEY	09/30/93	03/30/94
C93-602	3024	GENERAL METHOD FOR THE DETERMINATION OF ALKALI CONCENTRATION, VOLUMETRIC METHOD	MILLER	KELLEY	09/30/93	03/30/94
C93-603	3024	GENERAL METHOD FOR THE DETERMINATION OF ALKALI CONCENTRATION, VOLUMETRIC METHOD	MILLER	KELLEY	09/30/93	03/30/94
C93-606	3059	AUTOMATED COLORIMETRIC DETERMINATION OF THORIUM IN LIQUID AND SOLID WASTES	MILLER	KELLEY	09/30/93	03/30/94
C93-607	3059	AUTOMATED COLORIMETRIC DETERMINATION OF THORIUM IN LIQUID	MILLER	KELLEY	09/30/93	03/30/94

CIO.NO.	DOCUMENT AFFECTED	TITLE	DOC.OWNER	ASSIGNED.PA	EFFECTIVE DATE	EXPIRATION DATE
		AND SOLID WASTES				
C93-608	3064	DETERMINATION OF FLASH POINT BY PENSKY-MARTENS CLOSED TESTER	MILLER	KELLEY	09/30/93	03/30/94
C93-609	3064	DETERMINATION OF FLASH POINT BY PENSKY-MARTENS CLOSED TESTED	MILLER	KELLEY	09/30/93	03/30/94
C93-610	4002	THE RADIOMETRIC DETERMINATION OF RADIUM-226 AND RADIUM-228 IN VARIOUS MATRICES	MILLER	KELLEY	09/30/93	03/30/94
C93-611	4002	THE RADIOMETRIC DETERMINATION OF RADIUM-226 AND RADIUM-228 IN VARIOUS MATRICES	MILLER	KELLEY	09/30/93	03/30/94
C93-612	4003	RADIOMETRIC PROCEDURE FOR THE DETERMINATION OF NEPTUNIUM-237	MILLER	KELLEY	09/30/93	03/30/94
C93-613	4003	RADIOMETRIC PROCEDURE FOR THE DETERMINATION OF NEPTUNIUM-237	MILLER	KELLEY	09/30/93	03/30/94
C93-614	4006	RADIOMETRIC PROCEDURE FOR THE DETERMINATION OF CESIUM-137	MILLER	KELLEY	09/30/93	03/30/94
C93-615	4006	RADIOMETRIC PROCEDURE FOR THE DETERMINATION OF CESIUM-137	MILLER	KELLEY	09/30/93	03/30/94
C93-616	4007	RADIOMETRIC PROCEDURE FOR THE DETERMINATION OF TECHNETIUM-99 IN VARIOUS MATRICES	MILLER	KELLEY	09/30/93	03/30/94
C93-617	4007	RADIOMETRIC PROCEDURE FOR THE DETERMINATION OF TECHNETIUM-99 IN VARIOUS MATRICES	MILLER	KELLEY	09/30/93	03/30/94
C93-618	4013	RADIOMETRIC SCREENING METHOD FOR DETERMINING TOTAL RADIOACTIVITY IN VARIOUS MATRICES	MILLER	KELLEY	09/30/93	03/30/94
C93-619	4013	RADIOMETRIC SCREENING METHOD FOR DETERMINING TOTAL RADIOACTIVITY IN VARIOUS MATRICES	MILLER	KELLEY	09/30/93	03/30/94
C93-622	7004	QUANTITATIVE ANALYSIS OF URANIUM AND THORIUM IN CONCRETE SAMPLES BY ENERGY DISPERSIVE X-RAY FLUORESCENCE (EDXRF) SPECTROSCOPY	MILLER	KELLEY	09/30/93	03/30/94
C93-623	7004	QUANTITATIVE ANALYSIS OF URANIUM AND THORIUM IN CONCRETE SAMPLES BY ENERGY DISPERSIVE X-RAY FLUORESCENCE (EDXRF) SPECTROSCOPY	MILLER	KELLEY	09/30/93	03/30/94
C93-624	9001	GAS CHROMATOGRAPHY/MASS SPECTROMETRY FOR SEMIVOLATILE ORGANICS: CAPILLARY COLUMN TECHNIQUE	MILLER	KELLEY	09/30/93	03/30/94
C93-625	9001	GAS CHROMATOGRAPHY/MASS SPECTROMETRY FOR SEMIVOLATILE ORGANICS: CAPILLARY COLUMN TECHNIQUE	MILLER	KELLEY	09/30/93	03/30/94
C93-628	9011	QUANTITATIVE ANALYSIS OF URANIUM AND THORIUM IN SOIL SAMPLES BY ENERGY DISPERSIVE X-RAY FLUORESCENCE (EDXRF) SPECTROSCOPY	MILLER	KELLEY	09/30/93	03/30/94
C93-629	9011	QUANTITATIVE ANALYSIS OF URANIUM AND THORIUM IN SOIL SAMPLES BY ENERGY DISPERSIVE X-RAY FLUORESCENCE (EDXRF) SPECTROSCOPY	MILLER	KELLEY	09/30/93	03/30/94

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CIO.NO.	DOCUMENT AFFECTED	TITLE	DOC.OWNER	ASSIGNED.PA	EFFECTIVE DATE	EXPIRATION DATE
C93-630	9013	DETERMINATION OF PH USING AN ACCUMET 950 SELECTIVE ION ANALYZER FOR NPDES SAMPLES	MILLER	KELLEY	09/30/93	03/30/94
C93-631	9013	DETERMINATION OF PH USING AN ACCUMET 950 SELECTIVE ION ANALYZER FOR NPDES SAMPLES	MILLER	KELLEY	09/30/93	03/30/94
C93-632	9015	SW846:6010/THE DETERMINATION OF CALCIUM, MAGNESIUM, POTASSIUM, AND SODIUM BY LEEMAN PLASMA SPEC III ICP	MILLER	KELLEY	09/30/93	03/30/94
C93-633	9015	SW846:6010/THE DETERMINATION OF CALCIUM, MAGNESIUM, POTASSIUM, AND SODIUM BY LEEMAN PLASMA SPEC III ICP	MILLER	KELLEY	09/30/93	03/30/94
C93-634	9016	SW846:6010/THE DETERMINATION OF LEAD BY LEEMAN PLASMA SPEC III ICP	MILLER	KELLEY	09/30/93	03/30/94
C93-635	9016	SW846:6010/THE DETERMINATION OF LEAD BY LEEMAN PLASMA SPEC III ICP	MILLER	KELLEY	09/30/93	03/30/94
C93-636	9017	SW846:6010/THE DETERMINATION OF METALS BY LEEMAN PLASMA SPEC III ICP (SIMULTANEOUS OPERATION)	MILLER	KELLEY	09/30/93	03/30/94
C93-637	9017	SW846:6010/THE DETERMINATION OF METALS BY LEEMAN PLASMA SPEC III ICP (SIMULTANEOUS OPERATION)	MILLER	KELLEY	09/30/93	03/30/94
C93-638	9025	QUALITATIVE ANALYSIS OF SAMPLES BY ENERGY DISPERSIVE X-RAY FLUORESCENCE (EDXRF) SPECTROSCOPY	MILLER	KELLEY	09/30/93	03/30/94
C93-639	9025	QUALITATIVE ANALYSIS OF SAMPLES BY ENERGY DISPERSIVE X-RAY FLUORESCENCE (EDXRF) SPECTROSCOPY	MILLER	KELLEY	09/30/93	03/30/94
C93-640	9043	SW846-6010/THE DETERMINATION OF METALS BY LEEMAN PS3000 ICP (SIMULTANEOUS OPERATION)	MILLER	KELLEY	09/30/93	03/30/94
C93-641	9043	SW846-6010/THE DETERMINATION OF METALS BY LEEMAN PS3000 ICP (SIMULTANEOUS OPERATION)	MILLER	KELLEY	09/30/93	03/30/94
C93-642	9048	ISOTOPIC ANALYSIS OF THORIUM AND URANIUM IN VARIOUS MATRICES	MILLER	KELLEY	09/30/93	03/30/94
C93-643	9048	ISOTOPIC ANALYSIS OF THORIUM AND URANIUM IN VARIOUS MATRICES	MILLER	KELLEY	09/30/93	03/30/94
C93-644	9056	SW-846:7470, 7471/COLD VAPOR TECHNIQUE FOR DETERMINATION OF MERCURY UTILIZING THE MERCURY ANALYZER SYSTEM	MILLER	KELLEY	09/30/93	03/30/94
C93-645	9056	SW-846:7470, 7471/COLD VAPOR TECHNIQUE FOR DETERMINATION OF MERCURY UTILIZING THE MERCURY ANALYZER SYSTEM	MILLER	KELLEY	09/30/93	03/30/94
C93-646	9060	PERCENT SOLIDS DETERMINATION	MILLER	KELLEY	09/30/93	03/30/94
C93-647	9060	PERCENT SOLIDS DETERMINATION	MILLER	KELLEY	09/30/93	03/30/94
C93-648	9063	DETERMINATION OF TOTAL ORGANIC HALIDES (TOX) IN WATER	MILLER	KELLEY	09/30/93	03/30/94

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CIO.NO.	DOCUMENT AFFECTED	TITLE	DOC.OWNER	ASSIGNED.PA	EFFECTIVE DATE	EXPIRATION DATE
		SAMPLES				
C93-649	9063	DETERMINATION OF TOTAL ORGANIC HALIDES (TOX) IN WATER SAMPLES	MILLER	KELLEY	09/30/93	03/30/94
C93-650	9064	SW-846:9095 PAINT FILTER LIQUIDS TEST	MILLER	KELLEY	09/30/93	03/30/94
C93-651	9064	SW-846:9095 PAINT FILTER LIQUIDS TEST	MILLER	KELLEY	09/30/93	03/30/94
C93-652	9066	DETERMINATION OF FLASH POINT BY AUTOMATED PENSKY-MARTENS CLOSED TESTER	MILLER	KELLEY	09/30/93	03/30/94
C93-653	9066	DETERMINATION OF FLASH POINT BY AUTOMATED PENSKY-MARTENS CLOSED TESTER	MILLER	KELLEY	09/30/93	03/30/94
C93-654	9073	SW-846:7131/GFAA METHOD FOR THE DETERMINATION OF CADMIUM	MILLER	KELLEY	09/30/93	03/30/94
C93-655	9073	SW-846:7131/GFAA METHOD FOR THE DETERMINATION OF CADMIUM	MILLER	KELLEY	09/30/93	03/30/94
C93-656	9074	SW-846:7060/GFAA METHOD FOR THE DETERMINATION OF ARSENIC	MILLER	KELLEY	09/30/93	03/30/94
C93-657	9074	SW-846:7060/GFAA METHOD FOR THE DETERMINATION OF ARSENIC	MILLER	KELLEY	09/30/93	03/30/94
C93-658	9075	SW-846:7041/GFAA METHOD FOR THE DETERMINATION OF ANTIMONY	MILLER	KELLEY	09/30/93	03/30/94
C93-659	9075	SW-846:7041/GFAA METHOD FOR THE DETERMINATION OF ANTIMONY	MILLER	KELLEY	09/30/93	03/30/94
C93-660	9076	SW-846:7841/GFAA METHOD FOR THE DETERMINATION OF THALLIUM	MILLER	KELLEY	09/30/93	03/30/94
C93-661	9076	SW-846:7841/GFAA ETHOD FOR THE DETERMINATION OF THALLIUM	MILLER	KELLEY	09/30/93	03/30/94
C93-662	9077	SW-846:7091/GFAA METHOD FOR THE DETERMINATION OF BERYLLIUM	MILLER	KELLEY	09/30/93	03/30/94
C93-663	9077	SW-846:7091/GFAA METHOD FOR THE DETERMINATION OF BERYLLIUM	MILLER	KELLEY	09/30/93	03/30/94
C93-664	9078	SW-846:7740/GFAA METHOD FOR THE DETERMINATION OF SELENIUM	MILLER	KELLEY	09/30/93	03/30/94
C93-665	9078	SW-846:7740/GFAA METHOD FOR THE DETERMINATION OF SELENIUM	MILLER	KELLEY	09/30/93	03/30/94
C93-666	9079	SW-846:7421/GFAA METHOD FOR THE DETERMINATION OF LEAD	MILLER	KELLEY	09/30/93	03/30/94
C93-667	9079	SW-846:7421/GFAA METHOD FOR THE DETERMINATION OF LEAD	MILLER	KELLEY	09/30/93	03/30/94
C93-668	9080	SW-846:7761/GFAA METHOD FOR THE DETERMINATION OF SILVER	MILLER	KELLEY	09/30/93	03/30/94
C93-669	9080	SW-8846:7761/GFAA METHOD FOR THE DETERMINATION OF SILVER	MILLER	KELLEY	09/30/93	03/30/94
C93-670	9081	SW-846:7191/GFAA METHOD FOR THE DETERMINATION OF CHROMIUM	MILLER	KELLEY	09/30/93	03/30/94
C93-671	9081	SW-846:7191/GFAA METHOD FOR THE DETERMINATION OF CHROMIUM	MILLER	KELLEY	09/30/93	03/30/94
C93-672	9095	CONDUCTIVITY OF WATER	MILLER	KELLEY	09/30/93	03/30/94
C93-673	9095	CONDUCTIVITY OF WATER	MILLER	KELLEY	09/30/93	03/30/94
C93-674	9096	DETERMINATION OF PURGEABLE ORGANIC HALIDES (POX) IN WATER SAMPLES	MILLER	KELLEY	09/30/93	03/30/94
C93-675	9096	DETERMINATION OF PURGEABLE ORGANIC HALIDES (POX) IN WATER SAMPLES	MILLER	KELLEY	09/30/93	03/30/94

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CIO.NO.	DOCUMENT AFFECTED	TITLE	DOC.OWNER	ASSIGNED.PA	EFFECTIVE DATE	EXPIRATION DATE
C93-676	9103	SW-846:7470,7471/COLD VAPOR TECHNIQUE FOR THE DETERMINATION OF MERCURY IN LIQUID, SOIL, AND SEDIMENT SAMPLES USING THE LEEMAN PS2000 AUTOMATED MERCURY ANALYZER	MILLER	KELLEY	09/30/93	03/30/94
C93-677	9103	SW846:7470,7471/COLD VAPOR TECHNIQUE FOR THE DETERMINATION OF MERCURY IN LIQUID, SOIL AND SEDIMENT SAMPLES USING THE LEEMAN PS2000 AUTOMATED MERCURY ANALYZER	MILLER	KELLEY	09/30/93	03/30/94
C93-678	9128	RADIOMETRIC PROCEDURE FOR THE DETERMINATION OF PLUTONIUM	MILLER	KELLEY	09/30/93	03/30/94
C93-679	9128	RADIOMETRIC PROCEDURE FOR THE DETERMINATION OF PLUTONIUM	MILLER	KELLEY	09/30/93	03/30/94
C93-680	9136	DETERMINATION OF URANIUM IN WATER: UA-3 LASER INDUCED PHOSPHORESCENCE METHOD	MILLER	KELLEY	09/30/93	03/30/94
C93-681	9136	DETERMINATION OF URANIUM IN WATER: UA-3 LASER INDUCED PHOSPHORESCENCE METHOD	MILLER	KELLEY	09/30/93	03/30/94
C93-682	9145	DETERMINATION OF FLUORIDE IN WASTEWATER, INCLUDING NPDES SAMPLES USING POTENTIOMETRIC, ION SELECTIVE ELECTRODE METHOD	MILLER	KELLEY	09/30/93	03/30/94
C93-683	9145	DETERMINATION OF FLUORIDE IN WASTEWATER, INCLUDING NPDES SAMPLES USING POTENTIOMETRIC, ION SELECTIVE ELECTRODE METHOD	MILLER	KELLEY	09/30/93	03/30/94
C93-685	9114	LABORATORY BUILDING EMERGENCIES	NEYER	MILLER	08/05/93	02/05/94
C93-686	9114	LABORATORY BUILDING EMERGENCIES	NEYER	MILLER	08/05/93	02/05/94
C93-687	52-S-0014	MANAGEMENT OF ANALYTICAL LABORATORY SERVICES DEPARTMENT OTHER SPECIAL MATERIALS	MILLER	KELLEY	10/21/93	04/21/94
C93-688	9106	DETERMINATION OF URANIUM IN URINE: FLUOROMETRIC FUSION METHOD	NEYER	MILLER	08/05/93	02/05/94
C93-689	9106	DETERMINATION OF URANIUM IN URINE: FLUOROMETRIC FUSION METHOD	NEYER	MILLER	08/05/93	02/05/94
C93-690	52-S-0008	HANDLING AND STORING CHEMICALS	MILLER	MILLER	08/05/93	02/05/94
C93-691	257-D-0002	CONTROL OF SPECIAL SOURCE MATERIALS FOR THE ANALYTICAL LABORATORY SERVICES DEPARTMENT	SUTTON	KELLEY	08/06/93	02/06/94
C93-692	9114	LABORATORY BUILDING EMERGENCIES	NEYER	KELLEY	08/05/93	02/05/94
C93-693	9114	LABORATORY BUILDING EMERGENCIES	NEYER	KELLEY	08/05/93	02/05/94
C93-694	ANL-01-0053	MANAGING HAZARDOUS WASTE SATELLITE ACCUMULATION AREAS IN ANALYTICAL LABORATORIES	NEYER	KELLEY	08/05/93	02/05/94
C93-695	ANL-01-0053	MANAGING HAZARDOUS WASTE SATELLITE ACCUMULATION AREAS IN ANALYTICAL LABORATORIES	NEYER	KELLEY	08/05/93	02/05/94

CIO.NO	DOCUMENT AFFECTED	TITLE	DOC.OWNER	ASSIGNED.PA	EFFECTIVE DATE	EXPIRATION DATE
C93-698	9106	DETERMINATION OF URANIUM IN URINE: FLUOROMETRIC FUSION METHOD	NEYER	DAUGHERTY	08/06/93	02/06/94
C93-699	ANL-01-0054	TRAINING AND QUALIFICATIONS OF ANALYSTS WITHING THE WMCO ANALYTICAL LABORATORIES	MILLER	KELLEY	08/17/93	02/17/94
C93-700	ANL-01-0054	TRAINING AND QUALIFICATIONS OF ANALYSTS WITHING THE WMCO ANALYTICAL LABORATORIES	MILLER	KELLEY	08/17/93	02/17/94
C93-701	ANL-01-0054	TRAINING AND QUALIFICATIONS OF ANALYSTS WITHING THE WMCO ANALYTICAL LABORATORIES	MILLER	KELLEY	08/17/93	02/17/94
C93-702	9114	LABORATORY BUILDING EMERGENCIES	MILLER	KELLEY	08/30/93	03/02/94
C93-703	256-S-0119	NEODYMIUM FLUORIDE MOUNTING PROCEDURE FOR ALPHA SPECTROMETRY	DANAHY	KELLEY	09/10/93	03/10/94
C93-704	N/A	DETERMINATION OF SOLUBLE URANIUM IN WATER: KINETIC PHOSPHORESCENCE ANALYSIS	DANAHY	KELLEY	09/14/93	03/14/94
C93-705	N/A	PREPARATION OF SOIL SAMPLES AND DETERMINATION OF PERCENT MOISTURE CONTENT USING A CONVENTIONAL OVEN DRYING PROCESS	MILLER	KELLEY	10/08/93	04/08/94
C93-706	9136	DETERMINATION OF URANIUM IN WATER: UA-3 LASER INDUCED PHOSPHORESCENCE METHOD	DANAHY	KELLEY	09/10/93	03/10/94
C93-707	9136	DETERMINATION OF URNIUM IN WATER: UA-3 LASER INDUCED PHOSPHORESCENCE METHOD	DANAHY	KELLEY	09/10/93	03/10/94
C93-708	9087	RADIOCHEMICAL DETERMINATION OF GROSS BETA PARTICLE ACTIVITY IN WATER - BIOASSAY LABORATORY	DANAHY	KELLEY	09/10/93	03/10/94
C93-710	ANL-45-0061	OPERATION OF NUCLEAR MEASUREMENTS CORPORATION (NMC) MODEL PC-5 PROPORTIONAL COUNTERS	DANAHY	CORLEANCA	09/10/93	03/10/94
C93-711	ANL-45-0061	OPERATION OF NUCLEAR MEASUREMENTS CORPORATION (NMC) MODEL PC-5 PROPORTIONAL COUNTERS	DANAHY	KELLEY	09/20/93	03/20/94
C93-712	52-S-0015	INSPECTION OF SAFETY SHOWER/EYEWASH STATIONS FOR THE ANALYTICAL LABORATORY SERVICES DEPARTMENT	MILLER	KELLEY	11/19/93	05/19/94
C93-713	52-S-0015	INSPECTION OF SAFETY SHOWER/EYEWASH STATIONS FOR THE ANALYTICAL LABORATORY SERVICES DEPARTMENT	MILLER	KELLEY	11/19/93	05/19/94
C93-715	OSH-P-34-006	OPERATION OF TENNELEC LB-1000 MANUAL ALPHA/BETA PROPORTIONAL COUNTER - CHEMISTRY LABORATORY APPLICATIONS	DANAHY	KELLEY	12/20/93	06/20/94
C93-718	OSH-P-34-006	OPERATION OF TENNELEC LB-1000 MANUAL ALPHA/BETA PROPORTIONAL COUNTER - CHEMISTRY LABORATORY APPLICATIONS	DANAHY	KELLEY	11/30/93	05/30/94
C93-719	OSH-P-34-006	OPERATION OF TENNELEC LB-1000 MANUAL ALPHA/BETA PROPORTIONAL	DANAHY	KELLEY	11/30/93	05/30/94

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CIO.NO.	DOCUMENT AFFECTED	TITLE	DOC.OWNER	ASSIGNED.PA	EFFECTIVE DATE	EXPIRATION DATE
		COUNTER - CHEMISTRY LABORATORY APPLICATIONS				
C93-720	OSH-P-34-006	OPERATION OF TENNELEC LB-1000 MANUAL ALPHA/BETA PROPORTIONAL COUNTER - CHEMISTRY LABORATORY APPLICATIONS	DANAHY	KELLEY	11/30/93	05/30/94
C93-721	OSH-P-34-006	OPERATION OF TENNELEC LB-1000 MANUAL ALPHA/BETA PROPORTIONAL COUNTER - CHEMISTRY LABORATORY APPLICATIONS	DANAHY	KELLEY	12/20/93	06/20/94
C93-722	52-S-0014	MANAGEMENT OF ANALYTICAL LABORATORY SERVICES DEPARTMENT OTHER SPECIAL MATERIALS	MILLER	KELLEY	09/20/93	03/20/94
C93-723	52-S-0014	MANAGEMENT OF ANALYTICAL LABORATORY SERVICES DEPARTMENT OTHER SPECIAL MATERIALS	MILLER	KELLEY	09/20/93	03/20/94
C93-724	52-S-0014	MANAGEMENT OF ANALYTICAL LABORATORY SERVICES DEPARTMENT OTHER SPECIAL MATERIALS	MILLER	KELLEY	09/20/93	03/20/94
C93-728	N/A	SAMPLE SCREENING AT THE ALS SAMPLE PROCESSING LABORATORY	MILLER	WEICHOLD	09/14/93	03/14/94
C93-730	20-C-620	90-DAY STORAGE AREA	BAILEY	FLASTER	12/29/93	06/29/94
C93-731	20-C-620	90-DAY STORAGE AREA	BAILEY	FLASTER	12/29/93	06/29/94
C93-732	20-C-620	90-DAY STORAGE AREA	BAILEY	FLASTER	12/29/93	06/29/94
C93-742	PO-S-04-007	RECOVERY WELL FIELD	PENNINGTON	FLASTER	01/04/94	07/04/94
C93-743	43-C-801	UTILITIES ENGINEERS	PENNINGTON	WEICHOLD	09/24/93	03/24/94
C93-744	9093	GRAVIMETRIC DETERMINATION OF AIRBORNE PARTICLES	DANAHY	KELLEY	11/22/93	05/22/94
C93-746	N/A	PREPARATION OF SOIL SAMPLES FOR ANALYSIS OF TOTAL AND ISOTOPIC URANIUM AND THORIUM BY ICP-MS	MILLER	KELLEY	10/29/93	04/29/94
C93-747	43-C-306	STORM SEWER LIFT STATION	PENNINGTON	FLASTER	11/17/93	05/17/94
C93-748	43-C-308	RESPONDING TO INDICATIONS OF OUT-OF-SPECIFICATION EXCURSIONS OF STORM SEWER WATER QUALITY	PENNINGTON	FLASTER	11/17/93	05/17/94
C93-749	43-C-326	STORMWATER RETENTION BASIN CONTROL SYSTEM OPERATION	PENNINGTON	FLASTER	11/17/93	05/17/94
C93-750	43-C-324	SAMPLING AND ANALYZING FEMP WATER SUPPLIES	PENNINGTON	FLASTER	11/17/93	05/17/94
C93-751	43-C-324	SAMPLING AND ANALYZING FEMP WATER SUPPLIES	PENNINGTON	FLASTER	12/08/93	06/08/94
C93-754	02-C-923	TRASH BAILER OPERATION	PETERS	WEICHOLD	01/11/94	07/11/94
C93-755	02-C-923	TRASH BAILER OPERATION	PETERS	WEICHOLD	01/11/94	07/11/94
C93-757	20-C-604	CONTROL AND UTILIZATION OF CONTAMINATED TRASH DUMPSTERS	WEST	WEICHOLD	01/11/94	07/11/94
C93-758	9114	LABORATORY BUILDING EMERGENCIES	MILLER	KELLEY	11/10/93	05/10/94
C93-759	9114	LABORATORY BUILDING EMERGENCIES	MILLER	KELLEY	11/10/93	05/10/94
C93-760	N/A	ANALYSIS OF SOIL SAMPLES FOR TOTAL AND ISOTOPIC URANIUM AND TOTAL THORIUM BY ICP-MS	MILLER	KELLEY	11/24/93	05/24/94

CIO.NO.	DOCUMENT AFFECTED	TITLE	DOC.OWNER	ASSIGNED.PA	EFFECTIVE DATE	EXPIRATION DATE
C93-761	N/A	SAMPLE SCHEDULING	MILLER	KELLEY	12/29/93	06/29/94
C93-762	N/A	PROCESSING SAMPLES WITHIN THE PILOT SAMPLE PROCESSING LABORATORY	MILLER	KELLEY	12/29/93	06/29/94
C93-763	N/A	DATA REVIEW & ASSEMBLY AND DATA VALIDATION	MILLER	KELLEY	12/29/93	06/29/94
C93-764	N/A	INORGANIC LABORATORY SAMPLE TRACKING & ANALYSIS	MILLER	KELLEY	12/29/93	06/29/94
C93-765	256-S-6010	DETERMINATION OF FLASH POINT BY AUTOMATED PENSKY-MARTINS CLOSED TESTER (HERZOG MODEL)	MILLER	ANGERT	01/18/94	07/18/94
C93-766	256-S-6010	DETERMINATION OF FLASH POINT BY AUTOMATED PENSKY-MARTINS CLOSED TESTER (HERZOG MODEL)	MILLER	ANGERT	01/18/94	07/18/94
C93-767	N/A	ANALYTICAL LABORATORY SERVICES DEPARTMENT RECORD BOOK STATION MAINTENANCE/DOCUMENT AWARENESS OR TRAINING PROCESS	SUTTON	ANGERT	01/21/94	07/21/94
C93-771	N/A	DETERMINATION OF TOTAL CONCENTRATION OF HEXAVALENT CHROMIUM IN SOLID WASTES - METHOD 3060/ALKALINE DIGESTION	MILLER	ANGERT	01/26/94	07/26/94
C94-001	02-C-923	TRASH BAILER OPERATION	PETERS	WEICHOLD	01/11/94	07/11/94
C94-002	20-C-604	CONTROL AND UTILIZATION OF CONTAMINATED TRASH DUMPSTERS	WEST	WEICHOLD	01/11/94	07/11/94
C94-003	N/A	THE DETERMINATION OF URANIUM BY FERROUS REDUCTION, TITRIMETRIC, POTENTIOMETRIC ENDPOINT METHOD - AUTOMATED	MILLER	ANGERT	01/24/94	07/24/94
C94-004	D10-02-003	CALCULATION OF CONFIDENCE LIMITS FOR QULITY CONTROL SAMPLES	TRUJILLO	WEICHOLD	01/25/94	07/25/94
C94-005	257-D-0003	SCQ ANALYTICAL METHOD AND PERFORMANCE CRITERIA	MILLER	ANGERT	01/24/94	07/24/94
C94-006	257-D-0003	SCQ ANALYTICAL METHOD AND PERFORMANCE CRITERIA	MILLER	ANGERT	01/18/94	07/18/94
C94-007	257-D-0003	SCQ ANALYTICAL METHOD AND PERFORMANCE CRITERIA	MILLER	ANGERT	01/26/94	07/26/94
C94-009	N/A	ADMINISTRATIVE REQUIREMENTS FOR REPAIR, CALIBRATION, AND PREVENTATIVE MAINTENANCE OF INSTRUMENTS AND EQUIPMENT IN THE ANALYTICAL LABORATORIES	SUTTON	ANGERT	01/20/94	07/20/94
C94-010	N/A	DISCREPANCY RESOLUTION FOR THE ANALYTICAL LABORATORY SERVICES DEPARTMENT	COLE	ANGERT	02/01/94	08/01/94
C94-011	N/A	INVOICE TRACING FOR OFF-SITE LABORATORY SERVICES CONTRACTS	COLE	ANGERT	02/01/94	08/01/94
C94-012	N/A	SAMPLE ANALYSIS PLANNING FOR THE SAMPLE MANAGEMENT OFFICE	COLE	ANGERT	02/01/94	08/01/94
C94-013	N/A	DETERMINATION OF TRIBUTYL PHOSPHATE (TBP), ACID SATURATION METHOD	MILLER	ANGERT	01/25/94	07/25/94
C94-014	N/A	THE AUTOMATED COLORIMETRIC DETERMINATION OF THORIUM	MILLER	ANGERT	01/26/94	07/26/94
C94-015	N/A	PROCESS OF DISPOSITIONING SAMPLES FROM THE ON-SITE LABORATORY TO THE KC-2 WAREHOUSE	COLE	ANGERT	02/01/94	08/01/94

CIO.NO	DOCUMENT AFFECTED	TITLE	DOC.OWNER	ASSIGNED.PA	EFFECTIVE DATE	EXPIRATION DATE
C94-016	256-S-2001	URANIUM ISOTOPIC ANALYSIS OF VARIOUS MATRICES BY THERMAL MASS SPECTROMETRY	DANAHY	ANGERT	01/28/94	07/28/94
C94-017	256-S-2001	URANIUM ISOTOPIC ANALYSIS OF VARIOUS MATRICES BY THERMAL MASS SPECTROMETRY	DANAHY	ANGERT	01/28/94	07/28/94

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DEVIATION AND CORRECTIVE ACTION REPORT PROCESSING

SSOP-0023

Effective Date: 10-13-93

AUTHORIZED BY: N. C. Kaufman, President — Date 10/12/93

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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

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RECORD OF ISSUE/REVISIONS

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

1.0 PURPOSE

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

2.0 SCOPE

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

3.0 DEFINITIONS

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

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

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

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

Deviation - A departure from specified requirements.

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

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

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

3.0 **DEFINITIONS** (cont.)

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

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

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

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

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

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

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

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

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

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

4.0 **RESPONSIBILITIES**

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

4.0 **RESPONSIBILITIES** (cont.)

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

Quality Assurance (QA) Division

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

Quality Control (QC) Department

- Performs inspections and acceptance tests.

Responsible Manager

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

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

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

4.0 **RESPONSIBILITIES** (cont.)

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

Quality Representative

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

5.0 **GENERAL**

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

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

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

DR AND CAR FLOW CHART

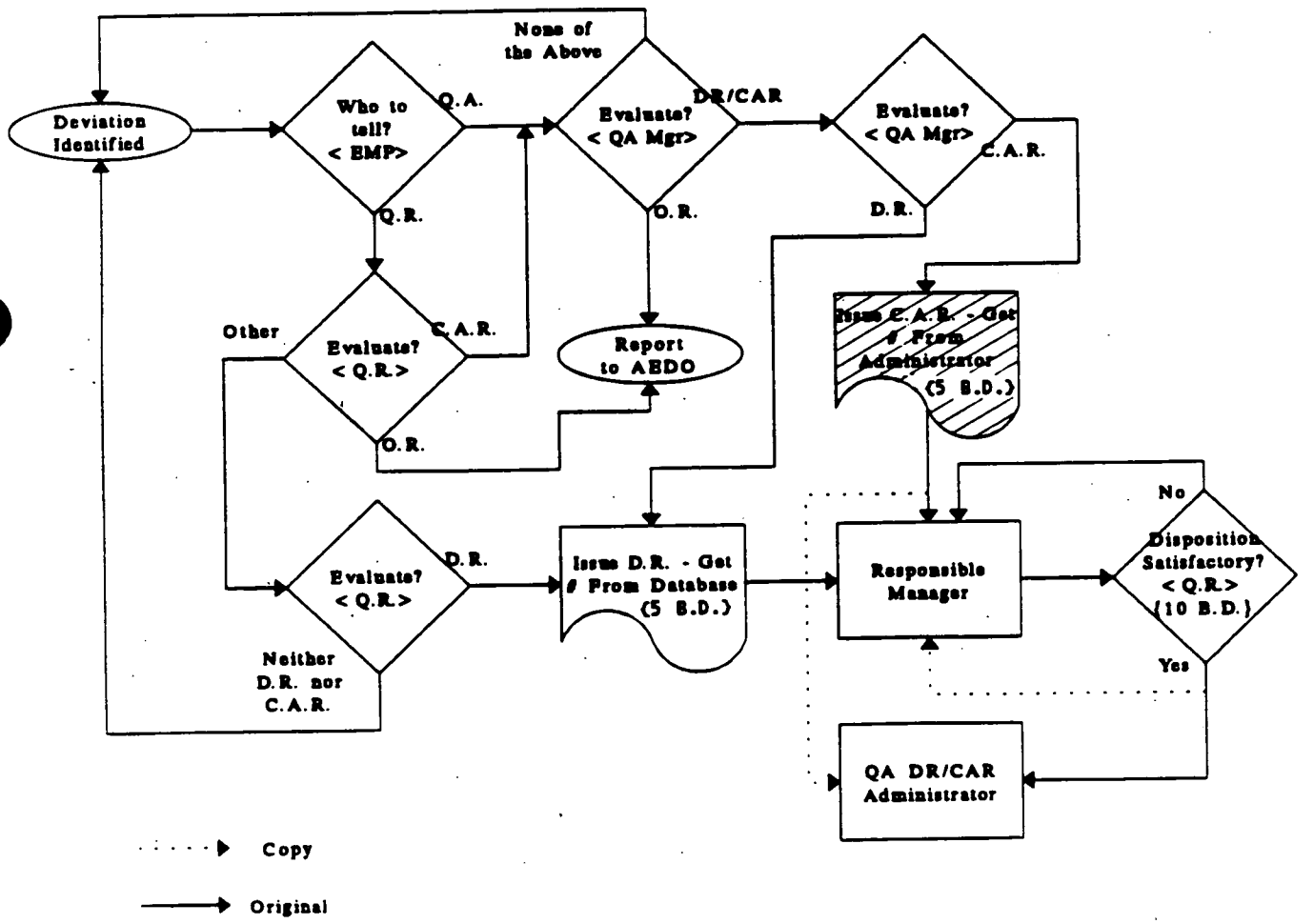

Figure 1 - DR and CAR Flow Chart

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FERMCO EXTERNAL AUDIT FLOW

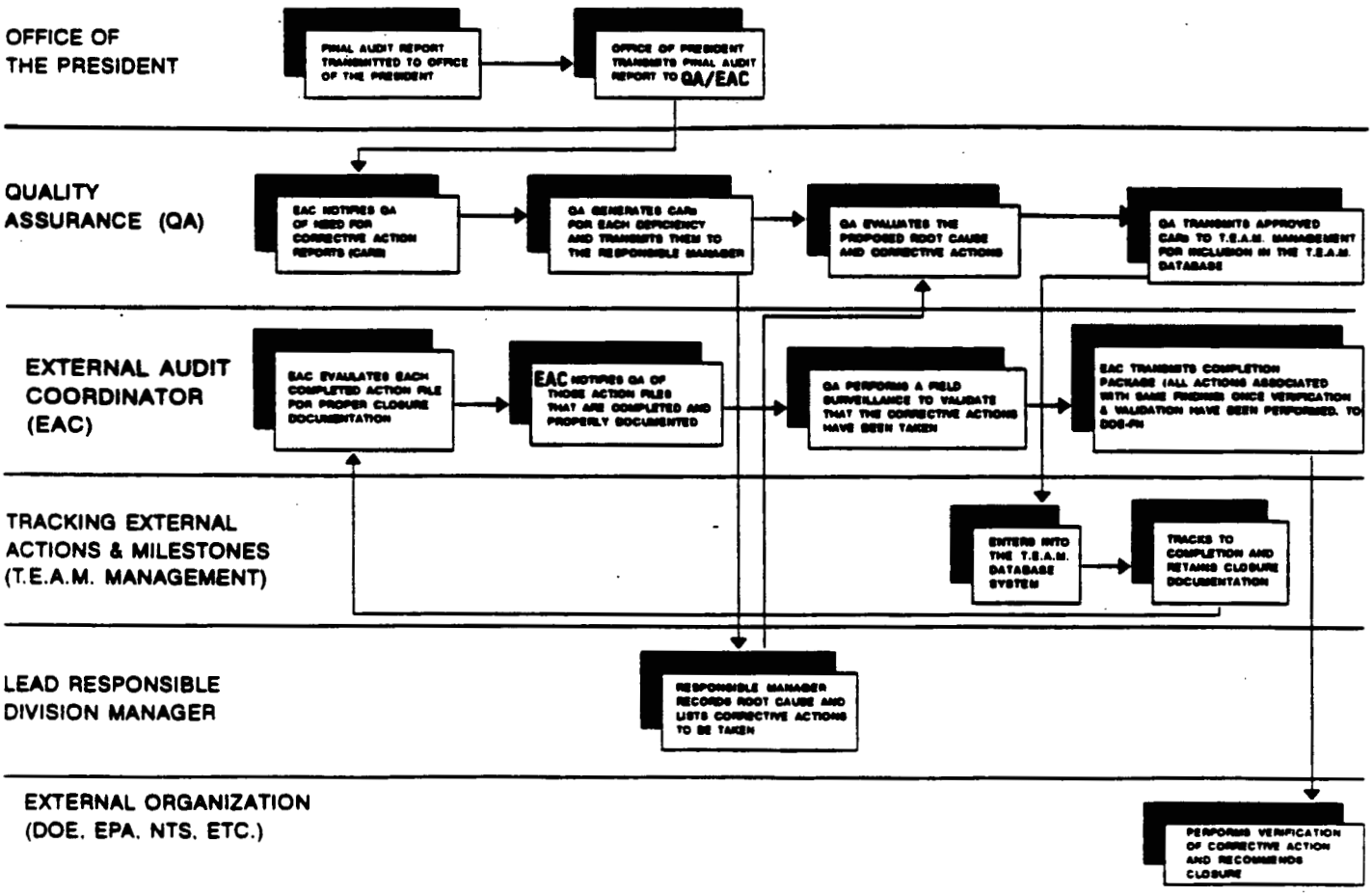

Figure 2 - FERMCO External Audit Flow

6.0 PREREQUISITES

6.1 INDUSTRIAL SAFETY AND HEALTH REQUIREMENTS

None

6.2 PERSONNEL REQUIREMENTS

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

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

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

7.0 PROCEDURE

7.1 PROCESSING DEVIATION REPORTS AND CORRECTIVE ACTION REPORTS

ALL EMPLOYEES

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

QUALITY ASSURANCE/QUALITY CONTROL

2. Cite reason for the deviation.

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

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

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

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

DR NUMBER:	REVISION:

SECTION 1

DATE DISCOVERED:	RESPONSIBLE ORGANIZATION:
RESPONSIBLE MANAGER:	
ACTIVITY:	LOCATION:

SECTION 2

REQUIREMENTS:

DEVIATION:

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

SECTION 3 - RESPONSE TO THE REQUEST FOR DISPOSITION

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

ACCEPT-AS-IS/REPAIR JUSTIFICATION:

SCHEDULED COMPLETION DATE(S):

RESPONSIBLE MANAGER:	DATE:

SECTION 4 - EVALUATION OF DISPOSITION RESPONSE

EVALUATOR/QUALITY REP:	DATE:

SECTION 5 - COMPLETION OF DISPOSITION ACTION

RESPONSIBLE MANAGER	DATE

SECTION 6 - VERIFICATION OF DISPOSITION ACTION

QUALITY REPRESENTATIVE:	DATE

VERIFICATION ACTION

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Figure 3 - Deviation Report (Sheet 1 of 2)

PREPARER - COMPLETE SECTION 1 AND 2 AS FOLLOWS:	
ITEM	**INSTRUCTIONS**
DATE DISCOVERED	Enter date that deviation was discovered.
RESPONSIBLE ORGANIZATION	Enter the organization responsible for the item or activity in which a deviation is discovered.
RESPONSIBLE ORGANIZATION'S REPRESENTATIVE	Enter name of the representative responsible for disposition/corrective action.
ACTIVITY	Enter activity performed. (i.e., Audit IB9-1)
LOCATION	Enter location of the activity (i.e., Plant 6)
REQUIREMENTS	Enter the procedure, instruction, standard, or code which establishes the acceptance criteria for the activity or item being evaluated.
DEVIATION	Describe the deviation as it relates to the requirements.
VERBALLY NOTIFIED MANAGEMENT	Enter the date that the responsible organization's management was verbally notified of the deviation.
PREPARED BY	Sign and date (Section 2).

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

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

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

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

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

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Figure 3 - Deviation Report (Sheet 2 of 2)

CAR NUMBER:	REVISION:

SECTION 1

DATE DISCOVERED:	RESPONSIBLE ORGANIZATION:
RESPONSIBLE ORGANIZATION REPRESENTATIVE:	
ACTIVITY:	LOCATION:

SECTION 2

REQUIREMENTS:

DEVIATION:

VERBALLY NOTIFIED MANAGEMENT:	PREPARED BY:	DATE:
PROVIDE DISPOSITION BY:	EVALUATING QA MANAGER:	DATE:

SECTION 3 - RESPONSE TO THE REQUEST FOR CORRECTIVE ACTION

A. REASON FOR THE DEVIATION (ROOT CAUSE):

B. ACTION TAKEN/PROPOSED TO INVESTIGATE SIMILAR WORK:

C. ACTION TAKEN TO PREVENT RECURRENCE:

D. DATE(S) ACTION(S) WILL BE COMPLETE:

RESPONSIBLE ORGANIZATION REPRESENTATIVE:	DATE:

SECTION 4 - EVALUATION OF CORRECTIVE ACTION RESPONSE

QA EVALUATOR	DATE:
EVALUATING QA MANAGER	DATE:

SECTION 5 - COMPLETION OF CORRECTIVE ACTION

RESPONSIBLE ORGANIZATION REPRESENTATIVE:	DATE:

SECTION 6 - VERIFICATION OF CORRECTIVE ACTION COMPLETION

QA EVALUATOR	DATE:
VERIFICATION ACTION	
CAR CLOSED QA MANAGER	DATE:

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

EVALUATOR - COMPLETE SECTION 1 AND 2 AS FOLLOWS	
ITEM	INSTRUCTIONS
DATE DISCOVERED	Enter date that corrective action was discovered to be required.
RESPONSIBLE ORGANIZATION	Enter the organization responsible for the item or activity in which a corrective action is required.
RESPONSIBLE ORGANIZATION'S REPRESENTATIVE	Enter name of the manager responsible for corrective action.
ACTIVITY	Enter activity performed. (i.e., Audit I89-1)
LOCATION	Enter the location of the activity (i.e., Plant 8)
REQUIREMENTS	Enter the procedure, instruction, standard, or code which establishes the acceptance criteria.
DEVIATION	Describe the deviation as it relates to the requirements.
VERBALLY NOTIFIED MANAGEMENT	Enter the date that the responsible manager was verbally notified of the potential deviation.
CAR NO.	Enter the CAR Number on the CAR Form.
REVISION	Enter the current revision number.
PROVIDE DISPOSITION BY DATE	Enter the date the disposition action outline is due.
EVALUATOR	Sign and date (Section 2).
EVALUATING MANAGER	Obtain QA Manager's signature.

RESPONSIBLE ORGANIZATION REPRESENTATIVE - COMPLETE SECTION 3 AS FOLLOWS:	
A. REASON FOR THE DEVIATION (ROOT CAUSE)	Enter the underlying (root) cause of the problem.
B. ACTION TAKEN/PROPOSED TO INVESTIGATE AND CORRECT SIMILAR WORK	Enter the proposed action and schedule.
C. ACTION TAKEN TO PREVENT RECURRENCE	Enter the action taken to correct the root cause and prevent recurrence of the problem.
D. DATE(S) ACTION(S) WILL BE COMPLETE	Enter the scheduled completion date for corrective action.

EVALUATOR - COMPLETE SECTION 4 AS FOLLOWS:
Evaluate the proposed corrective action to determine its adequacy for solving the problem identified in the deviation report.
Document acceptance of the proposed corrective action in Block 4 by signature and date.
Notify the organization responsible for corrective action of the rejection of the proposed corrective action and coordinate with the organization to obtain a revised response.
RESPONSIBLE ORGANIZATION REPRESENTATIVE - COMPLETE SECTION 5 AS FOLLOWS:
Sign to signify acceptance of corrective action.
EVALUATOR - COMPLETE SECTION 6 AS FOLLOWS:
Verify that the actions taken to correct the deviation have been completed satisfactorily.
Approve acceptance of verified corrective action in Section 6 by signature and date. Enter the verification action performed.
Ensure the removal of nonconforming item tag(s) only after verifying satisfactory completion of all disposition actions.
Forward the closed out CAR to Commitment Control with a copy to the responsible organization management.

FS-F-2809-1 (REV. 5/7/92)

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

7.1 PROCESSING DEVIATION REPORTS AND CORRECTIVE ACTION REPORTS

QUALITY ASSURANCE/QUALITY CONTROL

<u>or</u>

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

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

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

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

6. Obtain the following information:

   a. A unique DR number from DR database

   <u>or</u>

QUALITY ASSURANCE MANAGER

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

QUALITY ASSURANCE/QUALITY CONTROL

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

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

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

10. Distribute DR or CAR as follows:

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

RESPONSIBLE MANAGER

11. Evaluate CAR to determine the root cause.

12. Determine the following:

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

7.1 PROCESSING DEVIATION REPORTS AND CORRECTIVE ACTION REPORTS

RESPONSIBLE MANAGER

b. CAR corrective action for QA Managerial approval.

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

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

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

QUALITY ASSURANCE/QUALITY CONTROL

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

QUALITY REPRESENTATIVE AND RESPONSIBLE MANAGER

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

QUALITY ASSURANCE/QUALITY CONTROL

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

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

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

        (2) Forward the original copy to Responsible Manager.

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

        (1) Notify Responsible Manager in writing.

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

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

ADMINISTRATOR OF DEVIATION AND CORRECTIVE ACTION REPORTS

        (4) File original revision with QA records.

RESPONSIBLE MANAGER

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

7.1 PROCESSING DEVIATION REPORTS AND CORRECTIVE ACTION REPORTS

RESPONSIBLE MANAGER

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

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

QUALITY ASSURANCE/QUALITY CONTROL

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

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

    <u>or</u>

    b. Corrective action has been completed.

QUALITY ASSURANCE/QUALITY CONTROL AND RESPONSIBLE MANAGER

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

QUALITY ASSURANCE/QUALITY CONTROL

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

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

26. Forward the following information to the correct individuals:

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

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

ADMINISTRATOR OF DEVIATION AND CORRECTIVE ACTION REPORTS

27. Perform final check for completeness and accuracy.

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

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

QUALITY ASSURANCE/QUALITY CONTROL

30. Ensure nonconformance tags are removed.

31. Release items from hold status, where applicable.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- RM-0012, "Quality Assurance Program Description"

8.2 REFERENCES

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

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TRAINING DEPARTMENT

PROGRAM MANUAL

RM-0002

Effective Date: 01-19-94

AUTHORIZED BY: E. E. Zobrist, Vice President Administration 1/19/94 Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION
P. O. Box 398704
Cincinnati, Ohio 45239-8704

TRAINING DEPARTMENT PROGRAM MANUAL DESCRIPTION

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
01-19-94	0	Program manual required for sitewide training by the Training Department, action initiated by J. T. Merwin per Request S94-004. This document replaces RM-FMPC-0002, "Centralized Training Program Manual", dated 01-29-91, Rev. 0.

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SECTION 1
PURPOSE AND SCOPE

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1.0 PURPOSE

All Training Programs developed and implemented at the Fernald site shall be systematic, regardless of size, hazard classification, or complexity. This means training programs shall be:

Job Based. Training centered on the job the person has to perform, (i.e., the tasks he/she is expected to carry out and the criteria for a job well done).

Logically Connected. Every part of the program (every lesson and lesson plan) must be logically tied to every other part, in such a way that the one receiving the training really learns.

Tracked. After training requirements and a logical plan are defined, a system to track all parts of the program must be established.

Evaluated. All training programs shall be evaluated to ensure corrective actions and continuous improvement.

This manual establishes requirements for all personnel involved in the development and delivery of training at the Fernald Environmental Management Project (FEMP).

2.0 SCOPE

2.1 This manual establishes requirements for all personnel in the analysis, design, development, and implementation of Performance Based Training (PBT) at the FEMP. The intent of this manual is to facilitate delivery of training in a systematic manner.

2.2 The contents of this manual will apply to all training developed and implemented at the FEMP.

2.3 The requirements in this manual apply to all FEMP personnel.

2.4 Implementation details are prescribed in Training Department Procedures (TRs) and shall be followed by all FEMP department personnel.

3.0 MANUAL REVIEW AND REVISION

3.1 This manual will undergo review biennially by the Training Department to assure that its content is consistent with Fernald Environmental Restoration Management Corporation (FERMCO) and DOE requirements.

4.0 COMPLIANCE

4.1 FERMCO subcontractors hired to develop training programs for FERMCO shall comply with all requirements of this manual.

4.2 This manual is the authorized means for establishing training requirements for FERMCO Training.

5.0 DEFINITIONS

The following definitions will apply to the terms as they are used throughout each section:

5.1 ANALYSIS: Identifies training requirements for a specific job and task.

5.2 CHAR(S): Abbreviation for the number of characters to describe a training program field in the Training Records System.

5.3 COURSE FILES: Records which document the progress of an employee through qualification/requalification programs. These may include tests, oral examination records, qualification cards, and other documents deemed necessary to establish the qualification/requalification of an employee.

5.4 DESIGN: Training objectives and training/evaluation standards are developed based on the information gathered during analysis to provide guidance for training, development, and implementation.

5.5 DEVELOPMENT: The development of lesson plans and guides, training aids, and student materials.

5.6 ELECTRONIC RECORDS/BACKUP RECORDS: Electronic media records maintained by the Training Department to provide efficient maintenance of training records or usable data. These records provide a backup source for hard copy employee records and course files in accordance with the Privacy Act of 1974.

5.7 EMPLOYEE RECORDS - HARD COPY: These are completed records which provide documented proof of an employee's capacity to perform their job in a safe and correct manner. The records may include completed qualification cards, training performance evaluations, and course final examinations where applicable.

5.8 EVALUATION: The process which provides the feedback to ensure the training is current and reflects the current task.

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5.0 DEFINITIONS (Cont.)

5.9 EXCEPTION: A release from training requirements as authorized by DOE Orders and Training Department Procedures.

5.10 IMPLEMENTATION: Activities related to the actual conduct of training, as well as resource allocation, planning and scheduling.

5.11 MINIMUM STANDARD FOR EMPLOYEE PERFORMANCE: The minimum standards for employee performance in training are those set by job performance measures as defined by task analysis of the position. Employees qualifying or requalifying for a job position must meet these minimum standards to ensure the safe and effective performance of position tasks.

5.12 MINIMUM STANDARDS FOR TRAINING PROGRAM/ACTIVITIES: The content and design of training programs and/or training activities must be such which enables a new or retrained employee to meet those job performance measures applying to the job.

5.13 QUALIFICATION: The combination of an employee's experience; physical attributes; technical, academic, and supervisory knowledge and skills developed through training, education, and demonstrated on-the-job performance.

5.14 SAT: A systematic approach to training based upon tasks and the related knowledge and skills required for competent job performance.

5.15 TRAINING: Any activity for which an employee is required to attend to qualify, requalify, or enhance their ability to perform their job duties and tasks.

5.16 TRAINING ACTIVITY: Any method of delivering instruction through any setting such as classroom, on-the-job training, seminars, symposiums, briefings, or any other format considered appropriate by the Training Department to train others.

5.17 TRAINING PROGRAM: A planned and organized sequence of training activities designed to prepare employees to perform their jobs, meet specific position or classification needs and to maintain or improve their performance on the job.

SECTION 2

TRAINING DEVELOPMENT PROCESS

1.0 PURPOSE

This section establishes the Systematic Approach to Training (SAT) model as the training development process for FERMCO and contractors at the FEMP.

2.0 SCOPE

Performance Based Training is implemented through a Systematic Approach to Training (SAT) process which is the five step process described in 3.1.1 through 3.1.5. Although the five steps are important, the process and what happens in each step is more important. The process must be a logical one with the fundamental elements being key, (i.e., keep it job based, track it and evaluate it). To accomplish this, Line and Training Management are expected and charged with making logical decisions by staying involved in the process.

3.0 SYSTEMATIC APPROACH TO TRAINING

3.1 All training programs developed and implemented for training of employees and contractors performing work at the FEMP shall undergo the five step Systematic Approach to Training process. Latitude is given to apply this process in ways in which it may look like only four or even three steps have been employed. This means that the process is a graded approach modified to match the reality of the training requirement.

1. Step I: Analysis

The Analysis begins with a determination of the training needed for specific job positions. These needs are analyzed using job and/or task analysis which define and select tasks and aptitudes required for proper job performance. The selected tasks are analyzed to determine the skills and knowledge necessary for successful job performance. Training requirements, identified during analysis, are used to design and develop processes which ensure that required content is included in the training.

3.0 SYSTEMATIC APPROACH TO TRAINING (Cont.)

2. Step II: Design

During design, job performance measurements are developed. Learning objectives are developed to define competencies that employees are expected to master during training. Training settings and sequences are determined and tests developed. Design activities are concluded by identifying employee entry-level skills, knowledge and, when necessary, preparing a training plan. Design outputs become specifications for the development step.

3. Step III: Development

During the development step, instructor and employee learning activities are defined. Appropriate instructional outlines and lesson plans are selected or produced as required. The resulting course(s) are reviewed for technical accuracy, piloted with a group of employees, and revised as necessary. Performance-based training results from completing Step III.

4. Step IV: Implementation

The training is implemented during this step. Instructors are trained, employees are selected for training, schedules are developed and training is conducted. Classroom training, on-the-job training and other training methods defined during development are used to achieve training objectives. Employees are required to demonstrate mastery of learning objectives. Instructor performance is also evaluated. Effective implementation produces employees capable of adequately performing their jobs.

5. Step V: Evaluation

Evaluation is used to measure effectiveness and provide feedback for ongoing improvements of training programs. This is accomplished by monitoring job performance and reviewing reports. Plant modifications, procedure changes, industry events and regulatory developments are monitored to identify training implications. Specifically, training is evaluated using the following criteria: adequacies with respect to content, testing, presentation, documentation, and on-the-job performance.

SECTION 3

ORGANIZATION AND RESPONSIBILITIES
TRAINING DEPARTMENT SECTION

1.0 PURPOSE

The purpose of this section is to define the Training Department and its roles and relationships, internally and externally.

2.0 ORGANIZATION

FERMCO Training Department shall perform the training function in support of the goals and objectives of the FEMP.

To enable the Manager of the Training Department (Training Manager) to carry out the responsibility of training, staff members have been assigned functions to ensure the delivery of an effective training program which will support safe and efficient operations of the FEMP in accordance with FMPC-102, Training. These functions may vary at the discretion of the Training Manager to ensure support of goals and objectives is achievable.

3.0 RESPONSIBILITIES

3.1 Responsibilities for Line and Training Management are defined in FMPC-102.

SECTION 4

TRAINING STAFF SELECTION AND QUALIFICATIONS

1.0 PURPOSE

The quality of training is largely dependent upon the qualifications of the people selected to direct, develop, and deliver training. The purpose of this section is to define selection criteria and minimum qualifications of the staff.

2.0 SCOPE

This section specifies the general selection criteria, minimum qualifications, and functions of persons who hold training positions within the FERMCO Training Department. Positions which fall within the training function are as follows: Training Manager, Training Instructor, and On-the-Job Training Instructor.

3.0 SELECTION CRITERIA FOR TRAINING STAFF

3.1 QUALIFICATIONS BY JOB POSITION

The Manager of the Training Department shall determine the minimum qualifications of the training staff.

Guidance for the setting of minimum qualifications of training staff members shall be per DOE Order 5480.20, Guidelines for Evaluating DOE Non-Reactor Facility Training Programs.

3.2 Education

The minimum education requirement for Instructors and On-the-Job Training (OJT) instructors is a high school diploma and special education or equivalent experience consistent with the training program being presented. The Training Manager shall determine the education requirements of other training staff positions.

3.3 Experience

Training personnel shall have experience consistent with the minimum qualifications established for the position as described in the position job description.

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3.0 SELECTION CRITERIA FOR TRAINING STAFF (Cont.)

3.4 Training

1. Persons who instruct specific plant qualification subjects such as operating procedures, operations or process controls shall be experienced or have received training as specified by the Training Manager and responsible line manager(s).

2. Instructor training courses shall be developed, delivered, and maintained by the Training Department to provide instructors with appropriate instructional techniques.

3. Instructor and training staff development programs shall be developed to provide continued training and maintenance of their qualifications.

4.0 QUALIFICATIONS BY JOB POSITION

4.1 Instructor Qualifications

Minimum qualifications for individuals to perform duties of training program development and training as an Instructor are:

1. Selection by cognizant manager.

2. Successful completion of Instructor training course(s) as defined by the Training Manager.

3. Education and experience requirements.

4.2 On-the-Job Training Instructor

Minimum qualifications for individuals who train and verify on-the-job training (OJT) are:

1. Qualification in the technical areas for which they train others.

2. Successful completion of the OJT Instructor training course(s).

3. Education and experience requirements.

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4.3 Visiting Instructor/Subject Matter Expert Instructor

Some visiting instructors or individuals who are considered experts in the subject matter being presented during a formal training session may be tasked by a responsible line manager or the Training Manager to instruct the training activity. This SME need not be a qualified instructor to conduct the training as their primary responsibilities are not as a training instructor. A qualified instructor should attend the first presentation of the SME Instructor and subsequently, as required. A qualified instructor must sign the roster for submittal into training records. This qualified instructor is responsible for the conduct of the training presented by the SME instructor. (Only persons who infrequently conduct training instruction can be considered SME Instructors).

4.4 Other Training Staff Positions

The Manager of the Training Department shall determine minimum qualifications for positions deemed necessary to direct, develop, deliver, and support training goals and objectives.

5.0 CONTINUING TRAINING

Each instructor assigned responsibilities for the conduct of training shall participate in continuing training. This training includes: technical training in the employee's area of expertise, professional instructional topics, and other areas deemed appropriate by management.

6.0 RECORDS

Records documenting all qualifications, certifications, training, and retraining of ALL training staff and training instructors will be maintained by the Training Manager or designee.

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SECTION 5

TRAINING SCHEDULING

1.0 PURPOSE

The primary concern of the management and employees of FERMCO is the safe and efficient operation of the facility. Therefore, training shall be scheduled in a manner to avoid unnecessary interference with operations.

2.0 SCOPE

This section is applicable to any training activity that is delivered to FERMCO employees, contractors, or visitors.

3.0 REQUIREMENTS

3.1 The Training Coordinator of each department, appointed by their department manager, is responsible for the coordination and execution of this training manual and scheduling of employees within their area of assignment/responsibility.

The Department Training Coordinator shall:

1. Maintain a training schedule.

2. Coordinate with appropriate supervisor and/or manager to establish priorities for training activities.

3. Communicate scheduling information to the Training Department in time to allow for staffing of the training activities, resolving conflicts, and coordinating communications among individuals.

4. Keep Training informed of any changes made to the training schedule.

5. Coordinate with the Training Department to produce the most effective scheduling of employees, facilities, and timing of training.

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4.0 MANPOWER

4.1 The Training Department shall designate an individual or individuals to be responsible for the execution of Training Schedules who shall:

1. Schedule facilities and/or work locations as training sites.
2. Resolve conflicts related to scheduling.
3. Notify Department Training Coordinators on issues in a timely manner.
4. Keep the Training Schedule current.

4.2 The Training Schedule shall include:

1. Training subject/course scheduled.
2. Dates and times of training activities.
3. Training facilities or work locations used.

5.0 EMPLOYEE SCHEDULING

5.1 Employees will be provided with their training schedule in time to adjust their work schedule and resolve any scheduling difficulties that can be anticipated.

5.2 First level managers shall ensure employees attend scheduled training.

5.3 Employees shall attend scheduled training.

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SECTION 6

DOCUMENTATION OF TRAINING ACTIVITIES

1.0 PURPOSE

The purpose of this section is to state the requirements for the documentation of training activities maintained by FERMCO Training Records System.

2.0 SCOPE

This section is applicable to all training activities, including qualification/requalification and documentation thereof.

3.0 REQUIREMENTS

3.1 General Requirements

1. All training activities for which the Training Department is responsible shall be documented according to the requirements of this section.

2. All training activities delivered by other FERMCO groups which are related to the job qualification or requalification of employees shall be documented according to the requirements of this section and Training Department Procedures.

3. All training activities delivered by Contracted groups which are related to the job qualification or requalification of employees should be documented according to the requirements of this section and Training Department Procedures.

4. Supervisor training shall be documented as required by this section.

5. Records, as defined in Section 8, shall be maintained by the Training Department to document training activities according to training requirements.

6. It is the responsibility of the Training Department to maintain records of each training activity and provide verification of the documentation requirements of this section.

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3.0 REQUIREMENTS (Cont.)

3.2 Documentation Requirements

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1. All training courses shall be in the form of an instructional outline storable as a hard copy record.

2. Instructional outlines shall contain:

   1. Evidence that an analysis was performed and job performance measures defined.

   2. Learning and performance objectives to be achieved by the training.

   3. Method(s) of instruction.

   4. Sequence of instruction.

   5. Training aids and devices.

   6. Prerequisites for employees (if applicable).

3. Contracted Instructional Materials

   Whenever possible, contracted training should be documented as described in section 3.2.2 above. If this documentation is not available or if the expense to obtain these materials is exorbitant, the Training Manager will be able to reduce the documentation requirements as needed.

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SECTION 7

EMPLOYEE ATTENDANCE

1.0 PURPOSE

The purpose of this section is to ensure documentation of training activity attendance as part of the permanent record of each employee.

2.0 SCOPE

All attendance records of employees related to training, including job qualification training and personal development, fall within the scope of this section.

3.0 REQUIREMENTS

3.1 It is mandatory that employee training attendance records be maintained as a permanent record.

3.2 Classroom Training

1. An attendance record shall be maintained on all employees enrolled in training activities.

2. A record of attendance for employees shall be maintained in their training file. Note: This may be an electronic or hard copy media.

3.3 On-the-Job Training

1. OJT training documentation for the employee will serve as an attendance record for that employee. Sign-off by the OJT Instructor is required for the verification of attendance and proof of successful achievement of the training.

3.4 Off-Site or Vendor Training

1. Attendance records for off-site training which is required for qualification/requalification for a job position shall be the same as for on-site training.

3.4 Off-Site or Vendor Training (Cont.)

2. Attendance records for training delivered by a vendor, on-site or off-site, which are required for qualification/requalification for a job position shall be the same as required of FERMCO training. If the proper information is not supplied by the vendor, the affected group will be required to generate a correct attendance record for the training received.

3.5 Attendance Records

1. Attendance records shall consist of:

    1. Name(s) of student(s)
    2. Student badge number
    3. Name of training activity
    4. Date(s) of training
    5. Signature of student(s)
    6. Signature of instructor(s)
    7. Name of instructor
    8. Course hours
    9. Contractor (company name)(other than FERMCO employees)

3.6 The Training Records Management System (TRMS) is a computerized system operated and controlled by Training Records.

1. Managers and Training Coordinators shall have access to this system to enhance verification of employee training.

3.7 A hard copy (paper) file shall be maintained by the Training Department to provide support to the TRMS as described in section 3.2.2 above.

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SECTION 8

EMPLOYEE TRAINING RECORDS

1.0 PURPOSE

This section describes the requirements and specific procedures for preparation, control, and disposition of employee training records.

2.0 SCOPE

This section applies to all training records for employees.

3.0 COURSE FILES

3.1 Training Records is responsible for the control, maintenance, and administration of course files for each employee enrolled in a training course related to their performance on the job.

3.2 Course Files Security

To protect the integrity and privacy of course files, the following shall be observed:

1. Course files shall be maintained in locations that can be locked and are accessible only to those authorized access.

2. Course files shall be removed from the storage area by authorized employees and only with the approval of Training.

3. Information in a course file shall be made available only to the employee, authorized training staff, and the employee's line management. Any other access will be granted only by permission of Training Records.

3. An employee will be permitted to read their own file. The training staff person or persons shall provide guidance on the meaning of the records and ensure that the records remain unchanged.

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3.0 COURSE FILES (Cont.)

3.3 Content of Course Files

1. The Training Manager shall specify the content of course files beyond the content listed in this section.

2. The following items may be included, as applicable:

   1. Documents verifying examination requirements

   2. Work location evaluation records including final walk-through evaluations

   3. Qualification records

   4. Requalification records

   5. Qualification signature record cards

   6. Required safety training records

   Those listed items which are not available when the course file is prepared shall be added as they become available.

3. Following completion of the course, only those records verifying employee performance in the course will be forwarded to Training to become part of the permanent training record of the employee training.

3.4 Audits

The Course Files will be periodically reviewed by Training, Quality Assurance, and appropriate management to ensure completeness and accuracy.

4.0 EMPLOYEE RECORDS

4.1 Employee Records shall be maintained in individual employee training files for the duration of employment and following termination, as required.

5.0 EMPLOYEE RECORDS CORRECTIONS

5.1 There shall be no erasures or write-overs in an employee's records.

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6.0 REQUIREMENTS

6.1 Storing and Maintenance of Training Records

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Training Records shall develop a procedure for the maintenance, storage, retrieval, and security of course files, employee records, and electronic media record/backup files. The procedure shall address such issues as:

1. Right of privacy of the employee.

2. Proof of qualification/requalification of employee which need to be supported by training documentation.

3. Integrity of the records.

4. Procedures for the control of records.

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SECTION 9

LESSON PLANS AND TRAINING PLANS

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1.0 PURPOSE

The purpose of this section is to provide requirements and guidelines for lesson plan and training plan design.

2.0 SCOPE

All qualification and requalification training activities delivered by FERMCO or contractor personnel who provide training to FEMP employees shall have lesson plans and training plans, as applicable, subject to the requirements contained in this section.

3.0 REQUIREMENTS

3.1 The Training Manager shall make final approval of all lesson plans and training plans used to train FERMCO employees.

3.2 Master document of lesson plans and training plans will be maintained by Training.

1. Approved or revised lesson plans and training plans will be filed as a master document on completion of the revision and approval process.

2. Instructors may modify lesson plans to fit individual teaching styles, but any alteration of enabling or terminal objectives will require review and approval by the Training Manager.

3. Each Training Instructor is responsible for review of all updated lesson plans and training plans within their area of responsibility prior to instructing.

   1. All revisions shall be submitted to the Training Manager for approval.

   2. Lesson plans shall be reviewed periodically to ensure their consistency to job related training.

3.3 A working copy of each lesson plan and/or training plan may be maintained by the responsible training instructor.

3.4 All lesson plans may be subject to a tryout (dry-run) and evaluation before use with employees in training.

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3.0 REQUIREMENTS (Cont.)

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3.5 Training Records shall maintain an appropriate system of accountability that controls lesson plans and/or training plans so that only current and approved lesson plans are available.

3.6 Any lesson plan's content used in qualification/requalification training will be traceable to objectives derived from the analysis.

3.7 All lesson plans shall contain the following elements:

1. Coversheet elements for lesson plan content.

    1. Course/training activity title

    2. Lesson title and lesson plan number

    3. Developer

    4. Date and revision

    5. Required training aids and support equipment

    6. References used for developing the lesson plan

    7. Signature blocks for approval

2. A following second page listing:

    1. Amount of time allowed for lesson

    2. Prerequisites for entrance into training

    3. Terminal and enabling objectives that tell the employee what will be expected

3. The final element of the lesson plan shall be a lesson guide which gives attention to the content of the lesson plan and instructional strategy. The lesson guide shall consist of:

    1. Overview of the lesson (objectives)

    2. Motivational strategy to encourage employees

    3. Transition into the content of the lesson

    4. Instructor and class activities

    5. Summary of training content and review of objectives

    6. Closure to reinforce why the employee is attending training

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4.0 SUPPLEMENTAL INFORMATION

4.1 Lesson plans are used by the instructor as a primary training tool to guide the learning process and are the culmination of previous design and development activities. They are not considered training materials, but rather the controlling document for the use of training materials. Lesson plans ensure:

1. That the required objectives are covered.

2. An approved, workable plan of presenting the subject matter material logically and completely.

3. Consistency in the training of personnel and that the qualification standards are adequately covered.

4.2 The Training Plan, if necessary, provides a plan for training development, implementation, and employee evaluation.

1. A training plan provides direction to all employees selected to participate in development and implementation of the training.

2. The Training Plan is designed in seven parts: Goals, Course Rationale, Purpose and Scope, Responsibilities, Training Needs, Course Documentation, and Training Review and Approval.

   1. Goals should be written in behavioral terms directed toward the achievement expected from the employees targeted to receive training.

   2. Course Rationale should be an explanation of whom (manager, supervisors, professionals, FERMCO, DOE as examples) has determined why the training is needed and what specific effort it will serve.

   3. Purpose and Scope is a two part title.

      Purpose should explain what is going to be provided to the employee in an effort to improve knowledge and skills.

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4.0 SUPPLEMENTAL INFORMATION (Cont.)

Scope should be an explanation of subjects to be trained; the amount of time employees will be in training; the amount of time the instructor will be involved with training; the target audience, and the departments involved with development, implementation, evaluation and follow-up of the training.

4. Responsibilities should be an explanation of whom, by job title and department/section, will perform the tasks explained in the Scope of the training plan. A statement regarding the targeted employee's responsibility to attend and successfully complete training should be included.

5. Training Needs should be an explanation of all equipment, materials and space needed to support the training. If hands-on training is planned; operational systems, tools, and personnel protection equipment should be included.

6. Course Documentation provides several items to reinforce the Goals, Course Rationale, Purpose and Scope, Responsibilities and Training Needs.

Lesson Plan is a title for the specific area training is planned.

Terminal Objective is an objective statement or statements regarding the final outcome planned for the specific area.

Target Population is a listing of the job classifications for which the training is planned.

Subject Matter Expert(s) is/are the individuals selected to provide training inputs and support to instructors/vendors assigned to develop, implement, and follow-up on the planned training.

4.0 SUPPLEMENTAL INFORMATION (Cont.)

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Class Load is the maximum number of employees to be scheduled for training. For hands-on training the suggested class load is no more than six or as little as one depending on the training requirements and conditions. For lecture with audience participation, the suggested class load is 25. For lecture without audience participation, the class load can be unlimited, depending on room capacity.

Training Methods are the methods used to provide knowledge and skill level training to our employees. There are several methods such as, self-study, formal lecture, informal lecture, or performance demonstration.

Evaluation Methods are three types; Oral, Written, and Hands-on performance

Oral Evaluation provides the employee the opportunity to discuss or talk the instructor through a selected operation such as control panel operation or system flow path safety requirements while the instructor checks the employee off as being correct according to written guidelines.

Written Evaluation provides the employee the opportunity to answer questions by selecting from true or false, multiple choice or matching answers and/or by sentence completion or fill-in the blank.

Hands-on Performance provides the employee the opportunity to demonstrate his/her skills and abilities by operating an operationally ready system or simulator while the instructor completes a performance checklist indicating the employee can perform the operation according to written guidelines.

Training Hours is the amount of time planned to complete training in the classroom and during hands-on.

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4.0 SUPPLEMENTAL INFORMATION (Cont.)

Instructor Qualification is a requirement established by FERMCO Training.

Training Material Completion Date is the estimated date all materials such as audio-visual, handouts, transparencies, training aids (operating systems, components, tools, and safety equipment), and classroom space will be prepared and ready at implementation of training.

Pilot Date is the estimated implementation date for training. This training period should be used not only to train employees, but to evaluate the initial delivery of training as well.

Training Completion Date is the date training will be completed for all targeted classifications.

Training Review and Approval should indicate responsible department management review and approval requirements. The responsible department is the department designated by FERMCO to be responsible for the management of the program for which the training is being developed. This should also include the affected department management review if the program will be primarily focused in one working group. The affected department is the department where the target audience of the training plan is located.

5.0 Lesson plans and training plans prepared for instructing performance-based training shall be approved by the Training Manager.

SECTION 10

EXAMINATIONS

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1.0 PURPOSE

The purpose of this section is to establish the policy and procedures for the development, administration, and evaluation of examinations controlled by the Training Department. It is emphasized that the purpose of examinations is to ensure employee learning has been accomplished commensurate to the training content.

2.0 SCOPE

This section applies to any examination, written/oral test, and/or performance checklist administered for qualification/requalification of employees.

3.0 REQUIREMENTS

The examination and performance evaluations leading to qualification/requalification and/or certification shall conform to this section.

3.1 General Requirements

1. All examination materials shall be controlled in such a manner as to prevent disclosure.

2. Examination items shall be derived from the instructional objectives.

3. The minimum passing score for evaluation should be 80%. However, the job performance measures will determine the actual standard.

4. All examination materials, including instructions, shall be constructed, written and communicated in clear and concise language.

5. Examinations shall be graded by the instructor as soon as practical and reviewed with the employee(s) as a group or confidentially.

6. When practical, advanced arrangements shall be made for all required equipment to be used as part of examinations.

3.0 REQUIREMENTS (Cont.)

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7. Unproctored examinations, take-home tests, etc. shall not be an acceptable means of determining an employee's performance level.

8. Any deviations from the general and specific requirements in this section shall not occur without the written permission of the Training Manager prior to the examination.

3.2 Written Examinations

1. Written examinations shall be as objective as is practical, and test the enabling objectives.

2. As a minimum, the personnel who approve the course materials approve the examination.

3. Point values assigned to examinations shall reflect factors such as training time, difficulty, and depth of employee knowledge and skill required to answer.

4. All examinations shall identify course and lesson titles.

3.3 Oral/Performance Examinations

1. Oral/Performance examinations used to evaluate employees shall have documentation which states the training objective(s) to be met and references the task(s) that the employee is to perform.

2. All oral/performance examinations shall have documented performance standards in terms of oral responses and/or performance criteria to verify employee response according to job training requirements.

3. Special attention shall be given to oral/performance examinations to ensure proper documentation of employee performance.

4. Verification of student performance on an oral performance examination shall be the responsibility of the Training Instructor/Evaluator.

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4.0 MAKE-UP EXAMINATIONS

Make-up examinations are not authorized.

5.0 RESPONSIBILITIES

5.1 The primary instructor/proctor shall be responsible for the development and proper administration of examinations used in the course or training activity.

5.2 The Instructor shall review and approve all examinations in an area assigned.

5.3 The instructor will forward the completed examinations to Training Records for filing.

6.0 DOCUMENTATION

6.1 Examinations are considered records and shall conform to the requirements of Section 8.

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SECTION 11

REMEDIAL TRAINING

1.0 PURPOSE

This section establishes guidelines for providing employees remedial assistance training.

2.0 PROCEDURE

2.1 It shall be the responsibility of the employee to notify the instructor of difficulties being experienced with training content so optimum response to training needs of the employee can be attained.

1. Remedial training is provided as necessary to prepare the employee to meet identified training course or program entry-level requirements for areas where they may be deficient.

2.2 Employees who perform unsatisfactorily or are having difficulty in a class are provided with remedial assistance in accordance with this section. This also applies in those instances when an employee must be absent from training for any reason. Specific actions for those who are having difficulty or are absent from segments of the course include:

1. One-On-One Instruction: Time is allotted in courses for individual study. During this time, one-on-one remedial instruction may be provided.

2. Make-up Work: Employees are encouraged to let the instructor know of an impending absence as far in advance as possible. The instructor can then advise the employee in advance of work that will be missed and must be made up.

3. Homework: A reasonable amount of homework may be assigned for remedial purposes. Additional exercises may be provided to employees who need them.

4. Self-Study: Employees are encouraged to utilize computer based training, video tapes, operating procedures, handouts, and other self-study materials for upgrading in those areas where remedial assistance is necessary.

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2.0 PROCEDURE (Cont.)

2.3 The following alternative actions may be taken to assist an employee receiving a less than passing grade. These actions are encouraged:

1. Notification shall be made to the employee's supervisor of the situation that requires remediation and the areas of weakness, if necessary.

2. Written and Oral Re-evaluation: After remediation, written or oral evaluation may be administered by the instructor based on consultation with the employee's supervisor or if the course examination criteria dictates re-evaluation.

3. Repeat Training: In instances where an evaluation is not completed satisfactorily, the employee will be provided another opportunity to repeat the evaluation and attain a passing grade. If the employee fails the evaluation a second time, an additional opportunity to repeat training will be granted only upon request from the employee's manager.

4. Scheduling Remediation and Reevaluation: Remediation and reevaluation shall be scheduled/implemented as soon as practical.

3.0 RESPONSIBILITIES

3.1 Instructor

1. Provide remediation as necessary.

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SECTION 12

EXCEPTION TO TRAINING

1.0 PURPOSE

This section establishes the methods used to exempt individuals from certain training requirements.

2.0 PROCEDURES

2.1 Basis of Exceptions: A training program/course has been developed to provide a means for an individual to acquire the knowledge and skills necessary to perform their job in a competent and professional manner. If the individual has previously acquired equivalent knowledge and skills, redundant training represents an inefficient use of resources; therefore, an exception to training may be requested in accordance with SSOP-0013.

2.2 Reasons for Exceptions: Exceptions from training may be granted on the basis of successfully completed training, education, previous work experience or exception examination.

1. Individuals desiring an exception from particular training shall provide supporting documentation to their Department Training Coordinator, Department Manager, and Training Manager. The documentation will then be reviewed against respective training criteria. If all criteria are met, the exception will be approved by the Training Manager in accordance with SSOP-0013, Exemption from Initial Training.

2. Exception - The employee's immediate manager approves or disapproves the request. If the exception criteria is not met, the employee shall attend training.

3.0 RESPONSIBILITIES

3.1 The responsibilities for an exception to training are contained in SSOP-0013.

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SECTION 13

QUALIFICATION/REQUALIFICATION TRAINING CONTENT CRITERIA

1.0 PURPOSE

This section defines the criteria to develop qualification and requalification training content.

2.0 SCOPE

FERMCO training activities used to qualify or requalify employees for their job position under the authority of the FERMCO Training Department.

3.0 REQUIREMENTS

3.1 General Requirements.

1. The training content, emphasis and depth of coverage shall be job-related.

2. A systematic approach to training shall be used to develop the content, emphasis, and depth of coverage of the job-related training.

3. All learning objectives shall be performance-based to at least minimum established standards for employee performance.

4. All qualification/requalification training shall be current and relevant to standard operating procedures of the plant. This training shall also reflect changes in equipment, procedures, safety analysis, and unusual occurrences which require that job incumbents change their job behavior to ensure the safe and efficient operation of their plant.

5. Employee training evaluations shall be job performance related.

6. All training personnel shall meet the minimum qualifications for training positions that they hold.

3.2 Review and Revision of Training Content

1. Training Content Review

3.0 REQUIREMENTS (Cont.)

1. All training materials and their content will be reviewed as updates occur to determine the adequacy and appropriateness for retention in the training program.

2. A training content analysis shall be performed upon the direction of FERMCO Training. This analysis will identify training needs originating from performance problems or regulatory requirements.

3. The Training Manager shall be responsible for the training review.

2. Training Content Revision

1. The content of FERMCO training shall be revised as necessary.

2. Origination of training content revision may be requested by any training member or any employee. The training program in question shall be reviewed by the instructor responsible for the training with assistance from the Training Department. Approval of content changes are required whenever enabling objectives or terminal objectives are changed.

3. Approval of the revision to training content is required by the instructor, the manager of the area in which training is developed and implemented, and the Manager, Training Department. Before such an approval is given, proof shall be presented to demonstrate the need for revision. Changes in equipment, procedures, etc., requiring change in employee actions shall constitute an automatic requirement for revision of related training content or methodology.

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SECTION 14

TRAINING PROGRAM EVALUATION

1.0 PURPOSE

The purpose of this section is to outline the program for the systematic evaluation of training to ensure the content, methods of instruction, instructional materials, and employee training evaluations compute.

2.0 SCOPE

The training programs developed and related to qualification and/or requalification of employees shall be developed and implemented in accordance with Training Department Procedures (TDP).

3.0 REQUIREMENTS

3.1 General Requirements

1. Actively utilized training programs shall undergo an annual evaluation. Each time a revision is completed to a lesson plan, an evaluation will be performed to ensure effectiveness of the training.

2. Guidance for content of any evaluation shall be performed according to TDPs and the requirements of job performance needs.

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Fernald Environmental Restoration Management Company

Administration - Technical Training

ATTENDANCE ROSTER

LESSON TITLE:	LESSON NUMBER:	COURSE HOURS:
INSTRUCTOR NAME:	BADGE NUMBER:	DATE:

	STUDENT NAME		BADGE NUMBER OR SOCIAL SECURITY NUMBER	DEPARTMENT OR COMPANY	SUPERVISOR	PASS/ FAIL
	PRINTED	SIGNATURE				
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						

Completed rosters and tests were received on _____ and are in agreement with the above attendees.
(DATE)

Received from: _____ Received by: _____
SIGNATURE OF INSTRUCTOR TECHNICAL TRAINING RECORDS

When completed, this document contains information covered under the Privacy Act.
FS-F-2955 (REV. 12/18/92)

Page _____ of _____

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
TRAINING DEPARTMENT - INSTRUCTIONAL OUTLINE

	Print Name	Approval Signatures	Date
Manager, Training Department:			
Manager, Responsible Department:			
LP Author:			

Course Title:
Revision Number:
Lesson Plan Number:
Responsible Department:
Length of Instruction:
References:
Title of Handout(s):
Title of Video(s):
Lesson Plan File Name:

Overheads: ___
Slides: ___
Test(s): ___
Test Key(s): ___
Checklist(s): ___
Video(s): ___
Handout(s): ___

Please mark X on the items used in this training.

Any items marked must be included in submission. (Commercial videos are exempt)

Overheads and slides may be paper copy.

COURSE DESCRIPTION:

TEACHING GUIDE

Attention:

Good morning, my name is and I will be your instructor for _____. My background is (instructor background relative to the course).

Overview:

Motivation:

Transition:

LEARNING OBJECTIVES	SUPPORT MATERIALS & GUIDANCE
Terminal Objectives:	Teaching Time:
Enabling Objectives:	Teaching Method:
	Training Material:
	Target Audience:
	Instructional Guidance:

TITLE:

LESSON PLAN #: 00

PRESENTATION	REMARKS

CONCLUSION
Summary:
Re-motivation:
Closure:

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FUNCTIONAL REQUIREMENTS DOCUMENT
REMOVAL ACTION NUMBER 9
MANAGEMENT OF PCBs AND PCB ITEMS

November 1993

Fernald Environmental Restoration
Management Corporation

Ebasco Environmental
Fairfield Executive Center
6120 S. Gilmore Road, Suite 155
Fairfield, Ohio 45014-5157

FUNCTIONAL REQUIREMENTS DOCUMENT
MANAGEMENT OF PCBS AND PCB ITEMS

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FIGURE 3-1 FAST Diagram

APPENDIX A Applicable or Relevant and Appropriate Requirements

LIST OF ACRONYMS AND ABBREVIATIONS

ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CRU	Administrative Organization Managing CERCLA/RCRA Activities
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
FAST	Functional Analysis Systems Technique
FEMP	Fernald Environmental Management Project (formerly FMPC)
FERMCO	Fernald Environmental Restoration Management Corporation
FMPC	Feed Materials Production Center
FRD	Functional Requirements Document
OU	Operable Unit
PCBs	Polychlorinated biphenyls
ppm	Parts per million
rem	Radiation equivalent man
RI/FS	Remedial Investigation/Feasibility Study
SNM	Special Nuclear Material
WEMCO	Westinghouse Environmental Management Company of Ohio

1.0 INTRODUCTION AND OBJECTIVES

The FEMP was designated a Superfund site and placed on the National Priorities List (NPL) in November 1989. A Consent Agreement was negotiated between the DOE and EPA in April 1990 to amend the provisions of the July 1986 Federal Facilities Compliance Agreement (FFCA). The amendments were necessary to meet the requirements of Section 120 of CERCLA applicable to NPL facilities. The Consent Agreement was further amended in September 1991. A key element of the FFCA and the subsequent Consent Agreements includes grouping the site into five operable units (OUs) for characterization and remediation. In accordance with 40 C.F.R. § 300.415, a number of removal actions have been identified to be implemented before final remediation.

In accordance with the Amended Consent Agreement, the DOE conducts and submits to the EPA, an annual review of the need for additional removal actions at the FEMP. The removal actions focus on source control and risk reduction, consistent with 40 C.F.R 300.400, as well as supporting the Interim and Final Records of Decision for Operable Unit 3 (OU-3). The ongoing FEMP low-level radioactive waste and thorium management programs, and associated waste shipment activities, were identified as Removal Action No. 9 by the Amended Consent Agreement of September 1991. The identification and management of PCBs and PCB items within OU3 has been identified by the DOE as a new element of Removal Action No. 9.

A removal action project has been initiated to provide complete plans for this removal action to reduce, to the greatest extent possible, the risk to human health, safety and the environment from the presence of onsite PCBs and PCB items. The removal action project will prepare planning documents for the removal including an Addendum to the Removal Action No. 9 Removal Site Evaluation (RSE), and Removal Action Work Plan Information Document, with necessary sampling and analysis plans and standard operating procedures.

This Functional Requirements Document (FRD) is a first step in the development of CERCLA removal documents. These documents include: an addendum to the Removal Site

Evaluation (RSE) for Removal Action 9 - Reduction of Waste Inventories, Standard Operating Procedures, Removal Action Work Plan Information Document (WPID), PCB Survey Report, and a PCB Waste Disposal Options Report. The FRD also describes the current situation which will be corrected by the removal action, the situation that will exist after the action has been completed, and the constraints and limitations with which the removal must contend. Section 1, Introduction and Objectives, provides general background information on the PCBs and PCB item removal. Section 2.0, Current Situation, provides a discussion of the existing facilities in which PCBs and PCB items may exist. Section 3.0, General Functional Requirements, identifies the scope of the intended removal action, describes the boundaries of the removal, and presents the functional objectives for the action. Section 3.0 also identifies objectives for pre-removal action characterization activities. Section 4.0, Regulatory Requirements, introduces the regulatory background and environment, outlining the ARARs, safety requirements, DOE Orders and site standards. Section 5.0, Constraints and Limitations, lists and discusses non-regulatory constraints including 1) integration requirements, 2) site physical constraints, and 3) required/owner furnished services and equipment. Section 6.0, Assumptions, addresses assumptions which will be used by the FEMP to proceed with the removal action development. Lastly, Section 7.0, References, identifies the references used in the development of this FRD.

1.1 Site History

The construction of the original Feed Materials Production Center (FMPC), subsequently known as the Fernald Environmental Management Project (FEMP), started in the early 1950's and the facility was fully operational by 1954. Following start-up of the facility, periodic expansions, plant upgrades and process additions were made up through the early 1980's. During this period of time, electrical and process support systems were installed that utilized PCBs and PCB items in various parts of the plant. During the period prior to 1978, it was a common industry practice to use PCBs and PCB items in transformers, capacitors, switches, electromagnets, fluorescent light ballasts, electrical systems and, in some cases, hydraulic fluids, heating fluids and other high temperature/fire resistant fluids used in onsite processes.

Past evaluations of PCBs and PCB items have been conducted by site personnel which resulted in the identification of transformers and capacitors containing PCBs. Various identified PCBs and PCB items were removed from service, packaged for disposal and either shipped to licensed TSCA disposal/destruction facilities (if not also radiologically contaminated), or stored on-site. Selected radiologically contaminated PCBs have been sent to the DOE TSCA incinerator in Oak Ridge, Tennessee for destruction. To date, there is no capacity nation-wide to destruct radiologically contaminated PCB solids.

2.0 CURRENT SITUATION

The presence of PCBs and PCB items at the FEMP is an issue that must be addressed in the design of remediation efforts for OU3. PCBs and PCB items are regulated under the Toxic Substance Control Act (TSCA) and, as such, must be disposed of in a manner consistent with the TSCA regulations. During the development of removal action and remedial action work plans for OU3, it will be necessary to identify and remove PCBs and PCB items prior to initiating remedial activities.

Previous evaluations of PCB sources at the FEMP have resulted in the identification and removal of the majority of known PCBs and PCB items. However, continued investigations of suspect PCB sources at the site are necessary in conjunction with remedial action work planning and implementation to ensure that any remaining PCBs and PCB items are identified and managed appropriately.

2.1 Existing PCBs at the FEMP

There are currently a total of 54 drums of PCBs and PCB items in storage in Building 81. These stored drums include PCB contaminated radioactive liquids and solids, and PCB contaminated non-radioactive solids.

Since the earlier site evaluations focused on plant electrical systems, it is possible that additional PCB sources exist at the FEMP including, but not limited to, auxiliary transformers, capacitors, electromagnets, PCB fluorescent light ballasts, other types of electrical equipment, and potentially contaminated solids and fluids not associated with electrical systems.

In planning for future remedial actions, it will be necessary to identify possible PCB spill sites that may exist in and around buildings and structures that are known to have contained or utilized different types of equipment filled with PCB contaminated fluids. In addition, it will be necessary to evaluate other potential sources of PCBs such as, but not limited to,

hydraulic fluids, heating fluids, and other potentially PCB contaminated sources, including equipment already removed during D&D operations and stockpiled onsite.

2.2 Potential Threats

CERCLA and other EPA regulations implementing CERCLA under the NCP (40 C.F.R. Part 300), require the selection of an appropriate removal action. Generally, a removal action is taken to abate, prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release of hazardous constituents. The removal action must to the extent practicable comply with all ARARs under federal and state environmental laws. For removal actions, however, the urgency of the situation and the scope of the action dictate the extent to which ARARs must be complied with. In determining the appropriateness of a removal action, the following factors were examined:

- Actual or potential exposure to nearby human populations, animals or food chains from hazardous pollutants
- Actual or potential contamination of drinking water supplies or sensitive ecosystem
- TSCA and hazardous substances contained in drums, barrels, tanks or bulk storage containers which pose a threat of release
- High levels of hazardous substances in the soil
- Weather conditions that may cause the hazardous substances to migrate
- Threat of fire or explosion
- The availability of other federal or state response mechanisms to respond to the release

- Other situations or factors that may pose threats to public health, welfare or environment (40 C.F.R. § 300.415[b][2]).

During operation of the OU3 processing facilities, PCBs and PCB items were utilized and various wastes streams were generated, and may continue to be generated during the course of demolition projects. The PCBs and PCB items were primarily confined to electrical systems such as transformers and capacitors, however, it is possible that other PCB fluids may have been used at the site. The possibility of spills at various locations on the site is also recognized.

The Management of PCBs and PCB Items' Addendum to the Removal Action No. 9 RSE indicates that the potential exists for release to the environment of PCBs during the demolition of OU3 process buildings. This could result in the spread of PCBs to soils and perched water under the buildings in OU3. The removal of PCBs and PCB items from OU3 facilities to the greatest extent possible, the development of appropriate standard operating procedures (SOPs) and a PCB Removal Action Work Plan Information Document forms the basis for the inclusion of the Management of PCBs and PCB Items in Removal Action Number 9.

3.0 GENERAL FUNCTIONAL REQUIREMENTS

The objective of the Management of PCBs and PCB Items' Program is to develop plans and procedures that can be implemented in conjunction with OU3 removal actions and remedial actions to ensure that PCBs and PCB items are identified and properly managed. As part of the functional analysis, a Functional Analysis Systems Technique (FAST) Diagram was developed to determine the functions to be performed by the Management Program. The primary and supporting functions developed by the FAST diagram as shown on Figure 3-1 are discussed in this section.

3.1 Pre-Work Plan Requirements

Prior to the development of PCBs and PCB Items' management work plans and procedures, several pre-work plan activities must be undertaken. These activities will provide information that is necessary for the development of comprehensive work plans, and include:

- Site walk-through survey and initial identification of site areas where PCBs and PCB items may be present
- Evaluation of existing on-site PCB storage facilities
- Investigation and development of PCB disposal options

3.1.1 Site Walk-Through Survey

Identification of areas on the FEMP site that may contain PCBs and PCB items will be accomplished through a review of historical documentation and a site survey. Available historical documents will be reviewed to determine the locations, amounts, and usage of PCBs and PCB items at the FEMP.

FIGURE 3-1

FAST DIAGRAM

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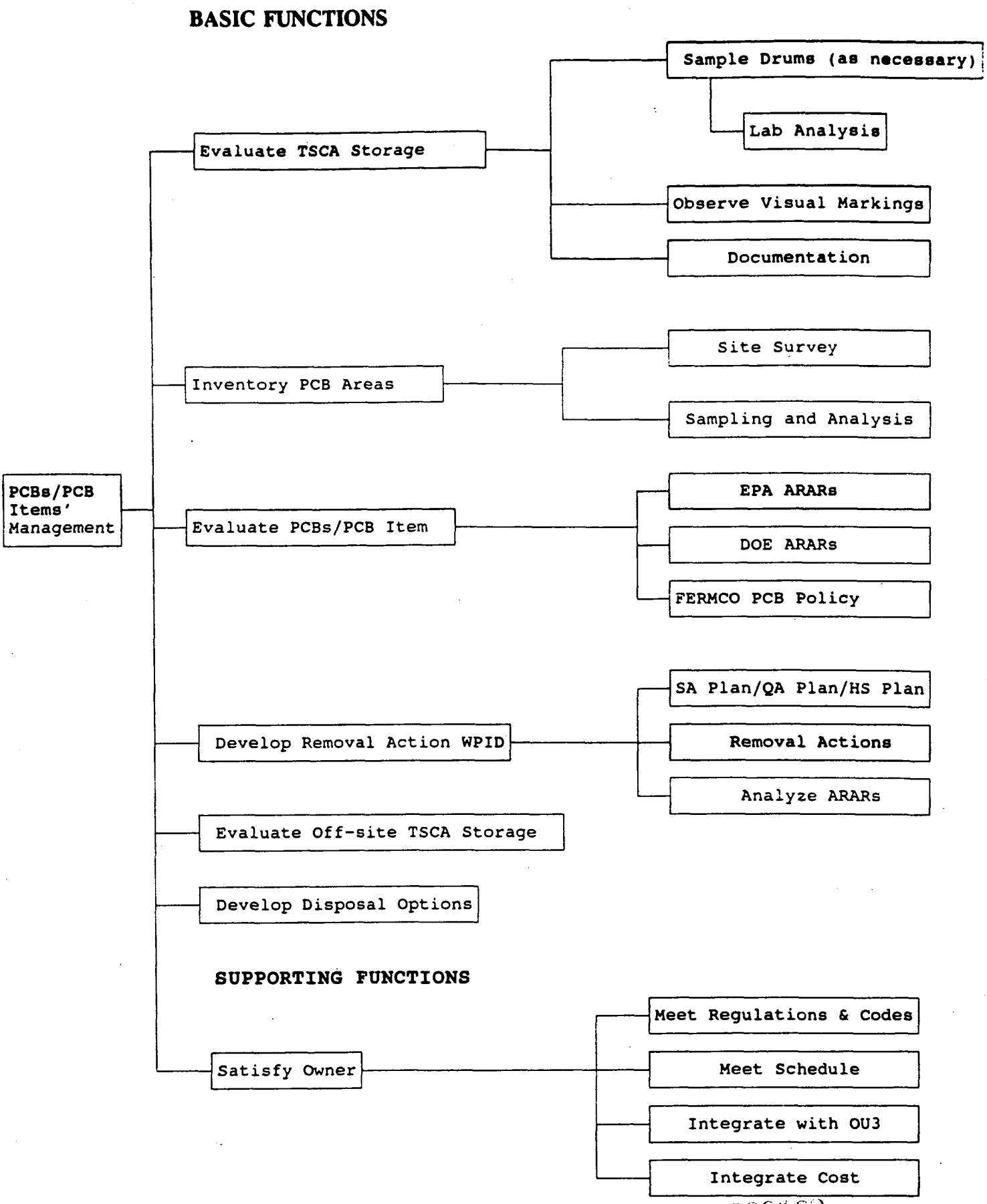

All major FEMP buildings and operating areas will be evaluated during the site survey, with emphasis on plant areas suspected of containing PCBs and PCB items. Any plant areas known and/or suspected to have used PCBs and/or PCB items will be surveyed (including D&D areas), and PCBs and PCB items in use or in storage will be inventoried. Personnel interviews will be conducted with FEMP maintenance and operations personnel. Information collected during the inventory will include:

- Facility evaluated
- Amount of PCB material found (if any)
- Form of PCB or PCB item - liquid, solid, sludge
- Recommendations on sampling of PCB suspect material or item
- Probable source of the material or item
- Location of the material or item

3.1.2 Evaluation of On-Site TSCA Storage Facility

Existing on-site TSCA storage facilities will be evaluated relative to compliance with applicable TSCA regulations, the capacity of the facilities, and the information requirements for accepting waste into the storage area. In the event that potential compliance issues are identified, they will be brought to the attention of responsible FERMCO personnel. In addition to recording information as described in the preceding section, the TSCA facility evaluation will include the following:

- Observe visual markings - The outside of each drum in storage should contain the appropriate marks and labels which will identify the contents of the drum and origin of the waste;

- Recordkeeping - An inspection of the record logs will be made; and

- Regulatory Compliance Review - a review of applicable TSCA regulations (40 CFR Part 761) as they apply to the storage facility will be evaluated

3.1.3 Develop Disposal Options

Disposal options for the PCBs and PCB items at the FEMP will be identified and their feasibility will be determined. Commercial off-site storage and disposal facilities will be evaluated. Commercially available technologies, as well as technologies in the demonstration stage of the EPA Superfund Innovation Technology Evaluation (SITE) program will be evaluated.

3.2 Removal Action Requirements

The functional objective for the FEMP Management of PCBs and PCB Items' program is to ensure that all PCBs and PCB items are identified and properly managed prior to and/or during the course of removal actions and remedial actions involving OU3 components. This functional objective will require the development of a Work Plan Information Document that will ensure the identification and removal of PCBs and PCB items prior to Final OU3 remediation.

3.2.1 Develop Removal Action Work Plan Information Document

The Removal Action Work Plan Information Document will incorporate a sampling and analysis plan, and reference the Site-Wide CERCLA Quality Assurance Plan (SCQ), and Safe Shutdown Program Health and Safety Plan. In addition, the plan will discuss appropriate removal actions, and the ability for the removal actions to meet applicable or relevant and appropriate requirements (ARARs).

3.2.2 Develop Standard Operating Procedures

A Standard Operating Procedure (SOP) will be developed for the Management of PCBs and PCB Items at the FEMP. This SOP will cover the removal, handling, marking, management, storage, and disposal of PCBs and PCB items. An SOP will also be developed and implemented for the Management of PCB and Non-PCB Fluorescent Light Ballasts.

4.0 REGULATORY REQUIREMENTS

The removal of PCBs and PCB contamination is required under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 106 (42 U.S.C. [U.S. Code] § 9600 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 [SARA]). Section 106 requires that a response action occur when there is imminent or substantial endangerment to the public health, welfare or environment because of an actual or threatened release of a hazardous substance. Removal Actions are also the subject of Consent Agreement (the Agreements) between the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE). The Agreement, amended in September 1991, establishes the framework for the Fernald Environmental Management Project (FEMP) environmental investigation and cleanup. Section 1X.F.2 requires the DOE to submit a Removal Action Work Plan Information Document (WPID) to support the Removal Action 9.

Under CERCLA and the NCP, removal actions must comply with all applicable and relevant and appropriate requirements (ARARs). Waste identification, handling, storage, treatment, and disposal will affect the selection of ARARs for this action. Health and safety concerns and protection of the public and environment will also impact the identification of ARARs.

4.1 Applicable, Relevant and Appropriate Requirements

ARARs for this project will be identified and discussed in the Removal Action WPID for the Management of PCBs and PCB Items.

4.2 Toxic Substances Control Act (TSCA)

TSCA regulates the management and disposal of certain materials that contain specified concentrations of PCBs. These management and disposal standards will be implemented in the plans and procedures for the management of PCBs and PCB items.

4.3 Nuclear Safety and Radiation Protection Requirements

Removal and storage of PCBs and PCB items (including radioactively contaminated materials) at the FEMP will be designed so that annual radiation exposures to occupational workers are less than 1 rem, per DOE 5480.11, "Radiation Protection for Occupational Workers". The removal actions will be designed in accordance with the guidance provided in the *Health Physics Manual of Good Practices for Reducing Radiation Exposure to Levels That are As Low As Reasonable Achievable* (PNL-6577) and the Feed Materials Production Center (FMPC) Radiation Control Manual (FMPC-2084, Rev. 8).

4.4 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

Compliance with CERCLA and the National Contingency Plan (NCP) will need to be demonstrated. The criteria for selecting removal actions, exemption from administrative and permitting requirements, and specific federal facility standards will be identified.

4.5 Resource Conservation and Recovery Act (RCRA)

Because there are currently PCBs in storage that are mixed with hazardous constituents, certain requirements under RCRA will also be applicable in determining the management, treatment, and disposal standards to be met. Both U.S. EPA rules (40 C.F.R. Parts 260 through 270) and OEPA regulations (O.A.C. 3745-50 through 3745-79) will be reviewed and pertinent standards will be identified as appropriate, including land disposal restrictions.

4.6 Clean Air Act (CAA)

The Clean Air Act establishes a nationwide program for the control of hazardous air pollutants and other emissions. The National Emissions Standards for Hazardous Air Pollutants (NESHAPs), 40 C.F.R. Part 60, sets radiation dose standards for the emission of radionuclides from DOE facilities. The total dose from all radionuclide emissions from the

FEMP site, including emissions resulting from the PCB Removal Action, will need to comply with this standard.

4.7 DOE Orders

DOE Orders must be complied with at a federal facility managed under an Environmental Restoration Management Contract (ERMC). These Orders are to-be-considered (TBCs) for removal actions performed under CERCLA. DOE Orders regarding environmental protection, mixed waste programs, radiation protection of the public, environment and occupational workers, and radioactive waste management, and disposal standards will be identified.

4.7.1 Waste Management and Radioactive Waste Disposal

The PCB Removal Action WPID will comply with DOE Order 5400.4 and meet all requirements for waste management and radioactive waste disposal.

4.7.2 Waste Minimization

Removal and disposal of PCBs and PCB items prior to implementation of the chosen remedial alternative(s) for OU3 will minimize the generation of PCB contaminated waste thereby satisfying DOE Order 5820.2A.

4.7.3 Quality Assurance

During the removal and disposal stages of this project, compliance with the Environmental Remedial Action (ERA) Project Quality Assurance Program Plan and DOE Order 5700.6 will be maintained.

4.8 Safeguards and Security

This project will not be handling, storing, or treating special nuclear material (SNM); therefore, safeguards for these materials are not required. No additional security design measures will be required for this project with the exception of required waste management quality assurance (QA) measures.

This project will be conducted within the boundary of the FEMP and will have security provided by the site security forces. No additional security design measures will be required for this project (with the exception of required waste management quality assurance measures).

4.9 Occupational Safety and Health Act (OSHA)

The OSHA regulations provide standards for the protection of occupational workers which include protective clothing requirements, hazardous and toxic materials handling standards, and construction-related activity requirements. Under DOE Order 5483.1A, the DOE has adopted these standards for occupational workers at Department of Energy facilities. These standards are pertinent to the PCB Removal Action at the FEMP.

In order to ensure personnel safety during PCB removal and disposal operations, all work will be performed in accordance with a task-specific Health and Safety Plan. This plan will be developed as part of the Removal Action WPID and will be consistent with 29 Code of Federal Regulations (CFR) 1910.120, the Safe Shutdown Program Health and Safety Plan; the FEMP Radiological Controls Manual; the FEMP Emergency Plan; other related site plans; and Fernald Environmental Restoration Management Corporation of Ohio (FERMCO) procedures.

4.10 Other Pertinent U.S. EPA, OEPA, DOE and NRC Guidance Documents

Guidance documents interpreting agency regulations and statutes are TBCs that must be identified for removal actions conducted under the NCP. These documents provide guidance from regulatory agencies regarding applicable regulations and statutes.

5.0 CONSTRAINTS AND LIMITATIONS

5.1 Integration with other Actions

As appropriate, the management activities for the Management of PCBs and PCB Items will utilize existing procedures and protocols to maximize technical and cost effectiveness. These procedures and protocols have been developed for related actions, including Removal Action No. 9 - Removal of Waste Inventories; and the previous FEMP PCB site evaluation and removal program protocols.

Removal Action No. 9 involves the identification, storage, handling, shipment, and disposal of low-level radioactive and PCB wastes generated by production, maintenance, construction, demolition, and closure activities at the FEMP. Primary activities associated with this removal action include the development and submittal of initial operating procedures for the removals and submittal of progress updates to the EPA. The disposal of PCBs and PCB items will be part of Removal Action 9.

Integration with OU3 activities will be accomplished within the required schedule time frames as part of Removal Action No. 9, Removal of Waste Inventories. Site survey/inventory activities will be performed with assistance from appropriate FERMCO personnel. Sampling and analysis by FERMCO will be completed as part of the Removal Action No. 9 WPID for the Management of PCBs and PCB Items' program.

5.2 Site Constraints

Access to the OU3 process buildings is restricted and can only be achieved upon proper radiological, health and safety, and respiratory training. All of these training requirements make access to the various buildings difficult. Certain areas of the process buildings are further restricted in that they require extensive personnel protective equipment (PPE) prior to entry. In addition, there are some areas of the plant buildings that are unable to be accessed. These site constraints may limit, to some extent, the inspection of PCBs in those areas.

6.0 ASSUMPTIONS

The following assumptions are made in developing the PCB Removal Action WPID.

1. Identification of existing PCBs and PCB items will be a function of the site survey.

2. Surveys will be conducted under the guidance of, and be escorted by, appropriate FERMCO electrical maintenance personnel, as required.

3. Implementation of the Sampling and Analysis Plan in the Removal Action WPID will be the responsibility of FERMCO.

4. FERMCO will procure off-site laboratory facilities to conduct the sample analysis as necessary.

5. Existing data and results of inventory are assumed to be valid and representative of site conditions at the time they were completed.

7.0 REFERENCES

(Parsons 1992) October 1992. Guidelines for Preparing Functional Requirements Documents.

(U.S. EPA 1992) U.S. Environmental Protection Agency, 40 CFR 761, Polychlorinated Biphenyls

REMEDIATION SUPPORT OPERATIONS PROCEDURE	INSPECTION AND EVALUATION OF CONTAINERIZED LOW-LEVEL RADIOACTIVE WASTE (LLRW)	SOP 01-C-604 Area: As Applicable
(Signature On File) Authorization: H.R. Bailey, Materials Management Manager	Supersedes: 1-C-604 Dated: 09-07-89	Issue Date: 12-05-91

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1.0 PURPOSE

The purpose of this document is to provide the procedure for inspecting and evaluating containerized low-level radioactive waste (LLRW) designated for shipment offsite.

2.0 APPLICABILITY

This procedure is applicable to LLRW storage areas and LLRW designated for the Plant 1 sampling line.

3.0 RESPONSIBILITIES

3.1 The **Supervisor** shall be responsible for the following:

3.1.1 Designating the material to be inspected or sampled.

3.1.2 Supplying the packaging materials.

3.1.3 Coordinating and notifying supporting organizations when assistance is required.

3.1.4 Ensuring that packaged material is labeled in accordance with the FEMP Lot Marking and Color-Coding System.

3.1.5 Designating holding areas as specified by this SOP.

3.1.6 Contacting Industrial Hygiene to determine the appropriate respiratory protection for the processing performed.

3.1.7 Issuing the required respiratory protection to operators.

3.1.8 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.9 Obtaining and posting a "Radiation Work Permit" (RWP) when required.

3.1.10 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.2 **Materials Control and Accountability** shall be responsible for maintaining and reconciling the inventory records of Plant 1 nuclear waste materials.

3.3 **Operators** shall be responsible for complying with this SOP.

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3.0 **RESPONSIBILITIES** (cont.)

3.4 **Radiological Safety** shall be responsible for issuing a "Radiation Work Permit" (RWP) and ensuring radiological safety requirements are met when a container is opened.

4.0 **DEFINITIONS**

4.1 Deteriorated Container - A container having rust, holes, or dents which could jeopardize the integrity of the container.

4.2 Net Weight - Gross weight minus the tare weight of the container.

4.3 Overpack - A container enclosing one or more smaller containers.

4.4 Respirable Fines - Particulates and vapors capable of being inhaled.

4.5 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 wastes.

4.6 Toxicity Characteristic Leaching Procedure (TCLP) - A RCRA term referring to a method for determining the hazardous properties of waste extract.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

5.1.1 10 CFR 71 series, "Packaging and Transporting of Radioactive Material"

5.1.2 40 CFR 261 series, "Identification and Listing of Hazardous Wastes"

5.1.3 40 CFR 265 series, "Interim Status Standards For Owners and Operators of Hazardous Waste TSD Facilities"

5.1.4 49 CFR 171-173, "General Information, Regulations, and Definitions - Shippers General Requirements For Shipment and Packagings"

5.1.5 OAC 3745-54 series, "New Facility Standards"

5.1.6 OAC 3745-65 series, "Interim Facility Standards"

5.1.7 DOE 5400 series, "Environmental Safety and Health"

5.1.8 DOE 5820.2A, "Radioactive Waste Management"

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

5.1.10 FEMP Conduct of Operations Manual

5.1.11 RM-0012, "Quality Assurance Program Description"

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5.2 References

5.2.1 SOP 20-C-902, "Inspecting and Operating Liquid Propane Gas (LPG) Powered Handstackers and Tuggers"

5.2.2 SOP 1-C-916, "Plant 1 Hoists and Cranes"

5.2.3 SOP 20-C-912, "Checking Scale Operation"

5.2.4 SOP 1-C-101, "Sampling Residue and Waste Materials"

5.2.5 SOP 20-C-600, "Overpacking Defective Containers"

5.2.6 SOP 1-C-602, "Low Level Radioactive Waste (LLRW) Shipment Preparation"

5.2.7 SOP 20-C-615, "Controlled Holding Area"

5.2.8 SOP 20-C-905," Ventilation Flow Indicators (VFI)"

5.2.9 SSOP-0024, "Packaging Low Level Radioactive Waste (LLRW) for Off-Site Disposal"

5.2.10 RM-0005, "FEMP Lot Marking and Color Coding System"

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Safety glasses with side shields shall be worn unless other eye protection is specified by the supervisor, ES&H, or posted signs.

6.3 A two-way communications device and emergency response equipment shall be available to personnel performing this procedure.

6.4 Respiratory protection issued by the supervisor shall be worn when required.

6.5 Leather-palm gloves shall be worn over plastic gloves with cotton inserts while handling drums/containers, operating equipment, and when handling rough, sharp-edge, or contaminated material.

6.6 HEPA type filer vacuum cleaners or an ES&H approved vacuum system with a current DOP test label properly affixed to vacuum shall be used for cleaning.

6.7 Face shields with chemical cover goggles shall be worn when removing lids or bungs on containers filled with liquids or during operations where a liquid splash could occur.

6.8 Radiological Safety shall be provided with a detailed work scope before opening any container so that radiological safety requirements can be specified in an RWP.

6.9 A rubber apron shall be worn if there is a possibility of being splashed with a chemical that could cause injury to the skin.

CIO NO. C93-580

Effective Date: 03-07-94

Expiration Date: 09-07-94

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CHANGE IN OPERATION

REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM

DOCUMENT NO.: SOP 01-C-604	AFFECTED DOCUMENT PAGE NO.: 4	AREA AFFECTED: Inspection Times
DIVISION: RSO	DEPARTMENT: MAT. MGT	SECTION: N/A

TITLE: Inspection and Evaluation of Containerized Low Level Radioactive Waste (LLRW)

AUTHORIZATION: (Signature on File) H.R. Bailey, Materials Management Manager

CHANGE:

1) A new Item 7.2 is added as follows:

7.2 The time period between inspections of storage areas or between inspections of containers shall not exceed seven calendar days.

FILING INSTRUCTIONS: File facing page 4 of 01-C-604 (Issue Date: 12-05-91 Rev. No. 3)	DOCUMENT PTR: S. Moore X 9495

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6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS** (cont.)

6.10 Operators shall have reviewed and be familiar with the MSDSs for hazardous materials/equipment that may be used or encountered.

6.11 In case of contact with a chemical, contaminated clothing shall be removed immediately and the affected body area flushed a minimum of 15 minutes with water in an eye bubbler/safety shower. Injured personnel shall report to Medical.

6.12 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.13 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 **GENERAL**

7.1 Warnings, Cautions, and Notes precede the Step or Item to which they apply.

8.0 **PROCEDURE**

8.1 Inspecting and Evaluating Drummed Residues at the Plant 1 Sample Line

8.1.1 Initiate a Material Evaluation Form (MEF) per SSOP-0002.

NOTE: The supervisor shall obtain a Radiation Work Permit to establish radiological controls.

8.1.2 Notify the supervisor that drums are ready for inspection.

8.1.3 Check drum for deterioration.

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8.0 **PROCEDURE** (cont.)

8.1.3.1 If drum is deteriorated, place drum in an overpack per SOP 20-C-600.

8.1.3.2 If overpacking is not feasible, position a GRIFLON bag, or equivalent, over the drum.

8.1.3.3 Fasten the bag.

8.1.3.4 Move deteriorated drums to a staging area near Plant 1 sample line.

8.1.4 Using the scale specified by the supervisor, perform a scale check per SOP 20-C-912.

NOTE: The supervisor shall specify an ES&H approved barrel grab/lifting device to be used.

8.1.5 Inspect the barrel grab for damage.

CAUTION
Do not use a damaged barrel grab.

8.1.5.1 If the barrel grab is damaged, notify supervisor.

8.1.6 Inspect forklift (used with barrel grab) per SOP 20-C-902.

8.1.7 Using barrel grab attached to forklift, move the drum onto the scale.

DELETED - WARNING

8.1.8 Obtain the gross weight of the drum.

R **NOTE**: Maximum gross weight of drums that will be shipped prior to 1
R Jan., 1996 shall be 700 pounds for a 30 gallon overpack; 1,200
R pounds for 55 gallon overpacks, 55 gallon singlepack, and 85
R gallon overpacks. Maximum gross weight of 85 gallon
R singlepacks shall be 1,000 pounds. Maximum weight for drums to
R be shipped after 1 Jan., 1996 shall be 820 lbs. net.

8.1.8.1 If drum weight exceeds maximum weight, remove material until weight requirement is met.

8.1.8.2 Place the removed material in a designated/labeled container.

8.1.9 Using the barrel grab, move drum from scale to ventilated sampling station.

8.1.10 Check the Ventilation Flow Indicator (VFI) per SOP 20-C-905 to ensure the sampling station ventilation system is in operation.

8.0 **PROCEDURE** (cont.)

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WARNING

Sampling station shall not be operated if the VFI reading is less than the posted pressure.

8.1.10.1 If the VFI indicates low pressure, notify the supervisor.

WARNING

Bung(s) and lid(s) shall be removed slowly to release possible pressure.

8.1.11 Slowly remove lock ring and lid from the drum.

8.1.12 Obtain sample of material per SOP 1-C-101 for a RCRA/Non-RCRA determination and analysis to determine major radionuclides and other suspected nuclides.

8.1.13 Visually inspect drum per the "Package Physical Certification" section of the "Item Production/Certification/Identification" (65 card), Form FS-F-1945-XX (See Figure 1).

8.1.14 Indicate inspection condition on card.

8.1.15 If liquid is observed, proceed as follows:

8.1.15.1 If 1/2 inch or more of free standing liquid is present on the top of the material, move the drum to the designated holding area for additional processing.

NOTE 1: The amount of absorbent material added shall be a minimum quantity of twice the calculated volume of liquid.

NOTE 2: If the material is suspected of being hazardous, absorbent shall not be added until material has been characterized.

8.1.15.2 If less than 1/2 inch of free standing liquid is present on the top of the material, add uncalcined diatomaceous earth to absorb the liquid.

8.1.16 If material is dry, loose, and respirable, request analysis for particulate size.

8.1.16.1 Notify the supervisor.

8.1.17 When the visual inspection and sampling operation are completed, install lock ring and lid on drum.

8.1.18 Place the drum in the designated holding area as directed by supervision until the RCRA determination and analysis results are received.

CIO NO: C93-579

Effective Date: 09-07-93

Expiration Date: 09-07-94

CHANGE IN OPERATION

REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM

5690

DOCUMENT NO.: SOP 01-C-604	AFFECTED DOCUMENT PAGE NO.: 7	AREA AFFECTED: Adding Absorbents
DIVISION: RSO	DEPARTMENT: MAT. MGT	SECTION: N/A

TITLE: Inspection & Evaluation of Containerized Low Level Radioactive Waste (LLRW)

(Signature on File)
AUTHORIZATION: H.R. Bailey, Materials Management Manager

CHANGE:

1) Step 8.2.9 is revised to read as follows:

8.2.9 If water is present, proceed as follows:

8.2.9.1 If 1/2-inch or more of free standing liquid is present on top of the material, move the drum to the designated holding area for additional processing.

NOTE 1: If material is suspected of being hazardous, absorbent shall not be added until material has been characterized.

NOTE 2: The amount of absorbent material shall be at least 1/2 the volume of the liquid.

8.2.9.2 If less than 1/2-inch of free standing liquid is present on top of the material, add uncalcinated diatomaceous earth to absorb the liquid.

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8.0 **PROCEDURE** (cont.)

8.1.18.1 If the analysis results identify material as RCRA, complete the required forms.

8.1.18.2 Package the material per SOP 20-C-615.

8.1.19 If the material is non-RCRA, complete the 65 card per analysis results.

8.1.20 Forward a copy of the analysis result to F & WO.

8.1.21 Install a seal on the level ring.

8.1.21.1 Record the seal number on the 65 card.

8.1.22 Place drum in the applicable overpack per SOP 20-C-600.

8.2 Inspecting and Evaluating Containerized LLRW at Storage Areas

8.2.1 Check that a "Radiation Work Permit" is posted.

8.2.1.1 If not, notify the supervisor.

8.2.2 Place container in designated inspection area.

NOTE: The supervisor shall contact ES&H and request an inspection for organic vapor to ensure respiratory protection is adequate.

8.2.3 If the container lid is to be removed outside of ventilated enclosed area, notify the supervisor.

8.2.4 Remove the lid from the container.

8.2.5 Obtain a sample of material per SOP 1-C-101.

8.2.6 Send the sample to the laboratory for RCRA determination (TCLP) and analysis to detect major radionuclides.

8.2.7 Visually inspect container per the "Package Physical Certification" section of the "Item Production/Certification/Identification" card, form FS-F-1945-XX (See Figure 1).

8.2.8 Indicate inspection condition on card.

8.2.9 If water is present, proceed as follows:

8.2.9.1 If 1/2 inch or more of free standing liquid is present on the top of the material, move the drum to the designated holding area for additional processing.

8.0 **PROCEDURE** (cont.)

NOTE 1: If material is suspected of being hazardous, absorbent shall not be added until material has been characterized.

NOTE 2: The amount of absorbent material added shall be a minimum quarterly of twice the calculated volume of liquid.

8.2.9.2 If less than 1/2 inch of free standing liquid is present on the top of the material, add uncalcined diatomaceous earth to absorb the liquid.

8.2.10 If material is dry, loose, and respirable, proceed as follows:

8.2.10.1 Request analysis for particulate size.

8.2.10.2 Notify supervisor.

8.2.10.3 If an excessive void space is present, add additional material per SSOP-0024.

8.2.11 When inspection and sampling are complete, lid the container per SOP 1-C-602.

8.2.12 Place container in designated holding area as directed by supervision until analysis results are received.

8.2.12.1 If the analysis results identify material as RCRA, complete the required forms.

8.2.12.2 Package the material per SOP 20-C-615.

8.2.13 If RCRA determination is negative, complete the "Item Production/Certification/Identification: card, Form FS-F-1945-XX (See Figure 1) per analysis results.

8.2.14 Send a copy of the analysis to F & WO.

8.2.15 Move container to a designated holding area for shipment preparation.

9.0 **APPLICABLE FORMS**

9.1 FS-F-1945-XX, "Item Production/Certification/Identification"

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CARD XX ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE

PACKAGE SIZE

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		

PLANT	PROD. MBA
PLANT TO	MBA TO

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1945-XX (REV. 3/19/92)

CARD 65 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE

PACKAGE SIZE

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		

PLANT	PROD. MBA
PLANT TO	MBA TO

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1945-65 (REV. 3/19/92)

CARD 66 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE

PACKAGE SIZE

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		

PLANT	PROD. MBA
PLANT TO	MBA TO

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1945-66 (REV. 3/19/92)

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION
FS-F-1945-XX
Figure 1

RECORD OF ISSUE/REVISIONS

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DATE	REV. NO.	DESCRIPTION AND AUTHORITY
09-07-89	0	Procedure required to replace CIO C88-175 per Request No. P89-097.
12-05-91	0	Reissued to include sampling requirements for RCRA determination and change applicability to low-level radioactive waste per Request No. P89-461, initiated by K. Dunbar.
12-08-92	1	Revised to incorporate CIO C92-108 (P92-285) and update to current procedure program requirements.
02-05-93	2	Revised to incorporate C92-109 per Request P92-235.
12-28-93	3	Revised to incorporate CIO C93-527 per Request No. P93-1406.

CONTROL NO. NON-CONTROLLED COPY
SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-0002
REVISION NO. 4

5690

INITIATING WASTE CHARACTERIZATION ACTIVITIES USING THE MATERIAL EVALUATION FORM (MEF)

SSOP-0002

Effective Date: 03-29-94

AUTHORIZED BY: _____ 3/22/94
J. A. Rasile, Executive Vice President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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

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ATTACH	TITLE	PAGE
A	SAMPLE CHECKLIST	A-1

RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
01-11-91	0	Instructions for completing the Material Evaluation form required per Request No. P90-292, initiated by K. Nuhfer.
04-16-91	1	Revised to update form and include steps to allow for an MEF revision per Request No. P91-093, initiated by J. Ogg.
06-20-91	2	Revised to update technical content and form per Request No. P91-235, initiated by R. Henderson.
10-22-91	3	Revised to insert correct form per Request P91-390, initiated by L. Hamblin.
03-29-94	4	Revised to update to current FERMCO requirements and format per Request No. S93-037, initiated by C. S. Waugh. This supersedes and replaces WEMCO Revision 3, dated 10-22-91.

1.0 PURPOSE

The Fernald Environmental Management Project (FEMP) Waste Management System provides for appropriate control and management of waste materials from the point of generation, through required interim storage, to final disposition. The functional requirements for this waste management system are established in "driver" documents such as the state and federal hazardous waste rules and negotiated legal agreements (e.g., Stipulated Amendment to the Consent Decree and the Amended Consent Agreement). The FEMP utilizes appropriate document systems, including site and department procedures, to specify activities to satisfy these functional requirements.

All waste managed at the FEMP shall be appropriately characterized to support selection of safe, effective, and least cost management alternatives. This procedure specifies the required activities to initiate waste characterization using the Material Evaluation Form (MEF) and associated generator documentation. A completed MEF establishes a "waste profile" which identifies requirements for managing materials that match the profile. The associated generator documentation (checklists, the MEF Inventory Attachments and the MEF Verification Form) provides a means for relating specifically inventoried material to an established MEF. In order to achieve the most expeditious characterization, it is imperative that the generator contact Waste Characterization (WC) and initiate the MEF **prior to the actual generation of the waste or the start of the project--whenever possible.**

Detailed instructions for using the MEF, the MEF Inventory Attachments, and the MEF Verification Form are provided on the back of each form. They are also included as attachments to this procedure.

2.0 SCOPE

This procedure applies to all waste, containerized and bulk, that is managed by the FEMP Waste Management System. This includes waste generated at the FEMP as well as FEMP-generated waste returned from offsite sources or vendors. FEMP containerized waste management facilities include designated container storage areas as well as container staging areas. FEMP bulk waste management facilities include: tanks, bins, silos, controlled soil stockpiles, the Central Storage Facility (CSF), the Scrap Metal Pad (SMP), the Decontamination Facility Pad (DFP), the Soil and Rubble Pile Cover (SRPC) and other (future) bulk waste management facilities.

2.0 **SCOPE** (cont.)

This procedure is not applicable to site products or excess materials being sold at fair market value to be used for their intended purposes. This procedure is, however, applicable to certain recyclable materials (e.g., certain materials that must be reclaimed prior to reuse). This procedure does not apply to soils returned to their point of excavation or Investigation Derived Waste (IDW) managed at the point of generation with its parent materials. This procedure does apply, however, to excess soils and IDW that require management in the FEMP Waste Management and Inventory Systems.

3.0 **DEFINITIONS**

Checklist(s) - A document applying to a specific container of waste that is used to validate the contents of the container against the physical characterization criteria noted in a completed MEF. Checklist validation is used for high volume, continuously generated wastes such as scrap wood, scrap metal, or scrap light duty vehicles. Checklist validation is controlled by procedure 20-C-625. (Attachment A is a sample checklist.)

Controlled Holding Area - The area designated for holding uncharacterized material (excluding backlog material and material generated from a soil boring activity) for a maximum period of 89 calendar days. Wastes are placed here while awaiting characterization and proper storage.

FEMP Waste Characterization Process - The actions and procedures used to complete the MEF, associated MEF worksheets, and inventory validation documentation.

FEMP Waste Management System - The interaction of physical activities and their associated management facilities as governed by relevant procedures and other documentation that provides for the management of waste materials from the point of generation, through required interim storage, to final disposition.

Generator - A person (or persons) who either directly or indirectly produces a waste stream or supervises/manages projects which produce waste streams requiring waste characterization.

Inventory Validation Documentation - Documents which demonstrate identification and control of waste from the point of generation through characterization and eventually, to final disposition. Within the scope of this procedure, inventory validation allows for the immediate identification of the characterization of any inventoried waste. Verification Form and MEF Inventory Attachment samples are provided in Figures 3 and 4.

3.0 **DEFINITIONS** (cont.)

Material Evaluation Form (MEF) - The FEMP document which identifies unique waste streams. A completed MEF establishes a "waste profile" which identifies requirements for managing materials that match the profile.

MEF Number - A unique identifying numeric string that denotes a waste stream, and its associated waste characterization file.

MEF Verification Form and MEF Container Inventory Attachment - A two-part system of documentation by which discrete material is associated with a specific waste profile documented on an MEF. MEF Verification Form and MEF Container Inventory Attachment shall be used for all wastes generated and containerized.

MEF Worksheets - Forms used by WC personnel to document the basis for decision making which results in the completed Evaluation Section of the MEF. Guidance for completing the worksheets is found in the Waste Characterization Manual.

Re-evaluation Date - Date specified by WC upon which material must be re-evaluated based on waste stream specific factors, generation rates, and waste management practices. At a minimum, continuously generated waste streams must be re-evaluated annually or until sufficient data is collected to justify a longer period between required re-evaluations.

Requestor - Person or persons providing input for the waste characterization system.

Waste - A material that is no longer needed or suitable for its intended use and has been discarded or is intended for discard.

Waste Characterization Manual - A manual that provides an overview of the waste characterization process at the FEMP for external customers (e.g., Nevada Test Site (NTS) or auditors) and provides criteria used by FERMCO's WC activities.

4.0 **RESPONSIBILITIES**

Generator

- Ensuring that the waste stream is characterized in its present generated form. This process begins with submittal of MEF and concludes upon receipt of the completed MEF and MEF Inventory Attachment.

- Completing the requestor section of the MEF, the requestor section of the MEF Verification Form, and the MEF Inventory Attachment.

4.0 **RESPONSIBILITIES** (cont.)

Generator

- Providing the WC group with all available and relevant information regarding the material which is being evaluated and providing timely response to requests for further information.

- Requesting re-evaluation of a waste stream when the waste stream has changed in composition or when the generating process has changed.

- Arranging for transfer of material to the controlled holding area if necessary (e.g., when waste is generated and requires temporary storage prior to characterization or sampling if required.)

  NOTE: Material may be transferred to the Controlled Holding Area only when sampling and analysis has been requested or when otherwise specified. See SSOP-0008, "Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area."

- For containerized wastes, obtaining complete inventory information, (full 15 digit lot code and drum number, inventory number or container serial number) prior to initiating actions to transfer waste to site management facilities.

- Ensuring that generated wastes are managed in a safe and compliant manner either through the transfer of the waste to appropriate designated storage areas or through pre-designated management methods at the location of generation.

- Maintaining a copy of the completed MEF, MEF Verification Forms, and the MEF Inventory Attachments associated with the waste.

Waste Characterization Personnel

- Maintaining a listing of sequential MEF numbers to be used by the facility to identify waste streams and their associated characterization documentation. MEF numbers are to be provided to generators upon request. However, until the generator submits a completed MEF, the MEF remains on an inactive status with WC.

- Verifying that an MC&A Inventory exists for the material which has been represented to WC on the submitted MEF form.

- Performing necessary actions in compliance with applicable Federal and State regulations, the Waste Analysis Plan and Waste Characterization Manual in order to fully characterize materials documented in the Generator section of each MEF.

4.0 **RESPONSIBILITIES** (cont.)

Waste Characterization (WC) Personnel

- Responding to inquiries regarding the use and completion of the MEF.
- Notifying generators of requirements for re-evaluation of continuous or periodically generated waste streams.
- Maintaining a waste characterization file of the original of each MEF as a part of the FEMP Operating Record.
- Maintaining a waste characterization database which at a minimum provides a summary of information contained in the characterization files and provides a means of tracking required actions to complete waste characterizations.
- Identifying, at any time during the characterization process, unique or previously undocumented health and safety issues related to a specific waste. When identified, forward to Environmental Safety and Health (ES&H) copies of relevant information pertaining to the waste along with a Health and Safety Addendum for completion.
- Distributing copies of the completed MEF paperwork per the distribution noted on the form. This includes the generator who required a copy of the completed MEF in order to gain admittance to a warehouse.
- Maintaining a list of personnel authorized to sign part D of the evaluation section of the MEF and Section D of the Verification Request Form. Changes to this list shall be forwarded per the general distribution shown on the MEF.
- Providing assistance to generators in identifying appropriate MEFs for verification of additionally generated waste inventory. Evaluation of verification forms shall be completed within five (5) working days following their receipt by WC.

Materials Control and Accountability (MC&A)

- Maintaining the site-wide RCRA and All Materials Inventories with the corresponding inventory information for each container documented on the MEF Verification Form and associated MEF Inventory Attachments or Checklists.

4.0 **RESPONSIBILITIES** (cont.)

Materials Control and Accountability (MC&A)

- Providing generators with FEMP lot codes, container numbers and (optionally) inventory numbers for generated wastes when requested.
- Notifying Waste Characterization of discrepancies in the site-wide waste inventories which require assistance to resolve.

Environmental Safety and Health (ES&H) - Providing concurrence on non-radioactive waste classification of materials when required.

Regulatory Programs - Providing regulatory policy guidance/concurrence relative to waste classification of materials when required.

Hazardous Waste Compliance - Maintaining the official site RCRA Operating Record in accordance with all applicable federal and state regulations.

5.0 **GENERAL**

Waste Characterization (WC) maintains a list of the principle technical contacts for each CERCLA/RCRA Unit (CRU). These representatives have been designated as the primary interface between CRU activities and characterization functions within the Waste Management system. When initiating a waste characterization activity, the generators should first contact their respective CRU representative in Waste Characterization.

The generator may also contact WC either in person or at 738-9353 to obtain an MEF number of each waste stream generated or for use of the Verification Form (see the instructions on the back of each form). At this time the generator will be asked to provide a brief description of the waste, the generating organization, generator point of contact, and a cost account charge number to be used for all activities which are required to characterize the waste.

5.0 **GENERAL** (cont.)

Blank forms may be obtained from Waste Characterization. Forms may be copied for the sake of expediency; however, **the user of the form must exercise caution to insure that copies are legible and centered, and contain all required information.** This information includes the instructions on the reverse side of each page. Waste Characterization will **not** accept forms judged to be of insufficient quality to be placed in the site's operating record. Corrections must be made by striking out incorrect entries with a single line, then initialing and dating the correction. Do not use "liquid paper" or "white out" to make corrections.

For wastes which currently exist, all applicable forms must be submitted immediately. For wastes not yet generated, generators are required to forward applicable forms (discussed below) to Waste Characterization within 30 days of requesting the MEF number. Waste Characterization will cancel MEF numbers for which the generator submittals have not been received within this time.

Generators may contact Waste Characterization at 738-9353 if assistance is required in completing the necessary forms.

6.0 **PREREQUISITES**

None

7.0 **PROCEDURE**

7.1 INTRODUCTION

The Material Evaluation Form (MEF) is not only the document by which generators identify materials which require characterization, but also the document on which the Waste Characterization staff records the summary of those characterization efforts. The MEF does **not** reproduce or duplicate the delineation of specific waste as identified in the site inventory system; rather, it maps to a particular waste stream which is uniquely identified via the MEF number. Specific inventories of materials are assigned to a particular MEF using the MEF Verification Request Form and the Inventory Identification Attachment.

7.2 COMPLETING THE MATERIAL EVALUATION FORM (MEF)

GENERATOR

NOTE: Incomplete entries will not be accepted. "None", "Unknown", and "N/A" (Not Applicable) may be used when appropriate.

1. Obtain the correct MEF form (Figure 1) and an MEF Number from Waste Characterization. Once this procedure is finalized, only the new forms (attached) will be accepted for use--except in those cases in which the generator has as MEF characterization in process using the old forms.

2. Complete each item in the requestor section of the MEF in accordance with the directions provided in Figure 1, Sheet 3 of 3. The directions are also found on the reverse side of each page of the requestor section of the MEF.

3. If there is not sufficient space on the form, prepare an attachment sheet noting the MEF number at the top of sheet.

4. Upon completion of the MEF, attach all relevant information concerning the material (e.g., SOPs, analytical results, narrative describing generating process, etc.) and forward to Waste Characterization for completion.

5. Maintain a copy of the MEF in requestor's files, including the evaluation section (Figure 2) when completed by Waste Characterization.

7.3 USING THE MEF TO RE-EVALUATE A WASTE STREAM

GENERATOR

1. Determine that a revision to the MEF is required due to changes in the composition of the waste or to changes in the generating process.

2. Complete requestor section of the MEF. The MEF number is the same as the original. Indicate "revision" next to the MEF number.

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Requestor Section

page 1 of 2

A. REQUESTOR/WASTE STREAM IDENTIFICATION

1. MEF#: Original: _____ Revision: _____	2. Date Submitted:	3. Material Type and Source Code:
4. Requestor Name:	5. Phone No.:	6. Badge No./Co. Name:

B. GENERATION INFORMATION

1. Provide best descriptive name for material:	2. Does this material originate in a HWMU or SWMU? Unit Name/No.		3. Project, Activity, or Work Area generating waste (include CRU # if applicable).
4. Date of first or expected generation: ☐ estimate; ☐ actual _____	5. Generation Quantity:	6. Generation frequency:	7. Similar waste stream MEF# (or MTC/SRC):

8. Provide a detailed description of what the material is:

9. Provide a detailed description of how and where (specific origin) the waste stream is/will be generated, including any units which manage the material:

[Note: Generator must attach all supporting documentation concerning items 8 and 9.] O additional narrative; O SOP;

O MSDS; O AEDO Log excerpt; O release report; O manufacturing specs; O Other: _____

FORM GEN, Revision 2.1, 8/18/93 wqpform/gen.fr

Figure 1 - Material Evaluation Form (MEF) Sheet 1 of 3

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Requestor Section

page 2 of 2

C. PHYSICAL CHARACTERISTICS

1. Describe Color/Appearance:

2. Phase:
☐ Liquid ☐ Solid debris/rubble
☐ Semi-solid/sludge ☐ Dry solid residue
☐ dry powder/dusty residue ☐ Other, specify:

3. Contains Free Liquids:
☐ yes ☐ no ☐ unknown
based on:
○ PFLT (results attached)
○ Visuals (results attached)
☐ Knowledge of waste

[NOTE: DO NOT SMELL THE MATERIAL]
4. Note Any Incidental Odor:

5. Layers:
☐ single layer
☐ bi-layered
☐ multi-layered

6. pH: specify range or "unknown"
_____
☐ estimate; ○ documentation attached

7. Flash Point: Specify range or "unknown"
_____
☐ estimate; ○ documentation attached

D. MATERIAL COMPOSITION

1. Composition:

	Min	Max:	circle
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
_____	_____	_____	% (or) ppm
	Total Maximum:	_____	%

maximum must equal or exceed 100 %

Basis:
☐ knowledge of the material
○ analytical data attached

2. Does the material contain any of the following?
☐ asbestos ☐ polychlorinated biphenyls (PCBs)
☐ infectious waste
☐ reactives (circle applicable items):
water reactive explosive
cyanide/sulfide shock sensitive
normally unstable
exclude materials which normally produce hydrogen gas.
☐ toxicity characteristic metals (circle applicable items):
arsenic barium
cadmium chromium
lead mercury
nickel selenium
silver thallium
(or)
☐ None of the above
(or)
☐ Unknown

Basis:
☐ knowledge of the material
○ analytical data (attached)

3. Radionuclide Contamination:
☐ material is not contaminated with radionuclides
☐ material contains incidental radionuclide contamination
☐ radionuclide bearing material/residue

Radionuclides of Concern if any:
☐ uranium
☐ thorium
☐ transuranics (TRU)

Basis:
☐ knowledge of the material ☐ RMMA generated
○ analytical data attached ☐ Other: _____

4. Identify the container or repository type(s) in which the waste is (or is expected to be) managed on-site:
☐ drum ☐ box
☐ Sea/Land ☐ soil/debris pile
☐ small container (5 gal. or less)
☐ landfill, pit, or other land-based unit
☐ discharge to WWTS

FORM GEN, Revision 2.2, 9/27/93 wcpformsgen.fr1

Figure 1 - Material Evaluation Form (MEF) Sheet 2 of 3

Instructions to Generators for Completing the Material Evaluation Form (MEF), Requestor Section

The Waste Characterization Section is responsible for providing characterization for all wastes generated by FEMP personnel/activities. However, it is the individual generator's responsibility to ensure that his/her waste is properly characterized in its present form.

The Material Evaluation Form (MEF) is the document by which generator identify material which requires characterization and on which the Waste Characterization group summarizes the results of the characterization effort. The MEF does not delineate specific waste as identified in the site inventory system, but refers only to the characteristics of a particular waste stream (identified by MEF #). Specific inventoried material is assigned to a particular using the MEF Verification Request Form and Inventory Identification Attachment.

The following directions have been developed to assist in the completion of the generator's section of the MEF. Each block of the form must be completed for MEF to be accepted. Use of 'None' or 'N/A' is acceptable when appropriate. Checkbox items shown with a "O" require attached documentation. Upon completion of this form submit to Waste Characterization at MS # 46. [Note MEFs will not be accepted with incomplete information or lacking documentation (e.g. MSDS, release report, etc)].

PART A: GENERATOR/WASTE STREAM IDENTIFICATION

1. **MEF #:** Enter number of the form as received from Waste Characterization (x8932). Check whether this submittal is original or a revision to an existing MEF as appropriate.
2. **Date Submitted:** Enter the date the form is submitted to Waste Characterization.
3. **Lot Marking Code:** Enter first the Material Type then the Source Code assigned to the waste if this information is known. Contact Materials Control and Accountability (MC&A), x6275, for assistance in determining this information. Enter "Unknown" if applicable.
4. **Generator Name:** provide First Name, Last Name and Middle Initial.

5-6. **Badge No./Co. Name/Phone No:** Self Explanatory

PART B: GENERATION INFORMATION

1. **Name:** Provide the best descriptive name for the material (e.g. spent acetone, dust collector residues, soil borings, purge water etc.)
2. **HWMU:** If the material originates from a Hazardous Waste Management Unit please provide unit name and #. If you are unsure please consult your supervisor, Waste Characterization or cognizant CRU representative for assistance.
3. **Self-explanatory.**
4. **Self-explanatory.** Always provide at least an estimate. If the waste is "backlogged" or has otherwise already been generated, provide the historical date of generation as an actual date. This information may usually be obtained from existing records or from MC&A. "Unknown" is not acceptable.
5. **Generation Quantity:** Enter the amount and unit of waste to be generated (i.e. 50 gal). This is generally the amount of waste in a container (or a multiple thereof). If the generation event is one-time only, enter the total amount of waste.
6. **Quantity/Frequency:** Enter a time period (week, year etc.) during which the amount specified in item 5 will be generated, or "one-time" as appropriate.
7. **Similar waste stream:** Enter MEF # or Material Type/Source Code for a similar waste stream if known. Otherwise "N/A".
8. **Description:** Provide a clear concise description of what the waste stream actually is (e.g., residues from dust collector servicing). Include all components of the waste stream and any relevant information concerning packaging, absorbents etc. Be as detailed as possible. *DO NOT REPEAT THE DESCRIPTION CORRESPONDING TO THE MATERIAL TYPE CODE.*
9. **Description of Generation:** Provide a detailed description of how the waste stream is/will be generated. Include specific process involved, history of waste etc. For containerized wastes include packaging information (e.g. inbacked, packed with absorbent materials) Check and include all relevant supporting documentation (e.g. MSDS, SOP, Manufacturing Specification, Release Reports etc.).

PART C: PHYSICAL CHARACTERISTICS

1. **Color/Appearance:** Be as detailed as space will allow. What does the waste look like?
2. **Phase:** Check all that are present in the waste.
3. **Free Liquids:** If yes, check a "based on" criteria.
4. **Odor:** DO NOT SMELL THE WASTE! If the waste has a known incidental odor, then describe the odor (e.g., acrid, pungent, solvent, sweet).
5. **Layers:** Check appropriate box. Single layer means the waste has no distinct separation or layers (e.g., water, or oil, or semi-solid). Bi-layered means the waste is comprised of two distinct layers (e.g., water/dirt or oil/solids). Multilayered means more than two distinct layers (e.g., oil/water/semi-solid).
6. **pH:** If the waste contains aqueous free liquids, list the range of pH if known. If the pH is not known mark "not known" in the blank. If a pH range is entered, check the basis for the range. Documentation may consist of analytical data, MSDS, or pH paper results. For non-aqueous wastes enter N/A.
7. **Flash Point:** If the waste contains free liquids list the range of its flash point if known, if the flash point is not known, mark "not known" in the blank. If a flash point range is entered, check the basis for the range. Documentation may consist of analytical data or MSDS.

PART D: MATERIAL COMPOSITION

1. **Composition:** List all components which make up the waste stream along with the range of the approximate volume in percent or parts per million. Circle the unit (% or ppm) used for each component. Use ppm only if less than 10,000. Assume a value of 1% for any component given in ppm when calculating the "Total Maximum". If only partial knowledge of the components in the waste stream is available, list those components and provide the approximate percentage of the waste which is unknown. Provide basis for the components in this section.
2. **Waste Characteristics:** Check each box which applies to the waste. Circle items as appropriate. Do not document items "suspected" of being present in the waste. These should be noted in block B8.
   None of the above - Check this when no entries above apply.
   Not Known - Check this when adequate information is not available to answer the questions above.
   Basis - Check the appropriate box when specific items above are checked.
3. **Radionuclide contamination:** Indicate radionuclide contamination status of the material. If analytical data is available please attach to form. Contact IRS&T for information on radionuclide contamination of materials onsite. Indicate the basis for the checked item. Material Accounting information may be attached as analytical data.

FORM GEN_INS, Revision 1.1, 8/16/93 wcpforms\gen.inl

Figure 1 - Material Evaluation Form (MEF) Sheet 3 of 3

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Evaluation Section

A. WASTE STREAM IDENTIFICATION

1. MEF #: Revision No.:	2. Date Completed:	3. Material Type / Source Code of original material: Mat. Src.
4. Evaluator:	5. Phone No.:	6. Badge No./Co. Name:

B. MATERIAL REGULATORY STATUS (check all that apply)

Regulated:	Material Specific Regulation:	Regulated:	Material Specific Regulation:
___ yes ___ no	TSCA PCB Waste	___ yes ___ no	High Level Radioactive Waste
___ yes ___ no	Asbestos Containing-Waste Materials	___ yes ___ no	Transuranic (TRU) Waste
___ yes ___ no	OAC Infectious waste	___ yes ___ no	AEA 11(e)(2) Byproduct Material
___ yes ___ no	OAC Solid Waste (RCRA Subtitle D)	___ yes ___ no	Source (or) Special Nuclear Material
___ yes ___ no	RCRA Solid Waste (RCRA Subtitle C)	___ yes ___ no	Low Level Radioactive Waste (LLRW).
___ yes ___ no	RCRA Hazardous Waste	___ yes ___ no	Non-Radioactive waste. ***

Hazardous Waste Code(s): _____

*** Concurrence. Radiological Assessment- Date: _____

Re-evaluation Date: _____

Note: Waste stream must be re-evaluated by WCS if it is generated after the re-evaluation date listed above or when the stream/generating process changes.

C. MATERIAL MANAGEMENT

1. Waste Form Criteria:	2. Container Specification:	3. Reactivity Group Code(s):
___ yes ___ no Health & Safety Addendum Attached. (Note: if marked "yes" do not manage this material without information from attached H&S Addendum.)		
___ yes ___ no Material contains free liquids.		
___ yes ___ no LLRW meets NVO-325 Waste Acceptance Criteria (See NTS Form in material evaluation file)		

D. WASTE CHARACTERIZATION APPROVAL

Name: _____ Signature: _____

E. DISTRIBUTION

___ Generator	_____	___ Waste Reduction Program	_____
___ MC&A	_____	___ Site Media Sampling	_____
___ Facilities and Warehousing	_____	___ IS&H	
___ Sample Disposition (if sampled)	_____	___ Other _____	_____

FORM EVAL. Revision 2.3. 10/15/93 wcpformeval.frl

Figure 2 - Material Evaluation Form (MEF) - Evaluation Section

7.3 USING THE MATERIAL EVALUATION FORM (MEF) TO RE-EVALUATE A WASTE STREAM (cont.)

3. Upon completion of the MEF attach all relevant information concerning the material (e.g., SOPs, analytical results, additional narrative describing generating process, etc.) and forward to WC for completion.

4. Maintain a copy of the MEF revision in requestor's files.

7.4 COMPLETING THE MEF VERIFICATION FORM

GENERATOR

NOTE: The MEF Verification Form is submitted whenever there is physically identifiable waste that is to be associated with a particular MEF. It may be submitted with the original MEF if the waste has already been generated, or after characterization is completed if the generator's intent is to characterize before generating. It is also submitted when additional waste is generated; or in the case of backlogged production wastes, when additional waste is identified which is believed to match an existing waste profile. **The Verification Form is always submitted with an Inventory Attachment.**

1. Obtain the MEF Verification Form from WC. (Example provided in Figure 3.)

2. Complete each item in the requestor section in accordance with the directions provided in Figure 3. These directions are also provided on the reverse side of the form.

3. Upon completion of the Verification Form, attach all relevant information concerning the material (e.g., SOPs, analytical results, additional narrative describing generating process, etc.) and forward to Waste Characterization for completion.

4. Forward the form to Waste Characterization at M.S. #46.

5. Maintain a copy of the Verification Request in requestor's file.

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Verification Form

A. WASTE STREAM IDENTIFICATION

1. Requestor:	2. Phone:	3. Serial Number:
4. Generation Event: ☐ Original Generation ☐ Additional Generation ☐ Safe Shutdown Generation ☐ Other (Describe):		5. Date Submitted: (see instruction note!)
6. Material Description:		
7. Process Description: ○ Documentation Attached		
8. Generation Location:		

B. WASTE STREAM TO VERIFY AGAINST

1. MEF#:	2. Material Description:	
3. Determination Date:	4. Determination:	5. Hazardous Waste No(s).
6. Rationale: ○ Extra page(s) attached		

Evaluation Section

C. MATERIAL STATUS

1. Evaluator:	2. Date:
3. Summary ☐ Material is characterized by MEF # _____. Inventory is revised to include the inventory shown on the associated inventory attachment.	Material Determination: ☐ RCRA Solid Waste (a.k.a Non-RCRA) ☐ RCRA Hazardous Waste Hazardous Waste No(s).
☐ This material does not match the characterization of the referenced MEF. Submit a new MEF for this material immediately.	
Rationale:	
Waste Characterization Approval Signature: _____ Date: _____	

D. DISTRIBUTION

Requestor:	Waste Characterization Files:

FORM VER. Revision 2.1, 9/27/93 wcpforms\ver.fr1

000208

Figure 3 - Material Evaluation Form (MEF) - Verification Form (Sheet 1 of 2)

Instructions to Generators for Completing the MEF Verification Form

The Waste Characterization Section is responsible for providing characterization for all wastes generated by FEMP personnel/activities. However, it is the individual generator's responsibility to ensure that his/her waste is properly characterized in its present form.

The MEF Verification Form must be used whenever there exists discrete waste material which must be associated with a specific waste profile documented on an MEF . This form is accompanied by an MEF Container Inventory Attachment when the discrete waste is containerized. Use of the MEF Verification Form streamlines the characterization process by providing a means of associating uncharacterized waste materials with an existing waste profile documented on an MEF. This eliminates the need to produce a new MEF for each and every generation event. The MEF Container Inventory Attachment then provides the means of associating specific containers (inventory) with a waste profile documented on an MEF. Data quality objectives are the same as for any characterization. The Waste Characterization group may be contacted at x8932 to determine if any appropriate MEF exists against which a waste may be verified. The information provided by the requestor on this form must show sufficient process control, and/or documentation of waste matrix and constituents to verify that the waste meets the profile specified on the referenced MEF. The Waste Characterization group may request additional visual inspections and/or sampling to confirm the match.

The completed MEF Inventory Attachments along with the parent MEF serve as the characterization documentation required to received waste into a site waste management facility (including the controlled holding area). This documentation provides the key data link for associating MC&A inventory information with waste characterization information (i.e., provides a means for identifying an MEF number for each item in inventory). The following directions have been developed to assist in the completion of the Requestor's section of this form . Please note that each block of the form must be completed in order for form to be accepted. Use of 'None' or 'N/A' is acceptable when appropriate. Do not leave any blocks in the requestor section blank. When complete attach the necessary Inventory Identification Attachments and forward to Waste Characterization at MS # 46.

PART A: WASTE STREAM IDENTIFICATION

1. **Requestor:** Provide First Name, Last Name, and Middle Initial.
2. **Phone:** Self Explanatory
3. **Serial Number:** This is a unique four digit alpha-numeric string assigned by Waste Characterization. Examples: "1001"; "SS01". When approved, the Verification Form will be identified as "MEF#-Serial#". Examples: 1978-1001; 20001-SS01. THIS BLOCK WILL BE COMPLETED BY WASTE CHARACTERIZATION!
4. **Generation Event:** Check the appropriate item:
   - Original Generation: First quantity of material generated for which MEF was originally submitted
   - Additional Generation: Additional material generated which meets the MEF profile
   - Safe Shutdown Generation: Material generated by Safe Shutdown programs
5. **Date Submitted:** Self explanatory. NOTE: for original generation materials, complete item B1 with MEF number and fill in all remaining requestor section boxes with "N/A".
6. **Material Description:** Provide a clear concise description of what the waste stream actually is (e.g., residues from dust collector servicing). Include all components of the waste stream and any relevant information concerning packaging, absorbents etc. DO NOT REPEAT THE DESCRIPTION CORRESPONDING TO THE MATERIAL TYPE CODE.
7. **Process Description:** Provide a clear and concise description of the process generating the waste. The process description and attached documentation (if included) must be of sufficient detail to provide the evaluator in the Waste Characterization Group with enough information to verify that the waste corresponds to the characterization described in the MEF. In general, attached documentation will be required. Examples include project logbooks, AEDO spill reports, Satellite Accumulation Area (SAA) container records, SOPs, analysis data etc. Waste characterization may request additional visual inspections or sampling in order to verify inventory with an existing MEF characterization.
8. **Generation Location:** Be as specific as possible.

PART B: WASTE STREAM TO VERIFY AGAINST

1. **MEF#:** Enter the Material Evaluation Form # of the waste stream against which the material is to be verified.
2. **Material Description:** Enter the material description as found on the Waste Characterization database or MEF.
3. **Determination Date:** Enter the Determination date from the WC Database or the MEF Evaluation Section.
4. **Determination:** Enter the determination from the WC Database or the MEF Evaluation Section (e.g., RCRA Hazardous, Non-RCRA (a.k.a. Non-Hazardous) etc.)
5. **Hazardous Waste No(s).** Enter the Hazardous waste No(s). if applicable.
6. **Rationale:** Indicate your reason for believing the waste described in section A is characterized by the MEF described in section B. Please provide thorough and detailed explanations (use additional sheets if required).

PARTS C & D: *TO BE COMPLETED BY WASTE CHARACTERIZATION*

Figure 3 - Material Evaluation Form (MEF) - Verification Form (Sheet 2 of 2)

7.4 COMPLETING THE MEF VERIFICATION FORM (cont.)

6. Complete the MEF evaluation form and distribute it to the generator within five (5) working days.

7.5 COMPLETING THE MEF CONTAINER INVENTORY ATTACHMENT

GENERATOR

1. Obtain the Inventory Identification Attachment from Waste Characterization. (Example provided in Figure 4.) The Inventory Identification Attachment is always submitted in conjunction with the original MEF or an MEF Verification Request Form.

2. Complete each item in Sections A and D in accordance with the directions provided in Figure 4. These directions are also provided on the reverse side of the form.

3. Attach the Inventory Identification Attachment to the MEF Verification Form and forward to Waste Characterization at M.S. 46.

4. Maintain a copy of the Inventory Identification Attachment in requestor's files.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- DOE Order 5820.2A, "Radioactive Waste Management"
- 40 CFR 61, Subpart M, "Protection of the Environment/Asbestos Regulations"
- 40 CFR 261-272, "Protection of the Environment/Solid Wastes"
- 40 CFR 761, "Protection of the Environment/Toxic Substance Control Act (TSCA)-PCB"
- Amended Consent Agreement (ACA)
- FEMP Part B Permit Application - Waste Analysis Plan

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Container Inventory Attachment

Page ____ of ____

A. GENERAL INFORMATION:

1. MEF #: Verification Serial #:	2. Date Completed:	3. Completed by:

4. Special Notes: (a) TOTAL NUMBER OF CONTAINERS EQUALS TOTAL IN LOT UNLESS INDIVIDUAL CONTAINERS SPECIFIED.

(b)

(c)

5. Key on Inventory Container Type:
DM = Drum or Over-Pack Drum; SL = Sea-Land; TK = Tank; SM = small container (≤ 5 gal);
MC = Miscellaneous Container; WB = Wood Box; WM = White Metal Box.

B. APPROVAL:

Waste Characterization Name: _____ Signature: _____

C. DISTRIBUTION

Requestor:	Facilities and Warehousing:
Materials Control and Accountability:	Waste Characterization Files:

D. INVENTORY COUNT BY CONTAINER

ITEM No.	LOT CODE IDENTIFICATION:	Total Number of Containers	Type of Container	Individual Container Identification: (if required)

FORM INVATT, Revision 2.0, 05/12/93 wpforms\mv.fr1

Figure 4 - Material Evaluation Form (MEF) - Container Inventory Attachment (Sheet 1 of 2)

Instructions to Generators for Completing the MEF Container Inventory Attachment

The Waste Characterization Section is responsible for providing characterization for all wastes generated by FEMP personnel/activities. However, it is the individual generator's responsibility to ensure that his/her waste is properly characterized in its present form.

The MEF Inventory Attachment (this form) is submitted in conjunction with the MEF Verification Form. These documents are used whenever there exists quantifiable waste material which must be associated with a particular waste stream profile documented on an MEF (see section 7.3 of SSOP-0002 for applications). When completed by both the requestor and Waste Characterization, this form serves as the documentation by which the waste is received at a site waste management unit (including the controlled holding area). It also serves as the means for inputting the status of characterization (documented on the MEF) into the site's waste inventory system.

The following directions have been developed to assist in the completion this form by generators. Attach this form to the completed MEF Verification Form and forward to Waste Characterization at MS # 46.

PART A: GENERAL INFORMATION

Upper right **Page __ of __:** Complete as appropriate.

1. **MEF #:** Enter the MEF number from the MEF Verification Form
   Serial Number: TO BE COMPLETED BY WCS
2. **Date Completed:** Self-explanatory.
3. **Completed by:** The name of the person completing Parts "A" and "D" of this form.
4. **Special Notes:** Note any special identifying information. Material being received from offsite should be noted here.

PARTS B AND C: FOR USE BY WASTE CHARACTERIZATION ONLY

PART D: INVENTORY COUNT BY CONTAINER

Item No. This is a line item number. Start with "1" and number consecutively for each line completed.
Lot Code Information: Enter the 15 digit lot code obtained from MC&A (see section 4.0 of SSOP-0002). Do not enter only a material type and source code.
Total Number of Containers: Enter either the total number of containers in the lot or "1" as appropriate. The use of "1" signifies that not all containers in the lot are applicable. A "1" requires an entry in the "Individual Container Identification" column.
Type of Container: Enter the appropriate code from block A-5.
Individual Container ID: Enter the drum number, inventory number, or container serial number if the "Total Number of Containers" is 1. Otherwise enter "Note 4a" to signify that the total represents all containers in the lot.

Figure 4 - Material Evaluation Form (MEF) - Container Inventory Attachment (Sheet 2 of 2)

8.0 **APPLICABLE DOCUMENTS** (cont.)

8.1 DRIVERS (cont.)

- FEMP Sitewide CERCLA Quality Assurance Project Plan (SCQ)
- Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements (NVO-325-Rev. 1), June 1992 (Rev. 1)
- Ohio Administrative Code (OAC) 3745-20, "Asbestos Regulations"
- Ohio Administrative Code (OAC) 3745-51 to 69, "Hazardous Waste Regulations"
- Stipulated Amendment to the Consent Decree (SACD)

8.2 REFERENCES

- Waste Characterization Manual (Department Document)
- FEMP RCRA Part B Permit Application - Waste Analysis Plan
- FEMP Sitewide CERCLA Quality Assurance Project Plan (SCQ)
- SOP 20-C-625, "Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment"
- SSOP-0008, "Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area"
- Revised FMPC Waste Determination Plan, September 20, 1990

ATTACHMENT A

SAMPLE CHECKLIST

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FEMP
LOW-LEVEL RADIOACTIVE WASTE
MATERIALS EVALUATION AND CONTAINER INFORMATION - WOOD

Reference MEF # 905

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Treated: a. Material free from creosote treatment			
2. Residues: a. Free from process or waste residues			
3. Stains: a. Stains cover less than 10% of wood surface *or* Stain covers more than 10% of wood surface caused by green salt, black oxide, white salt, or orange oxide.			
4. Paint: a. Free from lead-based paint *or* Paint covers less than 10% of material			
5. Plastic/Rubber: a. Material consists of less than 20% by volumes other materials and does not contain any oil, solid residues, or entrapped liquids (e.g. plastic or rubber parts/hardware)			
6. Metal: a. Metal constitutes more than 10% by volume (If yes, then metals checklist (FS-F—3464) must also be used.)			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION

2. PACKAGING START DATE	PACKAGING FINISH DATE	3. OPERATOR(S) SIGNATURE	DATE
4. CONTAINER NUMBER		5. CONTAINER TYPE: ☐ S/L ☐ WHITE METAL BOX	
6. 65 CARD NUMBER		7. LOCATION PACKAGED	
8. * MEF NUMBER		9. % COMBUSTIBLE	
APPROVED BY		APPROVED BY	
SUPERVISOR(S) SIGNATURE/DATE		QA SIGNATURE/DATE	

* When materials are packaged that do not meet the criteria established in Section I, but have an approved MEF number, the MEF number and material must be recorded.

GENERATOR TO MAKE DISTRIBUTION:		
1	Original to Facilities and Material Evaluation	MS65
2	Copy to Waste Shipping	MS63
3	Copy to Environmental Compliance	MS65
4	Copy to Materials Control and Accountability	MS28

FS-F-3465 (REV 4/7/92)

000214

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1.0 PURPOSE

The purpose of this document is to establish the procedure for sampling waste materials contained in 5 to 10 gallon pails and 30, 55, 85 or 110 gallon drums.

NON-CONTROLLED COPY

2.0 APPLICABILITY

This procedure is applicable to taking samples of drummed waste material.

3.0 RESPONSIBILITIES

3.1 **Supervisors** shall be responsible for the following:

3.1.1 Contacting Industrial Hygiene and/or Radiological Safety to determine the appropriate Personal Protective Equipment (PPE) for the process being performed.

3.1.2 Issuing the required PPE to operators.

3.1.3 Ensuring that personnel are qualified per the established training requirements identified by the Department/Staff Manager.

3.1.4 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.1.5 Obtaining and posting a "Radiation Work Permit."

3.1.6 Obtaining and posting a "Hazardous Chemical Work Permit."

3.1.7 Obtaining specific drum storage location(s) from Materials Control & Accountability (MC&A).

3.1.8 Notifying MC&A prior to moving drums.

3.1.9 Notifying the Transportation representative to move the drums to a diked sampling area.

3.1.10 Notifying Radiological Control prior to moving drums in and out of Radiological Zones.

3.2 **Operators** shall be responsible for the following:

3.2.1 Complying with this Standard Operating Procedure (SOP).

3.0 **RESPONSIBILITIES** (cont.)

3.2.2 Wearing PPE as provided by the supervisor.

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3.3 **Materials Control and Accountability (MC&A)** shall be responsible for the following:

3.3.1 Assigning a representative to areas where drums are being moved.

3.3.2 Furnishing material identification data.

3.4 **Environmental Safety and Health (ES&H)** shall be responsible for the following:

3.4.1 Monitoring vehicles and drums entering and exiting Radiological Zones.

3.4.2 Issuing Radiation Work Permits.

3.4.3 Preparing Project-Specific Sampling and Analysis Plans (PSAPs).

3.4.4 Performing statistical analysis on data received from on-site and off-site laboratories.

3.5 **RSO Waste Characterization** shall be responsible for performing hazardous waste determination.

4.0 **DEFINITIONS**

4.1 Composite Sample - A sample composed of several distinct subsamples derived by combining equal portions of random samples obtained from the same waste stream.

4.2 Concentrated Waste - Materials of physical form or characteristics which require non-typical sampling techniques, or contain contaminant concentrations at such a level that sample preservation is not required for sample integrity. Examples of solid-matrix concentrated wastes include paper, trash, debris, concrete, wood, etc. Examples of liquid-matrix concentrated wastes include oils solvents, process liquids, etc.

4.3 Contact Waste - Discarded materials generated during the sampling event or sampling round.

4.4 Container Blank - A sample used to determine quality and integrity of containers used in matrix sampling. Unpreserved sample containers are submitted to the laboratory. An extract from the container is prepared and analyzed for parameters of interest. Appropriate for Analytical Support Levels (ASLs) B, C, D, and E. (SCQ)

4.5 Duplicate Sample - A sample used to evaluate precision of analytical laboratory performance and sample collection techniques; prepared by evenly distributing sampling media between two or more sets of containers. Each duplicate sample is assigned an unique identification number and sent as blind samples to the same laboratory. Appropriate for ASLs A through E and required for ASLs, C and D. (SCQ)

4.0 DEFINITIONS (cont.)

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4.6 Equipment Rinsate Samples - A sample used to determine the effectiveness of decontamination procedures; prepared at the decontamination site by collecting a portion of the final rinse of the sampling equipment. Appropriate for ASLs A through E and required for ASLs, C and D. (SCQ)

4.7 Field Blank - A sample used to determine whether the sample collection process or conditions at the site have affected sample quality; prepared by pouring organic-free deionized water (ASTM Type II) into appropriate containers for each type of analysis to be conducted. Field blanks are specified for ASLs C and D and some ASL B and E analysis. (SCQ)

4.8 Low/Medium Concentration Liquid Samples - Materials which contain contaminant concentrations at such levels that sample preservation is required for sample integrity. Examples include containerized purged groundwater, sump liquids, etc. and quality control (QC) samples.

4.9 Meniscus - The convex portion of liquid matrix samples extending above the rim of the sample container.

4.10 Preservative Blank - A sample used to determine the quality of sample preservatives. Prepared by the Sample Coordinator or Field Sampling Team in a controlled environment by pouring organic-free deionized water (ASTM Type II) into sample containers with specified preservative. Appropriate for ASLs B, C, D, and E. (SCQ)

4.11 Random Sample - A representative sample of waste material collected from a container chosen from a group of similar containers that had equal probabilities of being selected.

4.12 Sampling Event - Collection of a sample from a single location for a specific project. (SCQ)

4.13 Sampling Round - Collection of samples from one or more locations for a specific project during a specified time period for a similar purpose. (SCQ)

4.14 Split Sample - A sample used to evaluate comparability of analytical data prepared by evenly distributing sample media between two or more sets of containers. Assigned the same identification number as the original sample. The original and the split sample are each shipped to different laboratory facilities for similar analysis. Appropriate for ASLs A through E and required for ASLs C and D. (SCQ)

4.15 Trip Blank - A sample used to determine whether conditions encountered during sample container shipment and handling have affected sample quality; prepared by the sample coordinator in a controlled environment by pouring organic-free deionized water (ASTM Type II) into a 40-mL volatile organic analysis vial and sealing it with a teflon-lined septum lid. Trip blanks are required when ASL C or D samples are collected for volatile organic analysis and may be specified for ASLs B and E. (SCQ)

5.0 APPLICABLE DOCUMENTS

5.1 Drivers

5.1.1 FEMP Site Wide CERCLA Quality Assurance Project Plan (SCQ).

5.1.2 DOE Order 5820.2A, "Radioactive Waste Management".

5.1.3 NVO-325, Rev. 1, Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements, June 1992.

5.1.4 Material Acceptance Process Manual, Envirocare Inc. of Utah.

5.1.5 Proposed Amended Consent Decree with OEPA.

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

5.1.7 RM-0012, "Quality Assurance Program Description"

5.1.8 FEMP Conduct of Operations Manual

5.2 References

5.2.1 EPA SW-846, Test Methods for Evaluating Solid Waste

5.2.2 RM-0005, "FEMP Lot Marking and Color Coding System"

5.2.3 SMS-93-290, Prototype Sampling and Analysis Plan for Containerized Wastes at the FEMP. (Site document number pending).

5.2.4 SOP 20-C-909, "Portable Ventilation Unit Operation"

5.2.5 SOP 20-C-912, "Checking Scale Operation"

5.2.6 SSOP-0018, "Processing Site Wide Analysis Request/Custody Record for Sample Control"

5.2.7 SSOP-0035, "Satellite Accumulation Areas and Interim Containers for Hazardous Waste"

6.0 INDUSTRIAL HEALTH & SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Portable ventilation devices shall be used per SOP 20-C-909 when collecting samples from drums containing dry materials or volatile compounds.

6.3 Operators shall wear respiratory protection provided by the supervisor.

6.4 Leather-palm gloves shall be worn when handling drums, locking rings, lids, sharp or abrasive material, or when using tools.

6.5 Safety glasses shall be worn unless a full face respirator is used.

6.0 INDUSTRIAL HEALTH & SAFETY REQUIREMENTS (cont.)

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6.6 Face shields, neoprene gloves, aprons, and chemical cover goggles shall be worn when taking samples of caustic material, acid slurries, or liquids.

6.7 Gloves shall be leaked checked by water immersion prior to use. Leaking gloves or gloves contaminated on the inside shall be discarded.

6.8 Employees shall have reviewed, and be familiar with, the information contained in the MSDS for the chemical/hazardous materials that may be used or encountered.

6.9 Specified personal protective equipment (PPE) (including booties), which are specified on Work Permits and this procedure, shall be worn before entering a sample area.

6.10 Personnel shall have access to communications devices and emergency response equipment.

6.11 Industrial Hygiene shall be contacted to measure volatile organic compounds for all drums classified as containing organic liquids. Results of monitoring along with personal protective equipment requirements shall be communicated to supervision on a "Hazardous Chemical Work Permit".

6.12 Fire and Safety Inspectors shall check for flammable vapors from all drums classified as containing organic liquids.

6.13 Flammable liquids identified by Fire and Safety shall only be sampled at the flammable liquid sampling line using explosion proof electrical equipment and non-sparking tools.

6.14 All persons will remain clear of aisle-ways while forklifts and handstackers are in use.

6.15 Personnel sampling miscellaneous material (MTC 137) shall wear an airline respirator.

6.16 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.0 INDUSTRIAL HEALTH & SAFETY REQUIREMENTS (cont.)

6.17 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the Item or Step to which they apply.

7.2 Any deviation from the PSAP (See Figure 1) shall be initiated and approved through the use of a Variance Request (VR) form (See Figure 2) completed by Site Media Sampling. The original VR form is retained in the SMS project file. A copy is retained at the drum sampling line(s) through out the sampling event or sampling round. Approved deviations shall be noted in the "Sampling Log Book."

7.3 To prevent cross-contamination, only one drum per sampling line shall be opened, unless a composite sample is required.

7.4 Volatile organic compounds (VOC) and combustible materials being sampled or staged shall be segregated from other materials. See Steps 6.11 through 6.13 for identification and sampling of flammable liquids.

7.5 When samples are requested for volatile organic analysis, the samples shall be taken and the sample container and drum closed and sealed as soon as possible.

7.6 Collect ASL-specific Quality Control (QC) samples as specified in the PSAP (ASL B) or at the frequencies identified in Table 1 for ASLs C and D.

7.7 Collect samples from containers (See 1.0 PURPOSE) in the following order:

7.7.1 Volatile Organic Analysis

7.7.2 Semi-Volatile Organic Analysis

7.7.3 Metals/Inorganics

7.7.4 Radionuclides

7.8 Initial and date custody tape section prior to sealing sample container.

8.0 PROCEDURE

8.1 Preparation for Sampling

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NOTE: The supervisor shall be contacted if there are questions pertaining to the PSAP.

8.1.1 Obtain the PSAP from the supervisor.

8.1.2 Obtain the lot number for 5-gallon cans designated for storage of waste water and contact waste from MC&A.

8.1.3 At the jobsite, check that a "Radiation Work Permit" and/or "Hazardous Material Permit" are posted and current.

8.1.3.1 If permit(s) is/are not posted, notify the supervisor.

NOTE: Scales shall be checked at the start of each operating shift or before the first use each day.

8.1.4 Check the scales to be used per SOP 20-C-912.

NOTE: VOC and flammable/combustible material shall be moved to respectively designated area identified by the supervisor.

8.1.5 Using a handstacker, move skids of material into the designated sampling or staging areas.

NOTE: Two five gallon containers shall be used unless a composite sample is to be prepared and then three containers are required.

8.1.6 Prepare containers (for cleaning sampling equipment and disposal of trash) as follows:

8.1.6.1 Tare weigh the empty, clean, color-coded 5-gallon containers.

8.1.6.2 Stencil the containers with the tare weight and lot number (obtained in Step 8.2) per RM-0005.

8.1.6.3 Install plastic liners in the five gallon containers.

NOTE: The equipment to be used for sampling is identified in the PSAP.

8.1.7 Obtain sampling equipment that has a "Clean Equipment" tag attached.

8.1.7.1 If clean equipment is not available, obtain dirty equipment and clean per Item 8.5.

8.1.8 Obtain a box of clean, lidded sampling jars.

8.0 **PROCEDURE** (cont.)

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NOTE: The following step is applicable for sample containers used for inorganic and radiological analysis only. Sample containers for organic compound analysis must be purchased pre-cleaned.

8.1.8.1 If the box of jars was not labeled, "Clean," process the jars per Step 8.5.2 and submit container blanks for inorganic and radiological constituent analysis.

8.1.9 Tare weigh each sample jar (with lid).

8.1.10 Mark the tare weight on a piece of marking tape and place on the jar or mark on lid with an indelible marker.

8.1.11 Complete the "Sample Label" (Form 144, M-145, or M-160) to be used (See Figure 3), including the tare weight.

8.1.12 Fill out the applicable portions of a "Site Wide Analysis Request/Custody Record" (SWAR/CR) form (See Figure 4) per SSOP-0018.

8.1.13 Place an absorbent pad that is applicable for material to be sampled (water/oil) under the sample jars(s).

8.1.14 Using the Log Book Stamps, imprint the "Sampling Log Book." (See Figure 5).

8.1.15 Fill out the log book with the information required by the stamp.

8.1.16 Obtain Trip Blanks from QC laboratory or from Site Media Sampling representative.

8.1.16.1 Complete labels and affix to sample containers.

8.1.16.2 Seal with custody tape and tamper proof seal. (See Figure 6).

8.1.16.3 Place in a cooler with blue ice or refrigerator in close proximity to sampling line.

8.1.16.4 Proceed to Step 8.1.18.

8.1.17 If unable to obtain Trip Blanks per Step 8.1.16, prepare trip blank, if required by PSAP, as follows:

8.1.17.1 Obtain three (3) clean 40-mL volatile organic analysis (VOA) vials, prepreserved with 4 drops of hydrochloric acid (HCl).

8.1.17.2 Fill one 40-mL vial to overflowing with a visually apparent meniscus present above the vial rim and seal sample vial.

8.1.17.3 Visually check sample vial for air bubbles by inverting and sharply tapping against hand or thigh.

8.1.17.3.1 If air bubbles are present, unseal container and repeat Steps 8.1.17.2 and 8.1.17.3.

8.0 **PROCEDURE** (cont.)

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8.1.17.3.2 If air bubbles are not present, label sample vial, seal with custody tape, and place in cooler or refrigerator.

8.1.17.4 Repeat Steps 8.1.17.2 through 8.1.17.3.2 for remaining sample vials.

NOTE: Field blanks must be prepared prior to initiation of sampling event and must remain exposed to atmospheric conditions throughout duration of the sampling event. Contact Site Media Sampling if conditions in proximity to sampling lines have changed to determine if additional field blanks are warranted.

8.1.18 Prepare field blanks for constituents identified in Section C of the PSAP as follows:

8.1.18.1 For volatile organic analysis, obtain a clean 4-ounce glass jar and fill with organic-free deionized water (ASTM Type II).

8.1.18.2 For semi-volatile organic analysis, obtain a clean 1-gallon (or equivalent volume) amber glass jar and fill with organic-free deionized water (ASTM Type II) to bottle neck.

8.1.18.3 For metal analysis, obtain a clean 1-liter polyethylene bottle and fill with organic-free deionized water (ASTM Type II) to bottle neck.

8.1.18.4 For radiological analysis, obtain two (2) clean 1-liter glass or polyethylene bottles and one (1) clean 120-mL glass or polyethylene jar and fill with organic-free deionized water (ASTM Type II) to bottle neck.

8.1.19 Place containers in close proximity to sampling line and leave un-capped throughout sampling event.

8.1.20 Proceed with sampling event.

8.1.21 Cap sample containers and process samples in accordance with Step 8.12 upon completion of sampling event.

8.2 SAMPLING

WARNING

Only non-sparking tools and explosion-proof equipment shall be used in the vicinity of flammable or combustible material sampling lines.

8.2.1 Remove the locking ring and drum lid from the drum to be sampled.

8.2.2 Visually inspect the waste material to be sampled to determine the physical characteristics (liquid, solid, dry, or moist).

8.0 **PROCEDURE** (cont.)

NOTE: HEPA ventilation devices shall have current DOP Test Labels. DOP Test Labels must be unbroken and legible.

8.2.2.1 If the material is dry, use a HEPA filtered ventilation system and inspect and operate per SOP 20-C-602.

8.2.3 Check that the drum contents corresponds with the Material Type Code (MTC) on the drum and the PSAP.

NOTE: The supervisor shall inform Site Media Sampling of discrepancies between reported and observed material types.

8.2.3.1 If the material does not match the material type code specified in the PSAP, notify the supervisor and complete a visual inspection form.

8.2.4 If a drum contains solid and liquid phases, proceed as follows:

8.2.4.1 Measure the amount of liquid (in inches) in the drum using a COLIWASA.

8.2.4.2 Measure the amount of solid (in inches) using an Auger or Pipe Sampler.

8.2.4.3 Record the percent liquid and solid phases in the "Sampling Log Book."

NOTE 1: If the liquid or solid phase is less than five percent of the total volume of the material in the drum, the material is considered single phase and the phase that constitutes less than five percent does not require sampling.

NOTE 2: If either phase is equal to or greater than five percent of the total volume of material in the drum, the drum content is considered multi-phase. Contact supervisor and Site Media Sampling representation to determine the phase(s) to be sampled and the appropriate sampling technique.

8.2.4.4 Collect samples in accordance with Steps 8.3 and 8.4 of this procedure.

8.3 Sampling Containers with Solid Materials

8.3.1 For containers with dry loose or semi-cohesive materials use a grain or pipe sampler as follows:

8.3.1.1 Insert grain or pipe sampler diagonally at a point near the side of the container, through the center, to a point at the drum base directly opposite the entry point.

8.3.1.2 Rotate grain or pipe sampler twice until slot is facing upwards.

8.3.1.3 Withdraw grain or pipe sampler, place in a horizontal position, and ensure sampling device contains sufficient sample material.

8.3.1.3.1 If sampling device does not contain sufficient sample material, repeat Steps 8.3.1.1 through 8.3.1.3.

8.0 **PROCEDURE** (cont.)

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8.3.1.4 Transfer sample material from sampling device to appropriate sample containers as follows:

8.3.1.4.1 For volatile organic analysis and semi-volatile organic analysis, use a stainless steel spatula to transfer sample material from sampling device to appropriate sample containers as identified in COLUMN A of Section C of the PSAP. (See Figure 1)

8.3.1.4.1.1 Fill sample containers in a fashion to minimize potential head space within the sample jar.

8.3.1.4.1.2 Handle and store samples in accordance with Step 8.11 of this procedure.

8.3.1.4.2 For metals and radiological analyses, transfer sample materials from sampling device to a clean stainless steel pan or bowl and process as follows:

8.3.1.4.2.1 Divide sample materials into four (4) equal portions.

8.3.1.4.2.2 Mix opposite quarters into two (2) halves.

8.3.1.4.2.3 Mix halves.

8.3.1.4.2.4 Repeat Steps 8.3.1.4.2.1 through 8.3.1.4.2.3.

8.3.1.4.2.5 Transfer materials to the appropriate sample containers identified in COLUMN A of Section C of the PSAP. (See Figure 1)

8.3.1.4.2.6 Handle and store sample in accordance with Step 8.11 of this procedure.

8.3.2 For containers with moist or wet cohesive materials use a stainless steel hand auger or coring device as follows:

8.3.2.1 Insert sampling device diagonally at a point near the side of the container, through the center, to a point at the container base directly opposite the entry point.

8.3.2.2 Rotate sampling device twice.

8.3.2.3 Withdraw sampling device, place in a horizontal position, and ensure sampling device contains sufficient sample material.

8.3.2.3.1 If sampling device does not contain sufficient sample material, repeat Steps 8.3.2.1 through 8.3.2.3.

8.3.2.4 Transfer sample material from sampling device to appropriate sample containers identified in COLUMN A of Section C of the PSAP, in accordance with Steps 8.3.1.4.1 and 8.3.1.4.2 of this procedure.

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8.0 **PROCEDURE** (cont.)

8.3.3 For containers with non-standard materials (i.e., paper, trash, personal protective equipment, filters, pads, rags, and other miscellaneous debris) collect samples as follows:

NOTE: Sort materials within the container. Collect materials which exhibit evidence of discolorations or stains for analysis.

8.3.3.1 Use scissors, shears, utility knife or similar tool to cut materials. Transfer sample material to appropriate sample containers identified in COLUMN A of Section C of the PSAP, in accordance with Steps 8.3.1.4.1 and 8.3.1.4.2 of this procedure.

8.3.3.2 If required by the PSAP, collect a rinsate sample from sample materials that cannot be feasibly cut into small pieces in accordance with Step 8.6 of this procedure.

8.3.3.3 If the PSAP does not require sample collection for materials that cannot be feasibly cut into small pieces, visually describe container contents and document in Sampling Log Book.

8.4 Sampling Containers with Liquid Materials

8.4.1 Use a clean, glass COLIWASA for collection of liquid waste samples.

8.4.1.1 Insert inner rod of glass COLIWASA inside sheath.

8.4.1.2 Lower glass COLIWASA vertically, keeping the ground glass end of the inner rod away from the hole in the sheath bottom, at a rate so that the liquid levels inside and outside the sample tube remain even.

8.4.1.3 Push inner rod downwards to close the sampling device when the container base has been encountered.

8.4.1.4 Withdraw sampling device with one hand while decontaminating the outside surface with a clean, disposable cloth.

8.4.1.5 Pull inner rod upwards to transfer material to appropriate sample containers identified in COLUMNS B and C of Section C of the PSAP in accordance with Step 8.12 and/or 8.13 of this procedure.

NOTE: Equipment decontamination shall be performed over a 5-gallon container marked with the appropriate 15-digit FEMP Lot Marking Code (Refer to Step 8.1.7).

8.5 Equipment Decontamination

8.5.1 Sampling equipment and associated devices used for sample transfer shall be decontaminated as follows:

8.5.1.1 Rinse equipment with potable (tap) or distilled water.

8.0 **PROCEDURE** (cont.)

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8.5.1.2 Clean equipment using a phosphate-free laboratory detergent and potable water solution and scrub brushes.

8.5.1.3 Rinse with potable (tap) or distilled water.

8.5.1.4 Rinse twice with organic-free deionized water (ASTM Type II).

8.5.1.5 Inspect decontaminated equipment for signs of visible residual contamination (adhered particles) or stains, discolorations.

8.5.1.6 Field screen sampling equipment using a portable Photo Ionization Detector (PID) and beta/gamma frisker for signs of residual contamination.

8.5.1.7 If sampling equipment still exhibits signs of visible contamination, deliver to site decontamination Facility and proceed to Step 8.5.4 or perform Step 8.5.2.

8.5.2 Decontaminate equipment that exhibits signs of visible contamination or stains/discolorations or fails field screening analysis as follows:

8.5.2.1 Rinse with potable (tap) water.

8.5.2.2 Clean equipment with a phosphate-free laboratory detergent and potable water solution and scrub brushes.

8.5.2.3 Rinse with potable (tap) water.

8.5.2.4 Rinse with 0.02 normal hydrochloric or sulfuric acid.

8.5.2.5 Rinse with potable (tap) water.

8.5.2.6 Rinse with methanol.

8.5.2.7 Triple rinse with organic-free deionized water (ASTM Type II).

8.5.3 Allow sampling equipment to air dry when feasible, or use a clean, lint-free disposable cloth to dry the sampling equipment; then store as follows:

8.5.3.1 Wrap equipment in aluminum foil with the shiny side facing outwards if the equipment will be used for VOA or SVOA sample collection.

8.5.3.2 Wrap equipment in a plastic bag if the equipment will not be used for VOA or SVOA sample collection.

8.5.4 Complete a "Clean Equipment" tag, Form FMPC-PRO-3128 (See Figure 7).

8.5.5 Attach the tag to the decontaminated equipment.

8.0 **PROCEDURE** (cont.)

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8.5.6 Store sampling device as follows:

8.5.6.1 Place decontaminated sampling equipment in a clean protected area.

8.5.7 Process rinsate wastewater in accordance with SOP 20-C-605.

8.5.8 Process contact wastes per SSOP-0035.

NOTE: Equipment rinsate samples should be collected on a daily basis subsequent to completion of the sampling event and MUST be collected prior to sampling materials of a differing waste stream (Material Type and Source Code).

8.6 Equipment Rinsate Blanks

8.6.1 Obtain sample containers as specified in COLUMN D of Section C of the PSAP (See Figure 1).

8.6.2 Hold sample container directly beneath the decontaminated sampling device.

8.6.3 Pour organic-free deionized water (ASTM Type II) over the decontaminated sampling equipment.

8.6.4 Collect equipment rinsate in appropriate sample container.

8.6.5 Repeat Steps 8.6.2 through 8.6.4 until all sample containers are filled.

8.6.6 Process samples in accordance with Step 8.12 of this procedure.

8.7 Duplicate Samples

8.7.1 Collect two sets of samples, when specified by PSAP, from the designated container in accordance with Steps 8.3 and/or 8.4 of this procedure.

8.7.2 Retain one (1) sample set as the "original samples" and assign a sample number as specified in the PSAP.

8.7.3 Retain the other sample set as the "duplicate sample" and assign an unique sample number as specified in the PSAP.

8.7.4 Process original and duplicate samples in accordance with Step 8.11, 8.12, or 8.13 depending on the matrix of the duplicate sample.

8.8 Split Samples

8.8.1 Collect two sets of samples, when specified by the PSAP, from the designated container in accordance with Steps 8.3 and/or 8.4 of this procedure.

8.8.2 Assign the same sample number to the "original sample" and "split samples".

8.0 **PROCEDURE** (cont.)

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8.8.3 Process original and split samples in accordance with Step 8.11, 8.12, or 8.13 depending on the matrix of the split samples.

8.9 Container Blanks

NOTE 1: Container blanks are required if pre-used sample containers are cleaned and re-used per Step 8.5.2 or if vendor-supplied analytical data are not available.

NOTE 2: Container blanks are not required if vendor-supplied analytical data (i.e., Certificate of Analysis) are provided for each batch of sample containers used during the sampling round.

8.9.1 If vendor-supplied analytical data are supplied perform the following:

8.9.1.1 Submit a copy of these data to SMS for storage in the project file.

8.9.1.2 Document vendor-supplied container numbers (provided on a bar code label attached to sample container) in the Sampling Log Book.

8.9.1.3 Proceed to Step 8.11.

8.9.2 If vendor-supplied analytical data are not available, obtain a set of "clean" (unused) sample containers for metals and radionuclides analysis as specified in the PSAP.

8.9.3 Process empty "clean" sample containers in accordance with Step 8.11 of this procedure.

8.9.4 Indicate "Container Blank" in the remarks section of the SWAR/CR.

NOTE: Preservative blanks may be required if vendor-supplied assay data are not available.

8.10 Preservative Blanks

8.10.1 If vendor-supplied assay data are provided, document the preservative manufacturer and lot number (batch identifier) for the respective preservative used in the Sampling Book.

8.10.1.1 Submit a copy of these assay data to SMS for storage in the project file.

8.10.1.2 Proceed to Step 8.11.

8.10.2 If vendor-supplied assay data are not available, obtain the following sample containers and preservatives when a preservative blank is specified in the PSAP.

8.10.2.1 For VOC analysis, collect 3-40 mL vials with Teflon-lined septum lids and add 4 drops of hydrochloric acid to each vial.

8.0 **PROCEDURE** (cont.)

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8.10.2.2 For metals and radiological analysis, collect one (1) one-liter polyethylene bottle and add 20 drops of nitric acid.

8.10.3 Pour organic-free deionized water (ASTM Type II) into the prepreserved sample containers identified in Steps 8.10.2.1 and 8.10.2.2.

8.10.4 Process samples in accordance with Step 8.12 of this procedure.

8.10.5 Indicate "Preservative Blank" in the remarks section of the SWAR/CR.

NOTE: Check cooler/refrigerator inner temperature with a thermometer (graded in units of 1°C) on a daily basis to ensure samples are preserved at 2-6°C. Record cooler/refrigerator temperature in field logbook.

8.11 Solid-Matrix Concentrated Waste Sample Handling and Storage

8.11.1 Handle and store solid-matrix samples and duplicate/split samples as follows:

8.11.1.1 Complete label and affix to sample container.

8.11.1.2 Seal with custody tape.

8.11.1.3 Place VOA, SVOA, and metals samples in a cooler with 'blue ice' or refrigerator in close proximity to the sampling line.

8.11.1.4 Place radiological samples in a controlled storage area in close proximity to the sampling line.

8.12 Low/Medium Concentration Liquid-Matrix Sample Handling and Storage

8.12.1 Transfer low/medium concentration liquid-matrix VOA samples and duplicates/splits from the temporary storage container (4-ounce glass jar or larger), as required, to three (3) 40-mL VOA vials in accordance with Steps 8.1.17.1 through 8.1.17.4 of this procedure.

8.12.1.1 Complete labels and affix to sample containers.

8.12.1.2 Seal with custody tape.

8.12.1.3 Place in a cooler with 'blue ice' or refrigerator in close proximity to sampling line.

8.12.2 Process low/medium concentration liquid-matrix SVOA samples and duplicates/splits as follows:

8.12.2.1 Complete labels and affix to the sample container.

8.12.2.2 Seal with custody tape.

8.12.2.3 Place in a cooler with 'blue ice' or refrigerator in close proximity to the sampling line.

8.0 PROCEDURE (cont.)

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WARNING

Goggles, nitrile gloves, and an apron vest must be worn when working with acids.

8.12.3 Process low/medium concentration liquid-matrix samples and duplicates/splits for metals and radiological analysis as follows:

8.12.3.1 Add one (1) milliliter (mL) or 20 drops of Nitric Acid (HNO_3) per 1,000 mL (1-liter) of sample using an acid ampule or dispensing bottle. Cap container and gently invert and rotate bottle to mix acid with sample material.

NOTE: For field blank and equipment rinsate samples Step 8.12.4.2 is not necessary, based on past experience.

8.12.3.2 Check pH by gently splashing the acidified sample onto an indicator strip, over a 5-gallon pail used to collect rinsate wastewater, and comparing color codes.

8.12.3.2.1 If pH is greater than 2, add one drop of nitric acid (HNO_3) and repeat Steps 8.11.4.1 and 8.11.4.2. Repeat Steps 8.11.4.2.1 and Steps 8.11.4.1 through 8.7.4.2 until a pH of less than 2 is achieved.

8.12.3.3 Complete labels and affix to sample container.

8.12.3.4 Seal with custody tape.

8.12.3.5 Place samples for metals analysis in a cooler or refrigerator in close proximity to the sampling line.

8.12.3.6 Place radiological samples in a controlled storage area in close proximity to the sampling line.

8.12.4 Complete SWAR/CR in accordance with SSOP-0018.

8.12.5 Transport samples in coolers to the FEMP Sample Processing Laboratory (SPL) with the SWAR/CR and a copy of the PSAP.

8.13 Liquid-Matrix concentrated Waste Sample Handling and Storage

8.13.1 Process liquid matrix concentrated waste samples and duplicates/splits for UOA, SUOA, and metals analyses as follows:

8.13.1.1 Complete label and affix to sample container.

8.13.1.2 Seal with custody tape.

8.13.1.3 Place samples in a cooler with 'blue ice' or refrigerator in close proximity to the sampling line.

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8.0 **PROCEDURE** (cont.)

8.13.2 Process liquid matrix concentrated waste samples and duplicates/splits for inorganic and radiological analyses as follows:

8.13.2.1 Complete label and affix to sample container.

8.13.2.2 Seal with custody tape.

8.13.2.3 Place samples in a controlled storage area in close proximity to the sampling line.

9.0 **APPLICABLE FORMS**

9.1 M-144, M-145, M-160, "Sample Label"

9.2 "Tamper Proof Seal"

9.3 FS-F-3361, "Site-Wide Analysis Request/Custody Record"

9.4 FMPC-PRO-3128, "Clean Equipment Tag"

9.5 "Variance Report"

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TABLE 1
FIELD QUALITY CONTROL SAMPLES

	ANALYTICAL SUPPORT LEVELS		
	B	C	D
INORGANICS, ORGANICS, and RADIONUCLIDES Field QC Samples			
Field blanks	A/S	1 per 20 or 1 per sampling event, whichever is more frequent	1 per 20 or 1 per sampling event, whichever is more frequent
Equipment rinsate blanks	A/S	1 per 20 or 1 per sampling event, whichever is more frequent	1 per 20 or 1 per sampling event, whichever is more frequent
Field duplicates	A/S	1 per 20 or 1 per sampling event, whichever is more frequent	1 per 20 or 1 per sampling event, whichever is more frequent
Preservative blanks	A/S	A/S	A/S
Container blanks	A/S	1 per QC lot of containers	I per QC lot of containers
Laboratory control samples	1 per analytical batch if applicable	1 per analytical batch if applicable	1 per analytical batch if applicable
Method blanks	1 per analytical batch of samples	1 per analytical batch of samples	1 per analytical batch of samples
Trip blanks (VOAs only)	A/S	1 per shipping container	1 per shipping container

Drummed Waste Material
Project-Specific Sampling and Analysis Plan

5690

Number: 1~
Date: 12-11-93
Page 1 of 5

A. Identifying Information

1) **Project Name:** 13~
2) **Plan No.:** 1~
3) **Material Description/Matrix Code(s):** 2~
4) **Number of Drums in Sub-Waste Stream:** 10~
5) **Material Type:** 3~
6) **Source Code:** 4~
7) **Material Evaluation Form #:** 5~
8) **Sampling Location for Drums:** 6~
9) **Process Knowledge:** 7~

B. Sampling Information

1) **General:** Samples taken will be contained in glass or polyethylene jars with teflon lined lids.
2) **Preservation Method:** See Analytical Requirements in Section C.
3) **Holding Times:** See Preservative and Holding Time Guidelines in Section G. Holding times and sample volume/container requirements for media-specific analyses not listed in the SCQ are provided by the FEMP laboratory facility.
4) **Sample Technique:** 8~
5) **Number of Drums to be Sampled and Analyzed:** x, see page 2.
6) **Composite Samples:** Yes (No)
7) **Visual Inspection Performed?:** Yes (No) (See attached Visual Inspection Form).
8) **Field Contact:** 14~
9) **Send Results to:**
10) **Charge No./Project Manager:** 15~
11) **Required QA/QC Samples:**

Field QC	Yes	No	Notes
Trip Blank	___	___	no volatile organic samples
Field Blank	___	___	1 per 20 samples or 1 per sampling event
Equipment Rinsate	___	___	1 per 20 samples or 1 per sampling event
Duplicate	___	___	1 per 20 samples or 1 per sampling event
Container Blank	___	X	analytical data supplied by supplier
Preserv. Blank	___	X	assay data supplied by supplier

Laboratory QC

Laboratory QC sample type and frequency requirements are provided in Appendix G of the SCQ.

Authorized Signature/Date Approved/Date

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet 1 of 5)

Drummed Waste Material
Project-Specific Sampling and Analysis Plan

5690

Number: 1~
Date: 12-11-93
Page 2 of 5

Sampling Information

Start with Sample Number 9~ for the first drum sample, then number consecutively until sampling is completed. The drum that is to be sampled in duplicate will be indicated with an asterisk (*). The duplicate samples will be given different sample numbers.

Sample Number	Sample Matrix	Inv. Number	Lot Number	Drum Number
9~				
1~				
1~				
1~				
1~				
1~				
1~				
1~				
1~				

Authorized Signature/Date Approved/Date

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet 2 of 5)

Drummed Waste Material
Project-Specific Sampling and Analysis Plan

Number: 1~
Date: 12-11-93
Page 3 of 5

C. Analytical Requirements

In order to satisfy waste characterization requirements the following analyses may be performed:

	COLUMN A		COLUMN B	
Analysis Requested (Analysis Code) ASL = Analytical Support Level VOA = Volatile Organics Analysis SVOA = Semi-Volatile Organics Analysis U,Th = Uranium, Thorium PFLT = Paint Filter Liquids Test	**Solid Matrix Concentrated Waste Sample Container and Preservative/Unit Codes** oz. = ounce P00, P01 = No preservation, Cool 4 deg. C U00, U04, U06, U07, U19 = ppm, mg/kg, ug/L, ug/g, pCi/g U99 = present/absent TLC = Teflon Lined Closure		**Liquid Matrix Concentrated Waste Sample Container and Preservative/Unit Codes** mL, L = milliliter, Liter P00 = no preservation needed U02, U06, U17, U18 = mg/L, ug/L, pCi/mL, pCi/L U35, U37 = pH units, degrees Fahrenheit TLS = Teflon Lined Septum	
Total VOAs (2411)* TCLP VOAs (2459)** ASL B	(3) x 4-oz. glass, TLC	P01/U04(total) U06(TCLP)	(1) x 250 mL glass jar, TLS	P01/U06
Total SVOAs (2470)* TCLP SVOAs (2471)** ASL B	(1) x 8-oz. amber glass, TLC	P01/U04(total) U06(TCLP)	(1) x 250 mL amber glass, TLC	P01/U06
Total Metals (2402)* TCLP Metals (2401)** ASL B	(1) x 8-oz. glass or polyethylene	P01/U04(total) U06(TCLP)	(1) x 250 mL glass, TLC	P01/U06
Flash Point (2434) pH (2435) ASL B	-----	---	(1) x 250 mL glass, TLC	P00/U37 P00/U35
Total U (2442) ASL B	(1) x 8-oz. glass or polyethylene	P00/U07(soil) U00(any other solids)	(1) x 120 mL glass or polyethylene	P00/U06
Isotopic U (2026-29) ASL B	(1) x 8-oz. glass or polyethylene	P00/U19	(1) x 250 mL glass or polyethylene	P00/U18
PFLT (2053) ASL B	(1) x 4-oz. glass or polyethylene	P00/U99	-----	---
Alpha-Beta (2005)	(1) x 4-oz. polyethylene	P00/U19	(1) x 120 mL polyethylene	P00/U17
Description of material (Color, appearance, consistency, etc.)				

Note: * - Perform analysis for liquid matrix concentrated waste samples.
** - For solid matrix samples only. Prepare sample extract, then conduct Total concentration screening analyses. If Total concentrations exceed 20 times the TCLP regulatory value, then analyze the sample extract.

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet 3 of 5)

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Drummed Waste Material
Project-Specific Sampling and Analysis Plan

Number: 1~
Date: 12-11-93
Page 4 of 5

C. Analytical Requirements (cont.)

	COLUMN C		COLUMN D	
Analysis Requested (Analysis Code) ASL = Analytical Support Level VOA = Volatile Organics Analysis SVOA = Semi-Volatile Organics Analysis U,Th = Uranium, Thorium PFLT = Paint Filter Liquid Test	**Low to Medium Concentration Liquid Samples Container and Preservative/Unit Codes** mL, L = milliliter, Liter P01, P09 = Cool 4 deg. C, HCl to pH < 2. P11 = HNO_3 to pH < 2 P13 = HNO_3 tp pH < 2/cool 4 deg. C U06, U17, U18 = mg/L, ug/L, pCi/mL, pCi/L U35, U37 = pH units, degrees Fahrenheit TLS = Teflon Lined Septum TLC = Teflon Lined Closure		**Quality Control Sample@ Container and Preservative/Unit Codes** mL, L = milliliter, Liter P01, P09 = Cool 4 deg. C, HCl to pH < 2. P11 = HNO_3 to pH < 2 P13 = HNO_3 to pH < 2/cool 4 deg. C U06, U17, U18 = ug/L, pCi/mL, pCi/L U35, U37 = pH units, degrees Fahrenheit TLS = Teflon Lined Septum TLC = Teflon Lined Closure	
Total VOAs (2411) ASL B	(3) x 40 mL glass vials, TLS	P01 + P09/U06	(3) x 40 mL glass vials, TLS	P01 + P09/U06
Total SVOAs (2470) ASL B	(1) x 1 gallon jar amber glass, TLC	P01/U06	(1) x 1 gallon jar amber glass, TLC	P01/U06
Total Metals (2402) ASL B	(1) x 1 L jar, polyethylene	P13/U06	(1) x 1 L jar, polyethylene	P13/U06
Flash Point (2434) pH (2435) ASL B	(1) x 250 mL glass, TLC	P00/U37 P00/U35	-----	---
Total U (2442) ASL B	(1) x 1 L jar, glass or polyethylene	P11/U06	(1) x 1 L jar glass or polyethylene	P11/U06
Isotopic U (2026-29) ASL B	(1) x 1 L jar, glass or polyethylene	P11/U18	(1) x 1 L jar glass or polyethylene	P11/U18
PFLT (2053) ASL B	-----	---	-----	---
Alpha-Beta (2005)	(1) x 120 mL polyethylene	P11/U17	(1) x 120 mL polyethylene	P11/U17
Description of material (Color, appearance, consistency, etc.)				

Note: @ - Container and preservation/unit code requirements for trip blanks, field blanks, and equipment rinsates only. Container and preservation/unit code reqirements for duplicate or split samples are provided in Columns A, B, or C, depending on the matrix of the waste sample.

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet 4 of 5)

Drummed Waste Material
Project-Specific Sampling and Analysis Plan

5690

Number: 1~
Date: 12-11-93
Page 5 of 5

D. Sub-Waste Stream Description

The sub-waste stream consists of 10~ drums in 11~ lots. The material type of "3~" and the source code of "4~" indicate that this material is 7~

E. Safety Concerns

See SOP 20-C-805, Sections 6.0 to 6.14 for Health and Safety requirements.

F. Representative Sampling Procedure

12~ drums were chosen at random, and are listed on page 2 of this form. If visual inspection indicates that the material has free liquid or is completely dry, then a P.F.L.T is not necessary. Record pertinent information in the Field Log Book for each drum sampled as specified in SOP 20-C-805, Section 7.2.13.

G. Preservative and Holding Time Guidelines

See Tables 6.1 and 6.2 of the "Prototype Sampling and Analysis Plan for Containerized Waste at the FEMP" and/or Table 6-1 "Sample Container and Preservation Requirements," of the Sitewide CERCLA Quality Assurance Project Plan (SCQ). Sample container, preservative, and holding time requirements for analytical parameters not provided in these tables have been obtained from federal or state of generation poilcies/directives, or from the FEMP or FEMP-contracted laboratory facility; and incorporated into this PSAP as permitted in Section 3.3.2 of the SCQ.

This form must be dated and signed by an authorized individual.

If this Sub-Waste Stream is sampled and analyzed according to the information on this form, the results generated will be in agreement with the sampling and analysis requirements of NVO-325 (Rev. 1), Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements; and the Fernald Environmental Management Project (FEMP) Sitewide CERCLA Quality Assurance Project Plan (SCQ).

Authorized Signature/Date Approved/Date

DRUMMED WASTE MATERIAL PSAP
Figure 1 (Sheet 5 of 5)

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VR No. ____

VARIANCE REQUEST

Page _ of _

Date _____

VARIANCE (Include Justification)

Variance:

Justification:

REQUESTED BY: _____ **Date:** _____

APPROVED BY: _____ **Date:** _____
Project Manager

_____
Quality Assurance

_____
SCQ Implementation

APPLICABLE DOCUMENT(S) AND SECTION NUMBER(S)

VARIANCE REQUEST
Figure 2

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SAMPLE ID: XXXXXXXXXX

(barcode goes here)

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
SAMPLE ID :. XXXXXXXXXX
(barcode goes here)

DATE SAMPLED TIME SAMPLED

MATERIAL NAME / SAMPLE TYPE
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
PRESERVATIVES
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER TYPE GROSS WEIGHT
XXXXXXXXXXXXXXXX

COLLECTORS INITLS TARE WEIGHT

CNT:

COC #:

SAMPLE ID: XXXXXXXXXX

(barcode goes here)

Label A

TEMP SAMPLE ID X-REF SAMPLE ID

DATE SAMPLED TIME SAMPLED

MATL NAME

SAMPLE TYPE

CONTAINER TYPE GROSS WEIGHT
XXXXXXXXXXXXXXXXX

COLLECTORS INITLS TARE WEIGHT

PRESERV:

CNT:

COC #:

Label B

SAMPLE LABELS
Figure 3

5690

FEMP
RSO - ANALYTICAL

Form Number. ____ - ____ - ____

SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD

Page ____ of ____

PROJECT:	FOR SAMPLE RELATED PROBLEMS, CONTACT:
☐ PLAN NO.: OR ☐ PROJECT NO.:	ORGANIZATION:
PROJECT MANAGER/ENGINEER:	NAME: PHONE:
SAMPLER: PHONE:	SAMPLER REMARKS:
CHARGE NUMBER: LOT MARKING CODE:	
SAMPLER SIGNATURE(S):	
SEND RESULTS TO:	

CHECK FOR: ☐ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

ITEM NO.	[redacted]	CUSTOMER NUMBER	SAMPLE POINT	MATRIX CODE	COLLECTED DATE	COLLECTED TIME	CONTAINER/ VOLUME	COMPOSITE	GRAB	NO. OF CONTAINERS	ANALYTES CODE - (UNITS CODE)	REMARKS
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME	ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME

NO.	DISTRIBUTION OF COPIES
1	LABORATORY
2	REQUESTER
3	SAMPLER

FS-F-3361 REV 3/93

SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD
Form No. FS-F-3361
Figure 4

5690

Notebook No. _____ 29

PROJECT Sample Plan 144

Continued From Page _____

BLDG 71

DATE 3-20-91 LOCATION Isotopic Room SAMPLE NUMBER R144-7

SAMPLE PLAN 144 NUMBER AND VOLUME OF SAMPLES 7 Jars

MATERIAL Contaminated Burnables, Rags, Filter Cloth, Paper 3-40ml Vials, 2-qt, 1-80z, 1-40z

MATERIAL DESCRIPTION Dark Liquid NUMBER OF PHASES TWO

MATERIAL TYPE 027 SOURCE CODE 530 ANALYSIS REQUIRED Total VOA's, TCLP Metals,

DRUM SAMPLED H093-530-0027-0287 Dr.#9 U-235, Alpha-Beta, Total U, pH, Flash Point

TIME SAMPLED 1300 TYPE Coliwasa (Liquid)

SAMPLED BY F. Merrill - W. Daniel

Darrell W. Kirby
3-20-91

Note: 13 inches total 9 inches of Water = 69% water
Note: Plastic Bottles, Metal Cans, Plastic, Trash, Gloves

BLDG 71

DATE 3-21-91 LOCATION Isotopic Room SAMPLE NUMBER R144-8

SAMPLE PLAN 144 NUMBER AND VOLUME OF SAMPLES 7 Jars

MATERIAL Contaminated Burnables, Rags, Filter Cloth, Paper 3-40z, 1-pt, 1-80z

MATERIAL DESCRIPTION Plastic Bottles, Metals Cans, Plastic, Trash, Gloves (Solid) NUMBER OF PHASES TWO

MATERIAL TYPE 027 SOURCE CODE 530 ANALYSIS REQUIRED Total VOA's, TCLP Metals,

DRUM SAMPLED H093-530-0027-0287 Dr.#9 Total U, U-235, Alpha-Beta

TIME SAMPLED 0830 TYPE Scissors (Solid)

SAMPLED BY F. Merrill

Darrell W. Kirby
3-21-91

Continued on Page

Read and Understood By

Signed	Date	Signed	Date
R G [illegible]	3-21-91		

SAMPLE LOG BOOK
Figure 5

5690

If Seal is broken or package damaged check contents before signing receipt.

TAMPER PROOF SEAL
Figure 6

5690

CLEANED BY: _____

DATE: _____

Cleaned according to sop : _____

FMPC-OPR-3128 (6/22/89)

CLEAN EQUIPMENT TAG
Form No. FMPC-PRO-3128
Figure 7

RECORD OF ISSUE/REVISION

5690

TE	REV. NO.	DESCRIPTION AND AUTHORITY
04-10-92	0	Procedure required for taking samples from drums of waste material per Request No. P92-049, initiated by J. Hey.
04-15-93	1	Revised to incorporate CIO C92-160 (P93-400), C92-161 (P93-401), C92-162 (P93-402), C93-154 (P93-403), C93-479 (P93-409), and update to conform with current procedure program requirements.
12-16-93	0	Reissued to incorporate changes per Request No. P93-1305, initiated by J. Gnoose.

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1.0 PURPOSE

The purpose of this document is to establish the procedure for evaluating bulk waste streams designated as low level radioactive waste (LLRW) to ensure the material is characterized as nonhazardous (per RCRA) and meets the Nevada Test Site (NTS) Waste Acceptance Criteria (WAC) prior to shipment and disposal.

2.0 APPLICABILITY

This procedure is applicable to waste streams, except wastes from a Hazardous Waste Management Unit (HWMU), being inspected or packaged for disposal as LLRW.

3.0 RESPONSIBILITIES

3.1 **Waste Generator Supervisors** shall be responsible for the following:

3.1.1 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.2 Contacting Industrial Hygiene and Radiological Control to determine the appropriate respiratory protection for the task being performed.

3.1.3 Issuing the required respiratory protection to generators.

3.1.4 Coordinating with Waste Characterization to determine disposition requirements for discrepant items.

3.1.5 Obtaining and posting a "Radiation Work Permit" (RWP) when required.

3.1.6 Reviewing applicable Material Safety Data Sheets (MSDS) with evaluators.

3.2 **Waste Generators** shall be responsible for complying with this procedure.

3.3 **Quality Control (QC)** shall be responsible for the following:

3.3.1 Ensuring that the questions in Section I are checked yes or N/A.

3.3.2 Reviewing Section II of the applicable form to verify that no prohibited materials were packaged.

3.4 **Waste Characterization (WC)** shall be responsible for the following:

3.4.1 Reviewing documentation on items that are rejected during inspection.

3.4.2 Approving rejected items for shipment as LLRW or specifying disposition requirements.

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4.0 **DEFINITIONS**

4.1 Entrapped Liquids - Collected fluids that have accumulated due to exposure to the elements.

4.2 Internal Fluids - Liquid within equipment which functioned as a working component of the unit.

4.3 Low Level Radioactive Waste - Scrap material that is contaminated with uranium but is below the limits for high level waste.

4.4 Waste Generator (Point of Generation) - Personnel belonging to the organization where waste material originates.

4.5 Waste Stream - Scrap material (plastic, rubber, paper, fiberglass, rope, wood, metal, and glass) and vehicles (including light/medium duty trucks and forklifts) that have been designated as LLRW.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

5.1.1 DOE 5820.2A, "Radioactive Waste Treatment"

5.1.2 OAC 3745-51-07, "Residues of Hazardous Waste in Empty Containers"

5.1.3 40 CFR 262.11, "Hazardous Waste Determination"

R 5.1.4 PO-D-026, "Site Services Document Program"

5.1.5 FEMP Conduct of Operations Manual

5.1.6 RM-0012, "Quality Assurance Program Description"

5.2 References

None

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 Safety glasses with side shields shall be worn unless other eye protection is specified by ES&H.

6.2 Respiratory protection issued by the supervisor shall be worn when required by ES&H.

6.3 Leather-palmed gloves shall be worn when handling rough or contaminated material.

6.4 Vacuum cleaners equipped with a HEPA filter or an ES&H approved vacuum shall be used for cleaning.

6.5 Evaluators shall have read and be familiar with MSDSs for hazardous material/chemicals that may be used or encountered.

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6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.6 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

6.7 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the step to which they apply.

8.0 PROCEDURE

NOTE: The applicable YES, NO, or N/A box shall be checked for the criteria listed in the Waste Evaluation Section (Section I) of the form being used.

8.1 Evaluating Waste Material to be Packaged

WASTE GENERATOR

NOTE 1: More than one type of form may be required, depending on the make-up of the waste.

NOTE 2: Items that are rejected during inspection shall not be packaged. The NO box shall not be checked unless all items are rejected.

8.1.1 Visually inspect and evaluate waste items to be packaged for disposal per Section I of the applicable materials evaluation and container information (ME&CI) form as follows:

8.0 **PROCEDURE** (cont.)

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(A) "Materials Evaluation and Container Information - Glass," Form FS-F-3715 (See Figure 1)

(B) "Materials Evaluation and Container Information - Metal," Form FS-F-3464 (See Figure 2)

(C) "Materials Evaluation and Container Information - Wood," Form FS-F-3465 (See Figure 3)

NOTE: This form and procedure shall not be used to evaluate heavy equipment.

(D) "Materials Evaluation and Container Information - Scrap Vehicles" Form FS-F-3472 (See Figure 4)

(E) "Materials Evaluation and Container Information - Plastic, Rubber, Paper, Fiberglass, Rope" Form FS-F 3580 (See Figure 5)

8.1.2 If an item or items are rejected, proceed as follows:

8.1.2.1 Set rejected items aside.

NOTE: The NO block in Section I shall be checked on the second form (or the original form) for a shipment where all items are rejected.

8.1.2.2 Fill out a separate form for rejected items, unless all items to be packaged were rejected.

8.1.2.3 Notify the supervisor of rejected (discrepant) items.

8.1.2.4 Give the form to the supervisor.

WASTE GENERATOR SUPERVISOR

8.1.2.5 Transmit the form to the Waste Characterization Section (WCS) and request assistance in determining disposition requirements for discrepant items.

WASTE CHARACTERIZATION

8.1.2.6 Review discrepant items.

8.1.2.7 In Section II of the form, document the basis for approval of item for packaging as LLRW or specify disposition requirements.

8.1.2.8 If approved for packaging, sign and date the provided space.

8.1.2.9 Transmit the form and disposition instructions to the Waste Generator Supervisor.

WASTE GENERATOR SUPERVISOR

8.1.2.10 Give the form and applicable instructions to the Waste Generator.

8.0 PROCEDURE (cont.)

WASTE GENERATOR

8.1.2.11 Complete the inspection for items approved for packaging.

8.1.3 Record, in Section II Block 1, the origin and description of items placed in the container.

8.1.4 Complete Section II as required.

8.1.5 Review the form(s) to ensure that all information recorded is accurate and reflects the status of the packaged material.

8.1.6 Sign Block 3 of Section II

8.1.7 Give the completed forms to the supervisor.

WASTE GENERATOR SUPERVISOR

8.1.8 Sign the form to verify that the evaluation was accurate and complete.

8.1.9 Have Quality Control sign to approve the package for shipment.

8.1.10 Distribute the form(s) per Item 8.3.

8.2 Evaluating Packaged Material

WASTE GENERATOR

8.2.1 Open the container to be evaluated.

8.2.2 Visually inspect the contents of the container per the applicable form (Refer to Step 8.1.1).

8.2.2.1 If items can not be seen, shift the container contents, if possible, until all items can be evaluated.

8.2.2.2 If the items can not be rearranged to permit a visual inspection, remove items from the container as required to permit evaluation.

NOTE: Items shall not be returned to the container until disposition instructions are received for discrepant material.

8.2.2.3 If all items pass inspection, based on the criteria in Section I of the form, return removed items to the container.

8.2.3 If the contents of the container are acceptable, close the container. If not acceptable, proceed as follows:

8.2.3.1 Fill out a separate form for failed items, unless all items to be packaged fail the inspection.

8.2.3.2 Notify the supervisor of failed (discrepant) items.

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8.0 **PROCEDURE** (cont.)

8.2.3.3 Give the form to the supervisor.

WASTE GENERATOR SUPERVISOR

8.2.3.4 Transmit the form to the Waste Characterization Section (WCS) and request assistance in determining disposition requirements for discrepant items.

WASTE CHARACTERIZATION

8.2.3.5 Review discrepant items.

NOTE: If not approved, direct that the items be removed from the container and set aside, unless removing the item would be impracticable.

8.2.3.6 In Section II of the form, document the basis for approval of item(s) for packaging as LLRW or specify disposition requirements.

8.2.3.7 If approved for packaging, sign and date the provided space.

8.2.3.8 Transmit the form and disposition instructions to the Waste Generator Supervisor.

WASTE GENERATOR SUPERVISOR

8.2.3.9 Give the form and applicable instructions to the Waste Generator.

WASTE GENERATOR

8.2.3.10 Complete the inspection for items approved for packaging.

8.2.4 Record, in Section II Block 1, the origin and description of items placed in the container.

8.2.5 Complete Section II as required.

8.2.6 Review the form(s) to ensure that all information recorded is accurate and reflects the status of the packaged material.

8.2.7 Sign Block 3 of Section II of the form.

8.2.8 Give the completed form(s) to the supervisor.

WASTE GENERATOR SUPERVISOR

8.2.9 Perform Steps 8.1.8 thru 8.1.10

8.3 Form Distribution

WASTE GENERATOR SUPERVISOR

8.3.1 Remove and file the green copy of the form.

8.3.2 Forward the form to MC&A.

8.0 PROCEDURE (cont.)

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MC&A

8.3.3 Remove and file the yellow copy of the form.

8.3.4 Forward the form to Low-Level Waste Handling and Disposal.

LOW LEVEL WASTE HANDLING AND DISPOSAL (WASTE SHIPPING COORDINATOR)

8.3.5 Remove and file the blue copy of the form.

8.3.6 Forward the original of the form to Waste Characterization.

WASTE CHARACTERIZATION

8.3.7 File Waste Characterization copy (original).

9.0 APPLICABLE FORMS

9.1 Form No. FS-F-3715 "Materials Evaluation and container Information-Glass"

9.2 Form No. FS-F-3464, "Materials Evaluation and container Information - Metal"

9.3 Form No. FS-F-3465, "Materials Evaluation and Container Information - Wood"

9.4 Form No. FS-F-3472, "Evaluation and Container Information - Scrap Vehicle"

9.5 Form No. FS-F-3580, "Materials Evaluation and Container Information - Plastic, Rubber, Paper, Fiberglass, Rope"

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Table 1
ACUTE HAZARDOUS WASTE

Hazardous Waste Number	Chemical Abstract Number	Substance
P012	1327-53-3	Arsenic trioxide
P015	7440-41-7	Beryllium
P018	357-57-3	Brucine
P022	75-15-0	Carbon disulfide
P037	60-57-1	Dieldrin
P106	143-33-9	Sodium cyanide Na (CN)
U002	67-64-1	Acetone (I)
U003	75-05-8	Acetonitrile (I,T)
U019	71-43-2	Benzene (I,T)

(1) CAS number given for parent compound only.

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FEMP
LOW-LEVEL RADIOACTIVE WASTE

Reference MEF # 905

MATERIALS EVALUATION AND CONTAINER INFORMATION - WOOD

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Treated: Material free from creosote treatment			
2. Residues: Free from process or waste residues			
3. Stains: Stains cover less than 10% of wood surface			
4. Paint: Free from lead-based paint or Paint covers less than 10% of material			
5. Plastic/Rubber: Material consists of less than 20% other materials by volume and does not contain any oil, solid residues, or entrapped liquids (e.g. plastic or rubber parts/hardware)			
6. Metal: Metal constitutes less than 20% by volume (If no, then metals checklist (FS-F-3464) must also be used.)			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION *(Provide a complete description of the waste in the container, including information on source or origin if available)*:

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW (NON-RCRA) BY WASTE CHARACTERIZATION:

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE	PACKAGING FINISH DATE:	3. VERIFIED BY:	DATE:

4. CONTAINER NUMBER:	5. CONTAINER TYPE: ☐ S/L ☐ White Metal Box
6. LOCATION PACKAGED:	
7. *MEF NUMBER:	8. INCHES FREEBOARD/HEADSPACE:
APPROVED BY: SUPERVISOR(S) SIGNATURE/DATE	APPROVED BY: QC SIGNATURE/DATE

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO MAKE DISTRIBUTION:		
1	*White*	Waste Characterization
2	*Blue*	Low-Level Waste Handling and Disposal
3	*Yellow*	Materials Control and Accountability
4	*Green*	Waste Generator

FS-F-3465 (REV. 11/9/93)

MATERIALS EVALUATION AND CONTAINER INFORMATION-WOOD
FS-F-3465
Figure 1

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FEMP

Reference MEF # 1539

LOW-LEVEL RADIOACTIVE WASTE

MATERIALS EVALUATION AND CONTAINER INFORMATION - PLASTIC, RUBBER, PAPER, FIBERGLASS, ROPE

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Liquids: Materials do not contain entrapped or internal liquids			
2. Residues: Free from process or waste residues			
3. Stains: Stains cover less than 10% of material surface			
4. HWMU: Material was not generated within the physical limits of a hazardous waste management unit (HWMU)			
6. Containers: Waste containers (i.e. plastic bottles) must be "empty" as defined by OAC 3745-51-07 in lieu of CFR 40 261.7			
7. Other: Material other than plastic, rubber, paper, fiberglass, rope, *wood and metal (see footnote) constitute less than 20% by volume.			

* If metal and/or wood constitutes more than 20% by volume, then Metal Checklist (FS-F-3464) and/or Wood Checklist (FS-F-3465) must also be used. When materials are packaged that do not meet the criteria established in Section I, but have an approved MEF number, the MEF number must be recorded in Section II, question 7. If YES or N/A was checked for all of the above, the material is covered by MEFs listed above and should be handled as Low-Level Radioactive non-hazardous waste. If not, contact Waste Characterization. Radioactive characterization based on generation in a radiologically controlled area and can be changed based on a radiation survey of the material.

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION *(Provide a complete description of the waste in the container, including information on source or origin if available).*

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW (NON-RCRA) BY WASTE CHARACTERIZATION

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE	PACKAGING FINISH DATE	3. VERIFIED BY:	DATE:

4. CONTAINER NUMBER:	5. CONTAINER TYPE: ☐ S/L ☐ WMB ☐ Other. *Specify* _____

6. LOCATION PACKAGED:

7. *MEF NUMBER:	8. INCHES FREEBOARD/HEADSPACE

APPROVED BY:	APPROVED BY:
SUPERVISOR(S) SIGNATURE/DATE	QC SIGNATURE/DATE

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO MAKE DISTRIBUTION:		
1	*White*	Waste Characterization
2	*Blue*	Low-Level Waste Handling and Disposal
3	*Yellow*	Materials Control and Accountability
4	*Green*	Waste Generator

FS-F-3580 (REV. 11/9/93)

MATERIALS EVALUATION AND CONTAINER INFORMATION
- PLASTIC, RUBBER, PAPER, FIBERGLASS, ROPE
FS-F-3580
Figure 2

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FEMP
LOW-LEVEL RADIOACTIVE WASTE

Reference MEF # 1230

MATERIALS EVALUATION AND CONTAINER INFORMATION - SCRAP VEHICLE

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Free from the following fluids: a. Anti-freeze			
b. Brake fluid			
c. Gasoline			
e. Engine oil			
f. Power steering			
g. Differential fluid (rear end)			
h. Windshield Wiper Fluid			
2. Removed: a. Radios			
b. Distributor coils and amplifiers			
c. Alternators			
d. Electronic fuel injector circuit			
3. Fuel tank removed			
4. Propane tank removed			
5. Tires Deflated			
6. Tire valve stem removed			
7. Freon pumped/contained for recycling			
8. Auxiliary Hydraulic Unit removed or drained			
9. Oil filter and Gas filter removed and filter receptacles on engine sealed			
10. Batteries removed			
11. All Hoses that contain liquids have been cut and Drained			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION (Provide a complete description of the waste in the container, including information on source or origin if available):

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW (NON-RCRA) BY WASTE CHARACTERIZATION:

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE	PACKAGING FINISH DATE:	3. VERIFIED BY:	DATE:

4. CONTAINER NUMBER:	5. CONTAINER TYPE:
6. LOCATION PACKAGED:	
7. *MEF NUMBER:	8. INCHES FREEBOARD/HEADSPACE:
APPROVED BY: SUPERVISORS SIGNATURE/DATE	APPROVED BY: QC SIGNATURE/DATE

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO MAKE DISTRIBUTION:		
1	*White*	Waste Characterization
2	*Blue*	Low-Level Waste Handling and Disposal
3	*Yellow*	Materials Control and Accountability
4	*Green*	Waste Generator

FS-F-3472 (REV. 12/07/93)

MATERIALS EVALUATION AND CONTAINER INFORMATION-SCRAP VEHICLE
FS-F-3472
Figure 3

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Reference MEF # 1284

FEMP
LOW-LEVEL RADIOACTIVE WASTE

MATERIALS EVALUATION AND CONTAINER INFORMATION - GLASS

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Liquids: The glass waste does not contain any free liquids			
2. Residues: The glass waste if free of any process or waste residues. For all containers (e.g., glass sample jars) this means that the container must have been emptied using the practices commonly employed to remove materials from that type of container (e.g., pouring, pumping, or aspirating) and no more than 3 percent remains in the container			
3. Acute Waste: The glass was not used as a container to hold an acute hazardous waste (refer to table 1 in SOP 20-C-625) unless the container has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate. (NOTE: Available container labels may be used to verify this criteria.)			
4. Light Bulbs: The glass waste does not include any fluorescent light bulbs (broken or unbroken). (NOTE: The glass waste may include incandescent light bulbs.)			
5. AA Lamps: The glass waste does not include any atomic absorption (AA) lamps used for Toxicity Characteristic metals analyses			
6. Metal/Rubber: The glass waste contains only metal, rubber, and plastic associated with lids or tops of containers (e.g., sample jar lids)			
7. Labels: The glass waste is labelled, and the information from these labels has been summarized in Section II of this form or in an attachment, or the glass waste is not labelled			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION *(Provide a complete description of the waste in the container, including information on source or origin if available)*:

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW (NON-RCRA) BY WASTE CHARACTERIZATION:

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE	PACKAGING FINISH DATE:	3. VERIFIED BY:	DATE:

4. CONTAINER NUMBER	5. CONTAINER TYPE: ☐ S/L ☐ WMB ☐ Drum ☐ Other, *Specify* _____

6. LOCATION PACKAGED

7. *MEF NUMBER:	8. INCHES FREEBOARD/HEADSPACE:
APPROVED BY: SUPERVISOR(S) SIGNATURE/DATE	APPROVED BY: QC SIGNATURE/DATE

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO MAKE DISTRIBUTION:		
1	*White*	Waste Characterization
2	*Blue*	Low-Level Waste Handling and Disposal
3	*Yellow*	Materials Control and Accountability
4	*Green*	Waste Generator

FS-F-3715 (REV. 11/9/93)

MATERIALS EVALUATION AND CONTAINER
INFORMATION - GLASS
FS-F-3715
Figure 4

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FEMP
LOW-LEVEL RADIOACTIVE WASTE

Reference MEF # 1088

MATERIALS EVALUATION AND CONTAINER INFORMATION - METAL

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Free from the following: a. Grease/oils			
b. Solid residues			
c. Entrapped liquids			
d. Internal fluids			
2. Material tagged as drained			
3. Paint: Material free from lead-based paint *or* Paint covers less than 10% of materials *or* Material is greater than 1/16 inch thick			
4. Electrical Equipment: a. Ballasts removed			
b. Starter caps removed			
c. Mercury switches removed			
d. Dielectric fluid removed			
5. Plastic/Rubber: Material consists of less than 20% other materials by volume and meets the criteria set in #1 (e.g. plastic, or rubber parts/hardware)			
6. Wood: Constitutes less than 20% by volume (If no, then wood checklist (FS-F-3465) must also be used.)			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION *(Provide a complete description of the waste in the container, including information on source or origin if available)*:

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW (NON-RCRA) BY WASTE CHARACTERIZATION:

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE	PACKAGING FINISH DATE:	3. VERIFIED BY:	DATE:

4. CONTAINER NUMBER:	5. CONTAINER TYPE: ☐ S/L ☐ White Metal Box
6. LOCATION PACKAGED:	
7. *MEF NUMBER:	8. INCHES FREEBOARD/HEADSPACE:
APPROVED BY: SUPERVISOR(S) SIGNATURE/DATE	APPROVED BY: QC SIGNATURE/DATE

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO MAKE DISTRIBUTION:		
1	*White*	Waste Characterization
2	*Blue*	Low-Level Waste Handling and Disposal
3	*Yellow*	Materials Control and Accountability
4	*Green*	Waste Generator

FS-F-3464 (REV. 11/9/93)

MATERIALS EVALUATION AND CONTAINER INFORMATION-METAL
FS-F-3464
Figure 5

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
06-26-92	0	Requirement for procedure Evaluating Low Level Radioactive Waste (LLRW) per Request No. P92-106, initiated by M. J. Krauss.
11-05-92	0	Reissue procedure to include the addition of plastic, rubber, paper, fiberglass and rope waste streams per Request No. P92-226, initiated by P. Philpot.
08-02-93	1	Revised to incorporate CIO C93-143 per Request P93-254 and update to conform with current Procedure Program requirements.
12-15-93	0	Reissued to update per Request P93-750 initiated by P. Philpot.
02-04-94	1	Revised document dated 12-15-93, Rev. 0, to correct typographical errors. Changed supersedes date to 11/05/92 and procedure no. in Step 5.1.4 per Request No. P94-0030, initiated by N.K. Weichold.

Waste Characterization Manual

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July 1993

UNCONTROLLED

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Fernald Field Office

Approved for use by the Waste Characterization Section (ES&H/EP/WCS)

APPROVALS:

Don Paine, Vice President, Environmental Safety & Health — Date 7/21/93

Stu Hinnefeld, Manager, Environmental Protection Department — Date 7/21/93

Carolyn Waugh, Manager, Waste Characterization Section — Date 7/21/93

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1.0 Introduction

The Fernald Environmental Management Project (FEMP) is a Department of Energy (DOE) facility located on approximately 1,050 acres of land in a rural area 20 miles northwest of downtown Cincinnati, Ohio. This facility operated from 1951 to 1989 primarily processing feed materials for the production of low-enriched uranium products. Currently the site mission is the implementation of restoration initiatives to address environmental impacts associated with the site's past and present operations.

Many of the FEMP restoration activities, as well as facility support and maintenance functions, generate waste materials. In addition, when the facility ceased production in 1989 there remained a large, but finite, inventory of materials associated with the production process. All of these materials/wastes require characterization to ensure safe, compliant, and appropriate management to support environmental restoration and waste management goals at the FEMP and at supporting programs and facilities.

This document serves two main functions. First, it provides an overview of the waste characterization process at the FEMP for external customers (e.g., the Nevada Test Site or external auditors). Second, it specifies the decision-making criteria used by the FERMCO Waste Characterization Section (WCS) to complete characterization in accordance with the Waste Determination Plan (WDP; an instrument of the Stipulated Amendments to the Consent Decree) and the Waste Analysis Plan (WAP; Section C of the FEMP RCRA Part B Permit Application).

1.1 Goals and Objectives

The waste characterization program at the FEMP serves three primary goals: 1) to support health and safety programs, 2) to comply with the waste characterization requirements of regulatory programs and legal agreements, and 3) to provide information required to support waste management objectives. Several key objectives must be met to ensure the integrity of the program:

- The **program structure** must be identified, including program scope (what it covers) and characterization processes (how it functions).
- The program requirements to produce **data of sufficient quality** to support the decision-making processes must be identified.
- The key questions to be answered must be clearly stated. The **evaluation criteria** for answering each key question and specific data requirements for decision making must be specified.
- The waste characterization program must support other FEMP programs by providing **outputs for client programs** (i.e., those programs ultimately managing and/or disposing of the waste).

- There must be a **documentation system** that substantiates decision-making criteria and provides traceability to waste and individual waste packages.

The Waste Characterization Manual (WCM) is structured in five major parts to present the implementing processes and supporting guidance designed to meet each of these objectives. Figure 1.1 provides a graphic illustration of the logic for the WCM structure.

1.2 Program Scope

Waste characterization is required for *all* wastes generated or managed at the FEMP. Characterization is also required for environmental media (e.g., soils) that must be managed as waste because they contain materials regulated under one or more of the material specific regulatory authorities.

Wastes generated at the FEMP fall into four broad categories. These categories and their related waste characterization processes include:

- **Backlogged Waste:** wastes previously generated which require characterization. These wastes may be containerized, stored in a land-based unit or tank, or may still reside in a process unit or associated piping. These materials are generally being characterized under schedules negotiated with the regulatory agencies. They are characterized through the general Material Evaluation Form (MEF) process. [*Section 2.1*].

- **Newly-Generated Waste:** wastes generated on an ongoing basis to support FEMP operations. Many of these wastes are associated with ongoing processes or programs (e.g., sampling and monitoring programs). These wastes are also characterized through the general MEF process. [*Section 2.1*].

- **Large Volume/Low Hazard Waste:** a limited number of specific wastes which are not amenable to sampling and can be characterized based on conformance to a specified set of criteria. These wastes are characterized using a checklist tailored to each waste form which specifies stringent conditions that must be met in order for the waste to meet the waste stream profile documented on an MEF. [*Section 2.2*].

- **Project-Generated Waste:** waste associated with specific projects with sufficient lead time to plan for waste characterization/management activities. Projects include construction and maintenance activities as well as projects associated with the CERCLA program onsite (e.g., removal actions or treatability studies). These

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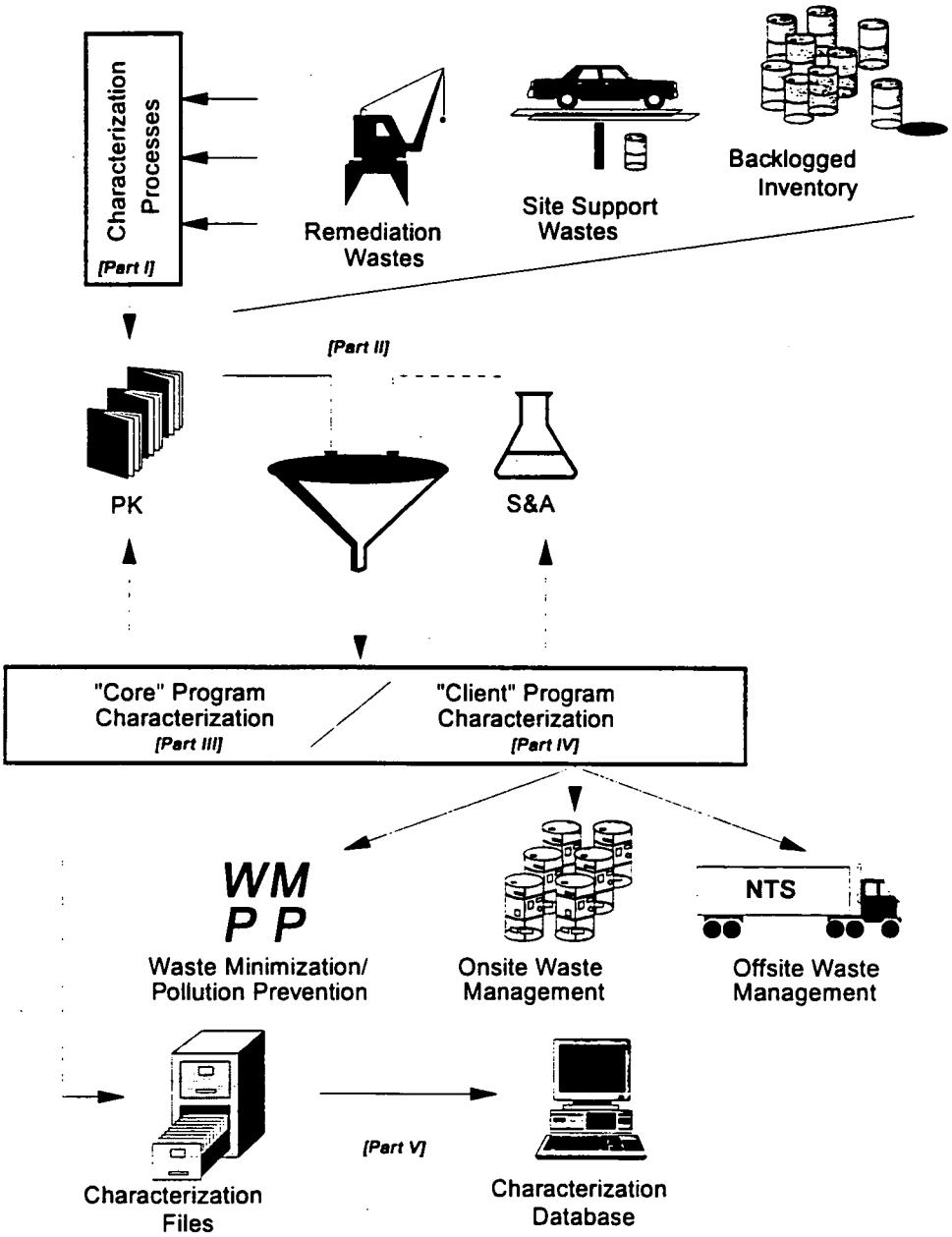
Figure 1.1
Structure of the WCM



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0008 wastes are characterized through the project waste characterization process. [*Section 2.3*]

The waste characterization program relies on two basic types of information: process knowledge (PK) and sampling and analysis (S&A) data. [*Sections 3.0 and 4.0*]. The Sitewide CERCLA Quality Assurance Project Plan (SCQ) governs the processes for data gathering activities at the site. The SCQ provides the framework for developing data of known quality to support decision making.

Regardless of the implementing process, each waste is evaluated to determine if it is regulated under one or more of the waste specific regulatory authorities when generated. The "core" characterization program provides the means for identifying if wastes are regulated as:

- (Solid) Waste (RCRA Subtitle C) [*Section 5.0*],
- Hazardous Waste [*Section 6.0*],
- Radioactive Waste [*Section 7.0*],
- PCB Waste [*Section 8.0*],
- Asbestos-Containing Waste Materials [*Section 9.0*],
- Infectious Waste [*Section 10.0*], or
- Solid Waste (RCRA Subtitle D) [*Section 11.0*].

Depending on how materials are to be managed/disposed, materials are evaluated with respect to the requirements of one or more "client" programs. Client programs may require additional characterization information or a specified format for presenting information. For purposes of this Manual, client programs have been divided into onsite and offsite management programs. Onsite programs include programs like waste minimization, container storage operations, interim bulk storage facilities, and wastewater treatment facility. Offsite programs include low level radioactive waste (LLRW) shipping to the Nevada Test Site (NTS) and waste shipping to other offsite treatment and disposal facilities. [*Sections 12.0 and 13.0*].

Finally, the program provides for documentation of the waste characterization process to meet regulatory requirements and to provide a means for program assessments through internal and external audits. Documentation is captured in the waste characterization files, the waste determination database, and the Material Control & Accountability (MC&A) inventories. [*Section 14.0*].

The program maintains its integrity and continues to make improvements over time through the coordinated efforts of numerous organizations and individuals at the FEMP. Of particular note, the departments responsible for health and safety, regulatory programs, and quality assurance provide key inputs to maintain the quality of the program. Modifications to the program may also be made in response to client program requests for specific waste characterization outputs. The LLRW shipping program to the NTS is a good example of a client program with well specified waste characterization outputs.

1.3 Hierarchy of Documents

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The FEMP waste characterization program represents a cohesive management approach to meeting waste characterization needs at the FEMP. Work elements are conducted and controlled through a hierarchy of documentation supporting site operations (Figure 1.3). Program documentation is prepared to fulfill the driving regulatory, DOE, and corporate requirements. These drivers result in a series of FEMP site and individual supporting departmental policies and procedures controlling every aspect of program operations.

The WCM is a *Department Manual* controlled under the Environmental Safety & Health (ES&H) Document Control System. The WCM provides detailed requirements/instructions for Waste Characterization Section (WCS) personnel to complete waste characterization in accordance with the WDP and WAP. The WCS falls under the Environmental Protection (EP) Department within the ES&H Division.

This document has been structured to provide both the decision-making criteria and the implementing steps for completing waste characterization forms and worksheets. For each major area discussed in this document, the following items are provided:

- Process or decision-making flow charts,
- Narrative elaborating or clarifying the role of each step in the process,
- Forms and worksheets for documenting actions/decisions, and
- Guidance for completing the forms and worksheets.

Some of the material provided in this document summarizes information provided in detail in other site documentation. Where needed, referenced site documentation must be consulted for added detail.

Figure 1.3
Document Hierarchy

Drivers

- DOE Orders
- State and Federal Laws
- Legal Agreements
- Corporate Policy

Policy & Management Directives

- Department & Committee Charters
- Policy & Procedures

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.

Site Operating & Interfacing Documents

- Plans
- Information Documents
- Requirements Documents
- Site Operating Documents

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 FEMP organizations.

Site Standard Operating Document - A procedure that provides detailed operating instructions for an activity to two or more FEMP organizations.

Department Documents

- Department Procedures
- Plans
- Manuals

Department Procedure - A procedure that provides instructions to only one FEMP organization.

Plan - A document identified as required by a driver for only one FEMP organization in order to meet a requirement.

Manual - A document that provides detailed requirements/instructions affecting only one FEMP organization.

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1.4 Facility Description

The FEMP was formerly called the Feed Material Production Center (FMPC) and produced feed materials for DOE Defense Programs. Figure 1.4(a) illustrates the historical role of the FMPC in DOE Defense Programs. Since production ceased in 1989, the site has realigned its operations to support environmental restoration initiatives. An understanding of historical production operations and current facility operations is necessary in order to support waste characterization activities at the FEMP.

1.4.1 Historical Production Operations

FMPC products included uranium metals, uranium oxides, and, to a lesser extent, thorium metals and oxides. Uranium metal was produced in various physical forms having several standard isotopic assays and purities controlled at a high level. Metals were processed into fuel billets and target elements for use in government reactors for the generation of electricity and the production of plutonium. Uranium oxides (U_3O_8 and UO_3) were produced to provide feed materials for DOE gaseous diffusion plants.

Figure 1.4(b) provides a simplified flow diagram of the FMPC production process. Production operations can be broadly divided into chemical operations and metallurgical operations.

Chemical operations at the FMPC consisted of dissolving ore concentrates and recycle materials in nitric acid to produce a uranyl nitrate (UNH) feed solution for solvent extraction purification. Purified UNH solution was concentrated by evaporation and then thermally denitrated to uranium trioxide (UO_3), or orange oxide. Nitrogen oxides released during the dissolution and denitration steps were captured, converted to nitric acid and reused in the process. Orange oxide was converted to uranium tetrafluoride (UF_4), commonly called green salt, for reduction to metal at the FMPC. Scrap materials generated in FMPC operations and those received from offsite were upgraded to chemical processing requirements by furnacing operations. Small-scale facilities existed for performing similar chemical process operations for enriched materials assaying up to 20% ^{235}U. Facilities were also operated for converting UF_6 to UF_4 for subsequent reduction to derby metal.

Metal processing steps began with the conversion of green salt to elemental uranium, derby metal, by reducing UF_4 with magnesium metal. Metallic scrap and briquettes, recycled from subsequent fabrication operations, were combined with derby metal and melted in a graphite crucible. At the proper temperature, the melt was bottom-poured to a pre-heated graphite mold to form ingots, in varying weight, size and shape according to their ultimate use. Cast ingots could be rolled at the FMPC or machined for extrusion into tubes at the RMI Company (Ashtabula, OH).

Additional information on FMPC processes is available from several sources. Overviews of the FMPC process may be found in the documents "You and Uranium Production" (NLO; 1983) and "A Closer Look at Uranium Metal Production" (WMCO; 1988). More detailed information on specific processes is available in research and development reports (available

from the site library) and historical standard operating procedures (SOPs) and manufacturing specifications (MS) (available from the procedures group). In addition, site personnel who worked in the production processes are an excellent source of process specific information. Personnel interviews, however, must be corroborated with objective documentation to support decision making.

1.4.2 Current Facility Operations

Current facility operations are focused on either direct or indirect support of restoration initiatives. Current initiatives are highly documented to ensure accountability and meet requirements for recordkeeping/reporting and public involvement. The Annual Site Environmental Report (ASER) summarizes FEMP activities/status related to environmental monitoring, environmental compliance, waste management, and progress on the RI/FS work. Workplans for CERCLA-driven activities provide another good source of information specific to each of the operable units at the FEMP. The workplans may make reference to SOPs which provide greater detail on specific operations. Facility support operations are generally carried out under the control of SOPs, as well.

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Figure 1.4(a)
Role of the FMPC in DOE Defense Programs

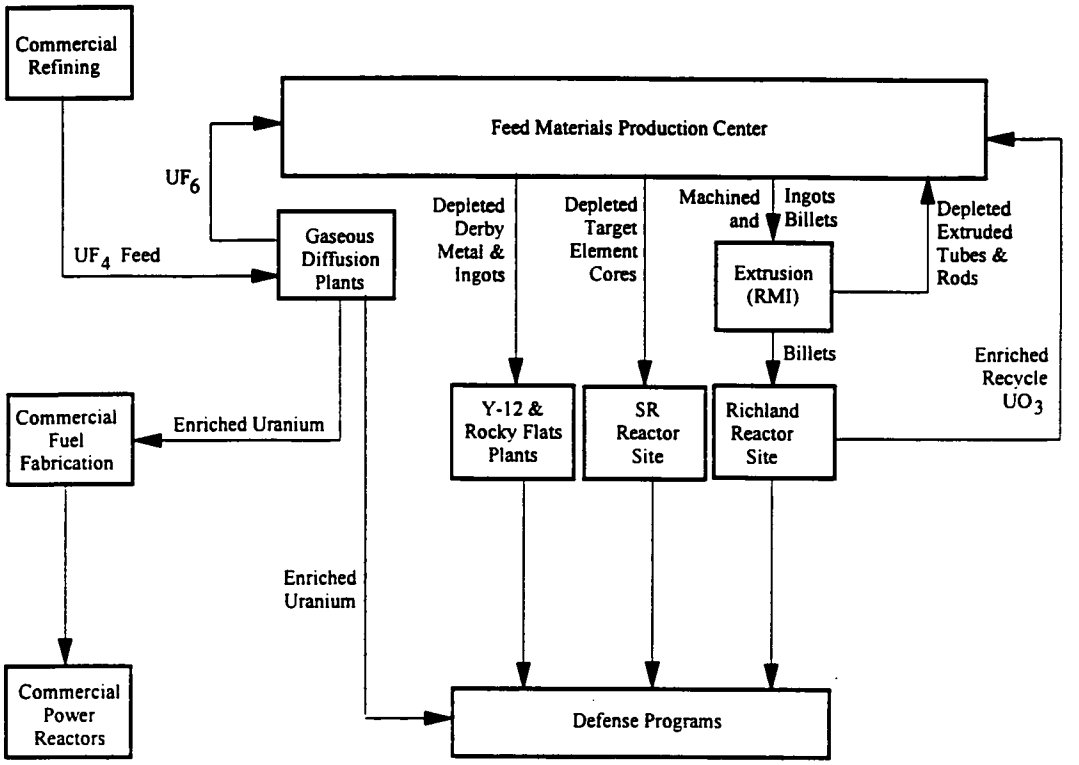

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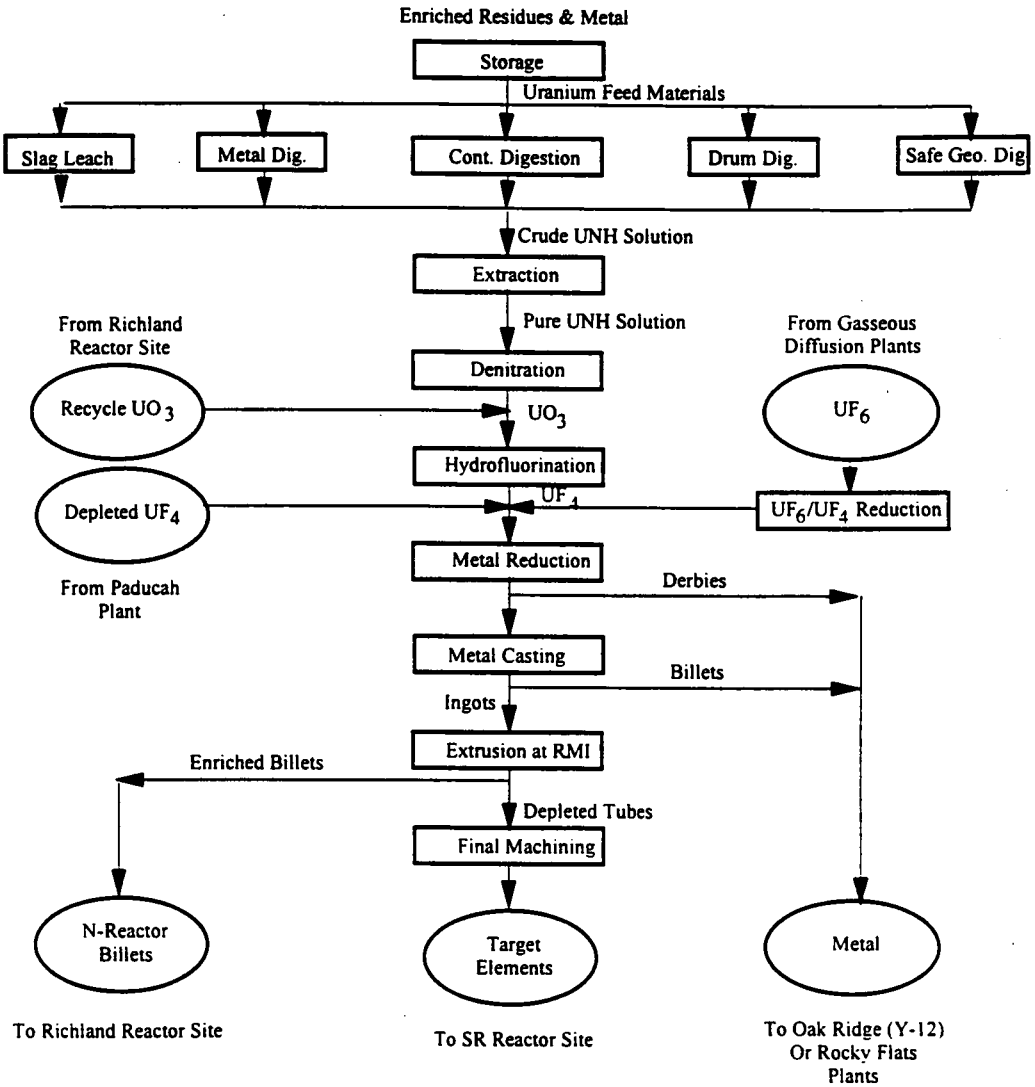
Figure 1.4(b)
Schematic Diagram of the FMPC Process



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2.0 FEMP Waste Characterization Processes

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The FEMP waste management system provides for appropriate control and management of waste materials from the point of generation, through interim storage and treatment or processing, to final disposition. All waste managed at the FEMP must be appropriately characterized to support the selection of safe, effective, and least-cost management alternatives. The FEMP utilizes the Material Evaluation Form (MEF) as the primary vehicle for documenting the characterization of materials. A completed MEF establishes a "waste profile" which identifies the requirements for managing materials that match the profile.

There are three processes to complete waste characterization using the MEF: 1) the general MEF process; 2) the checklist MEF process; and 3) the project waste characterization process. These processes are sufficiently similar to afford consistent evaluation of both "core" and "client" program criteria. Each process generates comparable documentation utilizing many of the same forms and worksheets.

Of the three processes, the general MEF process [Section 2.1] is the most widely used at the FEMP. The responsibility for initiating this process lies with the waste generator. FEMP policy dictates that waste be characterized prior to generation which requires consideration of waste characterization and management needs during the planning stages of any given activity. Because waste generation isn't always planned (e.g., spill response materials, certain maintenance activities) some waste must be characterized after generation. Instructions for the general MEF process are provided in SSOP-0002, "Waste Characterization Using the Material Evaluation Form (MEF)".

The checklist MEF process [Section 2.2] was developed to streamline the general MEF process for certain easy-to-characterize and frequently-generated wastes (e.g., scrap metal and scrap wood). Candidate checklist waste streams are evaluated under the general MEF process and identified as low level radioactive waste or RCRA Subtitle D solid waste **provided** they meet a specified set of objective evaluation criteria. These criteria are incorporated into checklists that provide documentation for the evaluation and traceability from the waste container to the appropriate MEF. Instructions for the checklist MEF process are provided in SOP 20-C-625, "Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment".

Project waste characterization [Section 2.3] provides the means for obtaining waste characterization for multiple wastes generated from a single project. Types of projects that use this process include construction, maintenance, and CERCLA projects. Project waste characterizations may be documented by a RCRA Determination/Radiological Characterization (RD/RC) letter, by a general MEF, or by an applicable checklist MEF. The "Construction Waste Identification and Disposition" (CWID) form provides the management tool for coordinating required waste characterizations for a given project. Project waste characterization has evolved through a synthesis of the RD/RC letter with the MEF process. Instructions for completing waste characterization using the project waste characterization process are contained in SSOP-0044, "Management of Soil, Debris and Waste from a Project".

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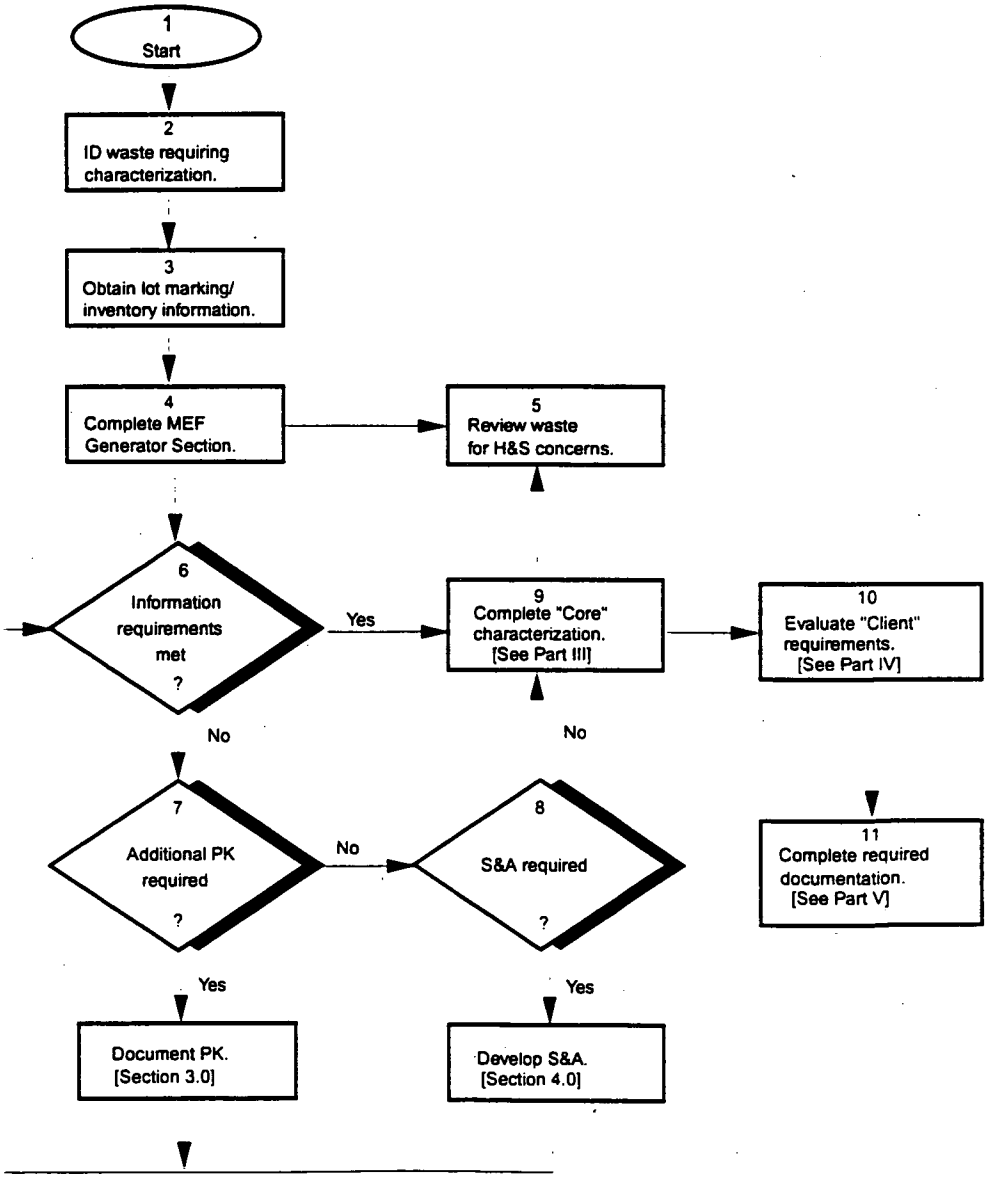
Figure 2.1
General MEF Process



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2.1 General Material Evaluation Form (MEF) Process

Step 1 Detailed administrative directions for completing the MEF are provided in SSOP-0002, "Waste Characterization Using the Material Evaluation Form."

Step 2 The requestor is responsible for identifying materials requiring characterization.

Step 3 The requestor must obtain lot marking and inventory information for generated wastes. This information provides unique identification of individual containers. Lot marking information is provided in RM-0005, "FEMP Lot Marking and Color Coding System."

Step 4 The requestor completes the *Requestor Section* of the "Material Evaluation Form" (Form 2.1). Directions for completing the form are provided on the reverse side of the form. This form is similar to a commercial treatment, storage and disposal facility "waste profile sheet".

Step 5 H&S identifies any material management requirements that are not addressed by existing SOPs. When additional requirements exist the Health and Safety Addendum to the MEF part of Form 2.1 is completed specifying actions/precautions to be taken. The Addendum is sent to the requestor and WCS. The addendum must accompany the MEF with the material during all subsequent management steps.

Step 6 WCS reviews the *Requestor Section* to ensure that all required responses and supporting documentation have been provided. Data requirements to support waste characterization are discussed in Sections 3.0 and 4.0.

Step 7 WCS may request additional Process Knowledge (PK) by phone (documented by contact report) or in writing.

Step 8 When S&A data are required, WCS completes a "Request for Sampling & Analysis" (Form 4.3) identifying required information to develop a sampling plan. Requirements for S&A to support waste characterization is provided in Section 4.0.

Step 9 The processes and characterization criteria for identifying the regulatory status of materials are presented in Part III of this WCM.

Step 10 The processes and characterization criteria for meeting "client" program requirements for materials management are presented in Part IV of this WCM.

Step 11 Complete documentation, including the *Evaluation Section* of the "Material Evaluation Form," characterization files, and inputs to the Waste Characterization Database.

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Form 2.1(a)
MEF Form - Requestor Section

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Requestor Section

page 1 of 2

A. REQUESTOR/WASTE STREAM IDENTIFICATION

1. MEF#: Original: _____ Revision: _____	2. Date Submitted:	3. Material Type and Source Code:
4. Requestor Name:	5. Phone No.:	6. Badge No./Co. Name:

B. GENERATION INFORMATION

1. Provide best descriptive name for material:	2. Does this material originate in a HWMU or SWMU? Unit Name/No.		3. Project, Activity, or Work Area generating waste (include CRU # if applicable).
4. Date of first or expected generation: ☐ estimate; ☐ actual _____	5. Generation Quantity:	6. Generation frequency:	7. Similar waste stream MEF# (or MTC/SRC):

8. Provide a detailed description of what the material is:

9. Provide a detailed description of how and where (specific origin) the waste stream is/will be generated, including any units which manage the material:

[Note: Generator must attach all supporting documentation concerning items 8 and 9.] O additional narrative: O SOP:

O MSDS: O AEDO Log excerpt: O release report: O manufacturing specs: O Other: _____

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Form 2.1(b)
MEF Form - Requestor Section (Cont.)

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Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Requestor Section

C. PHYSICAL CHARACTERISTICS

1. Describe **Color/Appearance:**

2. **Phase:**
☐ Liquid ☐ Solid debris/rubble
☐ Semi-solid/sludge ☐ Dry solid residue
☐ dry powder/dusty residue ☐ Other, specify:

3. Contains **Free Liquids:**
☐ yes ☐ no ☐ unknown
based on:
O PFLT (results attached)
O Visuals (results attached)
☐ Knowledge of waste

[NOTE: DO NOT SMELL THE MATERIAL]
4. Note Any Incidental Odor:

5. **Layers:**
☐ single layer
☐ bi-layered
☐ multi-layered

6. **pH:** specify range or "unknown"
_____
☐ estimate: O documentation attached

7. **Flash Point:** Specify range or "unknown"
_____
☐ estimate: O documentation attached

D. MATERIAL COMPOSITION

1. Composition:

	Min	Max:	circle
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
_____	____	____	% (or) ppm
Total Maximum:		____	%

maximum must equal or exceed 100 %

Basis:
☐ knowledge of the material
O analytical data attached

2. Does the material contain any of the following?
☐ asbestos ☐ polychlorinated biphenyls (PCBs)
☐ infectious waste
☐ reactives (circle applicable items):
water reactive explosive
cyanide/sulfide shock sensitive
normally unstable
exclude materials which norally produce hydrogen gas.
☐ "RCRA metals" (circle applicable items):
arsenic barium
cadmium chromium
lead mercury
nickel selenium
silver thallium
(or)
☐ None of the above
(or)
☐ Unknown

Basis:
☐ knowledge of the material
O analytical data (attached)

3. Radionuclide Contamination:
☐ material is **not contaminated** with radionuclides
☐ material contains incidental radionuclide contamination
☐ radionuclide bearing material/residue

Radionuclides of Concern if any:
☐ uranium
☐ thorium
☐ transuranics (TRU)

Basis:
☐ knowledge of the material ☐ RMMA generated
O analytical data attached ☐ Other: _____

4. Identify the container or repository type(s) in which the waste is (or is expected to be) managed on-site:
☐ drum ☐ box
☐ Sea/Land ☐ soil/debris pile
☐ small container (5 gal. or less)
☐ landfill, pit, or other land-based unit
☐ discharge to WWTS

FORM GEN. Revision 2.0, 7/7/93 wcpforms\gen.frl

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Form 2.1(c)
MEF Form - Evaluation Section

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Evaluation Section

A. WASTE STREAM IDENTIFICATION

1. MEF #: Revision No.:	2. Date Completed:	3. Material Type / Source Code of original material: Mat. Src.
4. Evaluator:	5. Phone No.:	6. Badge No./Co. Name:

B. MATERIAL REGULATORY STATUS (check all that apply)

Regulated:	Material Specific Regulation:	Regulated:	Material Specific Regulation:
___ yes ___ no	TSCA PCB Waste	___ yes ___ no	High Level Radioactive Waste
___ yes ___ no	Asbestos Containing-Waste Materials	___ yes ___ no	Transuranic (TRU) Waste
___ yes ___ no	OAC Infectious waste	___ yes ___ no	AEA 11(e)(2) Byproduct Material
___ yes ___ no	OAC Solid Waste (RCRA Subtitle D)	___ yes ___ no	Low Level Radioactive Waste (LLRW).
___ yes ___ no	RCRA Solid Waste (RCRA Subtitle C)	___ yes ___ no	Non-Radioactive waste. ***
___ yes ___ no	RCRA Hazardous Waste	*** Concurrence, Radiological Assessment- Date: _____	
Hazardous Waste Code(s): _____		Re-evaluation Date: _____	
		Note: Waste stream must be re-evaluated by WCS if it is generated after the re-evaluation date listed above or when the stream/generating process changes.	

C. MATERIAL MANAGEMENT

1. Waste Form Criteria: ___ yes ___ no Health & Safety Addendum Attached. (Note if marked yes do not manage this material without attached H&S Addendum. ___ yes ___ no Material contains free liquids. ___ yes ___ no LLRW meets NVO-325 Waste Acceptance Criteria (See NTS Form in material evaluation file)	2. Container Specification:	3. Reactivity Group Code:
4. DOT Shipping Description:	5. DOT Labels:	6. DOT Identification No.: ☐ UN ☐ NA _____ (Suffix) 7. DOT Hazard Class:

D. WASTE CHARACTERIZATION APPROVAL

Name: _____ Signature: _____

E. DISTRIBUTION

___ Generator	_____	___ Waste Reduction Program	_____
___ MC&A	_____	___ Site Media Sampling	_____
___ Facilities and Warehousing	_____	___ IRS&T (if H&S Addendum prior to characterization)	_____
___ Sample Disposition (if sampled)	_____		

FORM EVAL, Revision 2.0, 07/19/93 wcpform\eval.frl

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Form 2.1(d)
MEF Form - Health and Safety Addendum

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

Health and Safety Addendum

A. WASTE STREAM IDENTIFICATION		
1. MEF #:	2. Generator:	
3. Material Description:		4. Date:

B. HEALTH & SAFETY INFORMATION
The following requirements are mandatory when storing, packaging, sampling or otherwise handling the material. These requirements are in addition to those already specified in procedures regarding the management of materials and any other instruction (e.g., MSDS or label directions).

C. Approval	
IRS&T Name: _____	Signature: _____

Note: this addendum to the MEF must be attached to the MEF. Material can not be moved, transferred, sampled, stored, or otherwise managed without this form attached (where applicable). Applicability of this form is determined by consulting the section C1 MEF evaluation section or for material being sampled by consulting the sampling plan(s) pertaining to this MEF.

D. DISTRIBUTION	
___ Generator ___ Facilities and Warehousing ___ Waste Characterization ___ Site Media Sampling	
Distributed by:	Date:

For additional information regarding H&S requirements contact IRS&T.

FORM **H&SADD.** Revision 2.0, 7/7/93 wcpform\h&s.fr1

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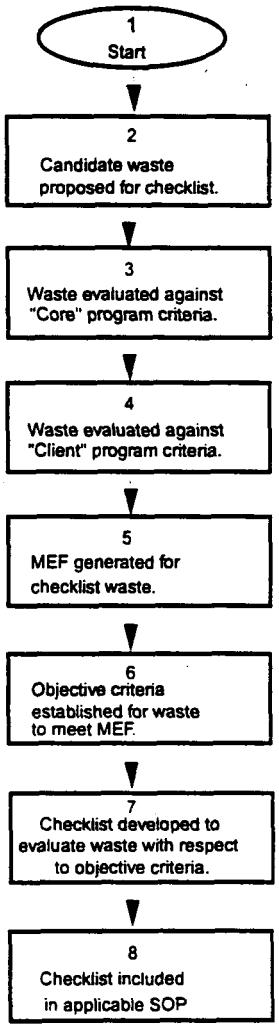
Figure 2.2(a)
Checklist MEF Process - Development



Checklists Currently Developed for SOP 20-C-625:
- Wood (MEF #905)
- Metal (MEF # 1088)
- Light Duty Vehicles (MEF #1230)

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2.2 Checklist MEF Process

Step 1 Checklist Development.

Step 2 Candidate waste streams are generally identified by WCS or the waste generating program. Candidate waste streams are generally: 1) large volume, 2) low hazard, and 3) not amenable to sampling. Examples are scrap metal and scrap wood.

Step 3 This evaluation serves to identify the conditions that must be met for the waste stream to be regulated as solely RCRA solid waste or LLRW. This requires consideration of all plausible cases whereby these criteria would not be met. A team comprised of WCS personnel, and program management and field personnel generally meet several times to identify and document criteria for the waste stream.

Step 4 This evaluation serves to identify the conditions that must be met to satisfy a targeted client program. For example, the wastes covered by checklists in SOP 20-C-625 are evaluated for conformance to NVO-325 Waste Acceptance Criteria for shipment to the Nevada Test Site.

Step 5 The MEF documents the basis for the criteria included on the checklist.

Step 6 The conditions established in steps 3 and 4 and documented on the MEF are restated in terms of objective criteria that can be readily evaluated by the personnel completing the checklists.

Step 7 Developing the actual checklists generally requires field testing to ensure that the checklist criteria remain objective and unambiguous. Field testing is overseen by WCS and Quality Assurance (QA) to identify potential problems in implementation.

Step 8 The SOP provides the operations and administrative instructions for using the MEF to evaluate materials using the checklist. Currently SOP 20-C-625 has been developed for evaluating certain large volume scrap waste streams for disposal at the Nevada Test Site. See "Checklist Implementation" (next page) for the general process for using the checklist in the field.

2.2 Checklist MEF Process (cont.)

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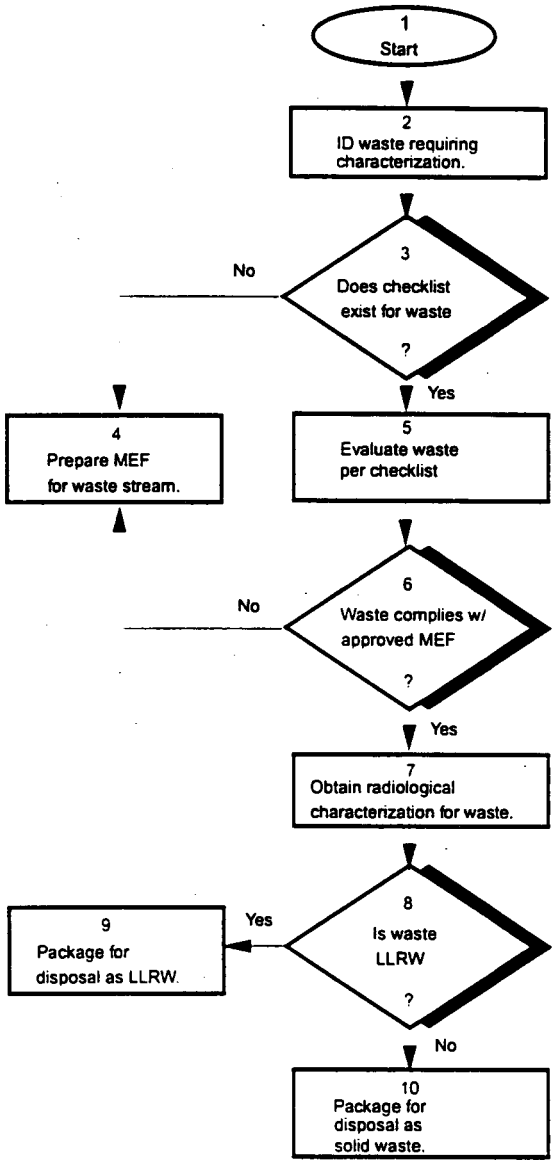
Figure 2.2(b)
Checklist MEF Process - Implementation



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Step 1 Checklist Implementation.

Step 2 Identified during the planning stages of a project or activity.

Step 3 WCS can be contacted to determine the availability/applicability of a checklist.

Step 4 When a checklist doesn't exist an MEF must be prepared for the material. Although a checklist does not currently exist, it may be a good candidate for checklist development. WCS must be consulted in making this determination.

Step 5 Personnel completing the checklist must be trained to use the checklist. If any questions arise during the evaluation WCS may be contacted to provide additional guidance in completing the checklist.

Step 6 If it is determined that a material does not comply with the criteria established in the checklist then the material must **not** be managed as material meeting the checklist. The material must then be segregated and evaluated under the General MEF Process [Section 2.1].

Step 7 Radiological characterization is required when the checklist does not specify if the material is RCRA solid waste or LLRW.

Step 8 The criteria for identifying radioactive waste at the FEMP are discussed in Section 7.0.

Step 9 Managed as LLRW.

Step 10 Managed as RCRA solid waste.

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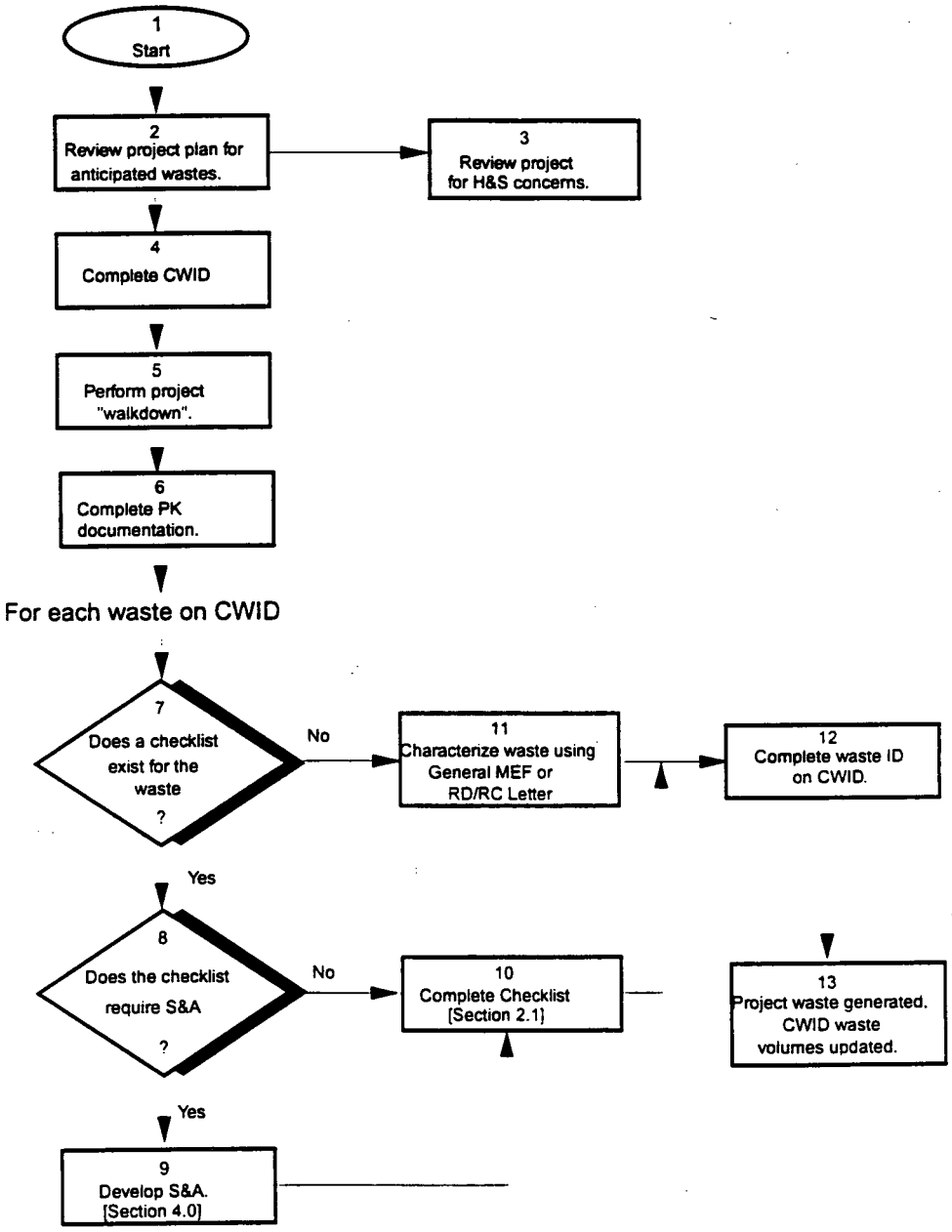
Figure 2.3
Project Waste Characterization



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2.3 Project Waste Characterization

Step 1 Detailed operations and administrative instructions for completing project waste characterization are provided in SSOP-0044, "Controlling the Generation of Construction/Maintenance Waste." This process may be used for wastes resulting from construction and maintenance projects, CERCLA actions (Removal Actions, Remedial Actions, and Treatability Studies) or RCRA closures.

Step 2 During project planning, all wastes anticipated to be generated during any phase of the project are identified by the project engineer or planner estimator (PE in either case).

Step 3 The project is reviewed to identify potential health and safety concerns. Required actions and precautions are incorporated into the project specific health & safety plan. In addition, required work permits (e.g., penetration permits) are developed.

Step 4 The PE lists the types and volumes of wastes expected to be generated from the project on the "Construction Waste Identification and Disposition" form (Form 2.3).

Step 5 A physical walkdown of the project site is completed to collect process knowledge and determine appropriate means to characterize the waste to be generated.

Step 6 PK documentation includes review of the project plans, historical information on the project site, and information collected during the project walkdown.

Step 7 If a checklist exists for the material to be characterized, the waste is characterized via checklist.

Step 8 Checklists for project wastes may require some sampling and analysis to be conducted to verify the checklist criteria (e.g., soils to be excavated from a project may require S&A).

Step 9 Section 4.0 discusses requirements for S&A to support characterization.

Step 10 Checklists are completed in accordance with the applicable SOP.

Step 11 Waste for which a checklist does not exist must be characterized using either a RD/RC letter or the general MEF process.

Step 12 When characterization is complete, WCS documents waste characterization on the CWID. RD/RC letters, MEFs, or completed checklists required to manage the material when it is generated are distributed accordingly. WCS maintains all supporting characterization files.

Step 13 When the project is completed and all of the wastes generated, the PE updates the CWID to verify final waste volumes to support cost/schedule control system requirements.

Form 2.3(a)
Construction Waste Identification and Disposition (CWID) Form

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Form 2.3(b)
Construction Waste Identification and Disposition (CWID) Form (Cont.)

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3.0 Process Knowledge

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Process knowledge generally refers to information other than sampling and analysis results used to complete waste characterizations. The RCRA regulations specifically provide that a waste generator may apply knowledge of the hazard characteristic of the waste *in light of the materials or the processes used.* OAC 3745-52-11(C)(2). Listed waste determinations implicitly require process knowledge to determine whether or not a waste meets one of the listing descriptions in OAC 3745-51-31 to 33. Other regulatory programs implicitly require the use of some level of PK for waste identification (e.g., determining the regulatory status of Category II non-friable asbestos-containing material).

PK may be used to support both negative and positive determinations with respect to a waste's regulatory status. PK to support a "not regulated" determination (e.g., not RCRA hazardous or "non-RCRA") generally requires more supporting documentation than PK that supports a "regulated" determination (e.g., RCRA hazardous or "RCRA"). In making a "not regulated" determination, the assembled PK must reasonably support a case that the material could not exhibit a characteristic or meet a threshold criteria for regulation.

3.1 Knowledge of the Waste Matrix

PK may substantiate a waste determination in one of several ways. First, documented information relating to the material matrix may preclude the waste from exhibiting a characteristic. For example, by definition, a nonliquid waste is not capable of exhibiting the RCRA hazardous waste characteristic of corrosivity. Likewise, bulk structural steel with virtually no absorptive capacity will never fail the RCRA Toxicity Characteristic (TC) (provided no surface coatings have been applied). In this example, even if surface coatings have been applied, knowledge of the characteristics of the coating may be used support a "not regulated" determination for the entire waste form.

3.2 Knowledge of the Generating Process

Second, PK may be used to demonstrate that the generating process was well documented, controlled, and did not involve the use or generation of any materials that could cause a waste from the process to be regulated. Processes may be as complicated as a pulse column solvent extraction system or as simple as washing a floor. The key in evaluating processes is understanding the feed materials, the chemistry and physics of the process, and the materials that are generated from the process as products, byproducts and waste.

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3.3 Cases When Process Knowledge is Most Appropriate

DOE and EPA issued draft guidance for the Characterization of Mixed Waste which discussed the application of process knowledge for waste determinations. The guidance states that PK is *most appropriate* for waste characterization when one or more of the following conditions exist:

1) Collection of representative samples from a waste stream is difficult due to its physical nature. This applies to solid matrices such as metals, glass, or wood materials.

2) Waste collection and analysis of material would result in unacceptable risk of radiation exposure. DOE policy requires that exposure to hazardous material must be maintained as low as reasonably achievable (ALARA).

3) Waste is too heterogeneous in composition to the extent that collecting a representative sample is difficult.

3.4 Objective Documentation for Process Knowledge

Successfully utilizing PK to support waste characterization requires identifying the **objective** information that supports the determination. Reliance on *objective evidence* reduces the potential for a subsequent reviewer to reach a different determination regarding a waste determination. The rationale for the application of PK must be *well documented* in the characterization files so that the logic for reaching the conclusion can be reconstructed if necessary.

Detailed records on the historical production processes and information developed under ongoing CERCLA remedial activities onsite (including RI/FS data such as the Site-Wide Characterization Report) provide useful PK information that can be used as objective evidence. The rigid administrative controls placed on waste identification and control under the FEMP Lot Marking and Color Coding System ensure that generated wastes are adequately controlled and traceable to the point of generation. In addition, other information sources such as the Assistant Emergency Duty Officer (AEDO) Spill Database, Environmental Compliance Spill/Release Incident Tracking Report, and the Upset Condition Document provide information regarding the generation process.

Cases may occur where PK yields conflicting information or PK does not agree with sampling and analysis results. In such cases one or more of the following actions are undertaken: 1) additional PK is collected to resolve the conflict and documented accordingly, or 2) measurable attributes are tested and results documented. All final decision making is documented in the characterization file.

4.0 Sampling & Analysis

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The FEMP sampling and analysis process is designed to generate objective data of known quality to support decision making regarding the regulatory status and management requirements for waste materials. The Data Quality Objective (DQO) process is utilized to establish the quality and quantity of data required to satisfy decision-making needs. The Sitewide CERCLA Quality Assurance Project Plan (SCQ) establishes the framework for ensuring that DQOs are met for individual projects and that quality assurance requirements are implemented on a consistent basis throughout data gathering activities at the FEMP. Individual Sampling & Analysis Plans (SAPs) provide the direction for specific sampling activities. These SAPs reference standard operating procedures to implement specific SAP requirements. SAPs may be written generically to cover sampling activities which follow the same protocol during each sampling event. In this case a prototype SAP is written which directs the writing of Project-Specific SAPs (PSAP) to provide the event level direction and documentation. An overview of the S&A process is presented in Figure 4.0.

4.1 S&A Data to Support Decision Making

An essential part of the DQO process involves identifying the key question(s) to be answered. RCRA regulations for waste identification generally require that waste generators determine, with statistical confidence of 90% or greater, whether specified parameters of concern for a given waste stream exceed a regulatory threshold (e.g., toxicity characteristic determinations). A second type of RCRA waste characterization decision involves determining whether or not a waste stream exhibits a particular attribute (e.g., free liquids determination). For regulatory programs that do not specify required confidence levels for demonstrating compliance with respect to a numerical threshold (e.g., TSCA PCB regulations), the FEMP generally utilizes a 90% confidence limit to support decision making.

Identifying a listed hazardous waste is not based on chemical or physical characteristics of a waste, but on meeting a listing description. However, once identified as a listed hazardous waste, sampling and analysis results are generally required to demonstrate compliance with RCRA Land Disposal Restrictions rules. LDR compliance sampling may entail statistically based sampling protocols or may be based on grab sampling. More information on statistical treatment of data is provided in Section 4.7.

In addition to the primary objectives identified above, the DQO process addresses several data quality indicators that support generation of data of known quality.

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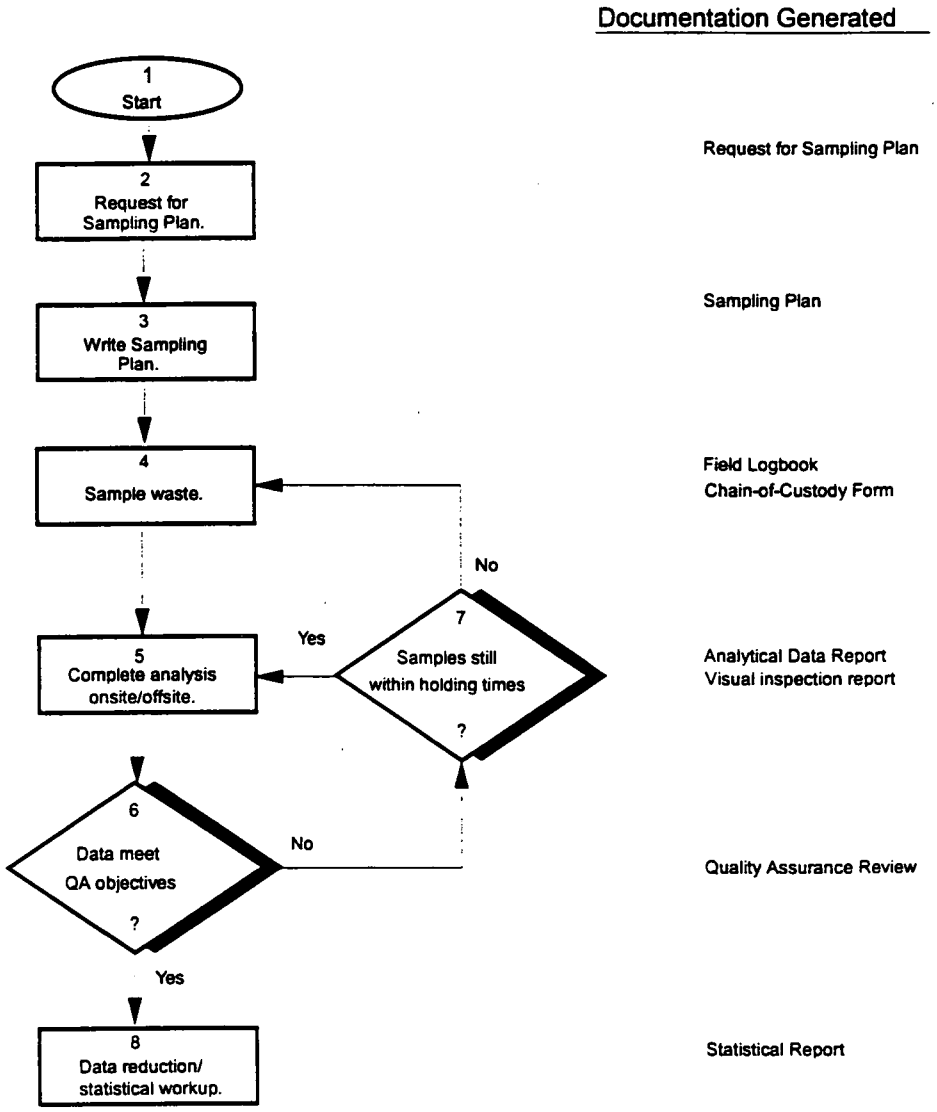
Figure 4.0
Sampling & Analysis Process



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4.1.1 Representativeness

Regulatory standards for waste identification generally apply to a "representative sample of a waste" that exhibits, on average, the properties of the whole waste. To ensure representativeness, the FEMP utilizes statistical approaches for determining the number and location of samples to collect. Basic sampling approaches utilized at the FEMP are discussed in Section 4.2.

4.1.2 Accuracy

Overall sampling accuracy refers to the closeness of sample results to the true value for the population being sampled. Sampling accuracy is increased by selection of an appropriate sampling approach (See Section 4.2). Increasing sample size also tends to improve accuracy. Analytical accuracy may be measured in the laboratory by spiking waste samples with known concentrations of surrogate or similar compounds and comparing with reported results. This measure is one of the quality control attributes checked during the quality assurance review of analytical data.

4.1.3 Precision

Sampling precision provides a measure of the reproducability of results. Estimates of precision for sampling are generated by collecting duplicate samples from a single sampling location. Evaluation of duplicate samples provides the most useful information for materials with continuous contaminant distributions (e.g., groundwater). Estimates of analytical precision are obtained by duplicate analysis of individual samples. Analytical precision is evaluated during the quality assurance review of data.

4.1.4 Sensitivity

Sensitivity refers to the ability of a sampling scheme to detect a parameter at a given level. Sensitivity is maintained during sampling by ensuring that samples are handled in a way that does not adversely affect any parameters of concerns during sample collection or handling (e.g., volatilization of organics). Sample handling considerations are discussed in Section 4.4.6. Analytical sensitivity is generally expressed in terms of the method detection limit (MDL) for a given analytical method. The combination of analytical instrumentation and method must have sufficient sensitivity to detect analytes in a given waste matrix at or below the regulatory or other specified level. Required MDLs are specified for work to be completed under the RCRA analytical support contracts. Attainment of the contract required detection limits is evaluated during review of analytical data to make a regulatory determination. Generally, analytical data with detection limits above the regulatory limit may not be used to support a determination that a waste is not regulated or meets a treatment standard.

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4.1.5 Completeness

Completeness is a data quality indicator that is defined as the amount of collected and valid data compared to the planned amount. Completeness is often expressed in terms of a percentage. Completeness is a critical quality indicator when there is an expectation for a specified amount of sampling data (e.g., when a certain number of data points are required as inputs to a model). Completeness becomes a critical quality indicator for waste sampling when insufficient data are available to adequately characterize a waste (e.g., if sample variability is high, all data may be required to form a 90% confidence limit that falls below the regulatory level). Completeness is considered during decision making to determine if it adversely affects the decision to be made.

4.1.6 Comparability

Comparability is a quality indicator that is defined as the degree to which data sets can be considered similar and comparable. Comparability can also be a key quality indicator in establishing spatial or temporal correlations for similar waste streams (e.g., in evaluating similar waste streams from similar sources or a recurring waste stream from a single source over time). Comparability has been used at the FEMP in evaluating the performance of different laboratories analyzing a set of samples from the same waste stream.

4.2 Sampling Approaches

An appropriate sampling plan for waste collection must be responsive to both regulatory and scientific objectives. With those objectives clearly identified, a suitable sampling strategy, predicated on fundamental statistical concepts, is developed. Applied statistics is the science of employing techniques that allow the uncertainty of inductive inferences (general conclusions based on partial knowledge) to be evaluated. In accordance with EPA guidance (SW-846 "Test Methods for Evaluating Solid Waste, Chapter Nine), waste characterization to determine regulatory status generally involves determining whether the mean (average) value of a particular parameter exceeds a regulatory threshold limit with a specified level of confidence. RCRA waste characterization requires comparison of a 90% confidence limit to the regulatory level to determine if a particular chemical contaminant is present in the waste at a hazardous level.

Waste characterization relies on collecting representative samples that exhibit, on average, the properties of the whole waste. Reliable estimates of the properties of the whole waste are dependent on the precision and accuracy of sampling. Sampling accuracy is dependent on collecting unbiased samples from the waste. Some form of random sampling is generally employed to meet this objective. There are three basic forms of random sampling: simple random sampling, stratified random sampling, and systematic random sampling. In cases where there is documented information regarding contaminant distributions in the waste, judgmental (authoritarian) sampling may provide the most reliable means of obtaining

representative samples. Sampling precision is generally dependent on the number of samples collected. A minimum of two samples is needed to form an estimate of precision and variability.

The FEMP utilizes all three random sampling approaches and in some cases uses a hybrid approach which combines a random sampling scheme with a judgmental approach.

4.2.1 Simple Random Sampling

In simple random sampling, each unit in the population (e.g., container or element of a grid) has an equal chance of being sampled. Simple random sampling is the default random sampling strategy when there is little information about contaminant distribution and a rationale for alternate strategy does not exist. To randomly select units within the population, each unit is sequentially numbered and a random number generator (e.g., calculator program) or random number table is used to select the units to sample.

Simple random sampling is the basic approach adopted in the Prototype SAP for Containerized Waste at the FEMP.

4.2.2 Stratified Random Sampling

Stratified random sampling is used when there is information that suggests that the waste stream can be divided into two or more strata which are similar in composition. Examples of information that may be used to identify strata within a waste stream include: 1) physical characteristics such as distinct phases or color patterns, 2) existing analytical data that indicate stratification, 3) identification of distinct batches or lots, and 4) dates of generation.

The FEMP employs stratified random sampling when there is evidence of strata that may have different contaminant distributions. For example, the Prototype SAP for Containerized Waste specifies that for containers with multiple phases a representative sample be collected from each phase in the container. Individual sampling plans developed for waste in other configurations (e.g., sumps or tanks) use stratified random sampling when appropriate.

4.2.3 Systematic Random Sampling

Systematic random sampling involves randomly selecting the first unit from a population to be sampled and selecting subsequent units at fixed time or space intervals. This approach ensures that samples selected are distributed more evenly across the waste stream and simplifies the process of selecting units to sample. Systematic random sampling can return poor results (in terms of accuracy and precision) when unrecognized trends or cycles exist in the waste stream and thus is

not employed at the FEMP for waste streams in which such cyclic variability may exist (e.g., drummed process waste streams).

4.2.4 Judgmental Sampling

Judgmental (authoritarian) sampling contrasts with the random sampling schemes discussed above in that there is no randomization in sample selection. When the person selecting sample locations has knowledge of the waste and generating process, judgmental sampling can return results that are extremely accurate and precise. Supporting objective evidence is generally required to substantiate the validity of a judgmental sampling approach.

The FEMP utilizes sampling approaches based on random sampling schemes because judgmental sampling is more difficult to defend. In certain cases, however, judgmental samples may be collected to augment the random sampling scheme. These samples are generally selected from areas with some objective evidence that indicates potential increased contaminant levels such as areas with stains or locations indicated by field screening instruments. The rationale for utilizing any judgmental sampling is provided in the sampling plan.

4.2.5 Number of Samples

Equation No. 8 in Chapter Nine of SW-846 provides one method for determining the appropriate number of samples to obtain required precision for evaluating wastes with respect to a threshold concentration criteria (e.g., toxicity characteristic constituent concentrations). Based on an estimate of parameter variance and mean concentration this equation yields the number of samples required to generate a 90% confidence limit (based on a one-tailed Student "t" Test) at the regulatory threshold. A minimum of two samples is required in any case to determine sample variability required to form the 90% confidence limit.

Without initial estimates of parameter variance and mean, alternate methods for determining an appropriate number of samples are employed. One generally accepted method for waste characterization is to sample a minimum of 10 percent of the waste. The key in undertaking this type of approach is identifying the "counting units" of which 10 percent will be selected. For example, for a waste stream comprised of a discrete set of drums, the individual drums may be identified as the counting units. Alternatively, for large populations waste streams, the cubed root of the number of containers in the waste stream may be selected as an appropriate number of samples. Both of these approaches are used in the Prototype SAP for Containerized Waste which establishes a schedule for determining the appropriate number of drums to sample to characterize the waste stream. When other methods of determining the appropriate number of samples are employed, a justification for using the alternate approach is documented in the SAP.

4.3 Request for Sampling & Analysis

To initiate development of a sampling plan for waste characterization WCS completes a "Request for Sampling & Analysis" (Form 4.3). When the sampling plan is being developed to meet other project needs (e.g., to support a CERCLA program activity), WCS coordinates with the project lead to ensure that the sampling plan meets both project and waste characterization objectives. The request identifies the purpose of sampling and specifies the required parameters for analysis and Analytical Support Level (ASL) defined in the SCQ. All waste analysis is *consistent* with the guidance provided in SW-846 "Test Methods for Evaluating Solid Waste."

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Form 4.3(a)
Request for Sampling & Analysis (RSA) Form

Fernald Environemntal Management Project
REQUEST FOR SAMPLING & ANALYSIS FORM

FORM SAMPREQ: Revision 3.0 7/7/93
WCPFORMSAMPREQ.FR1

PROJECT INFORMATION:

Requestor:	Phone:	Project Name:	MEF #:
PE/PM:	Phone:	Project/WO #:	SMS Request #:
Field Contact:	Phone:	Charge #:	Date Submitted:
Sample Plan Prepared By:	Phone:		Requested Completion Date:

SAMPLING PURPOSE:

__ RCRA Waste Characterization __ Waste Confirmation __ CERCLA
__ RCRA Closure __ Treatability Study __ Other

WASTE CONFIGURATION (at time of sampling):

__ Containerized (circle container type)

drum/pail - 5, 10, 20, 30, 55, 85, 110 gallon
White Metal Box, Wood Box, ISO Container (Sea/Land)
__ inventory information attached

__ tank/sump __ pile
__ building/structure __ surface impoundment
__ waste in process unit __ landfill/soils in place

__ location/diagram/dimensions of unit attached

WASTE DESCRIPTION (lot marking/drum number(s), matrix, consistency, suspected contaminants, percent (volume) of total waste):

PARAMETERS FOR ANALYSIS:

(List sample matrix(ces) and identify parameters for each)	Analysis Group (See Reverse)								
	1	2	3	4	5	6	7	8	9
1)									
2)									
3)									
4)									
5)									

Analytical Support Level (ASL):	__ SW-846	__ CLP SOW	Other, specify:_____

SAMPLING APPROACH:

__ Simple Random __ Stratified Random __ Systematic Random
__ Grid __ Grab __ Other

ADDITIONAL INSTRUCTIONS:

CONCURRENCE:

WCS: _____ Requestor: _____ Cost Account Manager: _____

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Form 4.3(b)
Request for Sampling & Analysis (RSA) Form (Cont.)

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PARAMETERS FOR ANALYSIS

FORM SAMPREQ; Revision 3.0 7/7/93

GROUP 1 - TC Metals

__ Totals __ TCLP

__ arsenic
__ barium
__ cadmium
__ chromium
__ lead
__ mercury
__ selenium
__ silver

GROUP 2 - TC Pesticides

__ Totals __ TCLP

__ Endrin
__ Lindane
__ Methoxychlor
__ Toxaphene
__ 2,4-D
__ 2,4,5-TP Silvex
__ Chlordane
__ Heptachlor

GROUP 3 - TC VOAs

__ Totals __TCLP

__ benzene
__ carbon tetrachloride
__ chlorobenzene
__ chloroform
__ 1,2-dichloroethane
__ 1,1-dichloroethylene
__ methyl ethyl ketone
__ tetrachloroethylene
__ trichloroethylene
__ vinyl chloride

GROUP 4 - TC Semi-VOAs

__ Totals __ TCLP

__ o-cresol
__ m-cresol
__ p-cresol
__ cresol
__ dichlorobenzene
__ 2,4-dinitrotoluene
__ hexachlorobenzene
__ hexachlorobutadiene
__ hexachloroethane
__ nitrobenzene
__ pentachlorophenol
__ pyridine
__ 2,4,5-trichlorophenol
__ 2,4,6-trichlorophenol

GROUP 5 - F001 - F005 Solvent Constituents

__ acetone
__ benzene
__ carbon disulfide
__ carbon tetrachloride
__ chlorinated fluorocarbon
__ chlorobenzene
__ chloroethane
__ chloromethane
__ 1,1-dichloroethane
__ trans-1,2-dichloroethane
__ o-dichlorobenzene
__ 2-ethoxyethanol
__ ethyl acetate
__ ethyl benzene
__ ethyl ether
__ isobutanol
__ methanol
__ methyl isobutyl ketone (MIBK)
__ methyl ethyl ketone (MEK)
__ methylene chloride
__ nitrobenzene
__ 2-nitropropane
__ pyridine
__ tetrachloroethylene
__ toluene
__ 1,1,1-trichloroethane
__ 1,1,1-trichloro-1,2,2-trifluoroethane
__ trichlorofluoromethane
__ vinyl chloride
__ xylenes

GROUP 6 - Rad

__ Cs 137
__ Np 237
__ Pu 238
__ Pu 239/240
__ Ra 226
__ Ra 228
__ Ru 106
__ Sr 90
__ Tc 99
__ Th Total
__ Th 228
__ Th 230
__ Th 232
__ U Total
__ U 234
__ U 235/236
__ U 238
__ Gross alpha/beta

GROUP 7 - Phys/Chem

__ Paint Filter Liquid Test (PFLT)

__ pH (if PFLT fails and filtrate is aqueous)
__ corrosivity toward steel (if PFLT fails and filtrate is nonaqueous)
__ flash point (if PFLT fails)

__ asbestos (__TEM, __EM, __PLM)

__ HSL
__ full __ extended __ abbrev.

GROUP 8 - ASTM Methods

__ commingling waste (ASTM D 5058)
__ cyanides in waste (ASTM D 5049)
__ sulfides in waste (ASTM D 4978)
__ pH of waste (ASTM D 4980)
__ physical description (ASTM D 4979)
__ oxidizers in waste (ASTM D 4981)
__ particle grain size (ASTM)

GROUP 9 - LDR

__ total organic carbon (TOC)
__ total suspended solids (TSS)
__ total organic halides (TOX)
__ PCBs
__ nickel
__ thallium

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4.4 Sampling Plan Development

Sampling plans are either developed by Environmental Monitoring (EM) or project staff at the FEMP. Sampling plans to support waste characterization are reviewed by WCS prior to implementation (with the exception of implementing plans developed under an approved prototype plan). The following sections describe the information generally contained or referenced in sampling plans at the FEMP.

4.4.1 Purpose/Objectives

The purpose for sampling and analysis (e.g., waste characterization for a specific waste stream) is identified in each sampling plan generated at the FEMP. The purpose may be discussed in greater detail in referenced project documentation (e.g., CERCLA Work Plans). The specific objectives related to sampling and analysis are stated in the sampling plan.

4.4.2 Organization and Responsibilities

Sampling plans may specifically identify organizational responsibilities or may rely on referenced SOPs to identify specific responsibilities.

4.4.3 Number/Location of Samples

The number and location of samples are identified in each sampling plan. For containerized waste, a list of selected containers is generally provided with inventory information. For waste in other configurations, text and/or a diagram may be provided to identify the location of specific samples to be collected. The sampling approach used for selecting samples and a brief discussion of the rationale for selecting the sampling approach is provided in the sampling plan.

4.4.4 Required Analyses/Sample Volumes

The parameters of concern for sampling are specified by the end user of the data when sampling and analysis is requested. Page 2 of the "Request for Sampling and Analysis" lists the frequently required analyses for waste characterizations at the FEMP. Sample volumes are dictated by lab requirements for sample volume and specified requirements for Quality Control (QC) samples (e.g., duplicates, matrix spikes, and matrix spike duplicates).

4.4.5 Method of Waste Collection

The method for waste collection is dependent on a number of factors including:

- Sampling hazards (e.g., access to the waste stream),
- Physical form of the waste,

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- Sample volume required,
- Maintaining sample integrity (e.g., cross-contamination, volatilization), and
- Ease of use and cleaning.

An appropriate sampling (or "extraction") methodology is selected and identified in the sampling plan. EM has developed a compendium of "Extraction Methodologies" that describe the protocol for using various equipment for collecting samples at the site. Directions for sample collection for drummed waste streams is specified in the procedure for drummed waste sampling at the FEMP (SOP 20-C-805).

4.4.6 Sample Handling

The FEMP has established procedures for sample handling from the time samples are collected in the field through delivery to the lab for analysis. These procedures address selection of sample containers, required preservations, and sample shipping.

Sample containers are specified in the sampling plan or referenced sampling procedure. Containers are selected to ensure that sample integrity is maintained with respect to the target analytes and method of analysis (i.e., to protect against addition or loss of constituents of concern from or through the sample container). Containers are also selected to hold required sample volume and withstand physical forces expected to act on the sample during transport (i.e, break/leak resistant).

Required sample preservations are also specified in either the sampling plan or referenced sampling procedure. Samples for organic, inorganic, or metals analyses are kept at a constant temperature of 4°C. Additional preservations as required by analysis are also specified (e.g., acid preservation for metals).

Samples are packaged for transport to offsite contract laboratories from the sample processing lab at the FEMP. Samples are delivered to the sample processing lab from the field in appropriate containers (e.g., coolers for samples that must be kept cool) with required Chain-of-Custody documentation and prepared for shipment. per SAM-SS-002 "Shipping Samples to Offsite Laboratories."

4.4.7 Field Quality Control Samples

Field QC samples include trip blanks, field blanks and field duplicates. Field and trip blanks are prepared from analyte-free water. Field blanks are used to detect any added contamination from sampling equipment and the ambient sampling environment. Trip blanks are used to detect any added contamination that may be attributable to the shipping and handling of the sample containers. Field duplicates are replicate samples of a waste taken from the same sampling location but analyzed separately.

The number and type of field QC samples are specified in the sampling plan or referenced SOP.

4.4.8 Documentation and Sample Custody

The FEMP follows specific procedures to ensure that samples collected are traceable and defensible. These procedures define specific requirements for sample labels and seals, chain-of-custody records, and field log books.

Each sample container is labelled with the following information after collection: sample location, collector's name, type of material, type of sample, lot number/identification, date, time, and net weight. A chain-of-custody seal is also affixed to the sample container such that the container can not be opened without breaking the seal.

Chain-of-Custody records and analysis request sheets are completed for collected samples according to procedure SAM-SS-002, "Chain of Custody and Request for Analysis." This documentation provides the means for demonstrating positive control of samples from the point of generation through analysis.

Field log books are kept for all sampling activities at the FEMP. The requirements for entries to the field log books are provided directly in the sampling plan, referenced as a procedure (e.g., EM-SM-004, "Field Logbook Procedure"), or specified in the field sampling procedure (e.g., SOP 20-C-805 "Sampling Drummed Waste for Hazard Identification").

4.4.9 Analytical Quality Control

Analytical QC samples provide information regarding the accuracy and precision of analytical methods employed to analyze FEMP wastes. QC samples include matrix spikes (MS), MS duplicates, matrix duplicates, surrogate spikes, and laboratory control samples. Requirements for analytical QC are specified in the laboratory procedures for completing analyses. For FEMP contract laboratories, the requirements for analytical QC are specified both in the contract scope of work (SOW) and in the contract laboratories implementing procedures. Copies of laboratory specific SOWs are available from the Analytical Customer Service (ACS) group in the FEMP Sample Management Office.

4.5 Lab Analysis

Analyses to support waste characterization are completed by both offsite contract laboratories and by the onsite laboratory at the FEMP. Before laboratories are utilized, they are evaluated to determine if they can support FEMP needs for data quality. The process for qualifying laboratories is provided in the SCQ along with a list of approved qualified laboratories.

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4.6 Quality Assurance Review of Data Packages

Each laboratory supporting FEMP waste characterization generates a Quality Assurance/Quality Control (QA/QC) report that accompanies the analytical data package. QA/QC reports generated from offsite labs are reviewed by FEMP personnel using an offsite data review checklist. Onsite analytical data is verified via a cross check by a second data analyst and/or manager.

4.7 Statistical Treatment of Data

Once data have been reviewed and determined to be valid and meet DQOs, summary statistics are developed for the data to support decision making. For decisions that require comparison with a regulatory threshold, a 90% confidence limit (based on a one-sided Student "t" Test) is formed.

4.7.1 Evaluation of Sample Distributions

The inferential calculations used to form the 90% confidence limit are based on the assumption that the population is approximately normally distributed. Two primary criteria for determining whether a population is normally distributed based on review of a sample set are:

1) Visual inspection of the data (i.e., a graph or plot of the data) and/or

2) Mathematical comparison of the values for the sample mean (x) and the sample standard deviation (s_x).

When the coefficient of variance is less than 1.25 (i.e., $s_x/x < 1.25$), the data may be assumed to be approximately normally distributed.

If this test indicates that the data are not normally distributed, then the following steps are taken in accordance with established guidance at the FEMP:

1) PK and the S&A effort are revisited to determine if the apparent distribution may be an artifact of S&A. Resampling may be necessary if this is deemed to be the case.

2) If the data correlate to an apparent stratification of the waste stream and this correlation is substantiated by PK, then the waste may be evaluated as a stratified waste stream.

3) If the data are determined to meet an alternate distribution profile, a data transformation and subsequent statistical evaluation may be performed (e.g., log-normal transformation followed by anti-log transformation of the 90% confidence limit).

4) If the transformation does not normalize the data, non-parametric approaches may be utilized to form the required 90% confidence limit.

5) Alternatively, additional samples may be collected to expand the number of data points representing the waste. This additional data provides a broader base with which to evaluate assumptions of normality.

4.7.2 Treatment of "Less Than" Values

In cases where the constituent concentration is expressed as "less than" the detection limit (DL), a value of 1/2 the DL is used as an input for statistical treatment. For data to be considered valid, however, the reported DL must be below the regulatory limit with which data are to be compared. This approach minimizes error in decision making (as opposed to using a value of zero or the actual DL in the decision making).

4.7.3 Treatment of Duplicate Analyses

Sample duplicate analyses are an integral part of SW-846 quality assurance protocol and are used to measure sampling performance in terms of precision (reproducability). A sample and its duplicate are designed to be equivalent (i.e., sampled and analyzed in precisely the same manner), therefore any distinction between a sample and its duplicate is arbitrary. For purposes of statistical treatment of data, the average value of duplicate analyses for each constituent for a given sample is used for calculating statistics.

4.7.4 Forming the 90% Confidence Limit

Statistical treatment of data is performed by EM. A minimum of two sample points is required to form the 90% confidence limit in accordance with SW-846's Equation No. 6. A summary of sample results and sample statistics, including the 90% confidence limit, is prepared by EM and sent to WCS for evaluation.

5.0 (Solid) Waste (RCRA Subtitle C) 5690

This section provides the guidance and implementing procedures for identifying (solid) waste subject to RCRA Subtitle C regulation at the FEMP. The determination of a materials status as a (solid) waste is extremely important since only materials that are regulated as (solid) waste are strictly regulated as hazardous waste under the hazardous waste management rules. Note that Ohio uses the term "waste" in lieu of the term "solid waste" used in the federal RCRA regulations. For purposes of this manual "(solid) waste" has the meaning of "solid waste" defined at 40 CFR 261.2 and "waste" defined at OAC 3745-51-02.

The approach for presenting the logic for identifying (solid) waste in the State of Ohio is adapted from the DOE Headquarters guidance "Definitions of Solid & Hazardous Waste" (DOE/EH-0273; August 1992). Modifications have been made to reference the Ohio Administrative Code (OAC) in lieu of the federal regulations (Code of Federal Regulations) for authorized portions of the Ohio Hazardous Waste Management Program. The "Hazardous Waste Rules Table" included in the full set of the OAC rules, Chapters 3745-49 through 3745-69, provides a means for correlating CFR references to the corresponding OAC rule.

Following the general guidance is specific guidance for evaluating (solid) waste at the FEMP. This site guidance provides the means to complete worksheets that document the status of FEMP materials with respect to the definition of (solid) waste. The worksheets focus on those parts of the regulations that bear directly on waste identification at the FEMP.

Figure 5.1
Abandoned Materials

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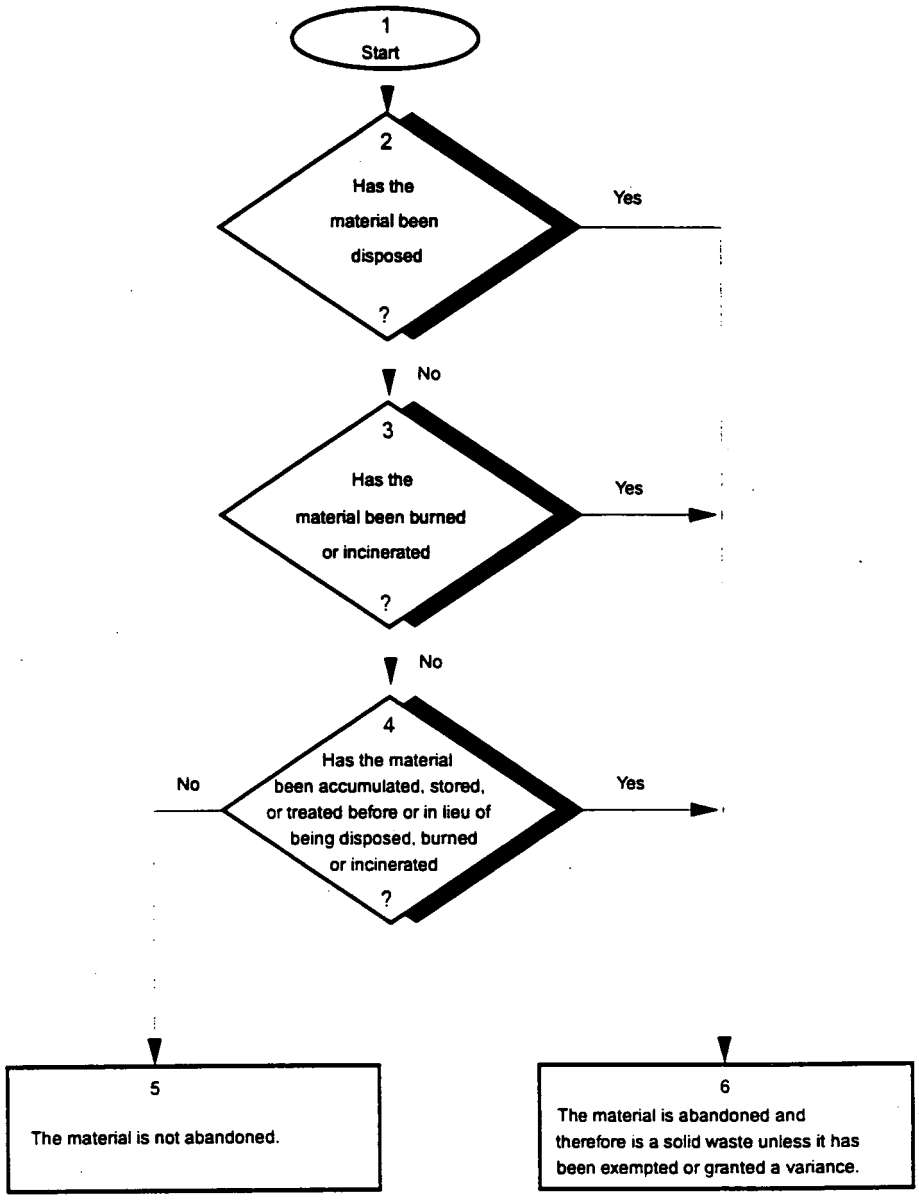

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5.1 Abandoned Materials

Step 1 The definition of a (solid) waste is provided in OAC 3745-51-02. A material is a (solid) waste if it is discarded material, that has not been excluded under OAC 3745-51-04(A) or granted a variance under OAC 3745-50-311 and 312 under certain conditions. Discarded material is defined as any material that is abandoned, recycled or considered inherently waste-like. **Abandonment** is addressed in this section. OAC 3745-51-02(A).

Step 2 OAC 3745-51-02(B)(1). Under OAC 3745-50-10, disposal is defined as the discharge, deposit, injection, dumping, spilling, leaking, or placing of any (solid) waste or hazardous waste into or on any land or water so that such (solid) waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwaters.

Step 3 OAC 3745-51-02(B)(2). EPA emphasizes that this applies whether or not burning is for energy recovery (50 FR 627, 1/4/85).

Step 4 This applies if the material has not been recycled. OAC 3745-51-02(B)(3).

Step 5 A material that has not been abandoned may still be discarded (and a (solid) waste) if it is inherently waste-like or is recycled in certain ways. Inherently waste-like materials are addressed in Section 5.2. Recycled materials are addressed in Section 5.3.

Step 6 The material is a (solid) waste unless it has been exempted under OAC 3745-51-04(A) or has been granted a variance under OAC 3745-50-311 or 312 . Exemptions and variances are addressed in Section 5.4.

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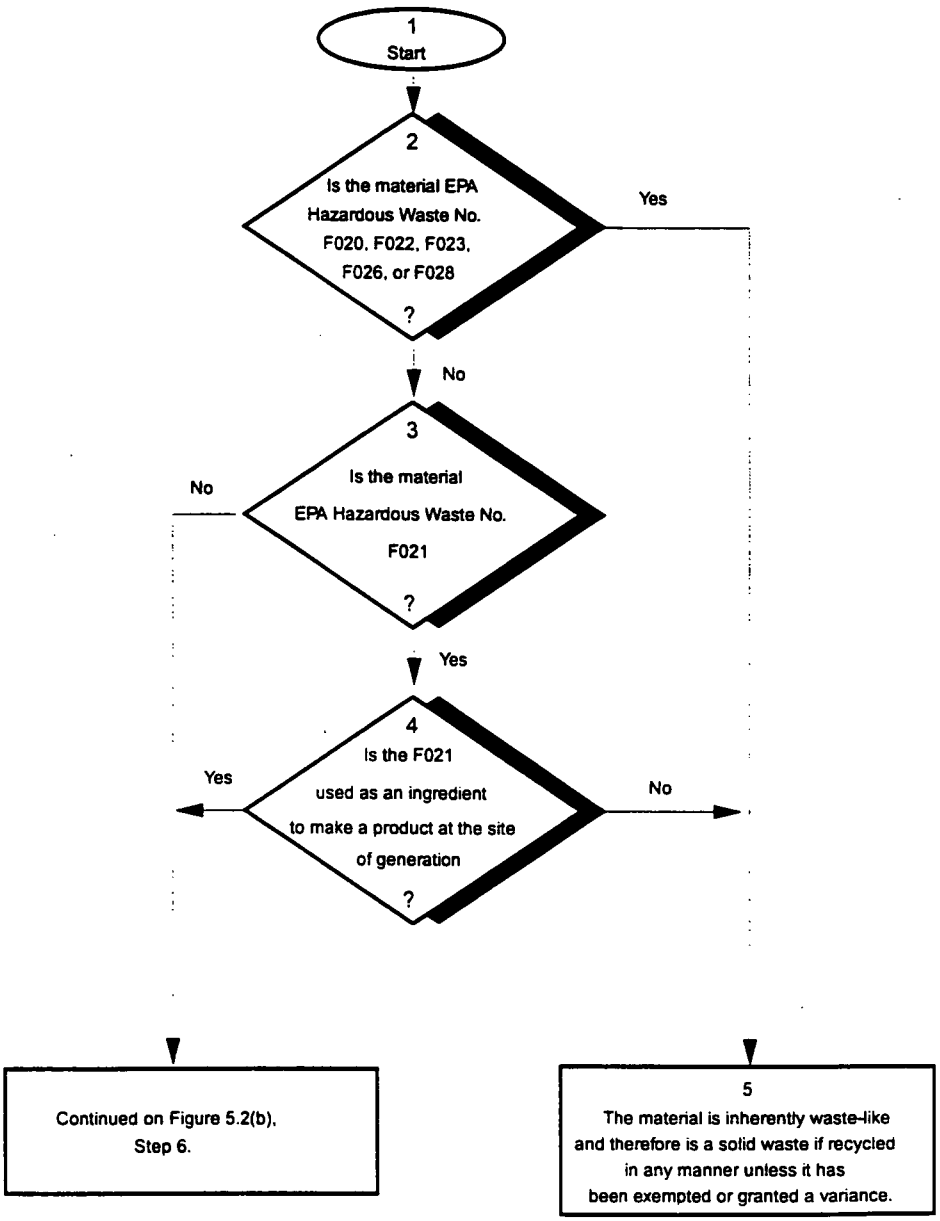
Figure 5.2(a)
Inherently Waste-Like Materials



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5.2 Inherently Waste-Like Materials

Step 1 **Start.** To be a (solid) waste, as defined at OAC 3745-51-02, a material must be discarded. Discarded material is defined as any material that is abandoned, recycled under certain conditions or inherently waste-like. **Inherently waste-like** materials are (solid) wastes if they are recycled in any manner. OAC 3745-51-02(D).

SPECIFIC WASTES

Step 2 F020, F022, F023, F026 and F028 are described under OAC 3745-51-31. They include wastes from the production of certain phenols and chlorobenzenes, and residues resulting from the incineration or thermal treatment of solids contaminated with these wastes. OAC 3745-51-02(D)(1). By definition, these materials are both (solid) wastes and hazardous wastes under OAC 3745-51-02(D)(1).

Step 3 F021 is described at OAC 3745-51-31 as wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives.

Step 4 Pentachlorophenol production plants typically reuse these materials in their own production processes. F021 is a (solid) waste if recycled in any other way (50 FR 637, 1/4/85). OAC 3745-51-02(D)(1).

Step 5 The material is a (solid) waste if recycled in any manner unless it has been exempted under OAC 3745-51-04(A) or granted a variance under OAC 3745-50-311 or 312. Exemptions and variances are addressed in Section 5.4.

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Figure 5.2(b)
Inherently Waste-Like Materials (Cont.)

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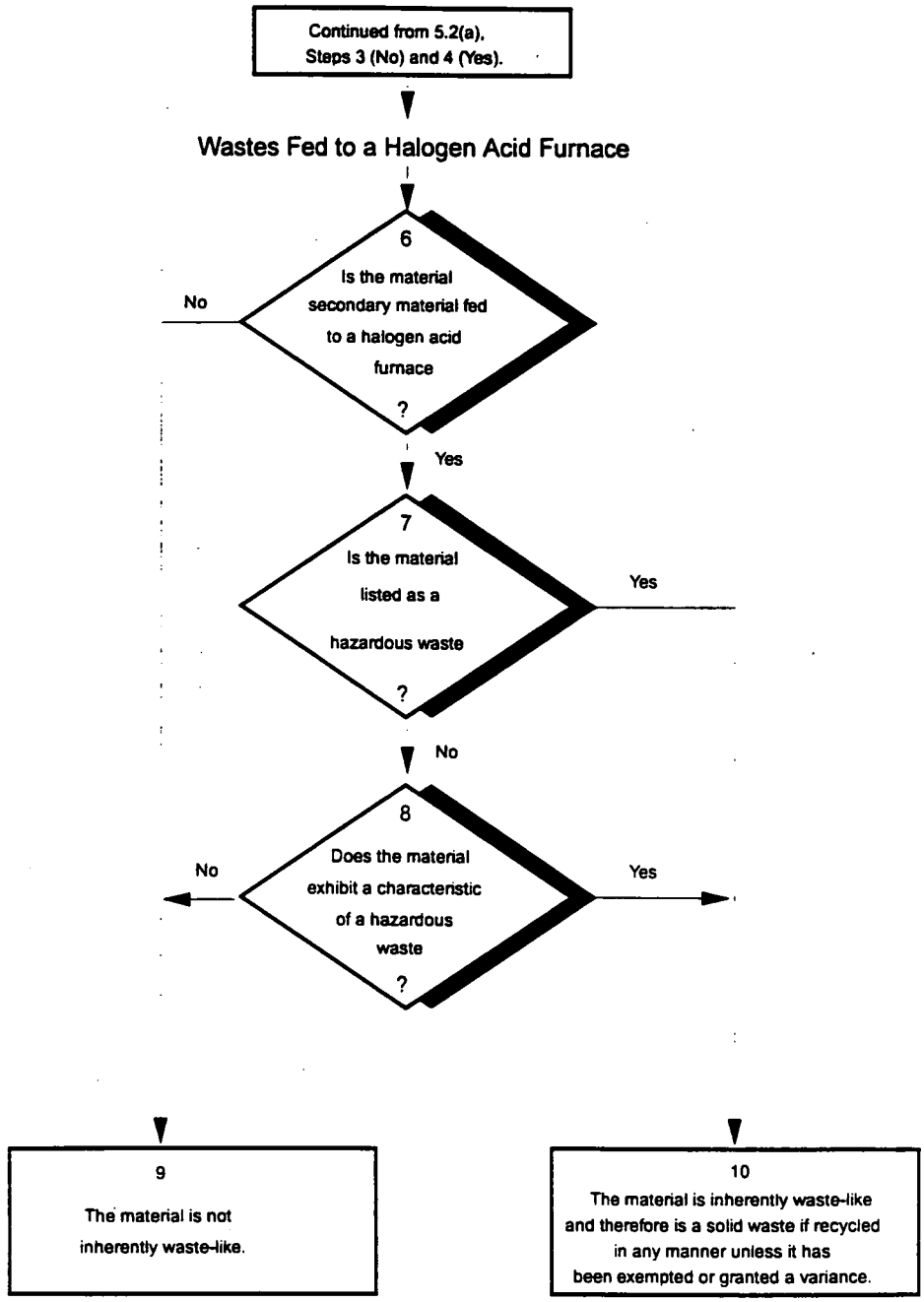

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5.2 Inherently Waste-Like Materials (cont.)

WASTES FED TO A HALOGEN ACID FURNACE

Step 6 Secondary materials listed as hazardous waste under Subpart C or D of 40 CFR 261 (explained below) are inherently waste-like when fed to a halogen acid furnace (HAF). "The wastes burned by HAFs are some of the most toxic generated and regulation of emissions from burning these wastes certainly is needed to protect human health and the environment" (56 FR 7141, 2/21/91). (40 CFR 261.2(d)(2)) NOTE: No OAC rule yet promulgated for this non-HSWA federal provision so this rule is not effective in Ohio yet.

Step 7 As defined in Subpart D of Part 261. Listed hazardous wastes are generated from certain processes or are certain discarded commercial chemical products. Detailed information describing listed hazardous wastes is found in Section 6.1. (40 CFR 261.2(d)(2))

Step 8 As defined in Subpart C of Part 261. A characteristic hazardous waste exhibits ignitability, corrosivity, reactivity, or toxicity. Detailed information describing characteristic hazardous wastes is found in Section 6.2. (40 CFR 261.2(d)(2))

Step 9 A material that is not inherently waste-like may still be discarded (and a (solid) waste) if it is abandoned or recycled. Abandoned materials are addressed in Section 5.1. Recycled materials are addressed in Section 5.3.

Step 10 The material is a (solid) waste if recycled in any manner unless it has been exempted under 261.4(a) or granted a variance under 260.30 and 260.31. Exemptions and variances are addressed in Section 5.4.

Figure 5.3(a)
Recycled Materials

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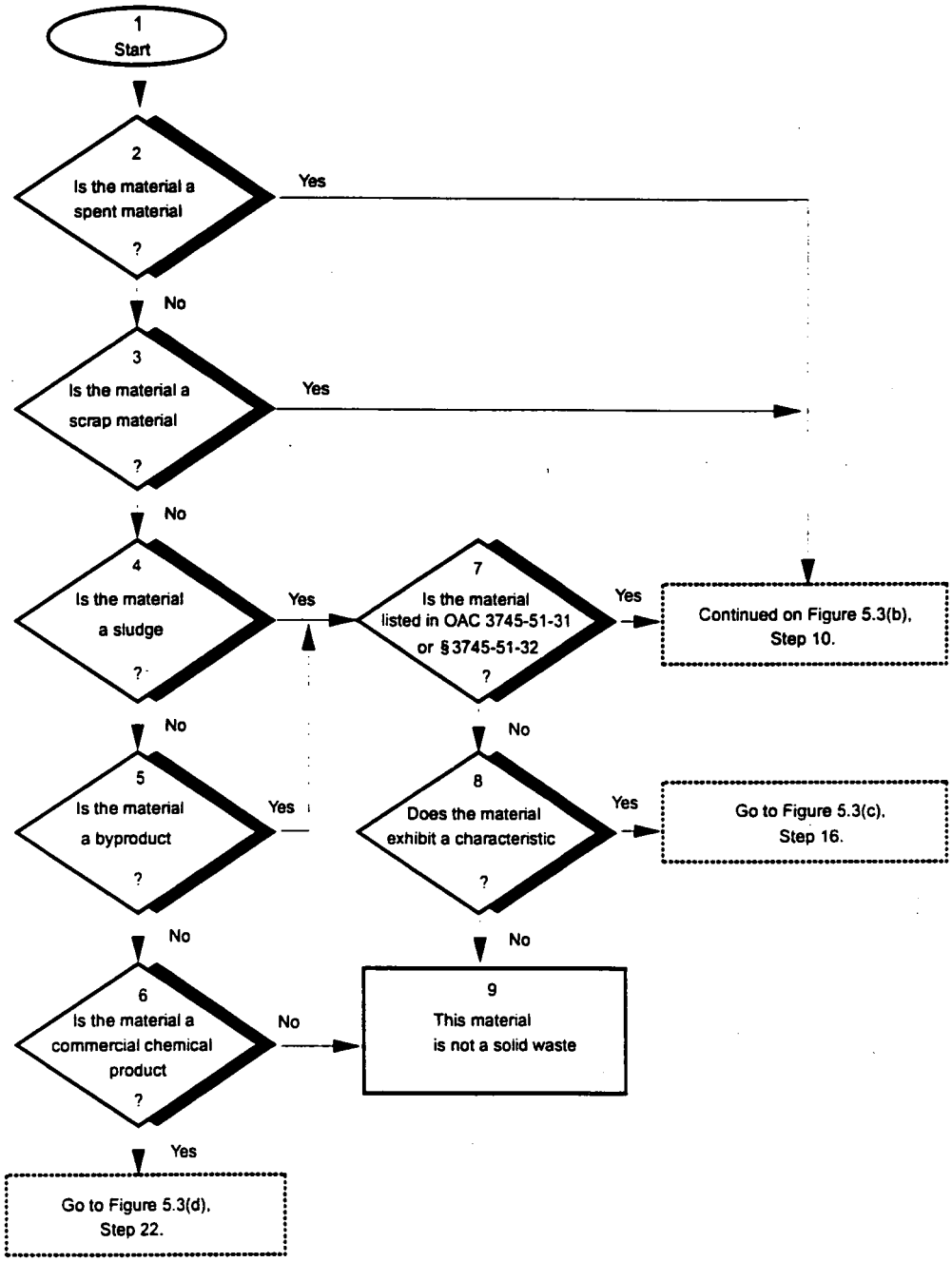

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5.3 Recycled Materials

Step 1 Certain materials are (solid) wastes when involved in certain types of recycling activities. These five materials are addressed in Steps 2 through 6 below. For the purposes of the regulations, a material cannot fall in more than one of these five categories.

Step 2 **Spent Material** is defined at OAC 3745-51-01(C)(1) as any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without processing. OAC 3745-51-02(C) Table 1.

Step 3 **Scrap metal** is defined at OAC 3745-51-01(C)(6) as bits and pieces of metal parts (e.g., bars, turnings, rods, sheets, wire) or metal pieces that may be combined together with bolts or soldering (e.g., radiators, scrap automobiles, railroad box cars), which when worn or superfluous can be recycled. OAC 3745-51-02(C) Table 1.

Step 4 **Sludge** is defined at OAC 3745-50-10 as any solid, semi-solid or liquid waste generated from a municipal, commercial or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plat. OAC 3745-51-02(C) Table 1.

Step 5 **Byproduct** is defined at OAC 3745-51-03(C)(3) as a material that is not one of the primary products and is not solely or separately produced by the production process. Examples are process residues such as slags or distillation column bottoms. The term does not include a co-product that is produced for the general public's use and is ordinarily used in the form it is produced by the process. OAC 3745-51-02(C) Table 1.

Step 6 **Commercial chemical product** is defined at OAC 3745-51-33, with manufacturing chemical intermediates; as a chemical substance which is manufactured or formulated for commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient. Listed commercial chemical products are found at OAC 3745-51-33(E)-(F). OAC 3745-51-02(C)Table 1.

Step 7 Sludges and byproducts containing listed wastes are treated differently from those that contain characteristic wastes. OAC 3745-51-02(C) Table 1.

Step 8 "Characteristic" refers to the four hazardous waste characteristics: ignitability, corrosivity, reactivity, and toxicity. These characteristics are defined in OAC 3745-51-21 to 24 and discussed in Section 6.2 of this document.

Step 9 This means that the recycling of this material does not render it a (solid) waste. However, it would still be a (solid) waste if abandoned or inherently waste-like, as explained in Sections 5.1 and 5.2. OAC 3745-51-02(C) Table 1.

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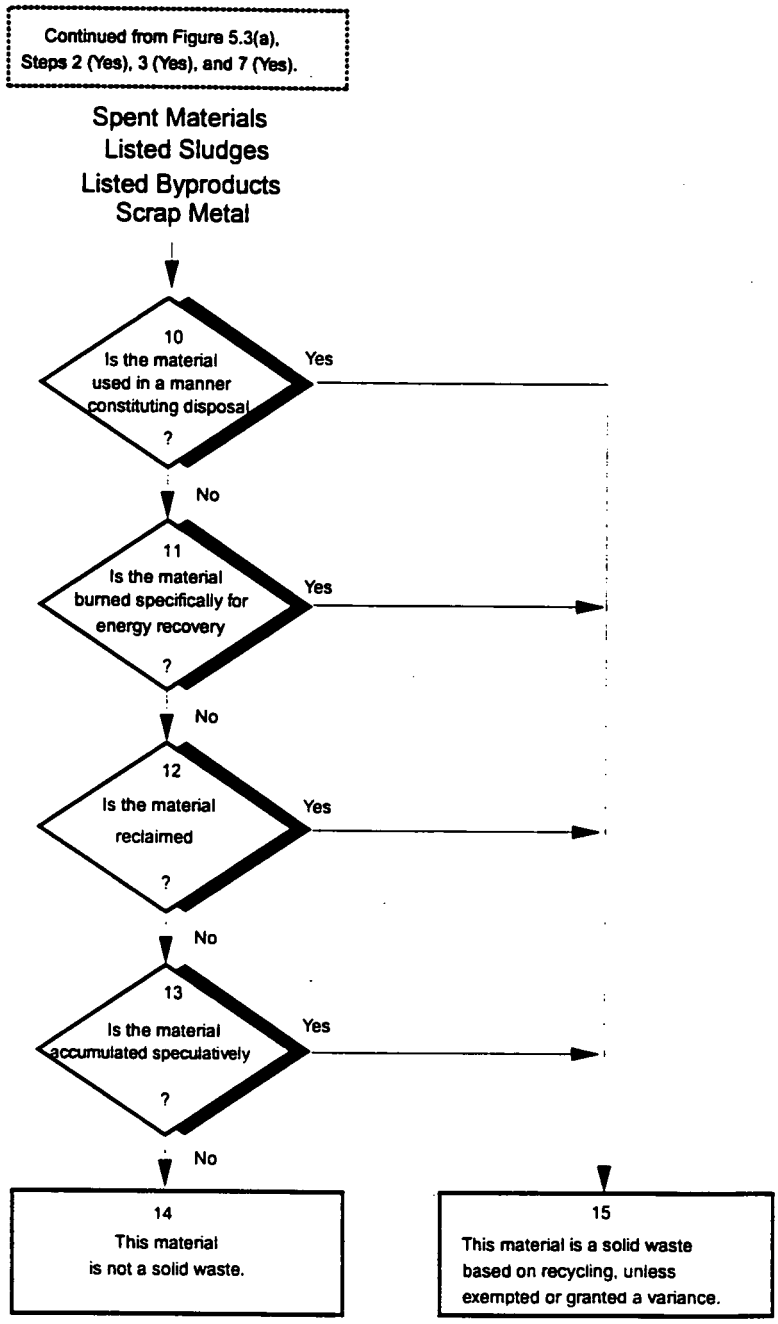
Figure 5.3(b)
Recycled Materials (Cont.)



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5.3 Recycled Materials (cont.)

SPENT MATERIALS, LISTED SLUDGES, LISTED BYPRODUCTS, SCRAP METAL

Step 10 This applies to materials that are:

- Applied to or placed on the land for a particular use (such as dust suppressions) in a manner that constitutes disposal; or
- Used to produce products that are applied to or placed on the land or are otherwise contained in products that are applied to or placed on the land (in which cases the product itself is a (solid) waste). OAC 3745-51-02(C)(1)(a).

This includes materials accumulated, stored or treated before being used in a manner constituting disposal. OAC 3745-51-02(C).

Step 11 This includes materials that are used to produce a fuel or are otherwise contained in fuels (in which case the fuel itself is a (solid) waste). OAC 3745-51-02(C)(2)(a). This also includes materials accumulated, stored or treated before being burned specifically for energy recovery. OAC 3745-51-02(C).

Step 12 **Reclaimed** is defined under OAC 3745-51-01(C)(4). A material is reclaimed if it is processed to recover a usable product or if it is regenerated. Examples are recovery of lead values from spent batteries and regeneration of spent solvents. This step includes materials that are accumulated, stored or treated before being reclaimed. OAC 3745-51-02(C).

Step 13 **Accumulated speculatively** is defined under OAC 3745-51-01(C)(8). A material is accumulated speculatively if it is accumulated before being recycled. A material is <u>not</u> accumulated speculatively if the material is potentially recyclable and has a feasible means of being recycled; in addition, during the calendar year, at least 75 percent of the accumulated amount must be recycled. OAC 3745-51-02(C)(4) and 3745-51-01(C)(3). This step includes materials that are accumulated, stored or treated before being reclaimed.

Step 14 The material is not a (solid) waste based on recycling of a secondary material. It would still be a (solid) waste if abandoned or inherently waste-like, as explained in Sections 5.1 and 5.2.

Step 15 The material is a (solid) waste unless it has been exempted under OAC 3745-51-04(A) or has been granted a variance under OAC 3745-50-311 or 312. Exemptions and variances are addressed in Section 5.4. OAC 3745-51-02(C).

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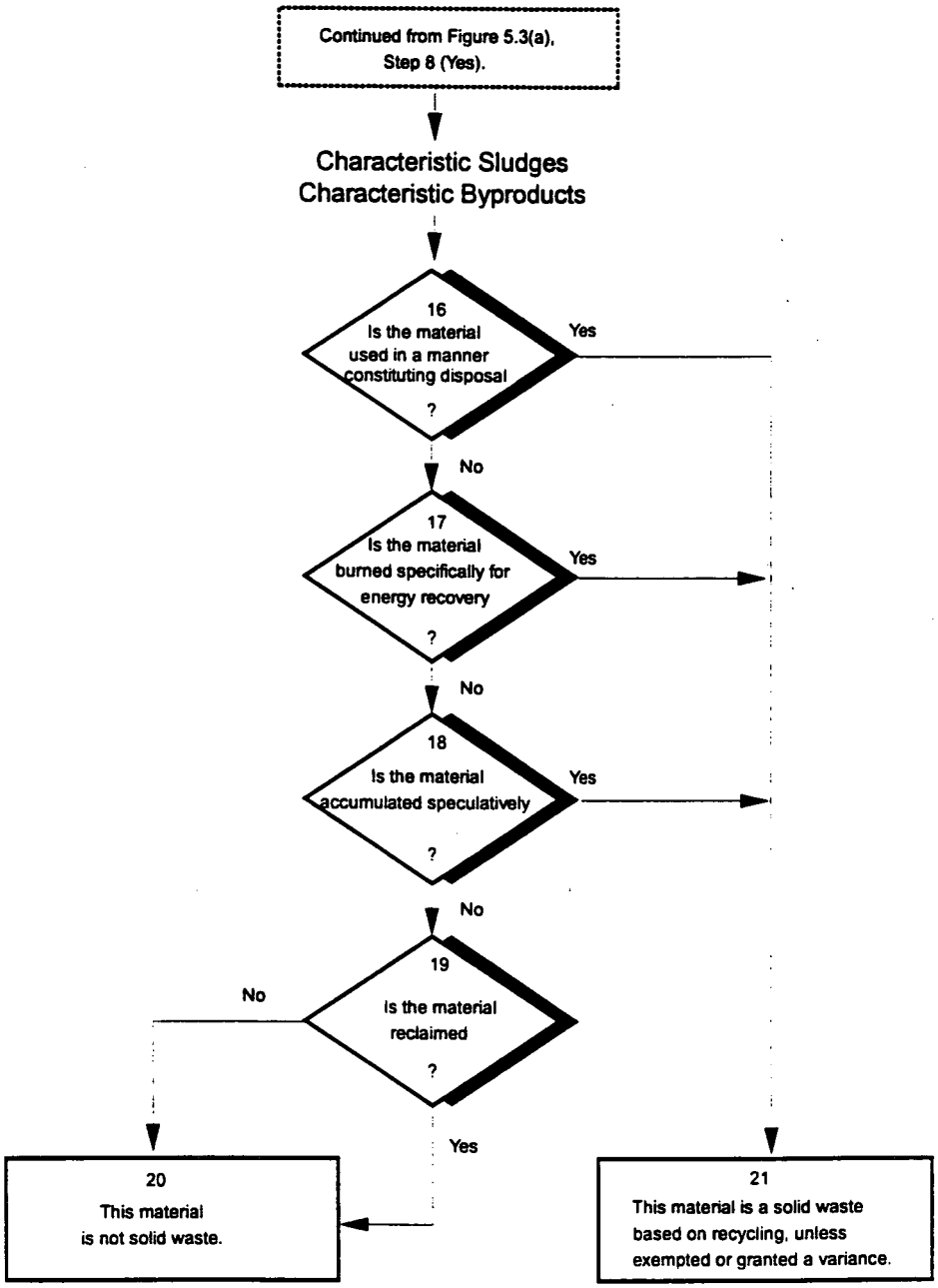
Figure 5.3(c)
Recycled Materials (Cont.)



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5.3 Recycled Materials (cont.)

CHARACTERISTIC SLUDGES, CHARACTERISTIC BYPRODUCTS

Step 16 This applies to materials that are:

- Applied to or placed on the land for a particular use (such as dust suppression) in a manner that constitutes disposal; or
- Used to produce products that are applied to or placed on the land or are otherwise contained in products that are applied to or placed on the land (in which cases the product itself remains a (solid) waste). OAC 3745-51-02(C)(1)(a).

This includes materials accumulated, stored or treated before being used in a manner constituting disposal. OAC 3745-51-02(C).

Step 17 This includes materials that are used to produce a fuel or are otherwise contained in fuels (in which case the fuel itself is a (solid) waste). OAC 3745-51-02(C)(2)(a). This also includes materials accumulated, stored or treated before being burned specifically for energy recovery. OAC 3745-51-02(C).

Step 18 **Accumulated speculatively** is defined under OAC 3745-51-01(C)(8). A material is accumulated speculatively if it is accumulated before being recycled. A material is <u>not</u> accumulated speculatively if the material is potentially recyclable and has a feasible means of being recycled; in addition, during the calendar year, at least 75 percent of the accumulated amount must be recycled. OAC 3745-51-02(C)(4) and 3745-51-01(C)(8). This includes materials that are accumulated, stored or treated before being accumulated speculatively. OAC 3745-51-02(C).

Step 19 **Reclaimed** is defined under OAC 3745-51-01(C)(4). A material is reclaimed if it is processed to recover a usable product or if it is regenerated. Examples are recovery of lead values from spent batteries and regeneration of spent solvents. OAC 3745-51-02(C)(3). This step includes materials that are accumulated, stored or treated before being reclaimed. OAC 3745-51-02(C). These characteristic sludges and byproducts are not (solid) wastes because they were not recycled by the above three methods, and are not (solid) wastes when reclaimed. (Material that is accumulated speculatively <u>prior to</u> being reclaimed is a (solid) waste.)

Step 20 The material is not a (solid) waste based on recycling of a secondary material. (Secondary material is any material that potentially can be a (solid) or hazardous waste when recycled). It would still be a (solid) waste if abandoned or inherently waste-like, as explained in Sections 5.1 and 5.2.

Step 21 The material is a (solid) waste unless it has been exempted under OAC 3745-51-04(A) or has been granted a variance under OAC 3745-50-311 or 312. Exemptions and variances are addressed in Section 5.4. OAC 3745-51-02(C).

Figure 5.3(d)
Recycled Materials (Cont.)

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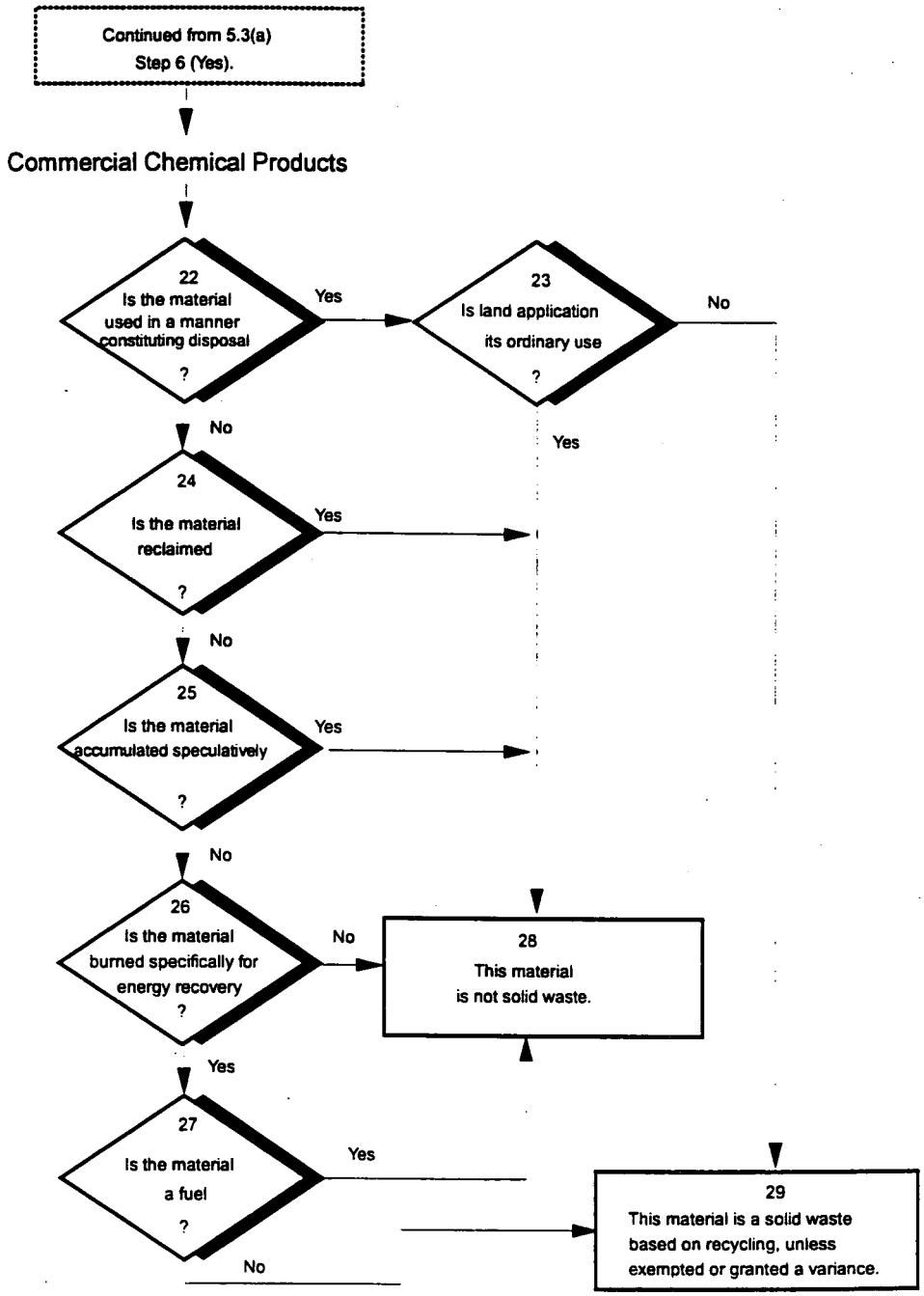

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5.3 Recycled Materials (cont.)

COMMERCIAL CHEMICAL PRODUCTS

Step 22 This applies to materials that are:

- Applied to or placed on the land for a particular use (such as dust suppression) in a manner that constitutes disposal; or
- Used to produce products that are applied to or placed on the land or are otherwise contained in products that are applied to or placed on the land (in which cases the product itself remains a (solid) waste). OAC 3745-51-02(C)(1)(a).

This includes materials accumulated, stored or treated before being used in a manner constituting disposal. OAC 3745-51-02(C).

Step 23 This means that if the material is normally produced for the purpose of applying it to the land, then it is not a (solid) waste. OAC 3745-51-02(C)(1)(b).

Step 24 **Reclaimed** is defined under OAC 3745-51-01(C)(4). A material is reclaimed if it is processed to recover a usable product or if it is regenerated. Examples are recovery of lead values from spent batteries and regeneration of spent solvents. OAC 3745-51-02(C)(3). This step includes materials that are accumulated, stored or treated before being reclaimed. OAC 3745-51-02(C).

Step 25 **Accumulated speculatively** is defined under OAC 3745-51-02(C)(8); it is accumulated speculatively if accumulated before being recycled. A material is <u>not</u> accumulated speculatively if the material is potentially recyclable and has a feasible means of being recycled. During the calendar year, at least 75% of the accumulated amount must be recycled. OAC 3745-51-02(C)(4) and (8). Includes materials that are accumulated, stored or treated before being accumulated speculatively. OAC 3745-51-02(C).

Step 26 Includes materials that are used to produce a fuel or are otherwise contained in fuels (in which case the fuel itself is a (solid) waste). OAC 3745-51-02(C)(2)(a). Also includes materials accumulated, stored or treated before being burned specifically for energy recovery. OAC 3745-51-02(C).

Step 27 This means that if the material is normally produced for use as fuel, then it is not a (solid) waste. OAC 3745-51-02(C)(2)(b).

Step 28 This means that the recycling of this material does not render it a (solid) waste. However, it would still be a (solid) waste if abandoned or inherently waste-like, as explained in Sections 5.1 and 5.2. OAC 3745-51-02(C).

Step 29 The material is (solid) waste unless it has been exempted under OAC 3745-51-04(A) or has been granted a variance under 3745-50-311 or 312. Exemptions and variances are addressed in Section 5.4. OAC 3745-51-02(C).

Figure 5.4(a)
Solid Waste Exclusions

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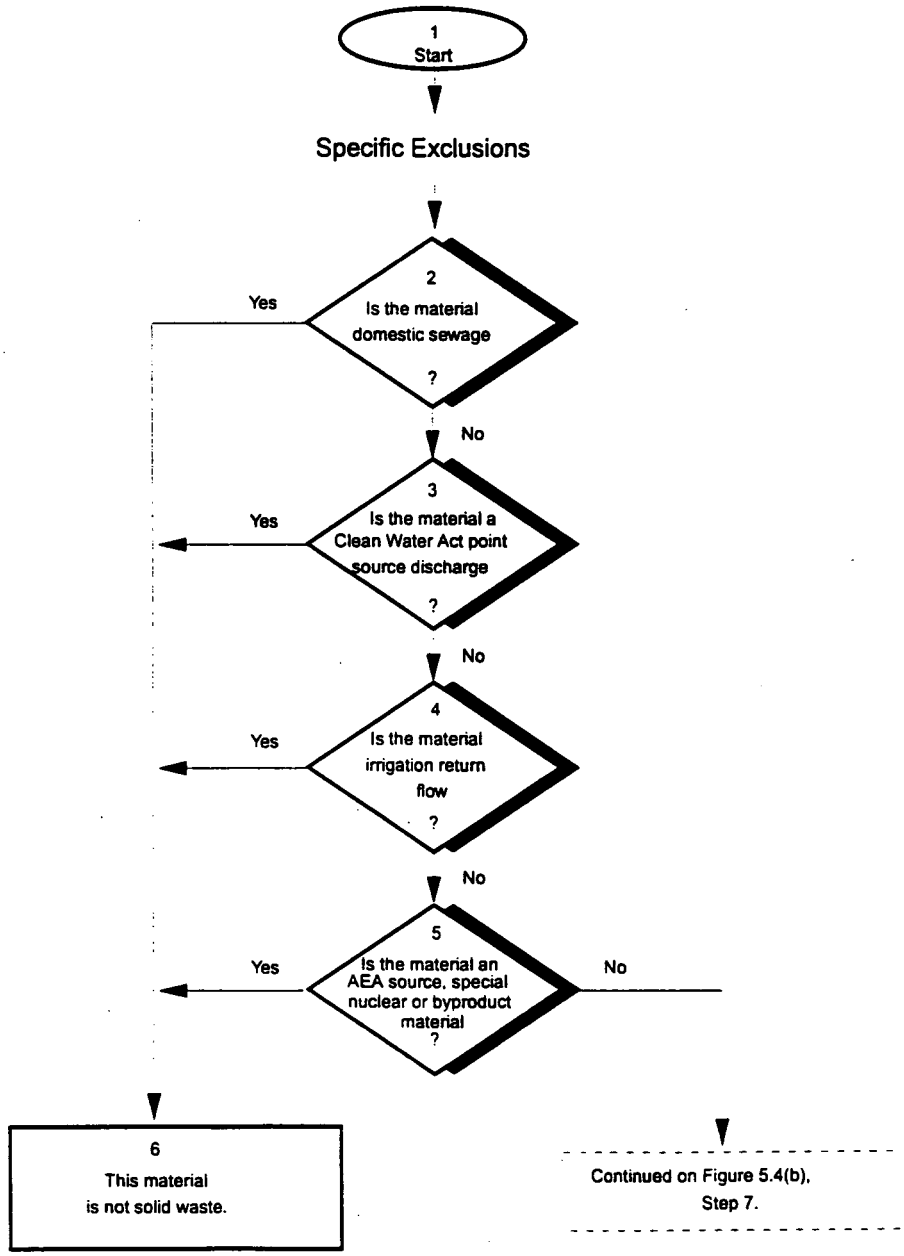

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5.4 (solid) Waste Exclusions

Step 1 **Start.** A (solid) waste is any discarded material that is not excluded by OAC 3745-51-04(A) or by variance granted under OAC 3745-50-311 or 312. OAC 3745-51-02(A)(1). Materials that otherwise meet the definition of (solid) waste may be excluded from the definition under OAC 3745-51-04(A).

SPECIFIC EXCLUSIONS

Step 2 This includes any mixture of domestic sewage and other wastes that passes through a sewer system to a publicly-owned treatment works for treatment. **Domestic sewage** means untreated sanitary wastes that pass through a sewer system. OAC 3745-51-04(A)(1)(a) and (b).

Step 3 This is, specifically, industrial wastewater discharges subject to regulation under section 402 of the Clean Water Act, as amended. This exclusion applies only to the actual point source discharge. It does not exclude industrial wastewaters while they are being collected, stored or treated. Nor does it exclude sludges generated by industrial wastewater treatment. OAC 3745-51-04(A)(2).

Step 4 The statutory definition of (solid) waste (section 1004(27)) specifically excludes solid or dissolved materials in irrigation return flows. OAC 3745-51-04(A)(3).

Step 5 **AEA** is the Atomic Energy Act of 1954, as amended 42 U.S.C. 2011 *et seq.* (40 CFR 261.4(a)(4)). Definitions of these materials are summarized below:

- **Source material**: (1) uranium, thorium, or any other material determined by the Atomic Energy Commission to be source material; or (2) ores containing one or more of the foregoing materials, in such concentrations as the Commission may determine. (42 U.S.C. 2014(z))
- **Special nuclear material**: (1) Plutonium, uranium enriched in the isotope 233 or 235, and any other material which the Atomic Energy Commission determines to be special nuclear material, but does not include source material; or (2) any material artificially enriched by any of the foregoing, excepting source material. (42 U.S.C. 2014(aa))
- **Byproduct material**: Any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear materials. (42 U.S.C. 2014(e))

If these materials are mixed with a hazardous waste, as defined in Section 6.0, the hazardous waste component is still regulated under RCRA (51 FR 24504, 7/3/86; DOE Order 5820.2A).

Step 6 The exclusion under §261.4(a) applies. Because the material is not a (solid) waste, it cannot be hazardous waste and no further steps in Sections 5.0 and 6.0 apply.

NOTE: The OAC regulations do not have a corresponding exclusion from the *definition of (solid) waste.* The Ohio rules do, however, provide an exclusion from the *definition of hazardous waste* for the radionuclide portion of mixtures of hazardous waste and AEA materials at OAC 3745-51-03(D).

Figure 5.4(b)
Solid Waste Exclusions (Cont.)

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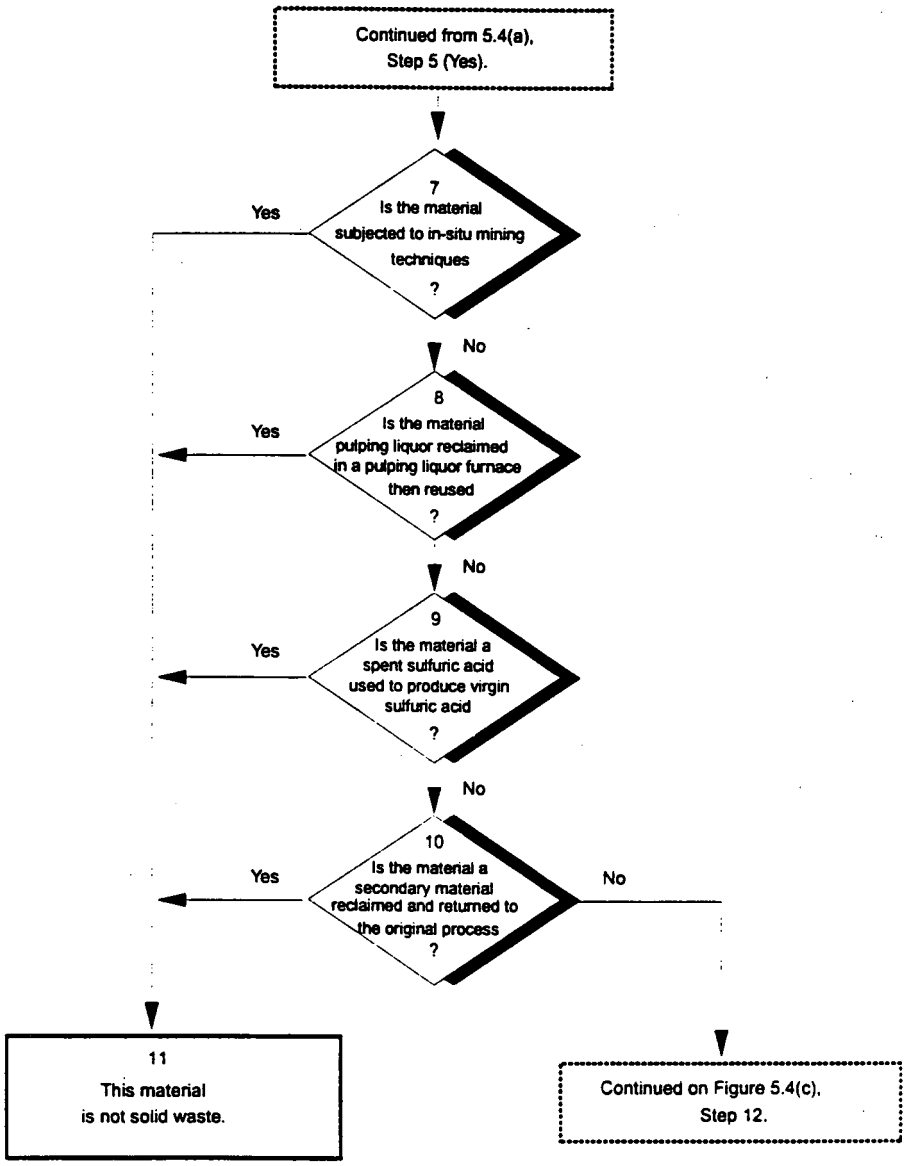

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5.4 (solid) Waste Exclusions (cont.)

Step 7 These are materials subjected to in-situ mining techniques which are not removed from the ground as part of the extraction process. OAC 3745-51-04(A)(4).

Step 8 This exclusion applies to pulping liquors (i.e., black liquor) that are reclaimed in a pulping liquor recovery furnace and then reused in the pulping process, unless it is accumulated speculatively. OAC 3745-51-04(A)(5). "Reclaimed", "reused" and "accumulated speculatively" are defined at OAC 3745-51-01(C).

Step 9 This applies unless the acid is accumulated speculatively. OAC 3745-51-04(A)(6). "Accumulated speculatively" is defined at OAC 3745-51-01(C).

Step 10 This applies to secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process provided:

(a) Only tank storage is involved, and the entire process through completion of reclamation is closed by being entirely connected with pipes or other comparable enclosed means of conveyance;

(b) Reclamation does not involve controlled flame combustion (such as occurs in boilers, industrial furnaces, or incinerators);

(c) The secondary materials are never accumulated in such tanks for over twelve months without being reclaimed; and

(d) The reclaimed material is not used to produce a fuel, or used to produce products that are used in a manner constituting disposal. OAC 3745-51-04(A)(7).

Step 11 The exclusion under OAC 3745-51-04 applies. Because the material is not a (solid) waste, it cannot be a hazardous waste and no further steps of the flowcharts in Sections 5.0 and 6.0 apply.

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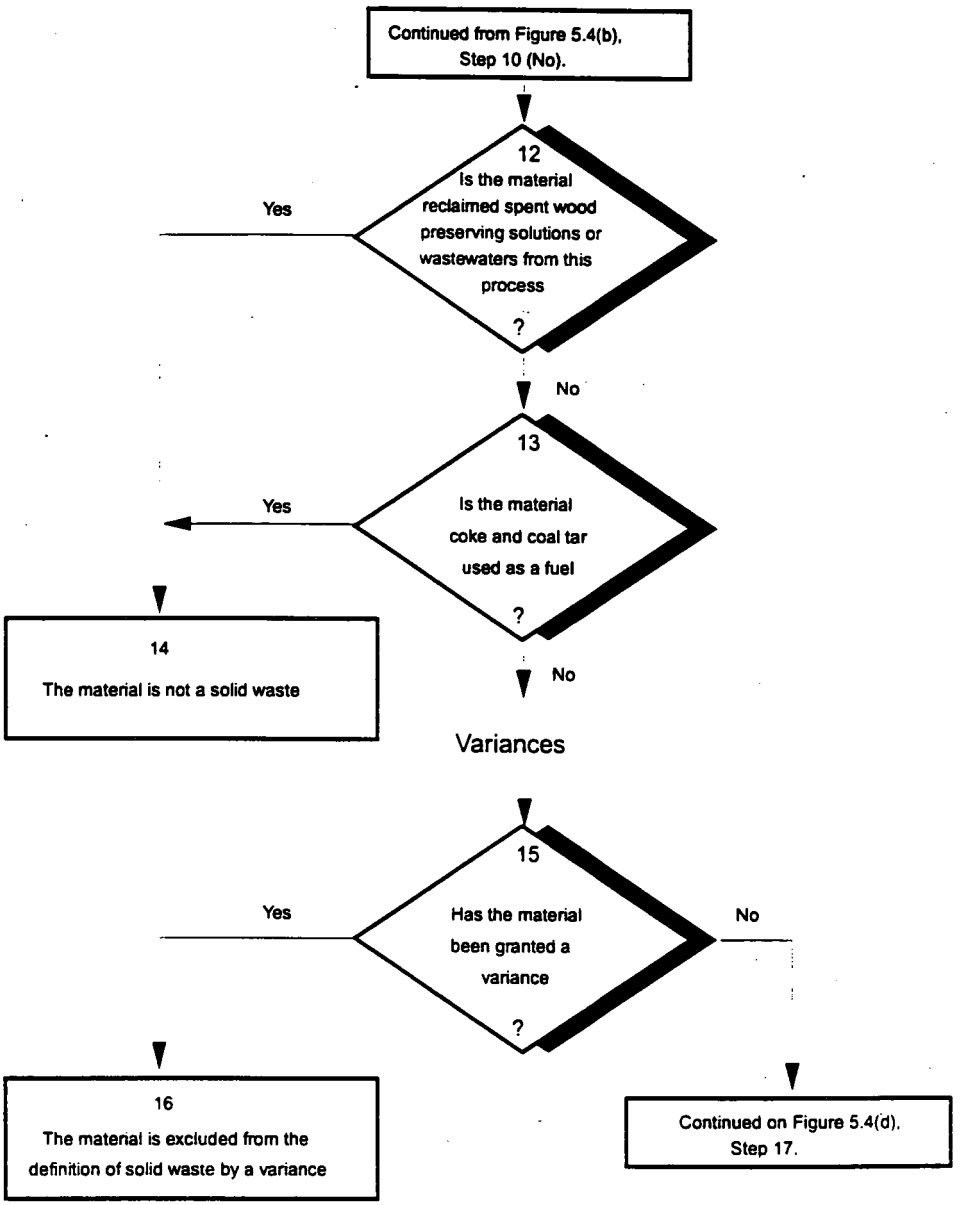
Figure 5.4(c)
Solid Waste Exclusions (Cont.)



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5.4 (solid) Waste Exclusions (cont.)

Step 12 This applies if the solutions have been reclaimed and are reused for their original intended purpose. (40 CFR 261.4(a)(9)). NOTE: Ohio has not yet promulgated OAC rules to provide this exclusion.

Step 13 This applies to coke and coal tar from the iron and steel industry that contains or is produced from decanter tank tar sludge, EPA Hazardous Waste K087. The process of producing coke and coal tar from such decanter tank tar sludge in a coke over is likewise excluded from regulation. (40 CFR 261.4(a)(10)). NOTE: Ohio has not yet promulgated OAC rules to provide for this exclusion.

Step 14 The exclusion under 40 CFR 261.4(a) applies. NOTE: Ohio has not yet promulgated OAC rules to provide for these exclusions.

VARIANCES

Step 15 A (solid) waste is any discarded material that is not excluded by OAC 3745-51-04(A) or by a variance granted under OAC 3745-50-311 or 312. OAC 3745-51-02(A)(1).

Under OAC 3745-50-311 the Director of Ohio EPA may grant variances from classification as a (solid) waste for materials that:

- are accumulated speculatively without sufficient amounts being recycled; or
- are reclaimed and then reused within the original primary production process in which they were generated; or
- have been reclaimed but must be reclaimed further before the materials are completely recovered.

OAC 3745-50-312 lists the standards and criteria that will be used for granting such variances. OAC 3745-50-312.

Step 16 Because the material is not a (solid) waste, it cannot be a hazardous waste and no further steps of the flowcharts in Sections 5.0 and 6.0 apply.

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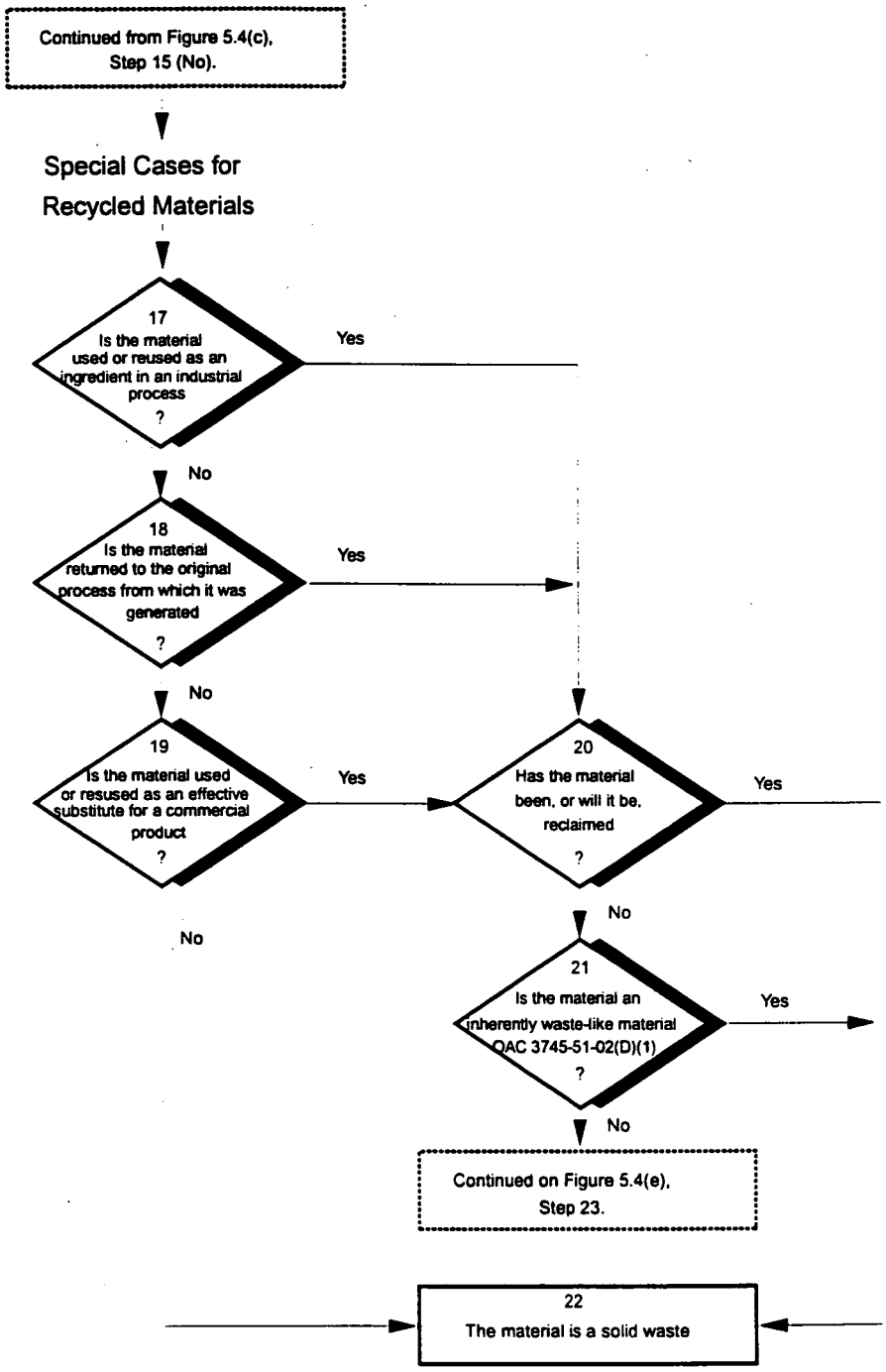
Figure 5.4(d)
Solid Waste Exclusions (Cont.)



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5.4 (solid) Waste Exclusions (cont.)

SPECIAL CASES FOR RECYCLED MATERIALS

Step 17 This applies provided the materials are not being reclaimed. **Used** or **reused** is defined under OAC 3745-51-01(C)(5). A material is used or reused if it is either (1) employed as an ingredient in an industrial process to make a product; or (2) employed in a particular function or application as an effective substitute for a commercial product. OAC 3745-51-02(E)(1)(a).

Steps 18 & 20 The material must be returned as a substitute for raw material feedstock and the process must use raw materials as principal feedstocks. The material must not have been reclaimed first. OAC 3745-51-02(E)(1)(c).

Step 19 Though not expressed in the regulations, this refers to materials that are directly used or reused as a substitute for commercial chemical products; as they are functioning as raw materials and are therefore outside of RCRA jurisdiction (50 FR 619, 1/4/85). OAC 3745-51-02(E)(1)(b).

Step 21 As stated in OAC 3745-51-02(D), inherently waste-like materials are (solid) wastes when recycled in any manner. OAC 3745-51-02(E)(2)(d).

Step 22 The material is a (solid) waste unless it has been exempted under OAC 3745-51-04(A) or has been granted a variance under OAC 3745-50-311 or 312. Exemptions and variances are addressed in this section.

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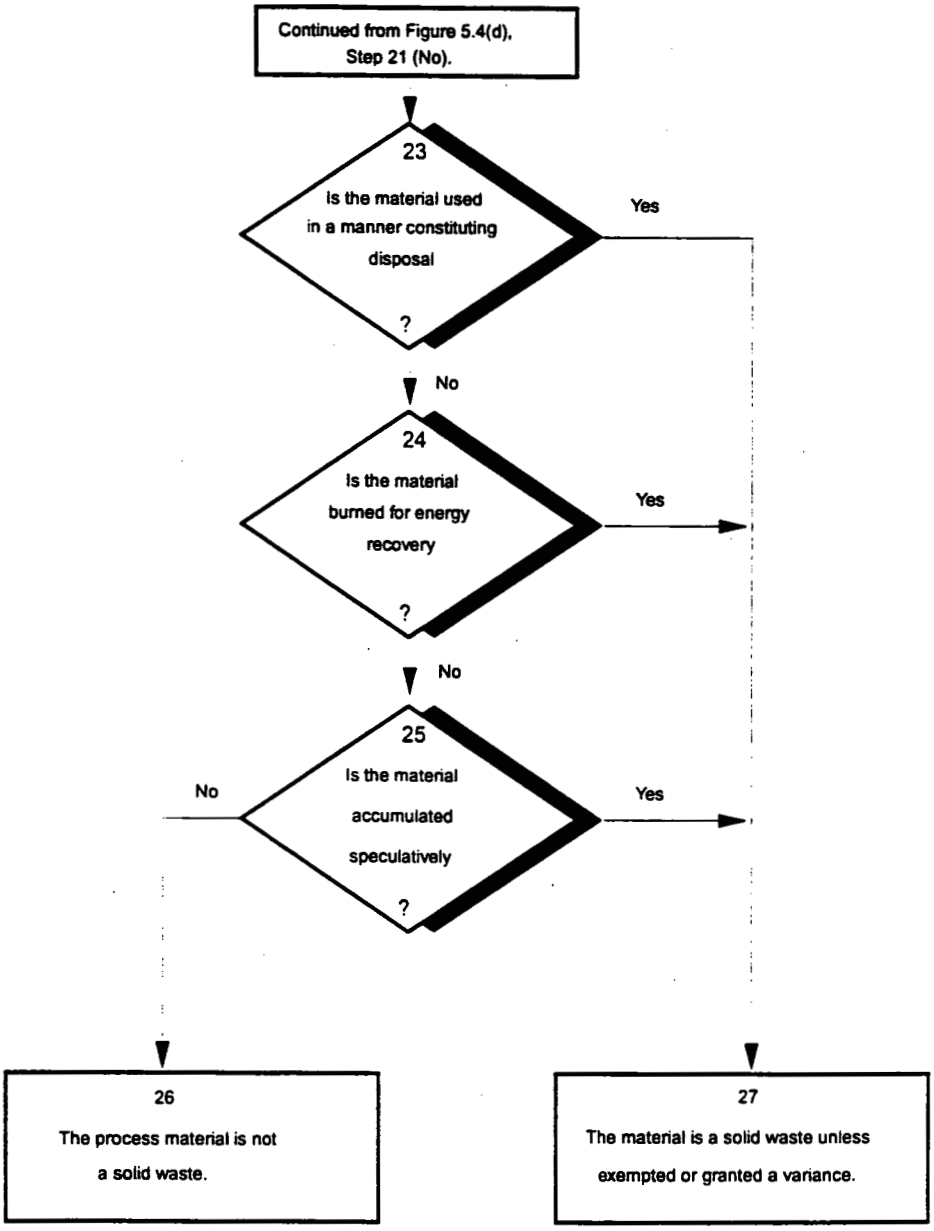
Figure 5.4(e)
Solid Waste Exclusions (Cont.)



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5.4 (solid) Waste Exclusions (cont.)

Step 23 This includes materials used to produce products that are applied to the land. OAC 3745-51-02(E)(2)(a).

Step 24 This includes materials used to produce a fuel or that are contained in fuels. OAC 3745-51-02(E)(2)(b).

Step 25 Accumulated speculatively is defined at OAC 3745-51-01(C)(8). OAC 3745-51-02(E)(2)(c).

Step 26 If it is not abandoned or inherently waste-like, it is not a (solid) waste. Abandoned materials are addressed in Sections 5.1. Inherently waste-like materials are addressed in Section 5.2. OAC 3745-51-02(E).

Step 27 The material is a (solid) waste unless it has been exempted under OAC 3745-51-04 or has been granted a variance under OAC 3745-50-311 or 312. Exemptions and variances are addressed in Section 5.4.

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5.5 Completing (solid) Waste Worksheets

There are two primary worksheets for documenting the status of a materials with respect to the definition of (solid) waste at the FEMP:

- "Definition of (solid) Waste - Worksheet" [Form 5.5(a)], and
- "Exclusions to the Definition of (solid) Waste - Worksheet" [Form 5.5(b)].

The first worksheet is completed and included in the file for each material evaluation completed at the FEMP. The second worksheet is completed for each material for which an exclusion to the definition of (solid) waste is determined to apply.

5.5.1 "Definition of (solid) Waste - Worksheet"

The basic definition of (solid) waste boils down to three basic questions:

- Is the material abandoned?
- Is the material being recycled in a manner that subjects it to regulation as a (solid) waste?
- Is the material inherently waste-like?

If the answer to one or more of these three questions is "yes" then the material is regulated as (solid) waste *unless* one or more of the exclusions to the definition of (solid) waste apply. The following site specific guidance is provided for evaluation of nuclear materials.

The definition of (solid) waste includes all discarded materials that are not specifically excluded from regulation or granted a variance. A discarded material is any material that is abandoned, recycled in certain manners, or inherently waste-like. None of the materials being offered for sale are being abandoned or are considered inherently waste-like. Some of these materials may, however, be considered recyclable materials subject to regulation as (solid) waste.

The following guidance specifies how materials at the FEMP are evaluated to determine if they are legitimate FEMP products or intermediates, or are recyclable materials. These definitions are dependent on both the material types and the management method for the material. The actual management method for certain of these materials may not be known until an offeror responds to the request for proposal (RFP). In the mean time, these materials may be evaluated with respect to the FEMP production process to determine their status with respect to the definition of (solid) waste.

FEMP products are defined as materials that were produced as an end product from the production process and intended for use in defense nuclear programs. Uranium products include metal products such as derbies, flats, and fuel cores. Thorium products include both metal products and thorium oxides. These materials require no reclamation prior to their intended use, whether that be in production reactors or for armament and ballistics.

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Products are not considered (solid) waste until they are abandoned (i.e., accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned, or incinerated).

FEMP intermediates are defined as materials produced in the production process that were intended as feed to another onsite process. These include materials such as orange oxide (UO_3), green salt (UF_4), and remelt feeds. Intermediates are distinguished from recycle materials in that they are one in a series of steps that progressively move the materials to a higher level of processing. Items such as remelt feeds that constitute a lateral move in the production process (i.e., to change physical form) are also considered intermediates. Intermediates are also not considered (solid) waste until they are abandoned.

Recycle streams at the FEMP are comprised of those byproduct, waste, or off-specification materials that are returned to the process at a lower level in the process. Examples of recycle streams at the FEMP include materials such as recoverable trash, sump sludges, black oxide (U_3O_8), off-specification products or intermediates, metals for redissolution (e.g., top crops, metal spills, and briquetted chips and turnings), and magnesium fluoride (MgF_2). Recyclable materials may be regulated as (solid) waste depending on material type and management method.

5.5.2 "Exclusions to the Definition of (solid) Waste - Worksheet"

Exclusions to the definition of (solid) waste that potentially apply to FEMP materials have been summarized on these two worksheets.

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Worksheet 5.5(a)
Definition of (Solid) Waste

DEFINITION OF SOLID WASTE - WORKSHEET

MEF Number: _____ *Rev No.:* _____

This worksheet documents evaluation of this material to determine if it is regulated under RCRA as solid waste under OAC 3745-51-02 (40 CFR 261.2).

To be regulated as a hazardous waste, a material must first meet the definition of solid waste. Solid wastes are defined as materials that are being "discarded," unless the material is specifically excluded from the definition of solid waste. Materials are considered to be discarded when they are *abandoned, recycled* in certain manners, or when they are defined by the EPA as *inherently waste-like.*

DEFINITION OF SOLID WASTE

Meets the criteria?	Evaluation Criteria
___ yes ___ no	The material is being *abandoned* by being disposed of, burned or incinerated, or accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned, or incinerated. - OAC 3745-51-02(B)/40 CFR 261.2(b).
___ yes ___ no	If the material is being *recycled* (i.e., used, reused, or reclaimed) - or accumulated, stored, or treated before recycling - it may be subject to regulation as solid waste. Identify the material type and the type of management for the material by circling the appropriate entry in the table below:

Material Type	Type of Management				
	(I) Use constituting disposal 3745-51-02(C)(1)/ (261.2(c)(1))	(II) Energy recovery/fuel 3745-51-02(C)(2)/ (261.2(c)(2))	(III) Reclamation 3745-51-02(C)(3)/ (261.2(c)(3))	(IV) Speculative accumulation 3745-51-02(C)(4) (261.2(c)(4))	(V) Exempted use/reuse activities not (I) - (IV) 3745-51-02(E) (261.2(e))
Spent Materials	(Y)	(Y)	(Y)	(Y)	(N)
Sludges (listed in OAC 3745-51-31 or 3745-51-32/261.31 or 261.32)	(Y)	(Y)	(Y)	(Y)	(N)
Sludges exhibiting a characteristic	(Y)	(Y)	(N)	(Y)	(N)
By-products (listed in OAC 3745-51-31 or 3745-51-32/261.31 or 261.32)	(Y)	(Y)	(Y)	(Y)	(N)
By-products exhibiting a characteristic	(Y)	(Y)	(N)	(Y)	(N)
Commercial chemical products (listed in OAC 3745-51-33/OAC 3745-51-33)	(Y)	(Y)	(N)	(N)	(N)
Scrap metal	(Y)	(Y)	(Y)	(Y)	(N)

If the material type/management combination are identified by (Y) then the material is subject to regulation as solid waste. If the material type/management combination are identified by (N) then the material is not subject to regulation as solid waste. Any recycled materials determined not to be regulated as solid waste require additional written documentation supporting their regulatory status. - OAC 3745-51-02(F)/40 CFR 261.2(f).

For materials determined to be recycled in accordance with an exempted use/reuse activities provided under OAC 3745-51-02(E) the worksheet "Exclusions to the Definition of Solid Waste" must be completed.

___ yes ___ no	The material is *inherently waste-like* (i.e., identified as hazardous waste F020 - F023, F026 or F028. - OAC 3745-51-02(D)/40 CFR 261.2(d).
___ yes ___ no	The material is specifically excluded from the Definition of Solid Waste. The worksheet "Exclusions to the Definition of Solid Waste" must be completed.

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Worksheet 5.5(b)
Exclusions to the Definition of (Solid) Waste

EXCLUSIONS TO DEFINITION OF SOLID WASTE - WORKSHEET

MEF Number: _____ *Rev No.:* ____

This worksheet documents evaluation of this material to determine if it is regulated under RCRA as (solid) waste under OAC 3745-51-02 (40 CFR 261.2). The RCRA regulations provide specific exclusions to the definition of solid waste. Section A provides for documentation of those exclusions that potentially apply to waste streams at the FEMP.

A. EXCLUSIONS TO THE DEFINITION OF SOLID WASTE	
Exclusion Applies?	Applicable Exclusion
___yes ___no	Industrial wastewater discharges that are point source discharges subject to regulation under section 402 of the Clean Water Act, as amended. [OAC 3745-51-04(A)(2)] [Note: Exclusion applies only to actual point source discharge. No exclusion for collecting, storing, or treating industrial wastewaters prior to discharge. Exclusion not applicable to sludges that are generated by industrial wastewater treatment.
___yes ___no	Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended. [Note: This exclusion is only applicable to solid waste determinations made pursuant to a portion of the federal hazardous waste management program which Ohio has not been authorized to administer (e.g., corrective action). Ohio promulgated an exclusion from the definition of *hazardous* waste at OAC 3745-51-03(A)(2)(d). See "Exclusions to the Definition of Hazardous Waste" Worksheet.]
___yes ___no	Secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process provided: ___ Only tank storage is involved, and the entire process through completion of reclamation is closed-loop (i.e., entirely connected with pipes or other comparable enclosed means of conveyance) ___ Reclamation does not involve controlled flame combustion (such as occurs in boilers, industrial furnaces, or incinerators) ___ The secondary materials are never accumulated in such tanks for over twelve months without being reclaimed. ___ The reclaimed material is not used to produce a fuel,or used to produce products that are used in a manner constituting disposal [OAC 3745-51-04(A)(7)]

Section B provides for identification of specific exempted use/reuse activities. Note that these activities are only exempted provided the materials are **not** managed in one or more of manners identified in Columns I through IV of the recycling section of the worksheet "Definition of Solid Waste"

B. EXEMPTED USE/REUSE ACTIVITIES FOR RECYCLING	
Exemption Applies	Applicable Exemption
___yes ___no	Used or reused ingredients in an industrial process to make a product, provided the materials are not reclaimed. OAC 3745-51-02(E)(1)(a).
___yes ___no	Used or reused as effective substitutes for commercial products. OAC 3745-51-02(E)(1)(b).
___yes ___no	Returned to the original process from which they are generated, without first being reclaimed. The material must be returned as a substitute for raw material feedstock, and the process must use raw materials as principal feedstocks. OAC 3745-51-02(E)(1)(c).

___ Additional information attached to support exclusion to the definition of solid waste - provide attached narrative.

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6.0 Hazardous Waste

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This section provides the guidance and implementing procedures for identifying regulated hazardous waste in the State of Ohio. In addition, it provides the means for determining the status of hazardous waste with respect to the Land Disposal Restriction (LDR) regulations under the Hazardous Waste Management Program. These determinations are required as a matter of law and provide the basis for decision making regarding waste management at the FEMP.

The approach for presenting the logic for identifying hazardous in the State of Ohio is adopted from the DOE Headquarters guidance, "Definitions of Solid & Hazardous Wastes". Modifications have been made to reference the Ohio Administrative Code (OAC) in lieu of the federal regulations (Code of Federal Regulations) for authorized portions of the Ohio Hazardous Waste Management Program. The "Hazardous Waste Rules Table" included in the full set of the OAC rules, Chapters 3745-49 through 3745-69, provides a means for correlating CFR references to the corresponding OAC rule.

Following the general guidance is specific guidance for identifying hazardous waste and determining its LDR status at the FEMP. This site guidance provides the means to complete worksheets that document the characterization. The worksheets focus on those parts of the regulations that are pertinent to waste identification at the FEMP.

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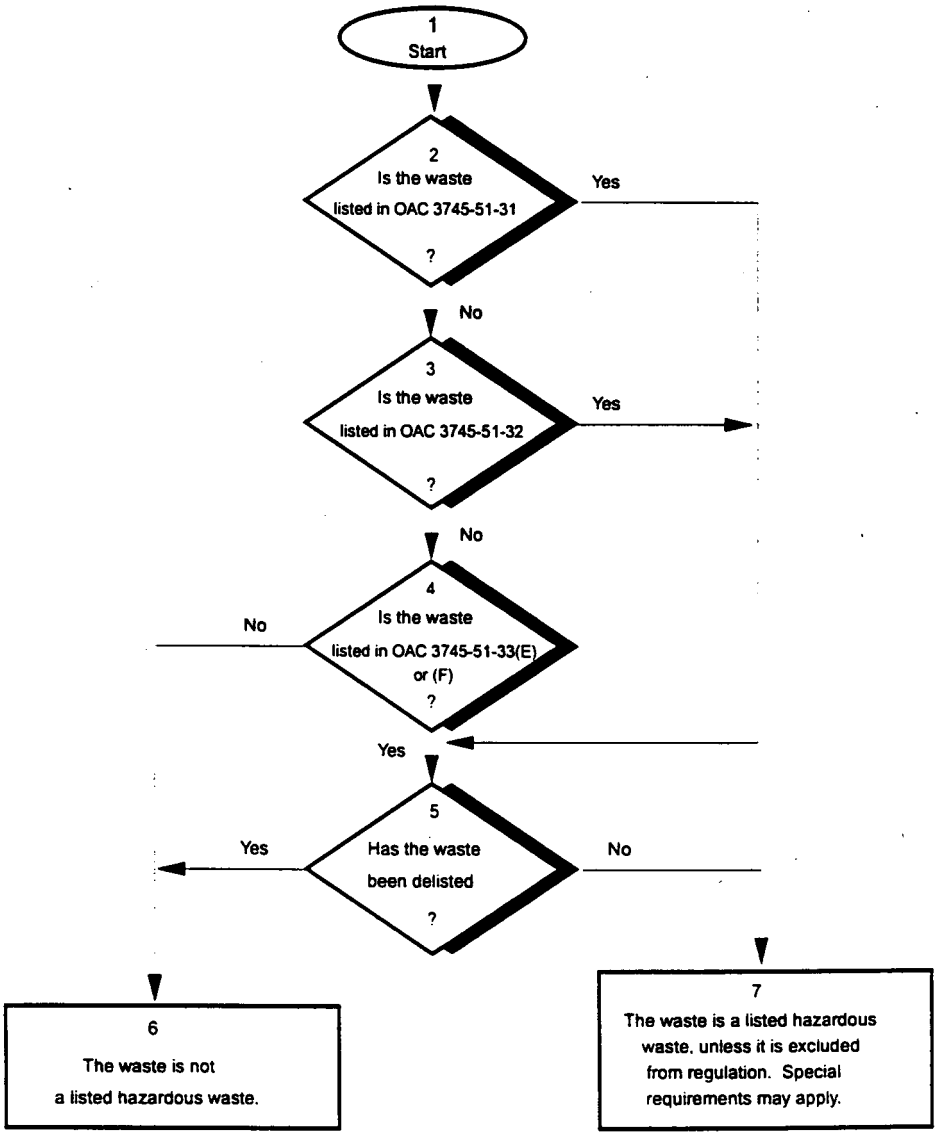
Figure 6.1
Listed Hazardous Waste



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6.1 Listed Hazardous Wastes

Step 1 **Start**. To be a hazardous waste, a material must first be determined to be a (solid) waste as defined at OAC 3745-51-02 [Section 5.0]. A (solid) waste is a hazardous waste if it is a **listed waste** or if it exhibits a characteristic. it is a **listed waste** if it is named in one of three lists developed by EPA and has not been delisted pursuant to OAC 3745-51-20 or 3745-51-22. The lists are found in OAC 3745-51-31 to 33. OAC 3745-51-03(A)(2)(b).

Step 2 **Non-specific source wastes ("F" wastes)**: These include certain spent solvent wastes; certain wastes from electroplating, heat treating, and chemical conversion coating operations; certain wastes from the production of chlorinated phenols, aliphatic hydrocarbons, and chlorinated benzenes; and multi-source leachate. OAC 3745-51-31.

Step 3 **Specific source wastes ("K" wastes)**: These are wastes from specifically identified industries such as wood preserving, petroleum refining and organic chemical manufacturing. These wastes typically include sludges, still bottoms, wastewaters, spent catalysts, and residues. OAC 3745-51-32.

Step 4 **Commercial chemical products ("P" and "U" wastes)**: These wastes are specific commercial chemical products or manufacturing chemical intermediates. This list includes chemicals such as chloroform and creosote, acids such as sulfuric acid and hydrochloric acid, and pesticides such as DDT and kepone. OAC 3745-51-33.

Step 5 As stated above, a waste may be delisted under OAC 3745-50-221. Ohio utilizes the federal delisting petition process under §260.22 for an exclusion for a waste at a particular generating facility and recognizes US EPA's decision to grant or deny a petition. Specific wastes which have been granted a delisting petition are identified at OAC 3745-51-30(E).

Step 6 If the unlisted or delisted waste does not exhibit a characteristic of a hazardous waste, is not a mixture of a solid and a hazardous waste, and is not "derived-from" a hazardous waste, it is not a hazardous waste. Characteristics of hazardous waste are addressed in Section 6.2. Mixtures and "derived-from" wastes are addressed in Section 6.3.

Step 7 The waste is a hazardous waste, unless it is excluded from regulation. Special requirements may apply. Hazardous waste exclusions are addressed in Section 6.4. Special requirements are addressed in Section 6.5.

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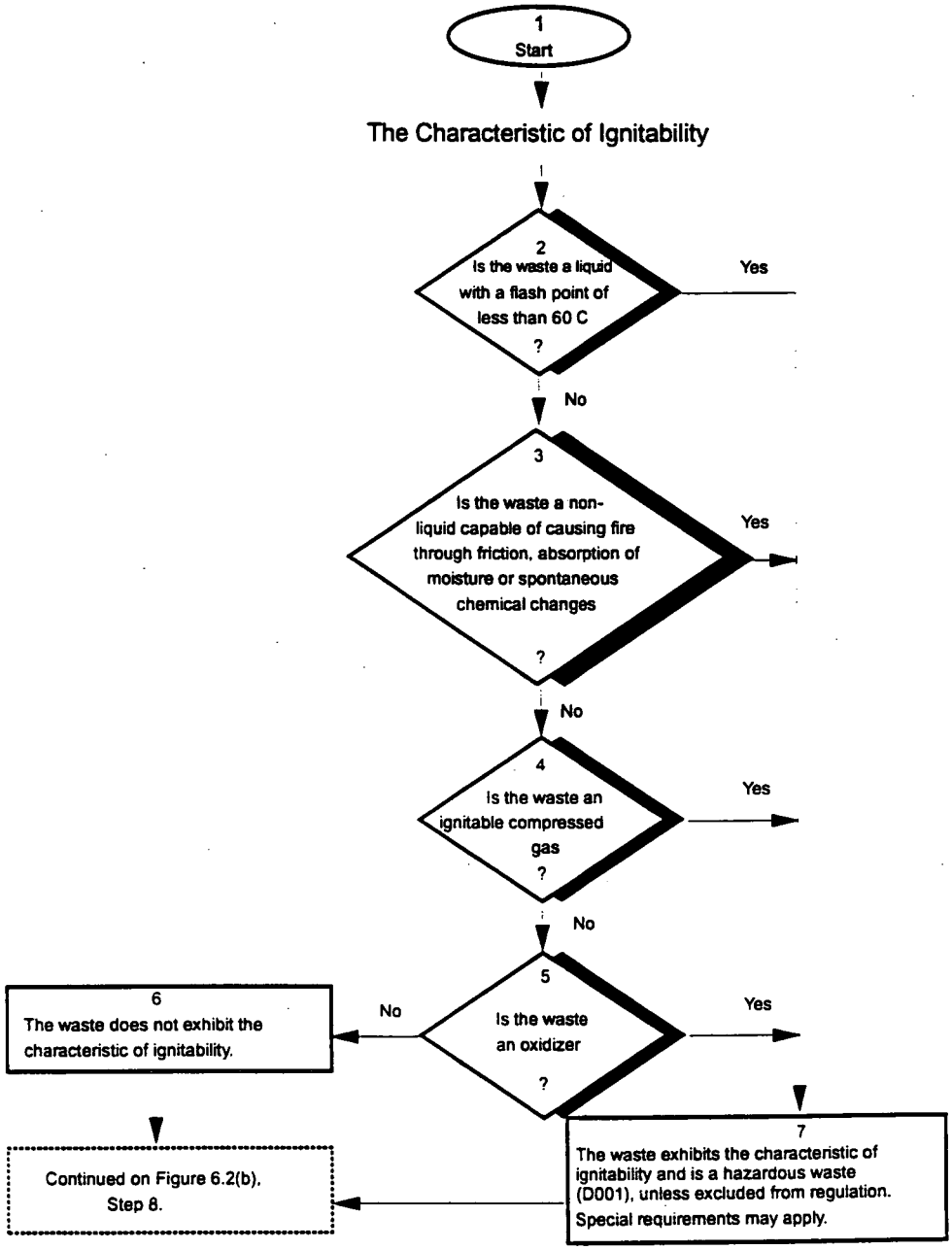
Figure 6.2(a)
Characteristic Hazardous Waste



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6.2 Characteristic Hazardous Wastes

Step 1 **Start.** A (solid) waste is a hazardous waste if it exhibits any of the four characteristics of hazardous waste established by EPA, and is not excluded from regulation. The four characteristics are ignitability, corrosivity, reactivity and toxicity.

THE CHARACTERISTIC OF IGNITABILITY

Step 2 This applies to a representative sample of a liquid, as explained below, other than an aqueous solution containing less than 24 percent alcohol by volume and has flash point less than 60°C (140°F), as determined by one of the following:

- a Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D-93-79 or D-93-80, or
- a Setaflash Closed Cup Tester, using the test method specified in ASTM Standard D-3278-78, or
- as determined by an equivalent test method approved by the Administrator under procedures set forth in 40 CFR 260.20 and 260.21. OAC 3745-51-21(A)(1).

To determine whether a waste sample contains free liquids, on April 30, 1985 (50 FR 18370) EPA promulgated a final rule requiring the Paint Filter Liquids Test (Method 9095, EPA publication SW-846): "Test Methods for the Evaluation of (solid) waste, Physical/Chemical Methods"). This was codified into regulation at OAC 3745-57-14 and 3745-68-14.

Step 3 This applies to a representative sample of a non-liquid that is capable, under standard temperature and pressure, of causing fire and, when ignited, burns so vigorously and persistently that it creates a hazard. OAC 3745-51-21-(A)(2).

Step 4 This applies to an **ignitable compressed gas** as defined in 49 CFR 173.300 (Department of Transportation Regulations) and as determined by the test methods described in that regulation or equivalent test methods approved by the Administrator under §§260.20 and 260.21. OAC 3745-51-21(A)(3).

Step 5 **Oxidizer** is defined at 49 CFR 173.151 as a substance such as a chlorate, permanganate, inorganic peroxide, or a nitrate, that yields oxygen readily to stimulate the combustion of organic matter. OAC 3745-51-21(A)(4).

Step 6 Though it does not exhibit this characteristic, it may exhibit others. Continue to Step 8.

Step 7 The waste is a hazardous waste, unless it is excluded from regulation. Special requirements may apply. Exclusions are addressed in Section 6.4. Special requirements are addressed in Section 6.5.

Figure 6.2(b)
Characteristic Hazardous Waste (Cont.)

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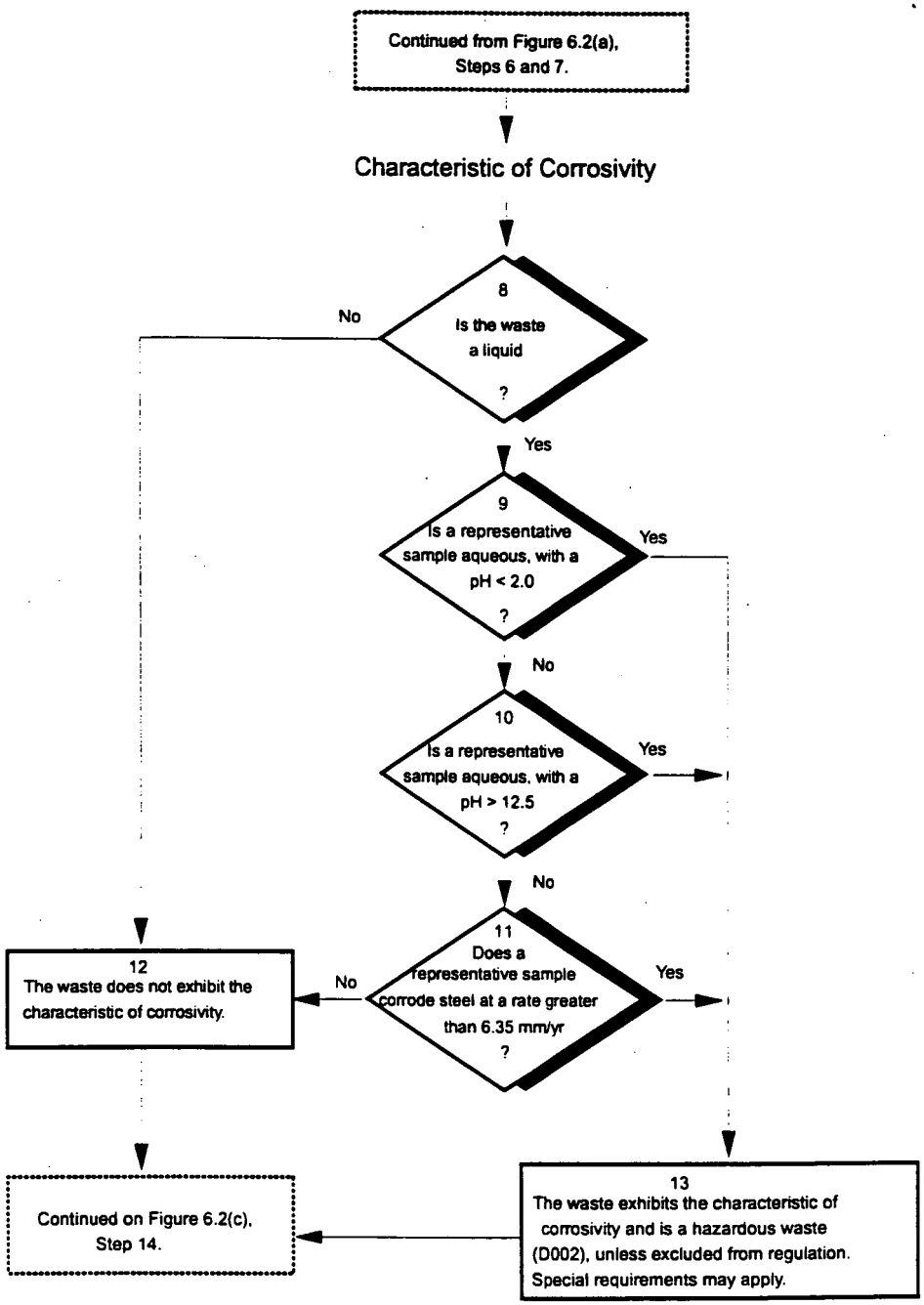

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6.2 Characteristic Hazardous Wastes (cont.)

THE CHARACTERISTIC OF CORROSIVITY

Step 8 This is determined on the basis of a representative sample as explained in Section 6.2, Step 2. OAC 3745-51-22(A)

EPA has concluded that, in as much as the great majority of wastes are presumed to be in liquid or semi-liquid form, there is no demonstrated need to address corrosive solids (45 FR 33109, 5/19/80).

Steps 9 & 10 The pH of a representative sample must be determined by a pH meter using either an EPA test method or an equivalent test method approved by the Administrator under the procedures set forth in §§260.20 and 260.21. The EPA test method for pH is specified as Method 5.2 in SW-846's "Test Methods for the Evaluation of (solid) waste, Physical/Chemical Methods." In a letter dated September 15, 1987, EPA defines aqueous as a liquid phase composed of 50% or more water. OAC 3745-51-22(A)(1).

Step 11 The steel used in the test of a representative sample is specified to be SAE 1020; the test temperature is 55°C (130°F). The test method is to be either:

- that specified in NACE (National Association of Corrosion Engineers) Standard TM-01-69 as standardized in "Test Methods for the Evaluation of (solid) waste, Physical/Chemical Methods". EPA publication #SW-846, or

- an equivalent test method approved by the Administrator under the procedures set forth in §§260.20 and 260.21. OAC 3745-51-22(A)(2).

Step 12 Though it does not exhibit this characteristic, it may exhibit others. Continue on to Step 14.

Step 13 The waste is a hazardous waste, unless it is excluded from regulation. Special requirements may apply. Exclusions are addressed in Section 6.4. Special requirements are addressed in Section 6.5.

Figure 6.2(c)
Characteristic Hazardous Waste (Cont.)

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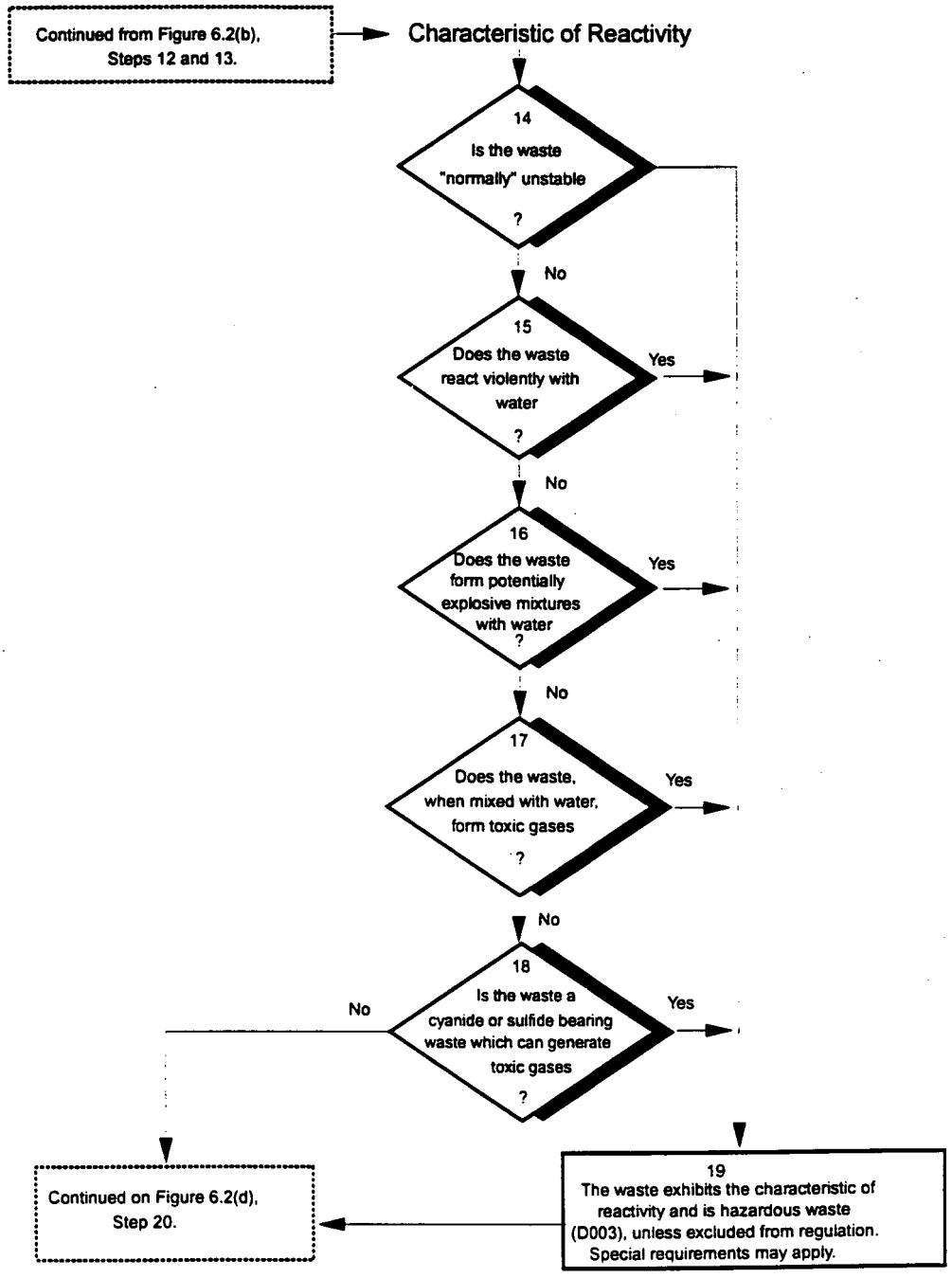

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6.2 Characteristic Hazardous Wastes (cont.)

THE CHARACTERISTIC OF REACTIVITY

Step 14 A waste is "normally" unstable if a representative sample readily undergoes violent change without detonating. OAC 3745-51-23(A)(1).

Step 15 This is determined on the basis of a representative sample. OAC 3745-51-23(A)(2).

Step 16 This is determined on the basis of a representative sample. OAC 3745-51-23(A)(3).

Step 17 This applies to a representative sample which, when mixed with water, generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment. OAC 3745-51-23(A)(4).

Step 18 This applies to a representative sample of a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment. OAC 3745-51-23(A)(5).

Step 19 The waste is a hazardous waste, unless it is excluded from regulation. Special requirements may apply. Exclusions are addressed in Section 6.4. Special requirements are addressed in Section 6.5.

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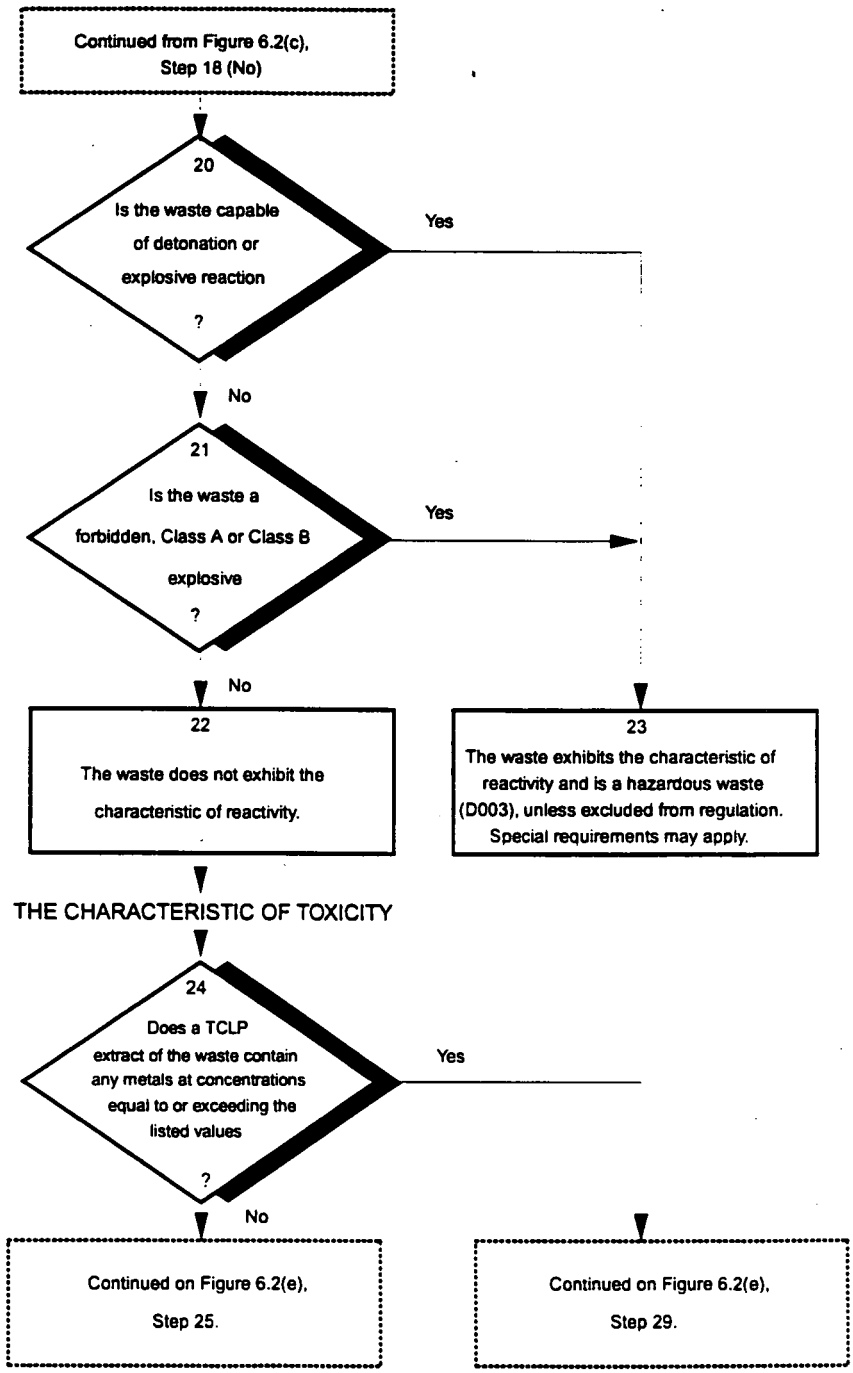
Figure 6.2(d)
Characteristic Hazardous Waste (Cont.)



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6.2 Characteristic Hazardous Wastes (cont.)

Step 20 This applies to a representative sample that is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement and to a representative sample that is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure. OAC 3745-51-23(A)(6) and (7).

Step 21 This applies to a representative sample that is

- a **forbidden explosive** as defined in 49 CFR 173.51: This is one of ten categories of explosives expressly forbidden from transportation under Department of Transportation regulations. These include explosive compounds which ignite spontaneously, new explosive compounds, explosive mixtures containing ammonium salt and a chlorate, explosive metals containing an acidic metal salt and a chlorate, leaking packages of explosives, nitroglycerin, loaded firearms, certain fireworks, and toy torpedoes.

- a **Class A explosive** as defined in 49 CFR 173.53. Nine specific "types" of explosives plus 13 other categories of explosives are defined as Class A explosives.

- a **Class B explosive** as defined in 49 CFR 173.88 special fireworks, which are manufactured articles designed primarily for the purpose of producing visible or audible pyrotechnic effects by combustion or explosion. Examples are provided in the regulation. OAC 3745-51-23(A)(8).

Step 22 Though it does not exhibit this characteristic, it may exhibit others. Continue on to Step 24.

Step 23 The waste is a hazardous waste, unless it is excluded from regulation. Special requirements may apply. Exclusions are addressed in Section 6.4. Special requirements are addressed in Section 6.5.

THE CHARACTERISTIC OF TOXICITY

Step 24 The Toxicity Characteristic Leaching Procedure (TCLP) is described in the Appendix to OAC 3745-51-24. Equivalent methods approved by the Administrator under the procedures set forth in §§260.20 and 260.21 may be used to determine toxicity. Where a representative sample of the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering using the methodology outlined in the Appendix, is considered to be the extract. OAC 3745-51-24.

Metals concentrations in a representative sample, in mg/L, listed in OAC 3745-51-24 (with EPA hazardous waste number).

Figure 6.2(e)
Characteristic Hazardous Waste (Cont.)

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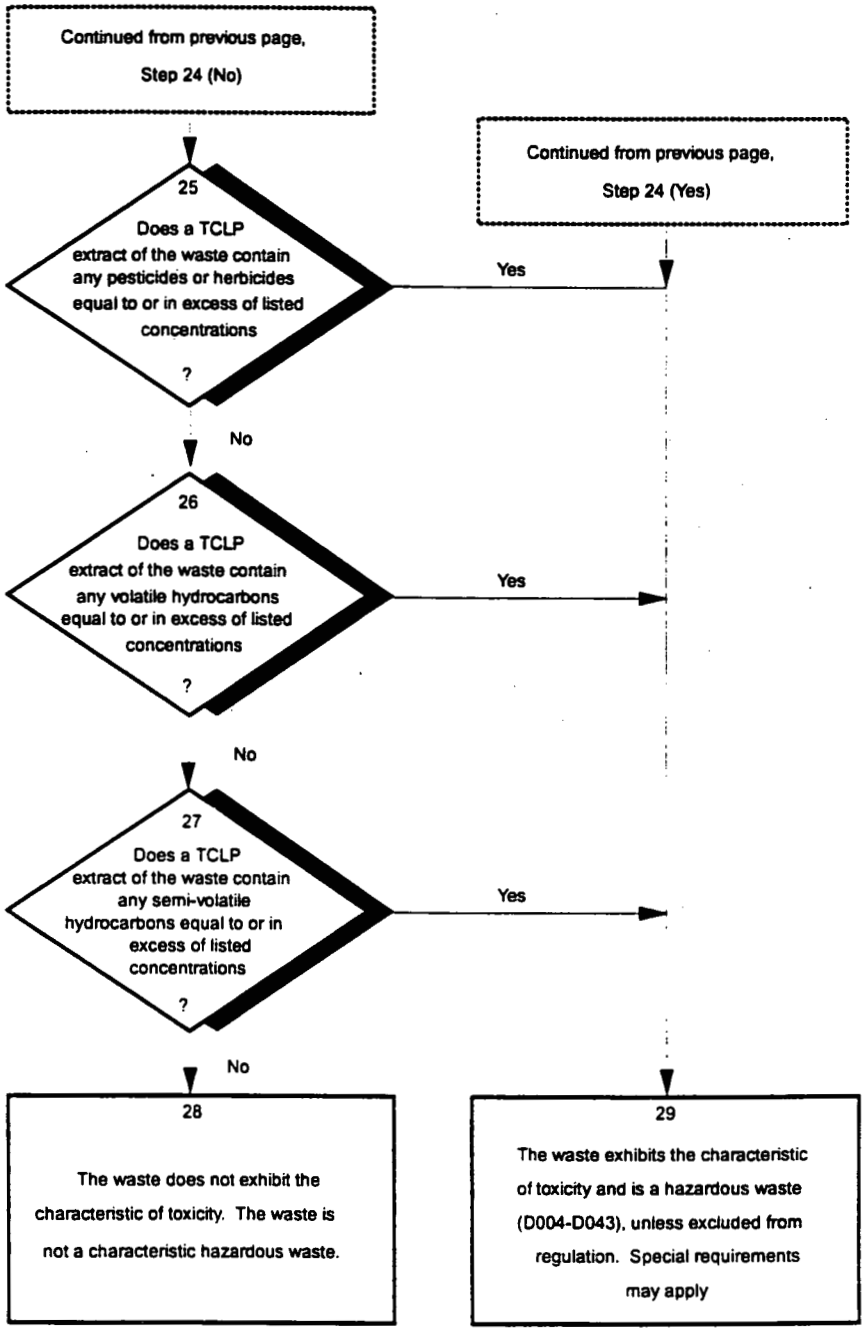

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6.2 Characteristic Hazardous Wastes (cont.)

Step 25 Pesticides and herbicides concentrations in a representative sample, in mg/L, listed in OAC 3745-51-24 (with EPA hazardous waste number).

Step 26 Volatile organic hydrocarbon concentrations in a representative sample, in mg/L, listed in OAC 3745-51-24 (with EPA hazardous waste number).

Step 27 Semi-volatile organic hydrocarbon concentrations in a representative sample, in mg/L listed in OAC 3745-51-24 (with EPA hazardous waste number):

Step 28 If the waste is not a listed hazardous waste, is not a mixture of a solid and hazardous waste, and is not "derived-from" a hazardous waste, it is not a hazardous waste. Listed hazardous wastes are addressed in Section 6.1. Mixtures and "derived-from" wastes are addressed in Section 6.3.

Step 29 While a representative sample that fails the TC for any one constituent will classify the waste as a hazardous waste, the other constituent categories should be examined to fully characterize its toxicity. Exclusions are addressed in Section 6.4. Special requirements are addressed in Section 6.5.

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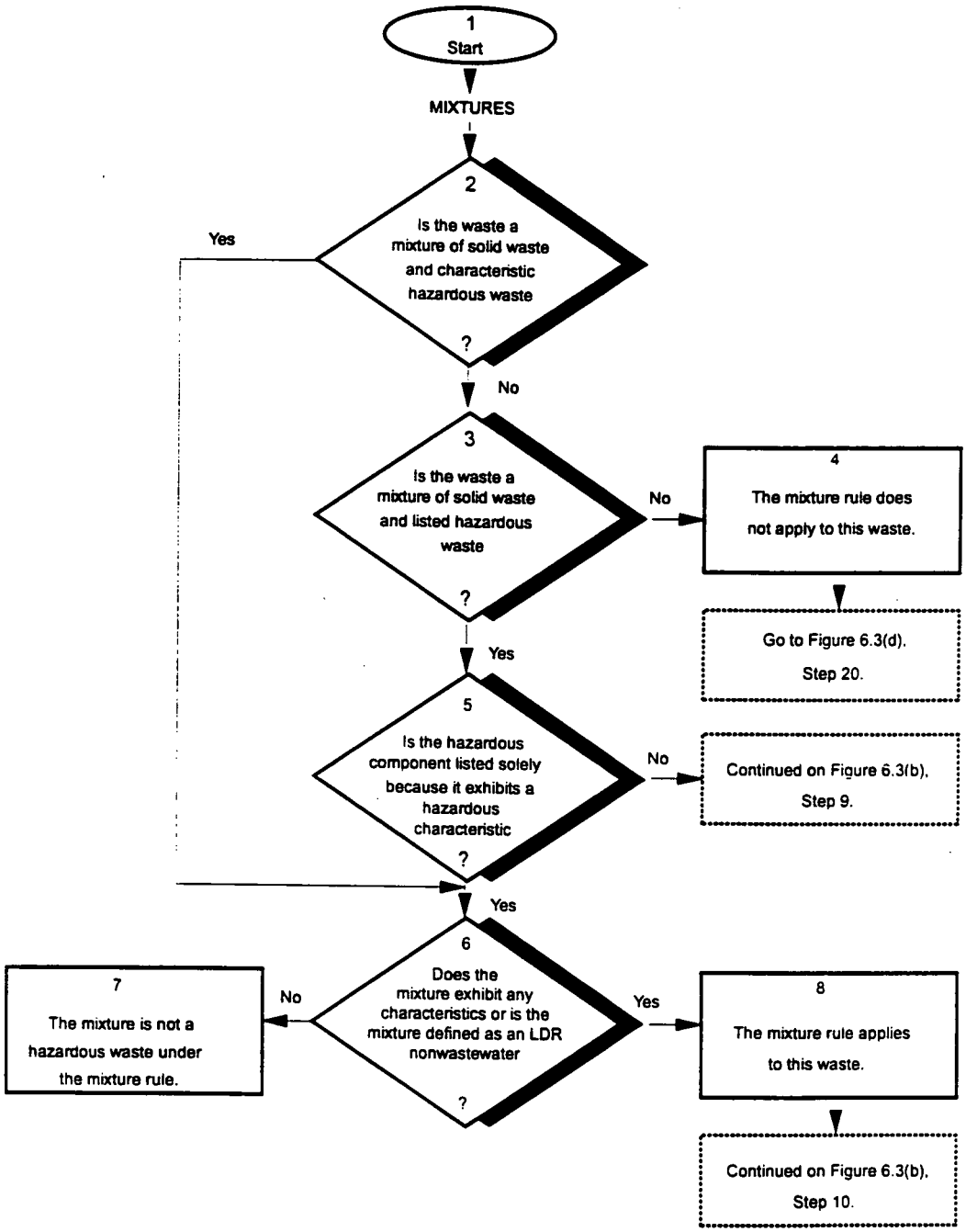
Figure 6.3(a)
Mixture and "Derived-From" Wastes



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6.3 Mixtures and "Derived-From" Wastes

Step 1 **Start.** Determining whether a waste is a hazardous waste also involves determining if the waste is a mixture of solid and hazardous wastes or if it is derived-from the treatment, storage or disposal of these wastes. OAC 3745-51-03(A) - (D).

MIXTURES

Step 2 Mixtures of (solid) wastes and characteristic hazardous wastes may be hazardous, provided the mixture continues to exhibit the hazardous characteristics. OAC 3745-51-03(A)(2)(a).

Step 3 Mixtures of (solid) wastes and listed hazardous wastes may be hazardous wastes. OAC 3745-51-03(A)(2)(c) and (e).

Step 4 Though the mixture rule does not apply, the waste may be hazardous under the "derived-from" rule.

Step 5 The basis for listing the waste is provided in OAC 3745-51-31 to 33 and in the Appendix to OAC 3745-51-30.

Step 6 The characteristics are addressed in OAC 3745-51-21 to 24 and Section 6.2.

The mixture rule can apply to mixtures containing mining wastes otherwise excluded from regulation under OAC 3745-51-04(B)(7) (wastes from extraction, beneficiation and processing of ores). It applies if the mixture contains other characteristic wastes, and exhibits characteristics that would not have been exhibited by the mining waste alone. OAC 3745-51-03(A)(2)(a).

Step 7 For mixtures of solid and listed wastes, the rule does not apply if the resultant mixture no longer exhibits any characteristic of hazardous waste or if the (solid) waste is excluded from regulation under OAC 3745-51-04(B)(7) and the resultant mixture no longer exhibits any characteristic of hazardous waste for which the hazardous waste was listed. OAC 3745-51-03(A)(2)(c). Note, however, that nonwastewater mixtures are still subject to the LDR requirements of OAC 3745-59/40 CFR 268. F003 nonwastewaters are defined as having greater than 1% by weight TOC *and* greater than 1% by weight total F001, F002, F003, F004, and F005 solvent constituents.

Step 8 If the mixture exhibits any characteristic or if the mixture is defined as a nonwastewater, it may be hazardous waste unless it meets certain conditions which exclude it from regulation. Continue on to Step 10.

Figure 6.3(b)
Mixture and "Derived-From" Wastes (Cont.)

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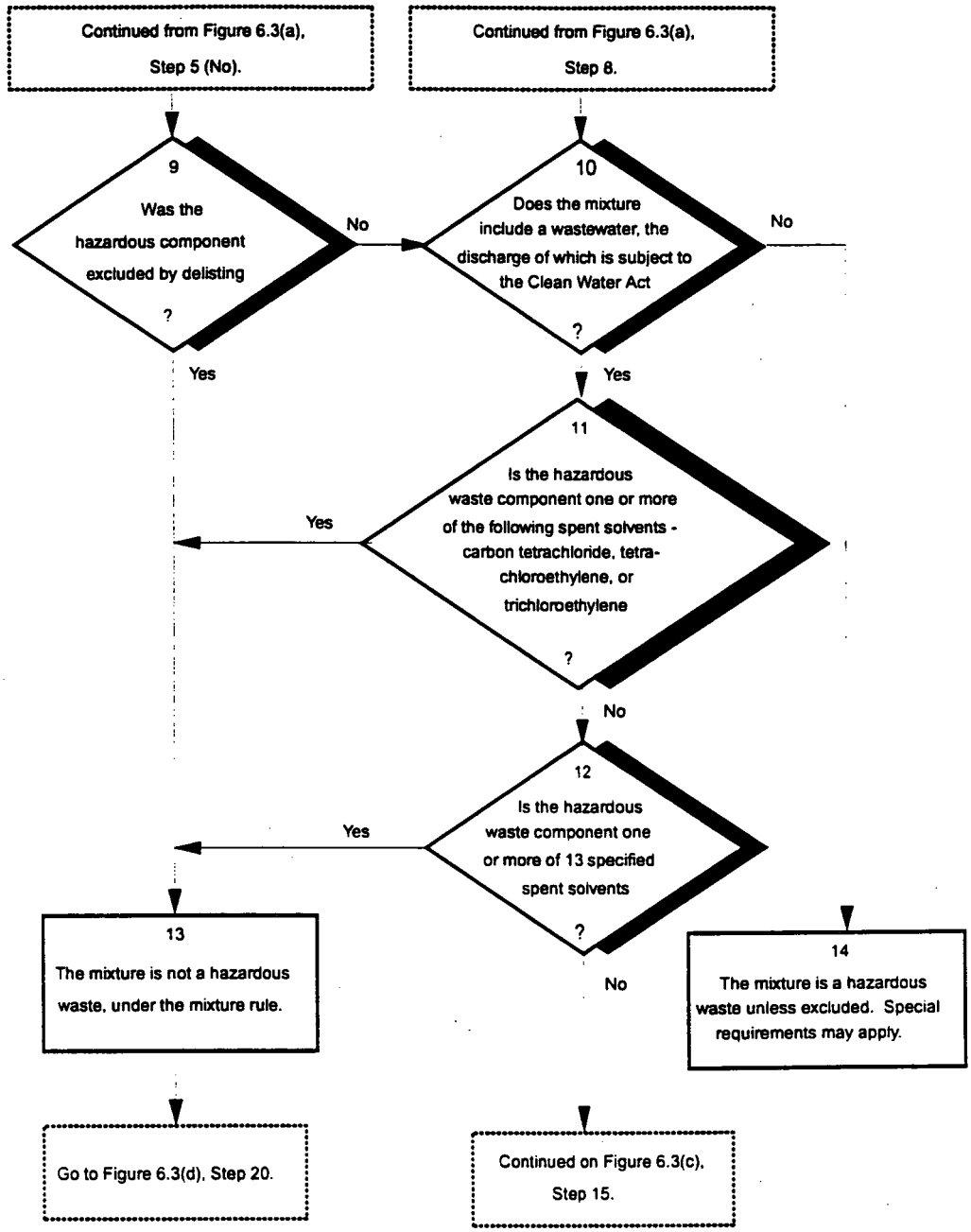

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6.3 Mixtures and "Derived-From" Wastes (cont.)

Step 9 These exclusions are addressed under OAC 3745-50-221. Petitions may be made to amend OAC 3745-51 to exclude a waste at a particular facility. The excluded wastes are listed in the Appendix to OAC 3745-51-30.

Step 10 Either Section 402 or 307(b) of the Clean Water Act may apply. This includes wastewater at facilities which have eliminated the discharge of wastewater. OAC 3745-51-03(A)(2)(e).

Step 11 The regulation specifies that the hazardous component be one or more of the following spent solvents listed in OAC 3745-51-31--carbon tetrachloride, tetrachloroethylene, trichloroethylene--provided, that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed 1 part per million. OAC 3745-51-03(A)(2)(e)(i).

Step 12 The thirteen specified components (listed in OAC 3745-51-31) are methylene chloride, 1,1,1-trichloroethane, chlorobenzene, o-dichlorobenzene, cresols, cresylic acid, nitrobenzene, toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, spent chlorofluorocarbon solvents. Wastewater mixtures with these hazardous components are excluded from being a hazardous waste provided that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed 25 parts per million. OAC 3745-51-03(A)(2)(e)(ii).

Step 13 Though the mixture is not a hazardous waste under the mixture rule, it is still regulated under the Clean Water Act.

Step 14 The mixture is a hazardous waste unless excluded from regulation. Special requirements may apply. Exclusions are addressed in Section 6.4. Special requirements are addressed in Section 6.5.

Figure 6.3(c)
Mixture and "Derived-From" Wastes (Cont.)

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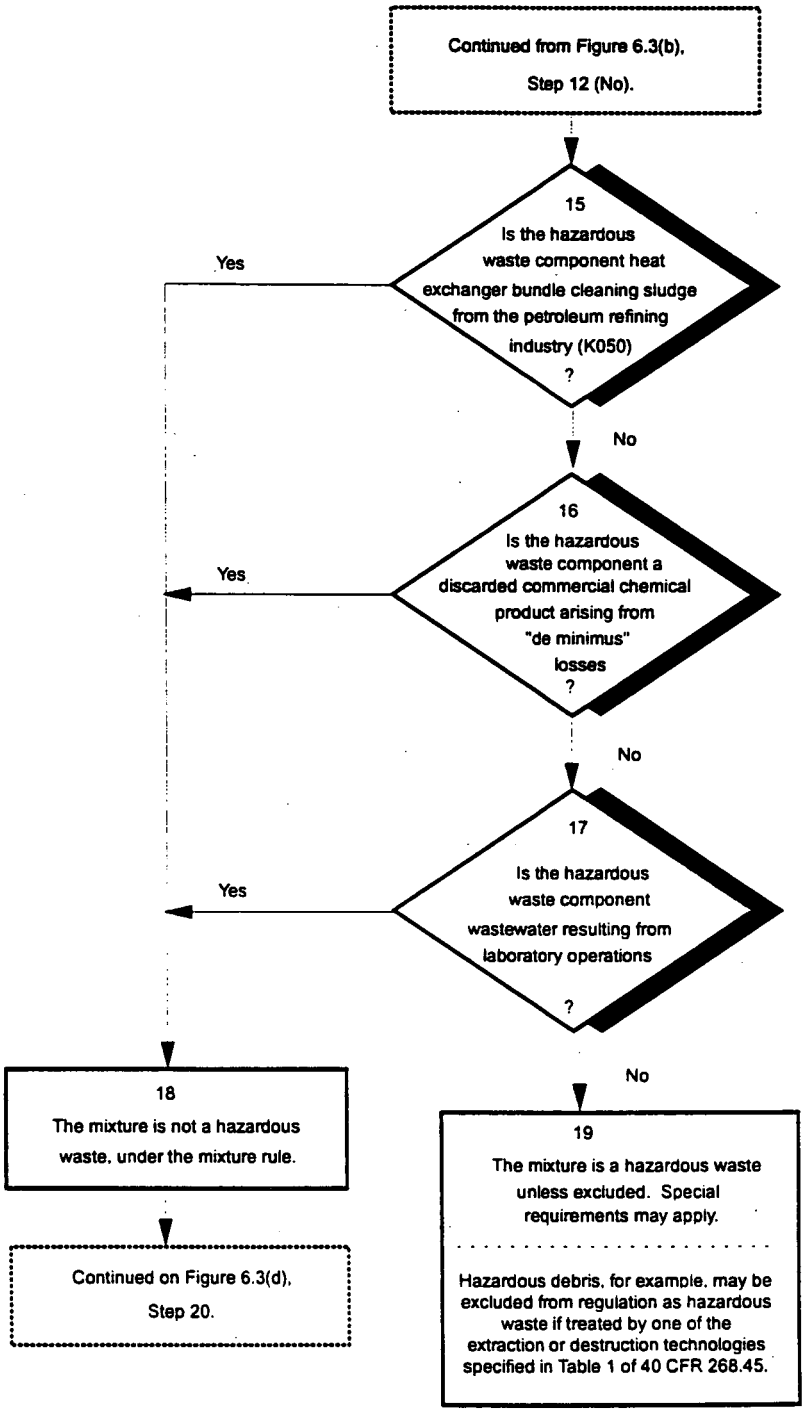

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6.3 Mixtures and "Derived-From" Wastes (cont.)

Step 15 K050 is listed at OAC 3745-51-32. OAC 3745-51-03(A)(2)(e)(iii).

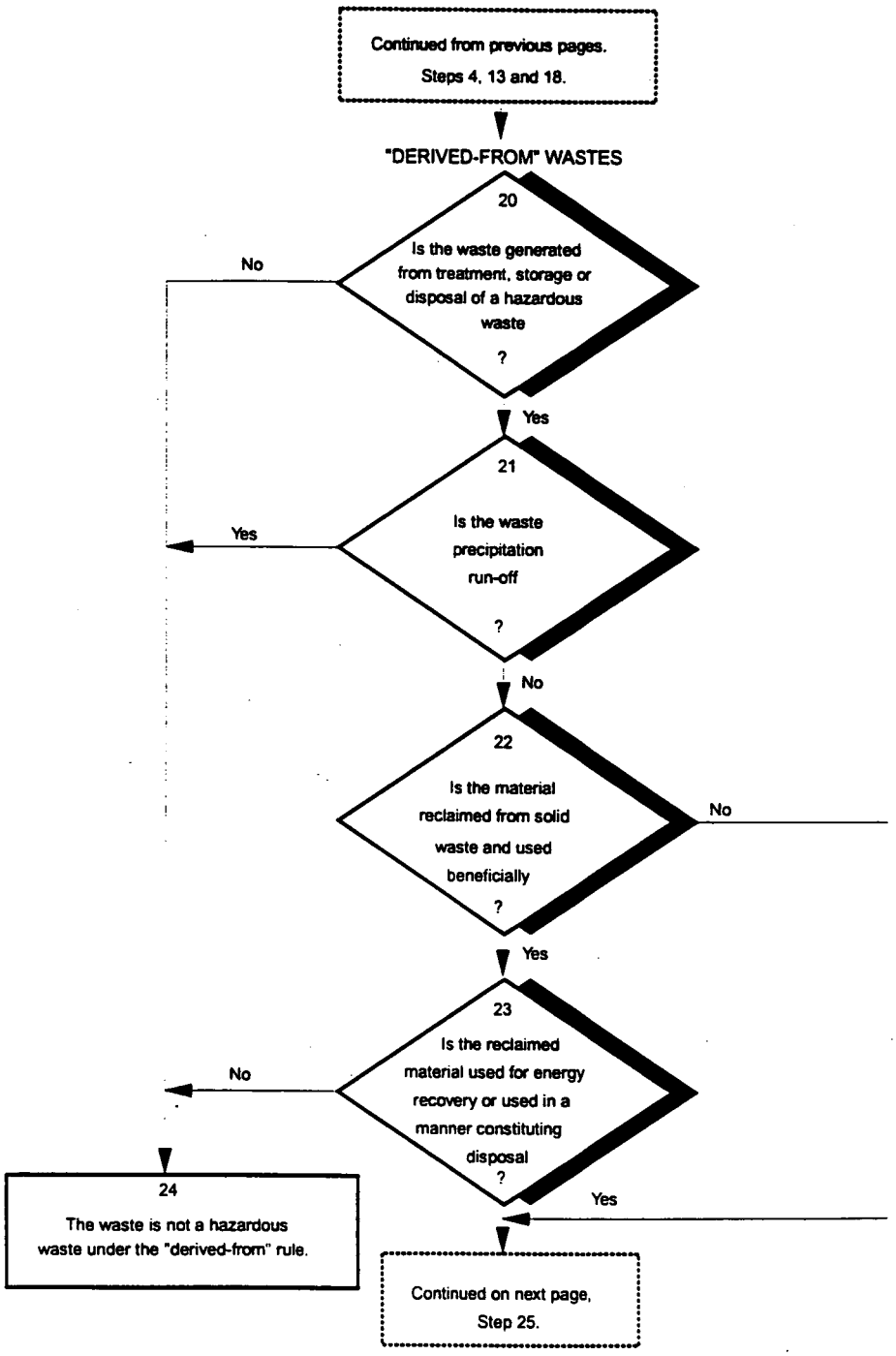
Step 16 This applies to a discarded commercial chemical product, or chemical intermediate listed in OAC 3645-51-33, arising from *de minimis* losses of these materials from manufacturing operations in which these materials are used as raw materials or are produced in the manufacturing process. For purposes of this subparagraph, "*de minimis*" losses include those from normal material handling operations (e.g., spills from the unloading or transfer of materials from bins or other containers, leaks from pipes, valves or other devices used to transfer materials); minor leaks of process equipment, storage tanks or containers; leaks from well-maintained pump packings and seals; sample purgings; relief device discharges; discharges from safety showers and rinsing and cleaning of personal safety equipment; and rinsate from empty containers or from containers that are rendered empty by that rinsing. OAC 3745-51-03(A)(2)(e)(iv).

Step 17 This applies to wastewater resulting from laboratory operations containing toxic (T) wastes listed in OAC 3745-51-31 to 33, provided that the annualized average flow of laboratory wastewater does not exceed one percent of total wastewater flow into the headworks of the facility's wastewater treatment or pre-treatment system, or provided the wastes' combined annualized average concentration does not exceed one part per million in the headworks of the facility's wastewater treatment or pre-treatment facility. Toxic (T) wastes used in laboratories that are demonstrated not to be discharged to wastewater are not to be included in this calculation. OAC 3745-51-03(A)(2)(e)(v).

Step 18 Though the mixture is not a hazardous waste under the mixture rule, it is still regulated under the Clean Water Act.

Step 19 The mixture is a hazardous waste unless excluded from regulation. Hazardous debris, for example, may be excluded from regulation as hazardous waste if treated by one of the extraction or destruction technologies specified in Table 1 of 40 CFR 268.45. [40 CFR 261.3(f)]. Special requirements may also apply. Hazardous waste exclusions are addressed in Section 6.4. Special requirements are addressed in Section 6.5.

Figure 6.3(d)
Mixture and "Derived-From" Wastes (Cont.)



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6.3 Mixtures and "Derived-From" Wastes (cont.)

Step 20 This includes sludge, spill residue, ash, emission control dust and leachate. OAC 3745-51-03(C)(2)(a).

Step 21 The "derived-from" rule does not cover precipitation runoff, the assumption being that the water in precipitation runoff most often will not have had sufficient contact with the waste to solubilize waste constituents. (Collected runoff would be a (solid) waste and, if it exhibited characteristics, would have to be managed as a hazardous waste (45 FR 33096, 5/19/80). OAC 3745-51-03(C)(2)(a).

Step 22 This refers to commercial products reclaimed from hazardous wastes. They are considered products, not wastes, and are not subject to the RCRA hazardous waste regulations (50 FR 634, 1/4/85). OAC 3745-51-03(C)(2)(a).

Step 23 EPA asserts jurisdiction over all secondary materials that are used in a manner constituting disposal or burned for energy recovery. They are (solid) wastes and may potentially be hazardous (50 FR 627 and 629, 1/4/85). OAC 3745-51-03(C)(2)(a).

Step 24 If the material is not generated from waste treatment, it is not a hazardous waste under the "derived-from" rule. If not a listed or characteristic hazardous waste, it is not a hazardous waste. Listed hazardous wastes are addressed in Section 6.1. Characteristic hazardous wastes are addressed in Section 6.2.

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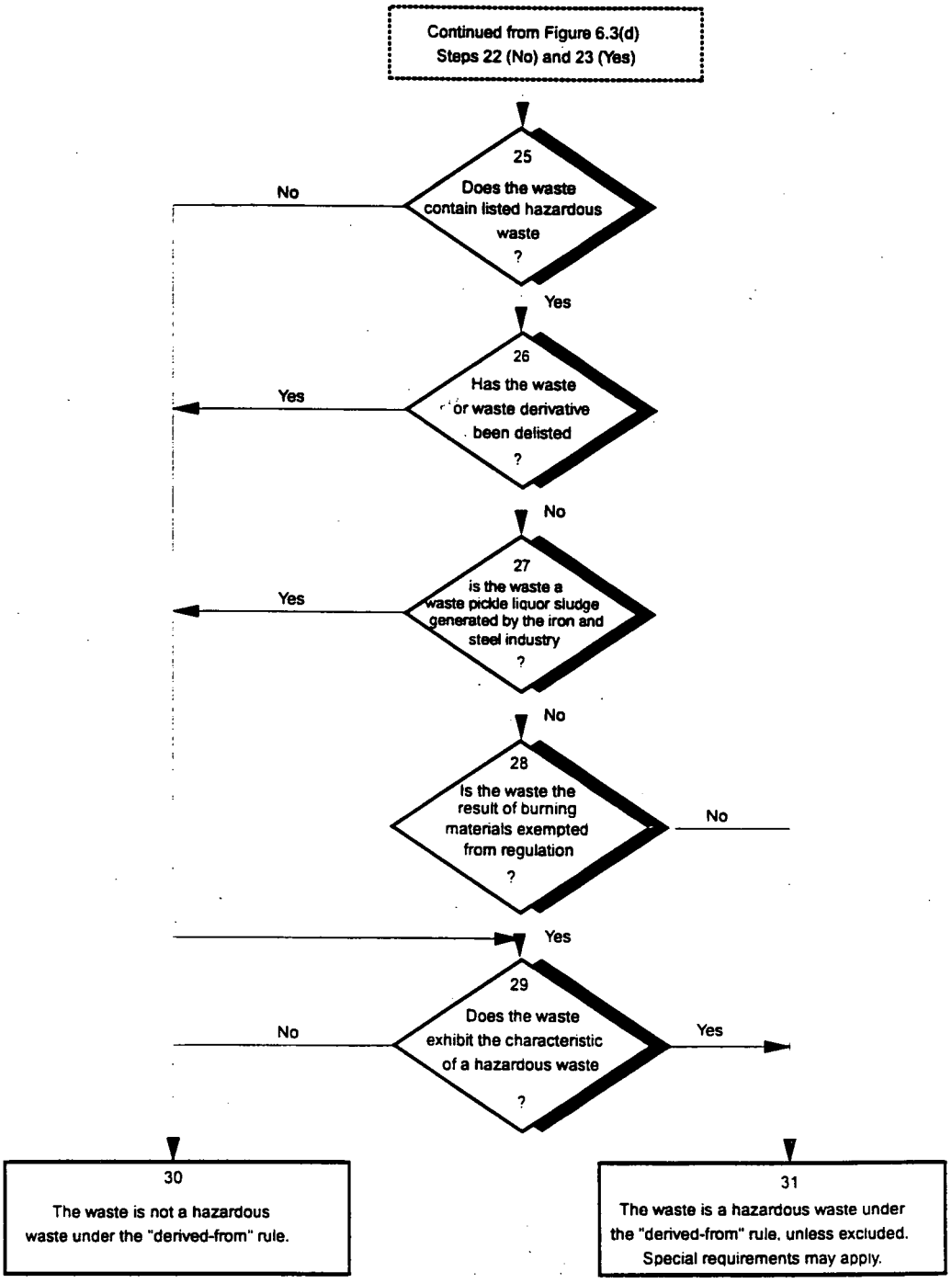
Figure 6.3(e)
Mixture and "Derived-From" Wastes (Cont.)



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6.3 Mixtures and "Derived-From" Wastes (cont.)

Step 25 This includes waste streams containing listed hazardous wastes or derived-from the treatment of listed hazardous wastes. Listed hazardous wastes are addressed in Section 6.1.

Step 26 Delisting is addressed under OAC 3745-51-221. OAC 3745-51-03(D)(2). Delisting is explained further on Section 6.1.

Step 27 This applies if the waste pickle liquor sludge is generated by lime stabilization of spent pickle liquor from the iron and steel industry (SIC codes 331 and 332). OAC 3745-51-03(C)(2)(b)(i).

Step 28 This applies to "recyclable materials" exempted from regulation by OAC 3745-51-03(A)(3)(e) - (i). These are materials associated with petroleum refining, production or transportation practices. They are addressed in Section 6.5. OAC 3745-51-03(C)(2)(b)(ii)).

Step 29 The characteristics of a hazardous waste are defined at OAC 3745-51-21 to 24 and addressed in Section 6.2. OAC 3745-51-03(D)(1).

Step 30 If not a listed or characteristic hazardous waste, it is not a hazardous waste. Listed hazardous wastes are addressed in Section 6.1. Characteristic hazardous wastes are addressed in Section 6.2.

Step 31 The "derived-from" waste is a hazardous waste unless excluded from regulation. Special requirements may apply. Exclusions are addressed in Section 6.4. Special requirements are addressed in Section 6.5.

Figure 6.4(a)
Hazardous Waste Exclusions

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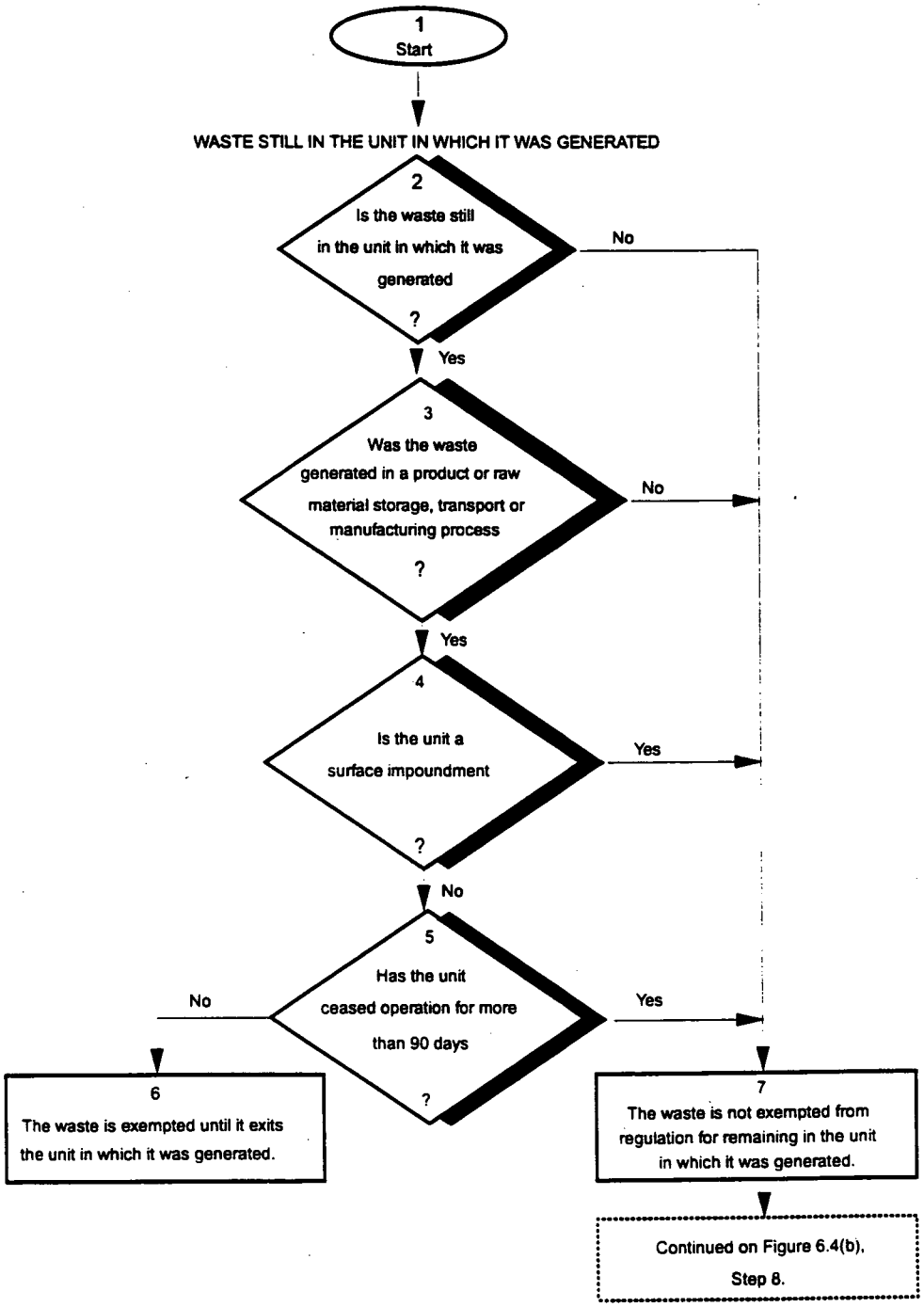

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6.4 Hazardous Waste Exclusions

Step 1 **Start.** Wastes determined to be hazardous may be excluded from the definition of hazardous waste under OAC 3745-51-04 and 08. These exclusions include waste still in the unit in which it was generated, certain specified wastes, PCB-containing dielectric fluid, and samples.

WASTE STILL IN THE UNIT IN WHICH IT WAS GENERATED

Step 2 Once a waste has exited the unit in which it was generated, this particular exclusion can no longer apply to it. OAC 3745-51-04(C).

Step 3 This applies if the unit is a product or raw material storage tank, a product or raw material transport vehicle or vessel, a product or raw material pipeline, or a manufacturing process unit or an associated non-waste-treatment-manufacturing unit. OAC 3745-51-04(C).

Step 4 If the unit is a surface impoundment, this particular exclusion cannot apply to the waste it contains. OAC 3745-51-04(C).

Step 5 If the unit ceases to be operated for manufacturing, or for the storage or transportation of product or raw materials, then the waste is not eligible for an exemption for remaining in the unit in which it was generated. OAC 3745-51-04(C). EPA does not believe that hazardous waste generated in a manufacturing process unit, product or raw material storage tank, transport vehicle or vessel should be exempted from regulation when the waste remains in the unit after it has ceased to be operated for the primary purpose of manufacturing, or product/raw materials storage or transportation. EPA believes that when operation ceases, the incentive to maintain the integrity of the unit to prevent leaks or other unintended releases is substantially reduced. For units ceasing operation, temporarily or permanently, EPA will allow a reasonable amount of time (90 days) to remove any hazardous waste in the unit. The 90-day time frame is consistent with the 90-day accumulation time allowed for hazardous waste generators under OAC 3745-52-34. Storage of hazardous waste for periods longer than 90 days will result in the waste being fully regulated under RCRA (45 FR 72024; 10/30/80).

Step 6 The waste is exempted from regulation under OAC 3745-50-40 to 3745-50-62 and Chapters 3745-52 to 3745-57, 3745-59, and 3745-65 to 69, and Chapter 119. of the Ohio Revised Code or to the notification requirements of Chapter 3734. of the Ohio Revised Code. OAC 3745-51-04(C).

Step 7 Though this particular exclusion does not apply to the waste, other exclusions are possible. Continue on to Step 8.

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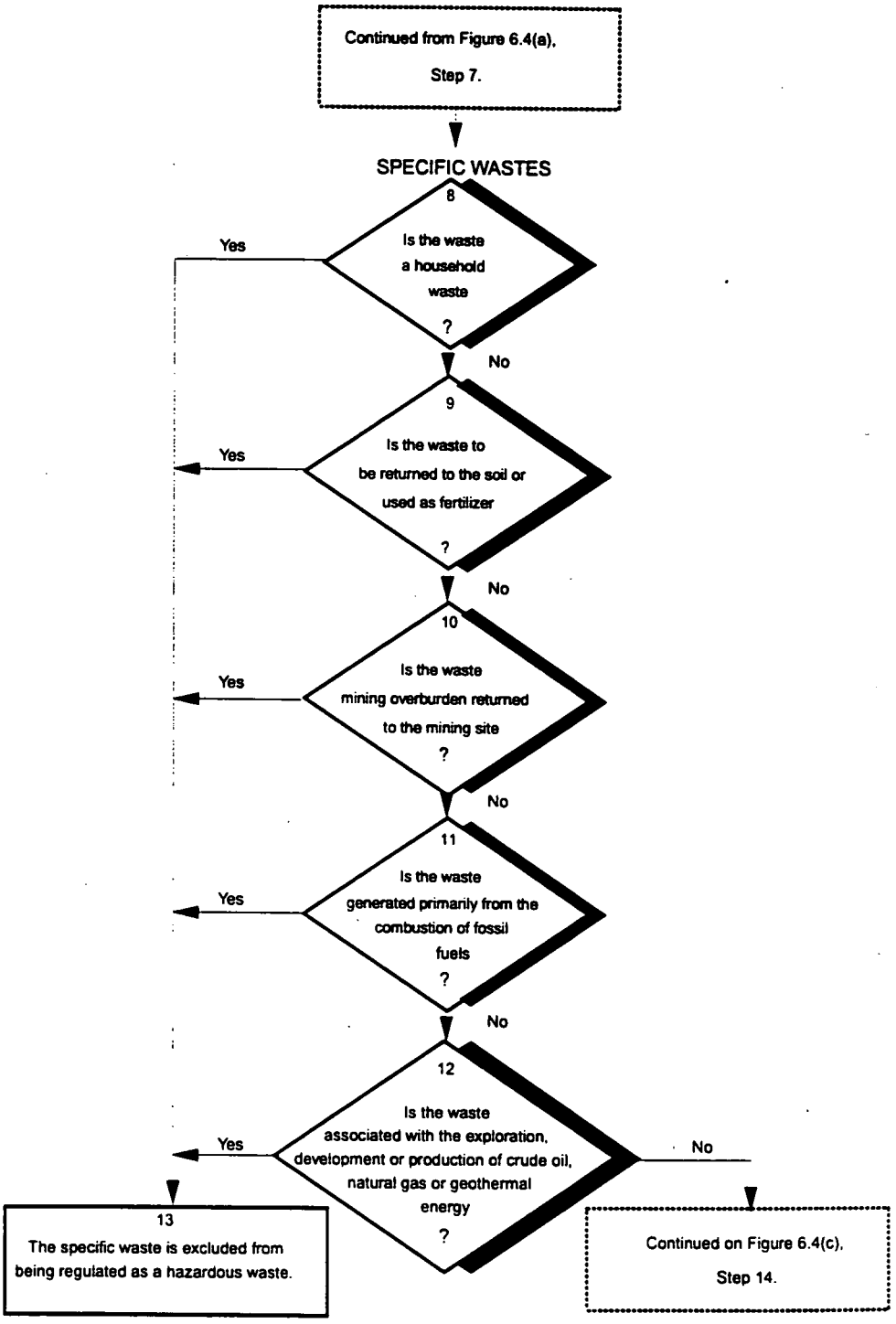
Figure 6.4(b)
Hazardous Waste Exclusions (Cont.)



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6.4 Hazardous Waste Exclusions (cont.)

SPECIFIC WASTES

Step 8 Household waste includes household waste that has been collected, transported, stored, treated, disposed, recovered (e.g., refuse-derived fuel) or reused. **Household waste** means any material (including garbage, trash and sanitary wastes in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunk-houses, ranger stations, crew quarters, campgrounds, picnic grounds and day-use recreation areas). Applicability to a resource recovery facility is addressed in detail in the regulation. OAC 3745-51-04(B)(1).

Step 9 This applies to a (solid) waste generated by either of the following and returned to the soil as fertilizer:

(i) the growing and harvesting of agricultural crops

(ii) the raising of animals, including animal manures.

OAC 3745-51-04(B)(2).

Step 10 Mining overburden is not to be confused with mining wastes, as such wastes are specifically included in the definition of (solid) waste in section 1004(27) of RCRA. Mining overburden is defined as any material overlying an economic mineral deposit which is removed to gain access to that deposit and is then used for reclamation of surface mines. Reclamation of surface mines will commonly involve the return to the mine site of waste overburden that has been removed to gain access to the deposit (45 FR 33100, 5/19/80). OAC 3745-51-04(B)(3).

Step 11 This applies to fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels. OAC 3745-51-04(B)(4).

Step 12 This applies to drilling fluids, produced waters, and other wastes. OAC 3745-51-04(B)(5).

Step 13 This (solid) waste is specifically excluded from being a hazardous waste. OAC 3745-51-04(B).

Figure 6.4(c)
Hazardous Waste Exclusions (Cont.)

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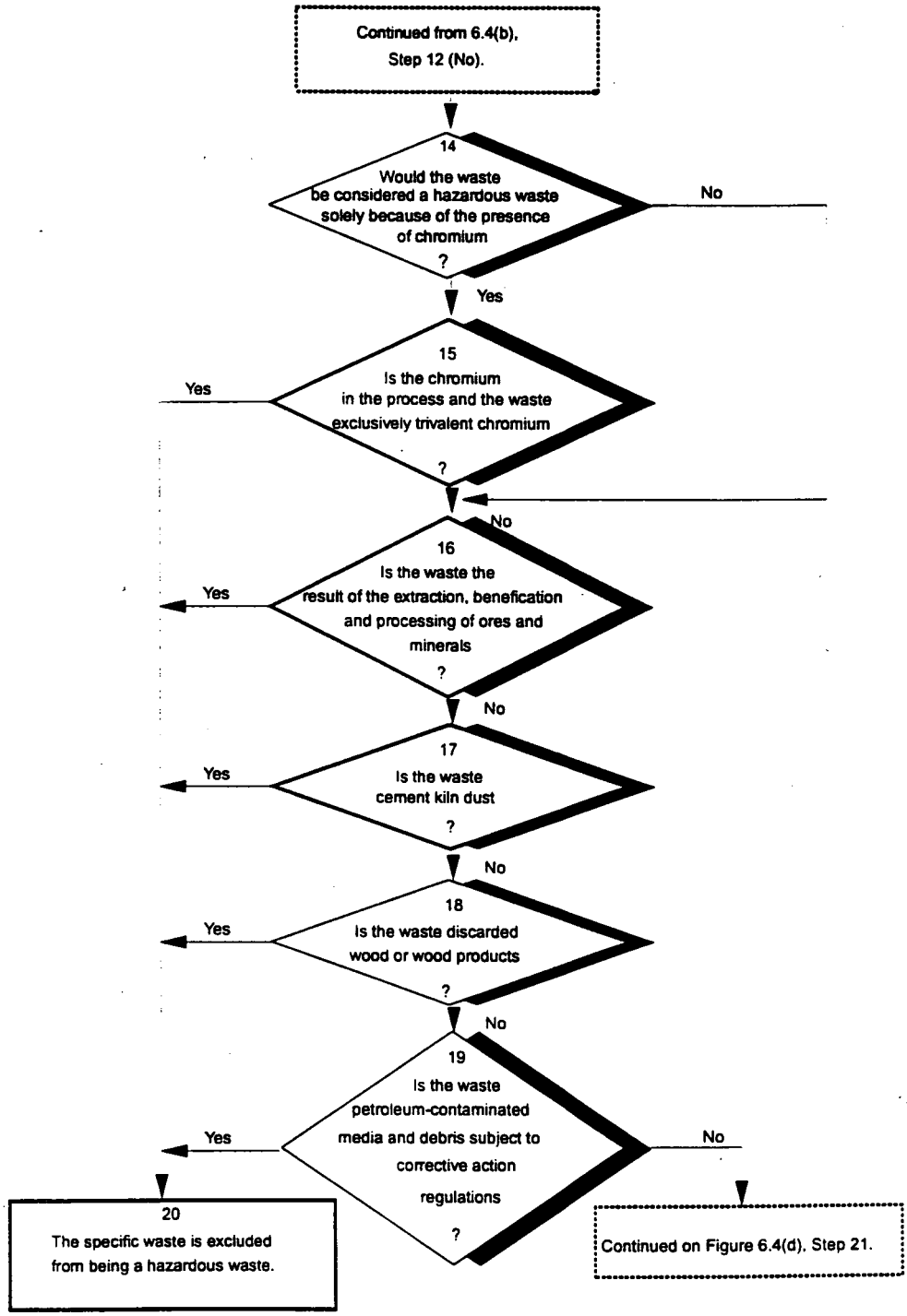

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6.4 Hazardous Waste Exclusions (cont.)

Step 14 This applies if the wastes fail the TCLP test for the Toxicity Characteristic because chromium is present or are listed in OAC 3745-51-31 to 33 due to the presence of chromium, which (1) do not fail the test for the Toxicity Characteristic for any other constituent or (2) are not listed due to the presence of any other constituent, and (3) do not fail the test for any other characteristic. OAC 3745-51-04(B)(6)(a).

Step 15 This applies if the following three conditions apply:

- the chromium in the waste is exclusively (or nearly exclusively) trivalent chromium;
- the waste is generated from an industrial process which uses trivalent chromium exclusively (or nearly exclusively) and the process does not generate hexavalent chromium;
- the waste is typically and frequently managed in non-oxidizing environments. OAC 3745-51-04(B)(6)(a)(ii) to (iii).

Specific wastes that may meet these conditions are listed in OAC 3745-51-04(B)(6)(b).

Step 16 This includes coal, phosphate rock and overburden from the mining of uranium ore. The activities encompassed by the term "beneficiation" are listed in the rule. Also listed are all the applicable wastes. OAC 3745-51-04(B)(7).

Step 17 This exclusion does not apply to cement kiln dust burned in facilities that burn or process hazardous waste. OAC 3745-51-04(B)(8).

Step 18 This applies to discarded wood or wood products which fail the test for the Toxicity Characteristic for hazardous waste codes D004 - D017, if the waste is generated by persons who use the wood and wood products for their originally intended end use. OAC 3745-51-04(B)(9).

Step 19 This applies to petroleum-contaminated media and debris that fail the test for the Toxicity Characteristic (EPA Hazardous Wastes D018 through D043 only) and are subject to the corrective action regulations under Part 280, for underground storage tanks. OAC 3745-51-04(B)(10).

Step 20 This (solid) waste is specifically excluded from being a hazardous waste.

Figure 6.4(d)
Hazardous Waste Exclusions (Cont.)

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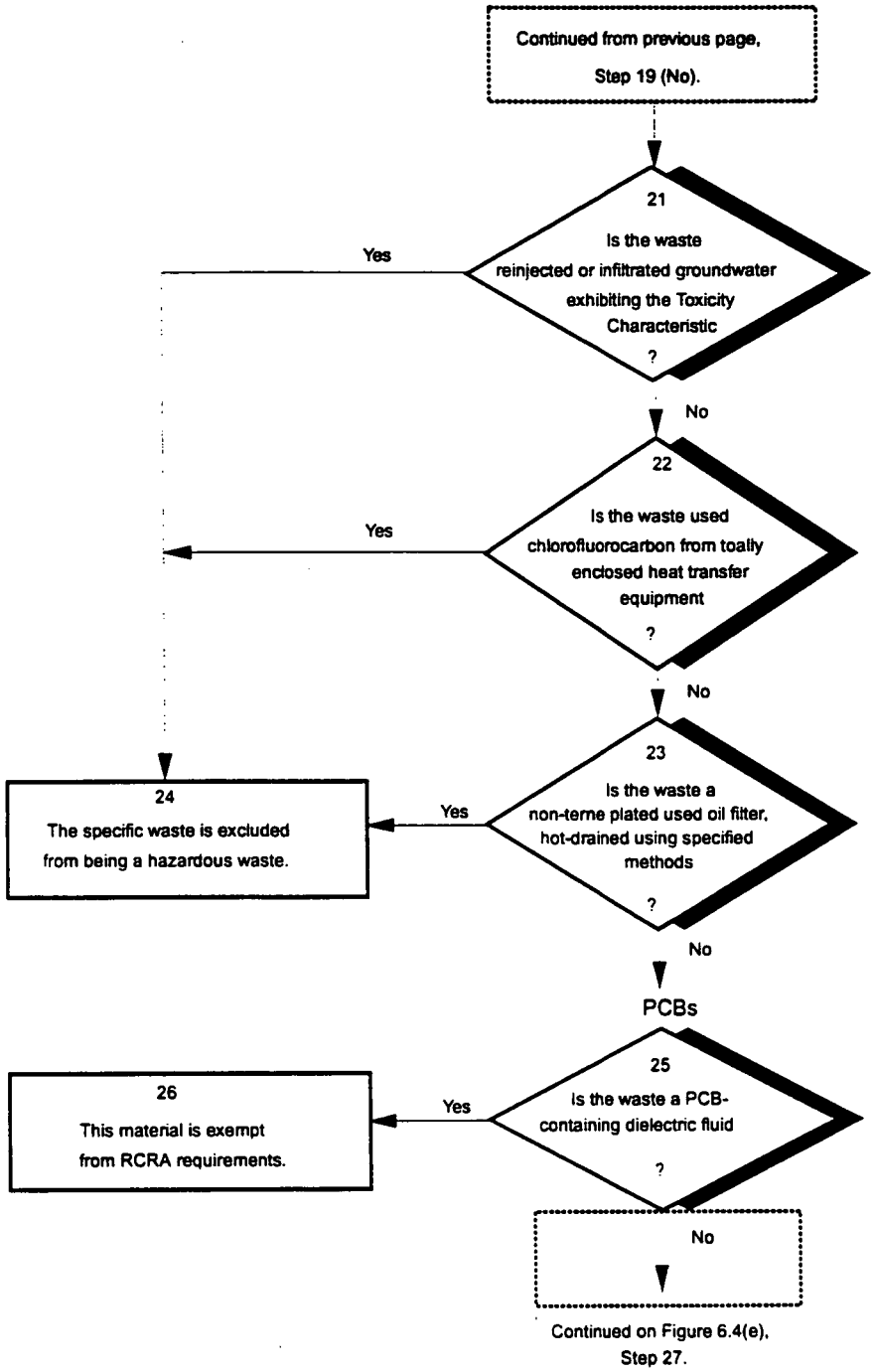

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6.4 Hazardous Waste Exclusions (cont.)

Step 21 Reinjection or infiltration must be pursuant to existing petroleum hydrocarbon recovery operations undertaken at petroleum refineries and marketing terminals or bulk plants handling crude petroleum and intermediate products. (40 CFR 261.4(b)(11)) NOTE: No corresponding OAC rule yet promulgated.

Step 22 This includes mobile air conditioning systems, mobile refrigeration and commercial and industrial air conditioning and refrigeration systems that use chlorofluorocarbons as the heat transfer fluid in a refrigeration cycle, provided the refrigerant is reclaimed for further use. (40 CFR 261.4(b)(12). NOTE: No corresponding OAC rule yet promulgated.

Step 23 In order for this exemption to apply, the filter must not have been mixed with listed hazardous wastes and must be hot-drained by one of the following methods:

- Puncturing the filter anti-drain back valve or the filter dome end and hot-draining;
- Hot-draining and crushing;
- Dismantling and hot-draining; or
- Any other equivalent hot-draining method which will remove used oil.

(40 CFR 261.4(b)(15)). NOTE: No corresponding OAC rule yet promulgated.

This is an alloy of tin and lead. This exemption is limited to non-terne plated filters because the terne-plating makes the filter exhibit the toxicity characteristic for lead. The term "hot-drained" means that the oil filter is drained near engine operating temperature and above room temperature (i.e., 60°F) (57 FR 21524; 5/20/92).

Step 24 This (solid) waste is specifically excluded from being a hazardous waste.

PCBs

Step 25 This includes electric equipment containing such fluid. This applies to fluids authorized for use and regulated under 40 CFR Part 761 (TSCA) and that are hazardous only because they fail the test for the Toxicity Characteristic (Hazardous Waste Code D018 through D043 only). OAC 3745-51-08.

Step 26 This material is specifically exempted from regulation under RCRA, but is subject to regulation under TSCA.

Figure 6.4(e)
Hazardous Waste Exclusions (Cont.)

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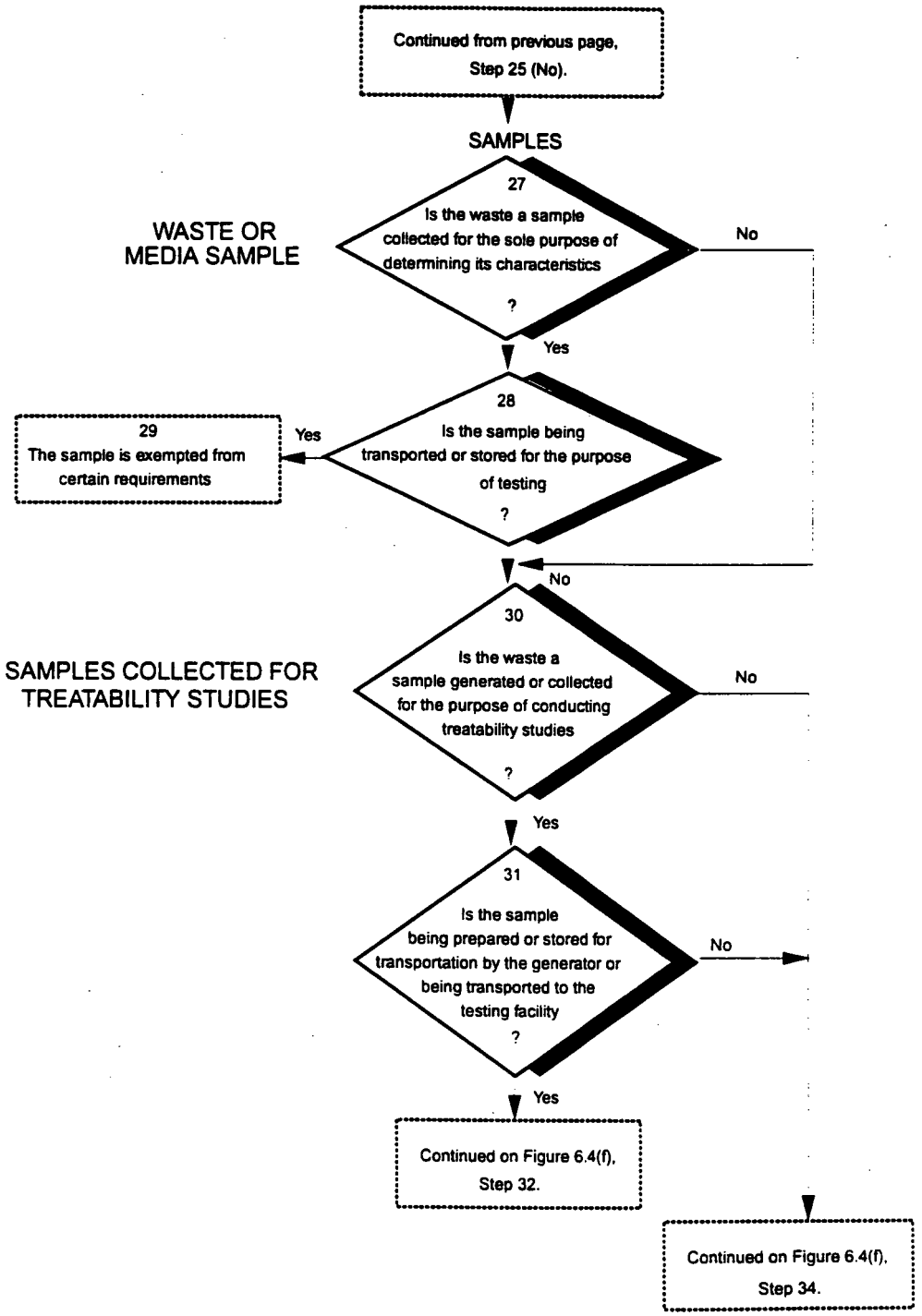

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6.4 Hazardous Waste Exclusions (cont.)

SAMPLES

Waste or Media Sample

Step 27 This applies to a sample of (solid) waste or a sample of water, soil or air, which is collected for the sole purpose of testing its characteristics or composition. OAC 3745-51-04(D)(1).

Step 28 This applies to a sample being transported to a laboratory for the purpose of testing or back to the sample collector after testing; or being stored

- by the sample collector before transport to a laboratory for testing;
- in a laboratory before testing;
- in a laboratory after testing but before being returned to the sample collector; or
- temporarily in the laboratory after testing for a specific purpose (for example, until conclusion of a court case or enforcement action where further testing of the sample may be necessary).

Certain shipping requirements under OAC 3745-51-04(D)(2) apply. OAC 3745-51-04(D)(1)(a) - (f).

Step 29 The waste is exempted from regulation under OAC 3745-50-40 to 3745-50-62 and Chapters 3745-52 to 3745-57, 3745-59, and 3745-65 to 69, and Chapter 119. of the Ohio Revised Code or to the notification requirements of Chapter 3734. of the Ohio Revised Code., provided the requirements of OAC 3745-51-04(D)(2) are met. These include shipping, packaging, and labelling requirements.

Samples Collected for Treatability Studies

Step 30 **Treatability studies** (OAC 3745-50-10) are studies in which a hazardous waste is subjected to a treatment process to determine: (1) Whether the waste is amenable to the treatment process. (2) pretreatment is required, (3) optimal process conditions, (4) the efficiency of a treatment process, or (5) the characteristics and volumes of residuals. Included, for the OAC 3745-51-04(E) and (F) exemptions, are liner compatibility, corrosion, and other material compatibility studies and toxicological and health effects studies.

Step 31 This applies if the sample is being (i) collected and prepared for transportation by the generator or sample collector; or (ii) accumulated or stored by the generator or sample collector prior to transportation to a laboratory or testing facility; or (iii) transported to the laboratory or testing facility for the purpose of conducting a treatability study. OAC 3745-51-04(E)(1).

Figure 6.4(f)
Hazardous Waste Exclusions (Cont.)

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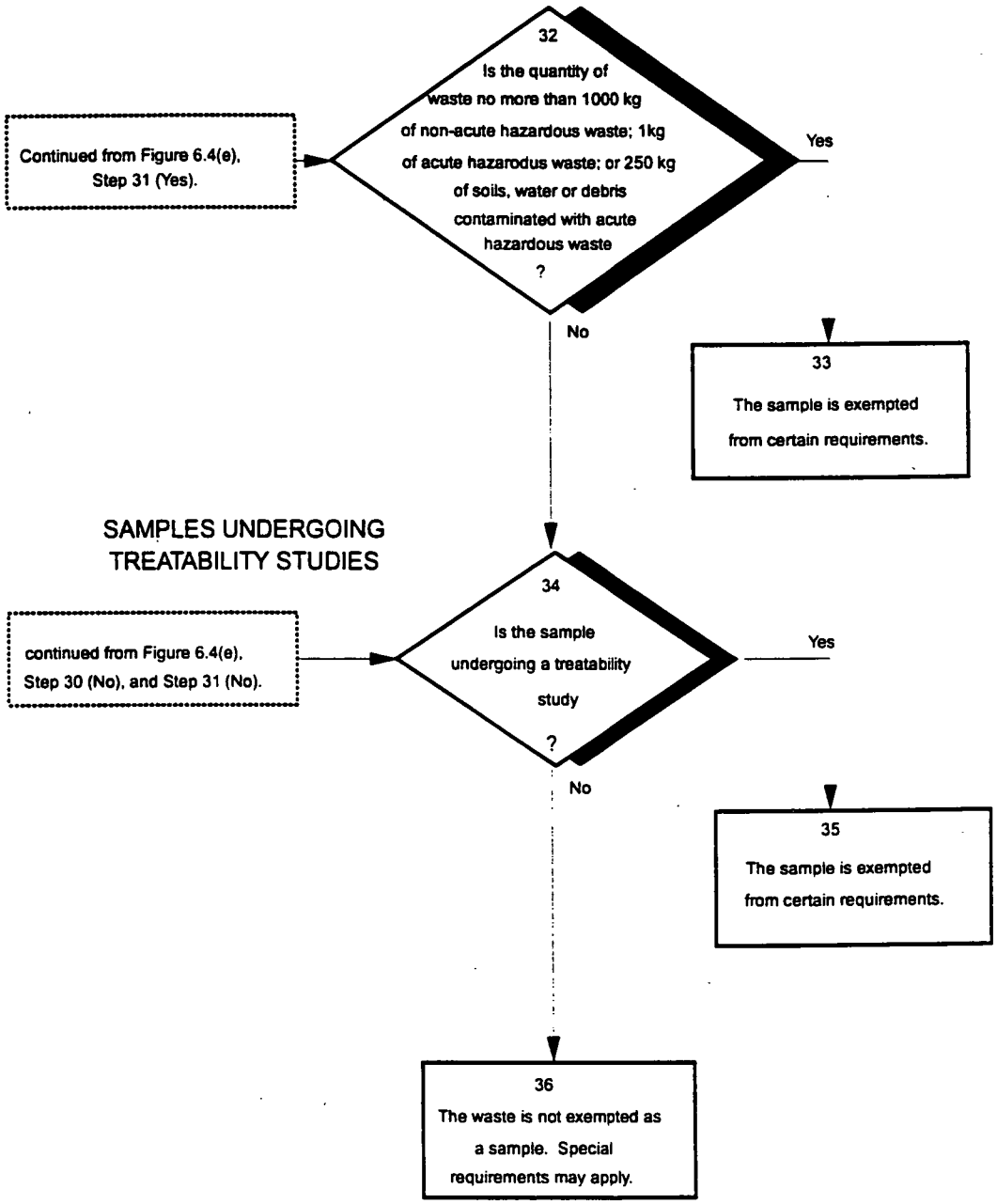

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6.4 Hazardous Waste Exclusions (cont.)

Step 32 This applies to wastes used by the generator or sample collector in "treatability studies": no more than 1000 kg of any non-acute hazardous waste, 1 kg of acute hazardous waste, or 250 kg of soils, water, or debris contaminated with acute hazardous waste for each process being evaluated for each generated waste stream. In addition, the mass of each sample shipment does not exceed 1000 kg of non-acute hazardous waste, 1 kg of acute hazardous waste, or 250 kg of soils, water, or debris contaminated with acute hazardous waste. The Ohio EPA Director may grant a variance from the quantity limits of OAC 3745-51-04(E)(2)(a). Procedures are specified in OAC 3745-51-04(E)(3).

Step 33 The sample is exempted from OAC 3745-51 to 53 and the notification requirements of Chapter 3734. of the Ohio Revised Code, nor are such samples included in the quantity determinations of paragraph (D) of rule 3745-52-34 and rule 3745-51-05 of the OAC when the requirements of OAC 3745-51-04(E)(2) are met. These include requirements for packaging, for the receiving laboratory or testing facility, for recordkeeping, and for reporting.

Samples Undergoing Treatability Studies

Step 34 This applies to the laboratory or testing facility conducting such treatability studies (to the extent such facilities are not otherwise subject to RCRA requirements). OAC 3745-51-04(F).

Step 35 The sample is exempted from regulation under OAC 3745-50-40 to 3745-50-62 and Chapters 3745-52 to 3745-57, 3745-59, and 3745-65 to 69, and Chapter 119. of the Ohio Revised Code or to the notification requirements of Chapter 3734. of the Ohio Revised Code, provided it meets the conditions specified in OAC 3745-51-04(F). These conditions include certain notification and reporting requirements, and storage and quantity limitations. A mobile treatment unit (MTU) may qualify as a testing facility subject to these requirements. When a group of MTUs are located at the same site, the limitations of these requirements apply to the entire group of MTUs collectively as if the group were one MTU. OAC 3745-51-04(F).

Step 36 Special requirements are presented in Section 6.5.

Figure 6.5(a)
Special Requirements

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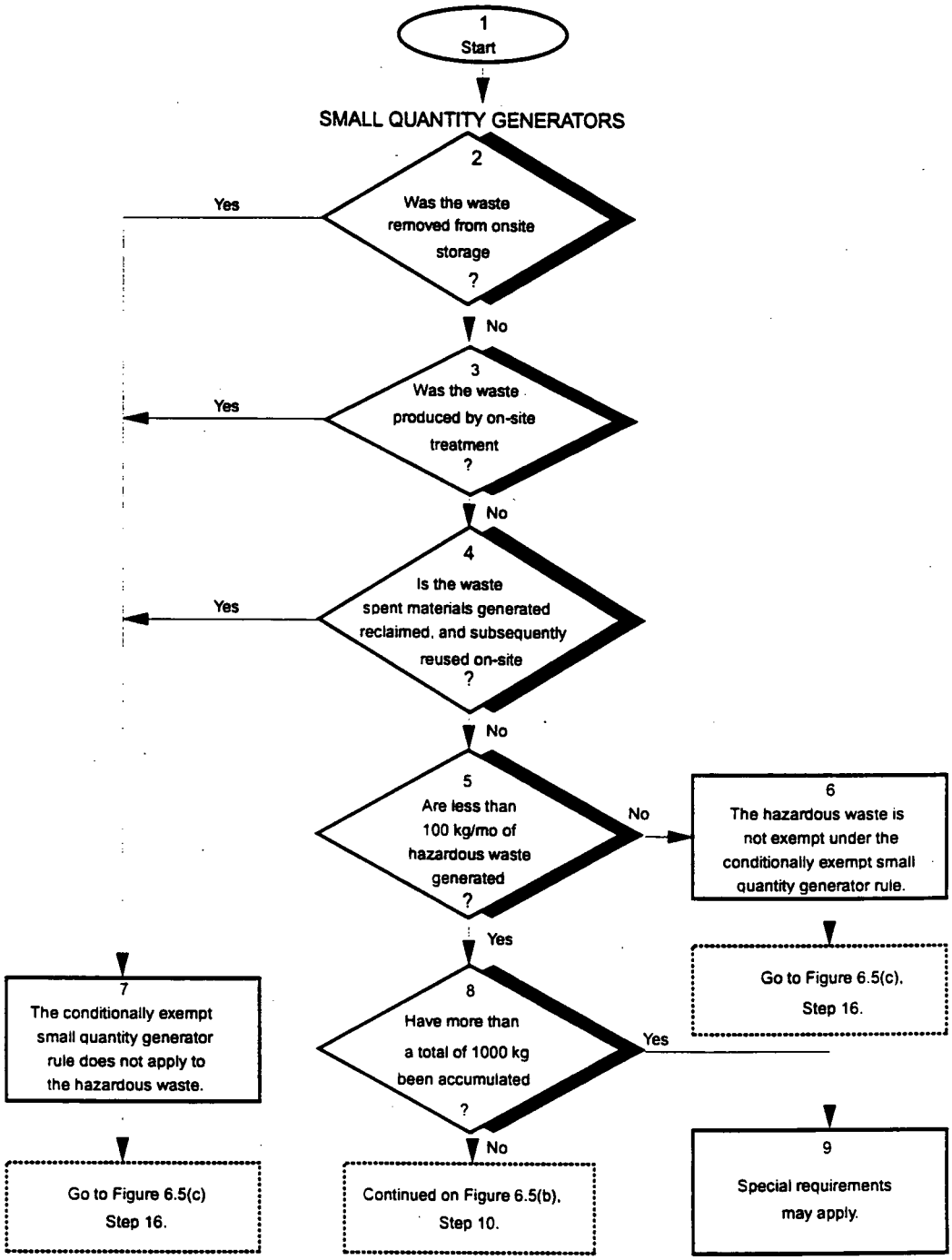

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6.5 Special Requirements

Step 1 **Start.** Requirements for conditionally exempt small quantity generators, hazardous wastes that are recyclable, and residues in empty containers are addressed in this section.

SMALL QUANTITY GENERATORS

Step 2 If the hazardous waste has been removed from on-site storage, it need not be included in the small quantity generator determination. OAC 3745-51-05(D)(1).

Step 3 This applies as long as the hazardous waste that is treated was counted once. Reclamation is included as treatment. OAC 3745-51-05(D)(2).

Step 4 This applies as long as the spent materials have been counted once. OAC 3745-51-05(D)(3).

Step 5 Hazardous waste that is not subject to regulation or that is subject only to OAC 3745-52-11, 3745-52-12, 3745-52-40(C), and 3745-52-41 is not included in the quantity determination. Hazardous waste that is subject to the requirements of OAC 3745-51-06(B) and (C) and 3745-58-30 to 3745-58-46 and 3745-58-60 is included in the quantity determination. OAC 3745-51-05(C).

Step 6 If the amount of waste generated exceeds the quantity limitation, the requirements applicable to only small quantity generators do not apply to this waste. Continue on to Step 16.

Step 7 These wastes need not be included in the small quantity generator determinations. OAC 3745-51-05(D).

Step 8 The conditionally exempt small quantity generator may accumulate up to 1000 kg of hazardous waste on-site. OAC 3745-51-05(G)(2).

Step 9 If the small quantity generator accumulates at any time more than a total of 1000 kg, all of the accumulated wastes are subject to regulation under the special provisions of OAC 3745-52 applicable to generators of between 100 and 1000 kg/mo as well as the requirements of OAC 3745-53 3745-59, and to 3745-65 to 3745-69, rules 3745-50-40 to 3745-50-62, and the applicable notification requirements of RCRA. The time period of OAC 3745-52-34(D) for accumulation of wastes on-site begins when the accumulated wastes exceed 1000 kilograms. OAC 3745-51-05(G)(2).

Note that exclusions, addressed in Section 6.4, may be applicable.

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Figure 6.5(b)
Special Requirements (Cont.)

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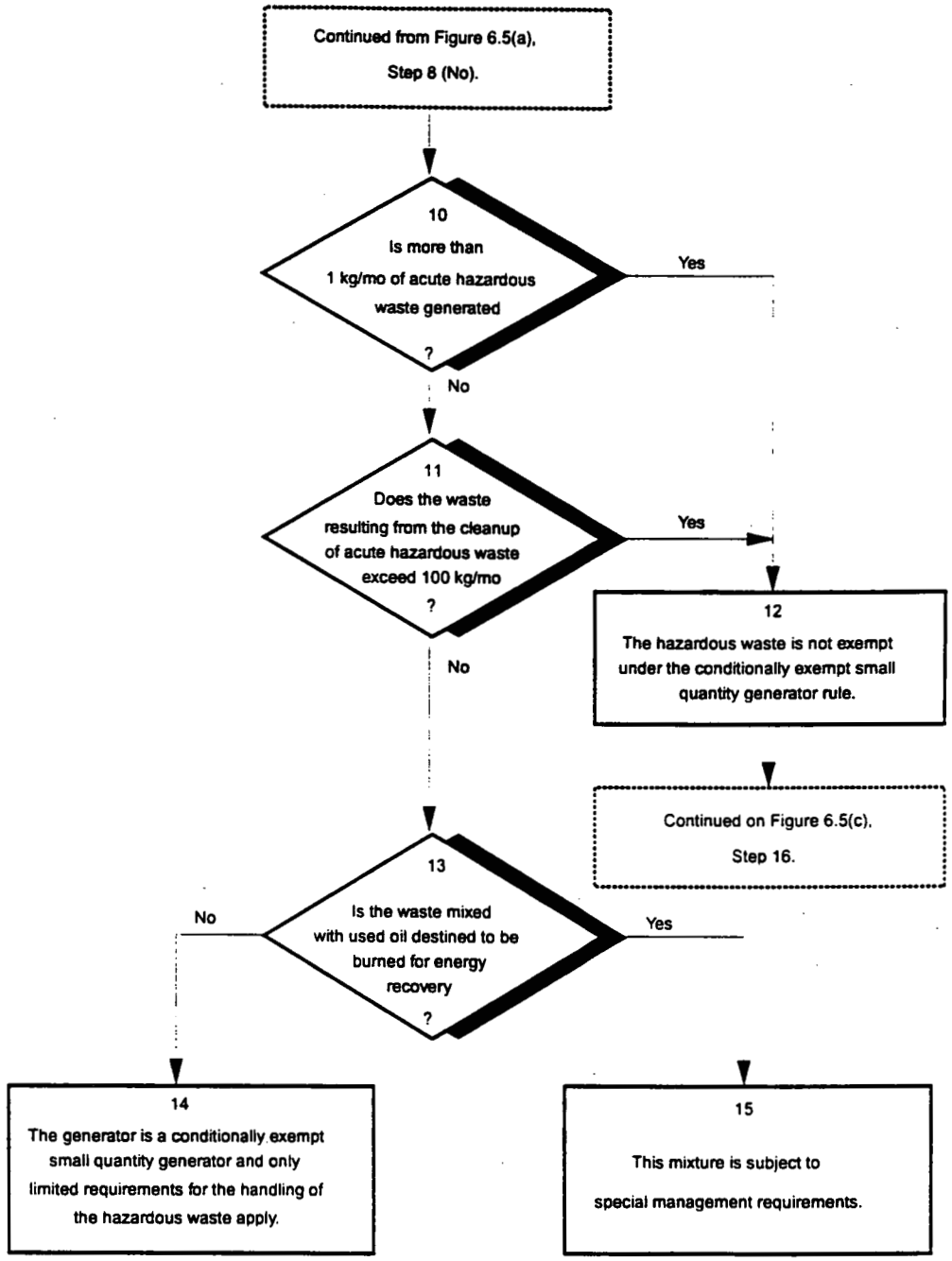

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6.5 Special Requirements (cont.)

Step 10 Acute hazardous wastes are listed in OAC 3745-51-31 and 3745-51-32 with Hazard Code "H", and OAC 3745-51-33(E). OAC 3745-51-05(E)(1).

Step 11 This applies to residue or contaminated soil, waste, or other debris resulting from the clean-up of a spill, into or on any land or water, of acute hazardous waste. The applicable acute hazardous wastes are listed in OAC 3745-51-31, 3745-51-32 and 3745-51-33(E). OAC 3745-51-05(E)(2).

Step 12 The waste is subject to full regulation under OAC 3745-53 3745-59, and to 3745-65 to 3745-69, rules 3745-50-40 to 3745-50-62, and the applicable notification requirements of RCRA. OAC 3745-51-05(E) and (F). Continued to Step 16.

Step 13 Any material produced from such a mixture by processing, blending, or other treatment is also regulated if it is destined to be burned for energy recovery. OAC 3745-51-05(J).

Step 14 Handling requirements for acute hazardous waste are addressed in OAC 3745-05(F); handling requirements for hazardous waste are addressed in OAC 3745-51-05(G). The generator must comply with 1) OAC 3745-52-11; 2) total accumulation limits (see Steps 8 through 12); and 3) treatment or disposal of the waste either on-site or off-site at a facility that meets the following requirements:

(a) Permitted under rules OAC 3745-50-40 to 3745-50-60;

(b) Operating pursuant to the provisions of division (F) of section 3734.02 of the Ohio Revised Code (interim status);

(c) Authorized to manage hazardous waste by a State with a hazardous waste management program approved under 40 CFR 271;

(d) A facility which either (A) beneficially uses or reuses, or legitimately recycles or reclaims its waste; or (B) treats its waste prior to beneficial use or reuse, or legitimate recycling or reclamation.

OAC 3745-51-05(G)(3)

Hazardous waste subject to the reduced requirements of OAC 3745-51-05 may be mixed with non-hazardous waste and remain subject to these reduced requirements even though the resultant mixture exceeds the quantity limitation identified in this section, unless the mixture meets any of the characteristics of hazardous waste. OAC 3745-51-05(H). Note that exclusions, addressed in Section 6.4, may be applicable.

Step 15 The waste is subject to OAC 3745-58-50 to 3745-58-70. Under these regulations, if the used oil fuel meets certain specifications, it is subject only to analysis and record keeping requirements. Otherwise it is subject to restrictions and standards for marketing and burning. OAC 3745-51-05(J). Note that exclusions, addressed in Section 6.4, may be applicable.

Figure 6.5(c)
Special Requirements (Cont.)

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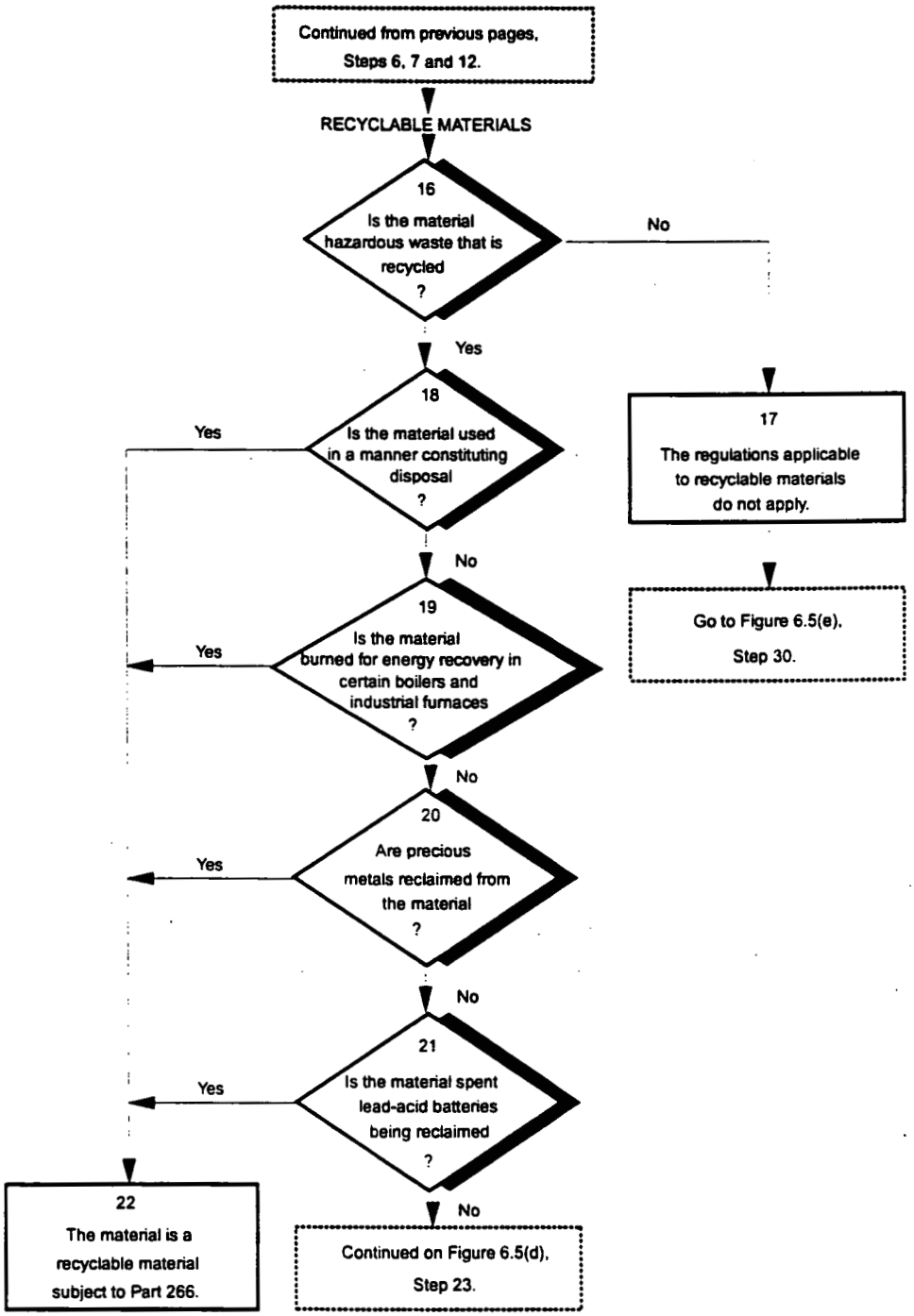

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6.5 Special Requirements (cont.)

RECYCLABLE MATERIALS

Step 16 Hazardous wastes that are recycled are called "recyclable materials." OAC 3745-51-06(A)(1).

Step 17 If the hazardous waste is not being recycled, it is subject to the full scope of hazardous waste regulations, unless otherwise excluded.

Step 18 Use constituting disposal means application of the material to the land, or used to produce products that are placed on the land OAC 3745-51-06(A)(2)(a).

Step 19 "Non-regulated" boilers and industrial furnaces are those not regulated under Subpart O of Part 264 or 265. The material includes used oil that exhibits one or more of the characteristics of hazardous waste. OAC 3745-51-06(A)(2)(b) and (c).

Step 20 This applies to materials reclaimed to recover economically significant amounts of gold, silver, platinum, and other metals identified in OAC 3745-58-60. OAC 3745-51-06(A)(2)(d).

Step 21 This refers to lead-acid batteries being reclaimed to recover lead; not those that are returned to the manufacturer. OAC 3745-51-06(A)(2)(e).

Step 22 The material is not subject to the requirements of OAC 3745-51-06, but is regulated under the applicable rule in OAC 3745-58. Note that exclusions, addressed in Section 6.4, may be applicable.

Figure 6.5(d)
Special Requirements (Cont.)

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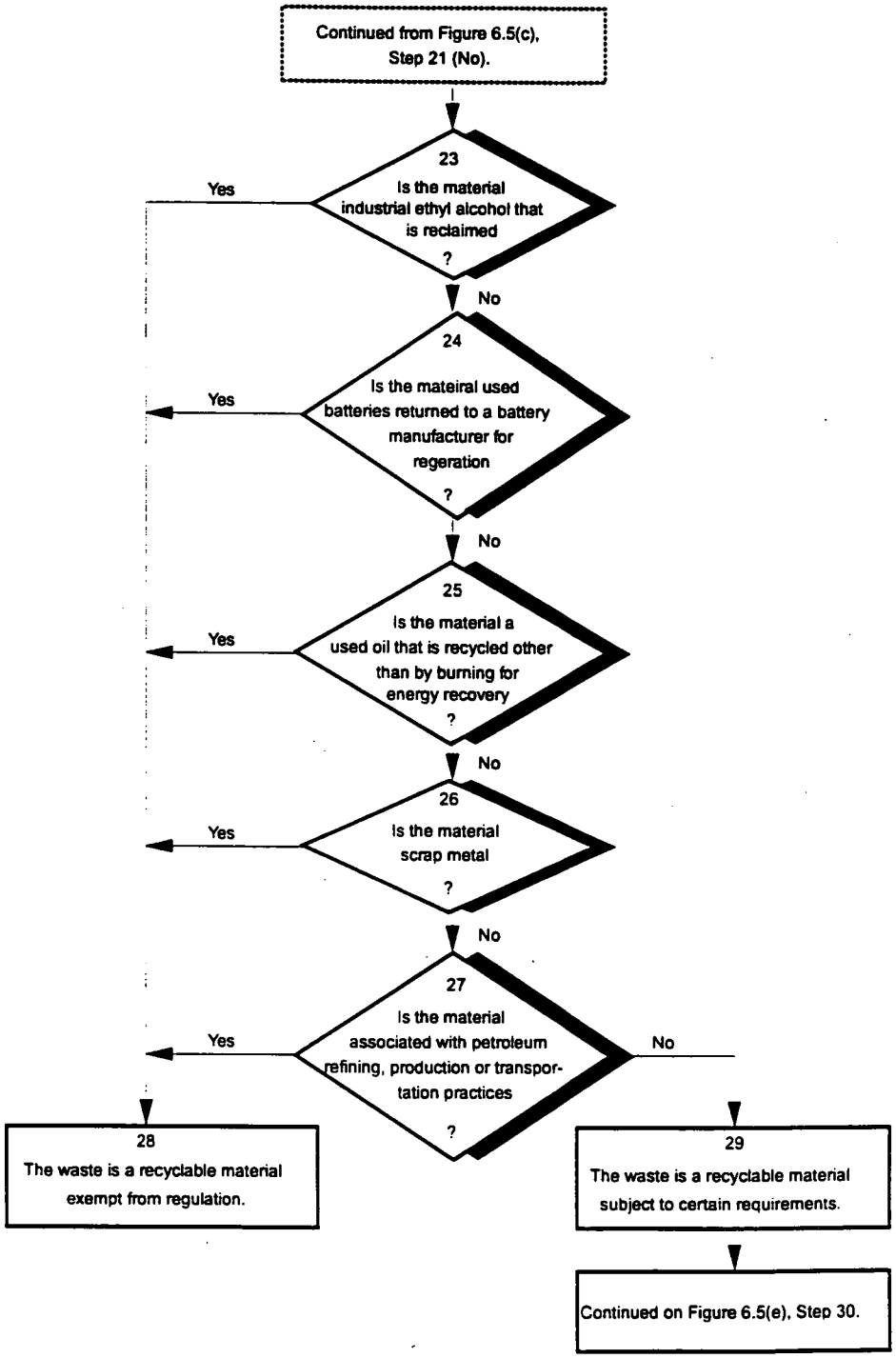

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6.5 Special Requirements (cont.)

Step 23 Special requirements apply for international shipment. OAC 3745-51-06(A)(3)(a)(i) and (ii). **Reclaimed** is defined in OAC 3745-51-01(C)(4) as processing to recover a usable product or regeneration.

Step 24 This includes used battery cells. OAC 3745-51-06(A)(3)(b).

Step 25 This applies to used oil that exhibits one or more of the characteristics of hazardous waste. OAC 3745-51-06(A)(3)(c).

Step 26 **Scrap metal** is defined at OAC 3745-51-01(C)(6) as bits and pieces of metal parts (e.g., bars, turnings, rods, sheets, wire) or metal pieces combined together with bolts or soldering (e.g., radiators, scrap automobiles, railroad cars), which when worn or superfluous can be recycled. OAC 3745-51-06(A)(3)(d).

Step 27 These recyclable materials are described in detail at OAC 3745-51-06(A)(3)(e) to (i).

Step 28 The waste is exempt from OAC 3745-50-40 to 3745-50-62, 3745-52 to 3745-57, 3745-59, and 3745-65 to 69, and the notification requirements of Chapter 3734. of the Ohio Revised Code. OAC 3745-51-06(A)(3).

Step 29 Excepting the specific materials referenced in OAC 3745-51-06(A), (for which handling requirements have been identified in this section), generators and transporters of recyclable materials are subject to the standards for generators specified in OAC 3745-52, and the standards for transporters specified in OAC 3745-53, respectively, and the notification requirements of Chapter 3734. of the Ohio Revised Code.

Recyclers of these materials that do not store them first are subject to the manifesting requirements of OAC 3745-65-71 and 3745-65-72, the air emissions standards of Parts 40 CFR 264/265 AA and BB, and the notification requirements of Chapter 3734. of the Ohio Revised Code.

Recyclers of these materials who store them first are subject to the requirements of OAC 3745-54, 3745-55, 3745-58, 3745-59, 3745-65, and 3745-66, and rules 3745-50-40 to 3745-50-62, 3745-56-20 to 3745-56-60, and 3745-67-20 to 3745-67-58 and the notification standards of Chapter 3734. of the Ohio Revised Code. The recycling process itself is only subject to the air emissions standards of 40 CFR 264/265 AA and BB. OAC 3745-51-06(B) and (C).

Exclusions, addressed in Section 6.4, may be applicable. Continue on to Step 30.

Figure 6.5(e)
Special Requirements (Cont.)

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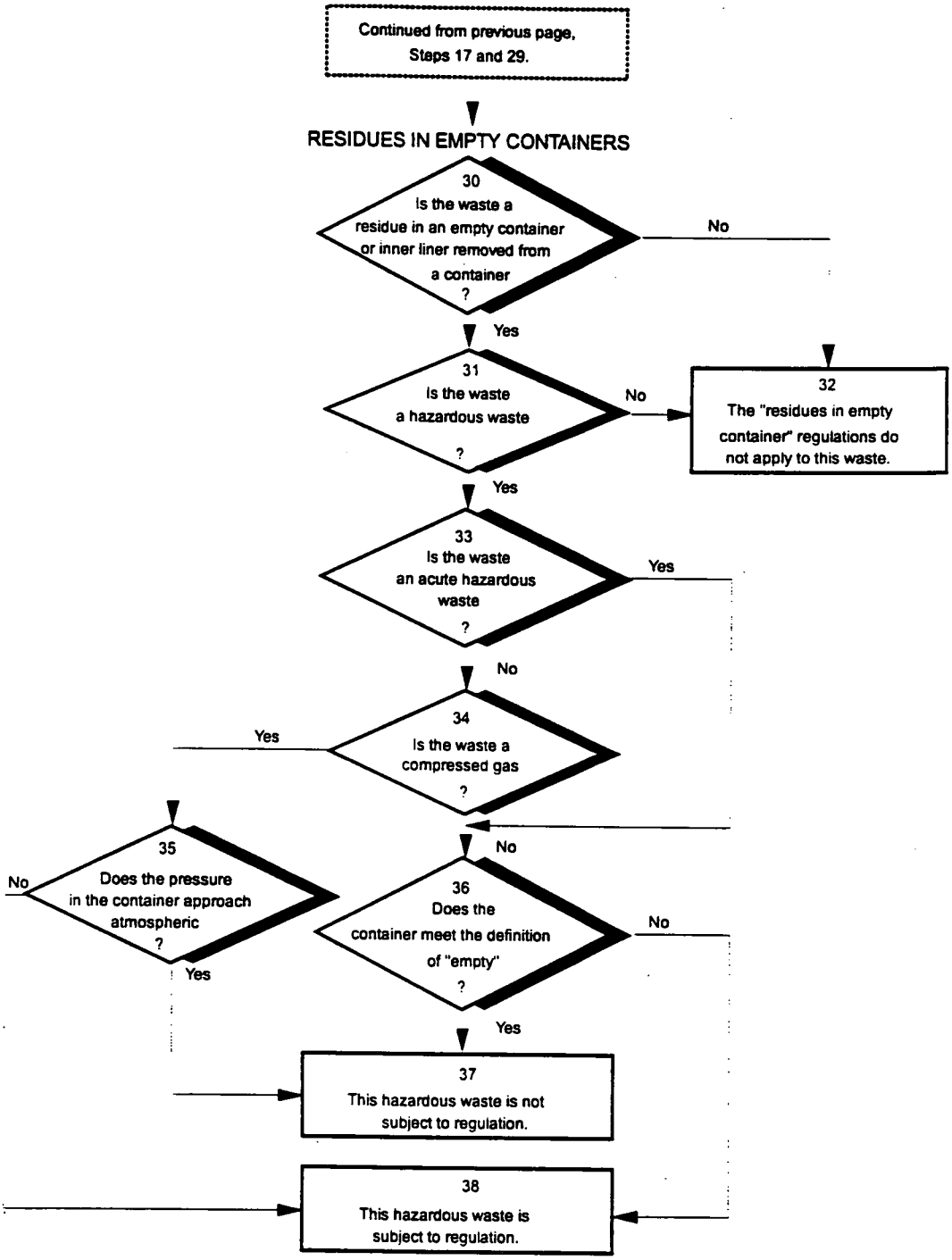

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6.5 Special Requirements (cont.)

RESIDUES IN EMPTY CONTAINERS

Steps
30 & 32 This is a possible exclusion from regulation that only applies to containers with residues of hazardous waste. OAC 3745-51-07.

Step 31 As determined in Section 6.2.

Steps
33 & 36 A container or an inner liner removed from a container that has held any acute hazardous waste listed in OAC 3745-51-31, 3745-51-32, and 3745-51-33(E) is **EMPTY** if:

(i) The container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate;

(ii) The container or inner liner has been cleaned by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal; or

(iii) In the case of a container, the inner liner that prevented contact of the commercial chemical product or manufacturing chemical intermediate with the container, has been removed. OAC 3745-51-07(B)(3).

OAC 3745-51-07(B)(1). A container or an inner liner removed from a container that has held any hazardous waste, except a waste that is a compressed gas or that is identified as an acute hazardous waste, is **EMPTY** if:

(i) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating, and

(ii) No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container or inner liner, or

(iii) For containers less than or equal to 110 gallons in size, no more than 3 percent by weight of the total capacity of the container remains in the container or inner liner or, for containers greater than 110 gallons, no more than 0.3 percent remains.

Steps
34 & 35 A container that has held a hazardous waste that is a compressed gas is **EMPTY** when the pressure in the container approaches atmospheric. OAC 3745-51-07(B)(2).

Step 37 The waste is not subject to regulation under OAC 3745-50-40 to 3745-50-62, 3745-52 to 3745-57, 59, and 3745-65 to 69, and notification requirements of Chapter 3734.

Step 38 (40 CFR 261.7). If the container does not meet the definition of "empty", hazardous waste residues contained therein are regulated as hazardous wastes under RCRA. Note that exclusions, addressed in Section 6.4, may apply.

6.6 Land Disposal Restrictions (LDR) Notifications

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This section provides an **overview** of the process for compiling information required to complete LDR notifications in accordance with OAC 3745-59/40 CFR 268. The LDR regulations establish specific requirements for restricted wastes. Restricted wastes are those hazardous wastes for which EPA has established a treatment standard or for which the statutory prohibition deadline has passed. With the exception of certain newly identified wastes which EPA has added to its list of hazardous wastes nearly all hazardous wastes are restricted wastes.

There are three main components to the LDR regulatory program: 1) prohibition on dilution of restricted waste, 2) establishment of treatment standards for restricted waste, and 3) prohibitions on storage of restricted wastes. Treatment standards are either concentration based limits or specified technologies designed to reduce the toxicity or mobility of hazardous constituents. In addition, the LDRs also establish requirements for testing, notification, and certification of compliance.

LDR notifications provide the summary information required to determine management requirements for restricted hazardous waste. The point of compliance for determining the LDR status of a waste is at the point of generation for the waste. LDR notifications are required for wastes which are restricted waste at the point of generation but which subsequently excluded from the definition of solid or hazardous waste. The following basic information is required to complete an LDR notification:

Hazardous Waste Number(s): Only hazardous wastes are subject to LDR requirements. Requirements are driven, in turn, by the type of hazardous waste. The first information required to complete an LDR notification is the hazardous waste number(s) which describe the waste.

Treatability Group: For development of treatment standards EPA established two main treatability groups: wastewaters and nonwastewaters. Wastewaters are defined as wastes that contain less than 1% by weight total organic carbon (TOC) and less than 1% total suspended solids (TSS). Certain listed hazardous wastes have exceptions to this definition. Spent solvent (F001 - F005) wastewaters are solvent-water mixtures that contain less than 1% by weight TOC or less than 1% by weight total F001 - F005 solvent constituents.

Subcategory: EPA developed subcategories for certain hazardous wastes which required more than one treatment standard. For example "D003 reactive cyanides" is a subcategory for the D003 waste code. Subcategories are listed under the treatment standards for each of the waste codes in OAC 3745-59 Subpart D/40 CFR 268 Subpart D.

Treatment Standards: Based on the hazardous waste number, treatability group, and any subcategory for a waste, treatment standards can be picked off the appropriate tables in OAC 3745-59 Subpart D/40 CFR 268 Subpart D. When the treatment standard is a

concentration based standard the numerical treatment standard and the OAC 3745-59/40 CFR 268 reference must be provided.Numerical standards may be based on either constituent concentration in the waste extract (based on TCLP analysis) or on constituent concentration in the waste (based on total waste analysis (TWA)). Treatment standards which are expressed as a specified technology must be identified by their five letter technology code.

California List Prohibitions: The California List prohibitions established a "safety net" to ensure that land disposal of certain hazardous wastes was put under regulatory control early in the regulatory development process (i.e., before the remainder of the LDR prohibitions/treatment standards became effective). The California list prohibitions were superseded, for the most part, by more stringent treatment standards established for each hazardous waste number. The California list prohibitions still potentially apply, however, to hazardous wastes with nickel or thallium over 134 or 130 ppm, respectively and hazardous waste with halogenated organic constituents (HOCs) greater than 1000 ppm.

Alternative Treatment Standards: Alternative treatment standard have been developed for lab packs and for hazardous debris. The requirements for a lab pack notification are slightly more involved and are provided at OAC 3745-59-44/40 CFR 268.44. The requirements for alternative treatment standards for hazardous debris are found at 40 CFR 268.45. Debris are defined as solid material exceeding a 60 mm particle size that is intended for disposal and that is: a manufactured object, or plant or animal matter, or natural geologic material. Note, however, that the following materials are not debris: any material for which a specific treatment standard is provided in Subpart D of 40 CFR 268; process residues such as smelter slag and residues from the treatment of waste, wastewater, sludges, or air emission residues; and intact containers of hazardous waste that are not ruptured and retain at least 75% of their original volume. Hazardous debris is defined as debris which exhibits a hazardous waste characteristic or contains a listed hazardous waste.

6.7 Completing Hazardous Waste Worksheets

This section provides the implementing guidance for completing the worksheets that document a materials status with respect to the definition of hazardous waste. This guidance and the associated worksheets cover the relevant waste identification criteria related wastes expected to be generated at the FEMP. In the unlikely event that a situation arises that is not covered by the guidance or worksheets, the WCS evaluators access additional resources for guidance (including onsite resources and contact with the Regulatory Agencies) and supplement the waste characterization worksheets with the additional required documentation in the waste characterization file.

6.7.1 "Exclusions to the Definition of Hazardous Waste - Worksheet"

This section provides the site specific guidance with which to evaluate (solid) waste at the FEMP to determine if it are excluded from the definition of hazardous waste under the hazardous waste management regulations (i.e., the Ohio Administrative Code (OAC) or the

Code of Federal Regulations (CFR), as applicable). Evaluation criteria are provided for each entry on the "Exclusions to the Definition of Hazardous Waste - Worksheet," Form 6.7(a).

Excluded AEA Materials

Two sources for guidance that have been used for application of this exclusion include: 1) DOE Final Rule on Radioactive Waste; Byproduct Material (52 FR 15937; May 1, 1987) and 2) Joint EPA/NRC Guidance on the Definition and Identification of Commercial Mixed Low-Level Radioactive and Hazardous Waste (OSWER Policy Directive 9432.00-2; March 2, 1987).

The DOE Byproduct Rule "provides that only the actual radionuclides in DOE waste streams will be considered byproduct materials. The non-radioactive components of those waste streams, under the final rule, will be subject to regulation under RCRA to the extent that they contain hazardous components." (52 FR 15938). Similarly, the joint EPA/NRC guidance specifies that "except for certain ores containing source material, which are defined as source in 10 CFR 40.4(h), and uranium and thorium mill tailings or wastes, NRC and EPA interpret the definitions of source, special nuclear, and byproduct materials to include only the radioactive elements themselves."

Materials at the FEMP that are potentially excluded because the radionuclide portion exhibits the a characteristic include uranium or thorium metal fines (e.g., chips and turnings) that may exhibit the characteristic of reactivity. Note that while these materials may be excluded from the definition of hazardous waste, they may not meet the NVO-325 Waste Acceptance Criteria (WAC) for pyrophorics. See Section 13.1.1.

Materials at the FEMP that may be excluded from regulation because they are considered tailings and thus excluded from regulation as hazardous waste include the contents of the K-65 silos.

While these materials are not regulated strictly regulated as hazardous waste, they may be required to be managed in accordance with the hazardous waste rules if they are determined to be "relevant and appropriate" under the National Contingency Plan (NCP) requirements for considering Applicable and Relevant and Appropriate Regulations (ARARs).

Mixtures of Wastewaters Subject to CWA and Certain Hazardous Waste

Certain mixtures of hazardous waste and wastewaters regulated under the CWA are excluded from the definition of hazardous waste provided the conditions listed on the worksheet are met. The FEMP has reviewed facility records and determined that these conditions have been met in the past at the site. Further, continued oversight of the onsite wastewater treatment facility operations will ensure that the facility continues to meet the conditions for this exclusion to apply.

Note, however, that this exclusion is only applicable when these wastes are added to the wastewater treatment system. Prior to that point, they are fully regulated as hazardous

waste. In addition, there are certain recordkeeping and reporting requirements under the Land Disposal Restriction (LDR) rules for hazardous wastes which are ultimately managed under this exclusion (See Section 6.6).

Wastes Generated from the Combustion of Coal or Other Fossil Fuels

This exclusion applies to the fly ash at the FEMP. This exclusion does not apply to mixtures of these excluded wastes and other hazardous wastes (e.g., fly ash mixed with hazardous waste).

Discarded CCA Treated Wood

Discarded wood treated with copper-chromium arsenicals (CCA) is excluded from the definition of hazardous waste if it fails one or more of the original EP Toxicity Constituents (i.e., eight metals, six pesticides) and is not a hazardous waste for any other reason. This exclusion was intended to apply to (inorganic) treated wood products that fail the TC due to the wood preserving treatment applied to the original wood product. This exclusion does not apply to CCA treated wood that fails the TC for any of the 25 organic constituents or that fails the TC for any of the original 14 EP Toxicity constituents that are not attributable to the CCA. OSWER Policy Directive 9441.1991(11).

Petroleum-contaminated media and debris

This exclusion only applies to media an debris contaminated with the 25 organic constituents added by the TC rule when these constituents are attributable to the petroleum product. The media an debris must be generated during corrective actions under the underground storage tank rules.

CFCs Reclaimed for Further Use

If not reclaimed, CFCs removed must be tested to determine if they fail the TC.

Non-terne Plated Used Oil Filters

The onsite garage has apparatus for hot-draining non-terne oil filters to meet this exclusion.

Transitory Exclusions to the Definition of Hazardous Waste

These exclusions are transitory in nature and only apply during certain stages of sample management. These exclusions do not apply to the waste when managed outside the scope of the exclusion or when ultimately discarded. Page 2 of the "Exclusions to the Definition of Hazardous Waste - Worksheet" documents materials status with respect to these exclusions.

Worksheet 6.7(a)
Exclusions to the Definition of Hazardous Waste

EXCLUSIONS TO DEFINITION OF HAZARDOUS WASTE - WORKSHEET (page 1/2)

MEF Number: _____ *Rev No.:* _____

The RCRA regulations provide specific exclusions to the definition of hazardous waste (i.e., materials that may be regulated as solid waste, but are excluded from regulation as hazardous waste). Section A provides for documentation of specific exclusions that potentially apply to waste streams at the FEMP.

A. EXCLUSIONS TO THE DEFINITION OF HAZARDOUS WASTE	
Exclusion Applies	Applicable Exclusion
___yes ___no	It is source material, special nuclear material, or by-product material, as defined by the Atomic Energy Act of 1954, as amended, 42 U.S. C. 2011 et seq., or other radionuclides that exhibit a characteristic of hazardous waste that is solely attributable to the radionuclide portion of the waste. [OAC 3745-51-03(A)(2)(d)]
___yes ___no	Is the waste a mixture of wastewater, the discharge of which is subject to regulation under either section 402 or 307(b) of the CWA, and: ___ One or more of the following spent solvents listed in OAC 3745-51-31 - carbon tetrachloride, tetrachloroethylene, trichloroethylene - provided that the maximum total weekly usage of these solvents (other than amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed 1 ppm; or ___ One or more of the following spent solvents listed in OAC 3745-51-31 - methylene chloride, 1,1,1-trichloroethane, chlorobenzene, o-dichlorobenzene, cresols, cresylic acid, nitrobenzene, toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, spent chlorofluorocarbon solvents - provided that the maximum total weekly usage of these solvents (other than amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed 25 ppm; or ___ A discarded commercial chemical product, or chemical intermediate listed in OAC 3745-51-33, arising from *de minimis* losses of these materials from manufacturing operations in which these materials are used as raw materials or are produced in the manufacturing process. For the purposes of this exclusion *de minimis* losses include those from normal material handling operations (e.g., spills from the unloading or transfer of materials from bins or other containers, leaks from pipes, valves or other devices used to transfer materials); minor leaks of process equipment, storage tanks or containers; leaks from well-maintained pump packing and seals; sample purgings; relief device discharges; discharges from safety showers and rinsing and cleaning of personal safety equipment; and rinseate from empty containers or from containers that are rendered empty by that rinsing; or ___ Wastewater resulting from laboratory operations containing toxic (T) wastes listed in OAC 3745-51-31 to 3745-51-33, provided that the annualized average flow of laboratory wastewater does not exceed one percent of total flow into the headworks of the facility's wastewater treatment or pretreatment system, or provided the wastes' combined annualized average concentration does not exceed 1 ppm in the headworks of the facility's wastewater treatment of pretreatment system. Toxic wastes used in the laboratories that are demonstrated not to be discharged to wastewater are not included in this calculation. [OAC 37455-51-03(A)(2)(e)(i), (ii), (iv), and (v), respectively.
___yes ___no	Fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste, generated primarily from the combustion of coal or other fossil fuels. [OAC 3745-51-04(B)(4)/40 CFR 261.4(b)(4)]
___yes ___no	Solid waste which consists of discarded wood or wood products which fails the TC solely for one or more of the original EP Toxicity constituents (i.e., D004 - D017) and which is not a hazardous waste for any other reason, if the waste is generated by persons who utilize the arsenical-treated wood and wood products for these materials' intended end use. [OAC 3745-51-04(B)(9)]
___yes ___no	Petroleum-contaminated media and debris that fail the test for the Toxicity Characteristic (Hazardous Waste Codes D018 through D043 only) and are subject to the corrective action regulations under 40 CFR 280. [40 CFR 261.4(b)(10)]
___yes ___no	Used chlorofluorocarbon refrigerants from totally enclosed heat transfer equipment, including mobile air conditioning systems, mobile refrigeration, and commercial and industrial air conditioning and refrigeration system that use chlorofluorocarbons as the heat transfer fluid in a refrigeration cycle, provided the refrigerant is reclaimed for further use. [40 CFR 261.4(b)(12)]
___yes ___no	Non-terne plated used oil filters that are not mixed with waste listed in subpart C of this part if these oil filters have been gravity hot-drained using one of the following methods: ___ Puncturing the filter anti-drain back valve or the filter dome end and hot draining; ___ Hot-draining and crushing; ___ Dismantling and hot-draining; ___ Any other equivalent hot-draining method which will remove used oil. [40 CFR 261.4(b)(15)]

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Worksheet 6.7(b)
Exclusions to the Definition of Hazardous Waste (Cont.)

EXCLUSIONS TO DEFINITION OF HAZARDOUS WASTE - WORKSHEET (page 2/2)

MEF Number: _____ *Rev No.:* _____

The RCRA regulations provide specific exclusions to the definition of hazardous waste for certain materials that are managed in a specified manner prior to being discarded, but that cease to operate when the material is managed outside of the scope of these exclusions and that do not apply to the material when it is ultimately discarded. Section A provides for documentation of those exclusions that potentially apply to waste streams at the FEMP.

B. EXCLUSIONS TO THE DEFINITION OF HAZARDOUS WASTE THAT ARE TRANSITORY IN NATURE

Exclusion Applies	Applicable Exclusion
___yes ___no	The material is a sample of solid waste or a sample of water, soil, or air, which is collected for the sole purpose of testing to determine characteristics or composition and: (a) The sample is being transported to a laboratory for the purpose of testing; or (b) The sample is being transported back to the sample collector after testing; or (c) The sample is being stored by the sample collector before transport to a laboratory for testing; or (d) The sample is being stored in a laboratory before testing; or (e) The sample is being stored in a laboratory after testing but before it is returned to the sample collector; or (f) The sample is being stored temporarily in the laboratory after testing for a specific purpose (for example, until the conclusion of a court case or enforcement action where further testing of the sample may be necessary). To qualify the sample collector shipping samples to a laboratory or the laboratory returning samples to the sample collector must comply with the requirements of OAC 3745-51-04(D)(2) stipulating compliance with US DOT, USPS, or other applicable shipping requirements, sample documentation and packaging requirements.. NOTE: This exclusion is only valid as long as the conditions listed above are met.
___yes ___no	The material is a sample of a hazardous waste collected so that it can be subjected to a treatment process to determine: (1) whether the waste is amenable to the treatment process, (2) what pretreatment (if any) is required, (3) the optimal process conditions needed to achieve the desired treatment, (4) the efficiency of a treatment process for a specific waste or wastes, or (5) the characteristics and volumes of residuals from a particular treatment process and: (a) The sample is being collected and prepared for transportation by the generator or sample collector; (b) The sample is being accumulated or stored by the generator or sample collector prior to transportation to a laboratory or testing facility; or (c) The sample is being transported to the laboratory or testing facility for the purpose of conducting the treatability study. To qualify for this exemption, the generator or sample collector must comply with the requirements of OAC 3745-51-04(E)(2): (a) No more than 1000 kg total; 250 kg soils, water or debris contaminated with acute HW; or one kg acute HW; per waste stream, per process being evaluated; (b) Same mass limits as (a) imposed on each shipment of treatability study sample; (c) Shipping in accordance with US DOT, USPS, or applicable shipping requirements - additional information when shipped otherwise; (d) Sample shipped to a facility exempt under OAC 3745-51-04(F) or with appropriate permit or interim status; (e) The generator or sample collector keeps specified records for three years following completion of the treatability study; (f) The generator reports specific information on treatability study waste in its annual report. NOTE: This exclusion is only valid as long as the conditions listed above are met.
___yes ___no	The material is a sample undergoing a treatability study at a laboratory or testing facility and the facility meets the following eleven specific criteria identified under OAC 3745-51-04(F): (1) The facility has notified the Regional Administrator (RA) or State Director 45 days prior to conducting treatability studies; (2) The facility has a US EPA Identification Number; (3) No more than 250 kg of "as recieved" hazardous waste is subjected to initiation of treatment in a single day; (4) "As recieved" waste stored less than 1000 kg total; 500 kg soils, water or debris contaminated with acute HW; or one kg acute HW; (5) No more than 90 days has elapsed since the treatability study for the sample was complete or no more than one year has elapsed since the generator or sample collector shipped the sample to the facility, whichever date comes first; (6) The treatability study does not involve "placement" on the land or open burning of HW; (7) The facility maintains specific records that show compliance with the treatment rate limits and the storage quantity and time limits; (8) The facility keeps, onsite, a copy of the treatability study contract and all shipping papers for treatability samples; (9) The facility completes required reports to the Regional Administrator or State Director; (10) The facility either provides for disposal of unused samples and treatment residues in accordance with the hazardous waste rules, or returns unused samples and treatment residues to the sample originator under the exclusion at OAC 3745-51-04(E); (11) The facility notifies the RA or State Director by letter when the facility no longer plans to conduct treatability studies. NOTE: This exclusion is only valid as long as the conditions listed above are met.

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6.7.2 "Hazardous Waste Listings - Worksheet"

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This section provides implementing guidance for identifying listed hazardous waste at the FEMP and completing the "Hazardous Waste Listings - Worksheet," Form 6.7(b).

Listed Spent Solvents (F001 - F005)

The FEMP historically used solvents listed in F001 - F005. The three largest volume solvents used during production were 1,1,1-trichloroethane, trichloroethylene, and tetrachloroethylene (perchloroethylene). Additional uses of listed solvents to support facility operations included uses of thinners and strippers in the paint shop and during painting operations, and parts cleaning and degreasing operations conducted during maintenance activities. Finally, the onsite laboratory historically used and still uses listed solvents to carry out analytical procedures and for glassware cleaning.

Spent solvents at the FEMP have generally been managed as separate waste streams and identified as solvents when entered into the lot marking system (Material Type 013). However, prior to mixed waste regulation spent solvents were on occasion mixed with other liquid waste streams (e.g., used oil) and not identified as solvent waste.

Certain conditions must be met to determine that a waste meets the listing description in F001 - F005. First, the solvent must be used for its solvent properties. If the solvent is used as an ingredient or reactant in a commercial chemical product, then the solvent is not regulated under F001 - F005. For example, solvent based paints, inks, and adhesives being disposed of would not be regulated under a spent solvent listing (these materials may, however, exhibit one or more of the characteristics). Second, the solvent mixture must have contained, prior to use, a total of ten percent or more (by volume) of the listed constituents. The mere presence of a listed spent solvent constituent is **not** sufficient to identify a waste as a listed spent solvent waste. Knowledge must exist to determine that a material meets the conditions of the listing descriptions.

F003 covers certain non-halogenated solvents and is only listed for ignitability, unless it was part of a solvent mixture that contained, prior to use, 10% or more (by volume) of one of the solvents listed in F001, F002, F004, or F005, in which case it is listed for both ignitability and toxicity. Under the definition of hazardous waste, 261.3(a)(2)(iii), if a mixture of a waste that is listed in Subpart D solely because it exhibits one or more of the characteristics of hazardous waste no longer exhibits that characteristic, then it is not considered a hazardous waste unless it is an LDR nonwastewaters (i.e., TOC or total F-listed solvents greater than 1 percent). Nonwastewater F003 wastes are still subject to LDR requirements even if they no longer exhibit the characteristic of ignitability. Note that dilution of characteristic ignitable wastes is prohibited under land disposal restriction regulation unless the waste has less than 10% TOC.

Materials may be identified as spent solvents based on lot marking information, source or site of generation (e.g., contents of a solvent storage tank), or based on documented materials

management. Materials identified as spent solvents in this manner are sampled and analyzed to identify specific spent solvent constituents and to determine the materials status with respect to the Land disposal Restrictions (LDR) treatment standards.

When process knowledge does not initially indicate spent solvent usage, but analytical data show spent solvent constituents in a waste stream, process knowledge is reviewed to determine if there is a *reasonable* management (or mismanagement) scenario whereby the waste was mixed with, derived from, or came to contain a spent solvent. Review of process knowledge includes accessing spill reporting and upset condition logs or interviewing site personnel to determine if there is reasonable evidence to support decision making. For example, soil samples showing elevated levels of spent solvent constituents at the edge of a storage pad where there were documented spills of spent (used) solvents may support the determination that the media contain a listed spent solvent. Conversely, soil samples with elevated levels of spent solvent constituents from an area where solvents were neither stored nor used and where there is no record of spills supports the determination that the media (soils) do not contain a listed spent solvent. If the source of the constituents can not be positively determined to be from a spent solvent then the waste should not be identified as a listed spent solvent waste. The waste must, however, be evaluated with respect to the TC to determine if it exhibits the TC for any organic constituents.

Other Listed Waste from Non-specific and Specific Sources

Based on a review of current and historical FEMP operations, no other listed waste from non-specific sources (F listed waste in OAC 3645-51-31) or specific sources (K listed waste in OAC 3745-51-32) have been or are anticipated to be generated onsite. Each waste stream characterized, however, is evaluated to determine if it is a waste from a source not previously identified that meets a listing description in OAC 3745-51-31 to 32 or a newly promulgated HSWA listing under 40 CFR 261.31 to 32.

Listed Discarded Commercial Chemical Products

The laboratory is the most common source for discarded commercial chemical products at the FEMP. These wastes generally result from the cleanout of a spill of the unused product or a decision to discard outdated chemicals from the laboratory inventory. Discarded commercial chemical products are only regulated as hazardous waste where the chemical listed in OAC 3745-51-33 is the sole active ingredient. The commercial chemical products listings only apply to these materials if and when they are discarded. The listings are not applicable to wastes which incidentally contain substances listed in OAC 3745-51-33(E) and (F). [OSWER PD 9444.01(80) and 9444.01(81)]

Worksheet 6.7(c)
Hazardous Waste Listings

HAZARDOUS WASTE LISTINGS - WORKSHEET

MEF Number: _____ *Rev No.:* _____

This worksheet documents evaluation of this material to determine if it is a listed hazardous waste under 40 CFR 261 Subpart D/OAC 3745-51-30 to 33.

Usage of listed spent solvents at the facility requires explicit evaluation of each waste stream to determine if it meets the listing description of a spent solvents or is regulated as a listed spent solvent by virtue of the mixture or derived from rules. No other listed hazardous waste from non-specific (F-listed; 40 CFR 261.31/OAC 3745-51-31) or specific sources (K-listed; 40 CFR 261.32/OAC 3745-51-32) have been identified at the FEMP to date, however, each waste stream must also be explicitly evaluated to determine if any other F or K listings are potentially applicable. Certain wastes at the FEMP meet the listing description for discarded commercial chemical products, off-specification species, container residues, and spill residues thereof (P or U-listed; 40 CFR 261.33/OAC 3745-51-33) either directly or by virtue of the mixture or derived from rules. Therefore each waste stream must be explicitly evaluated to determine if any P or U listings apply to the waste stream. These evaluations are documented in sections A through C below.

A. LISTED SPENT SOLVENTS (F001-F005)

This waste stream does / does not (circle one) contain spent solvents listed under 40 CFR 261.31/OAC 3745-51-31 that were used for their solvent properties, and contained, before use, a total of ten percent or more (by volume) of the following solvent constituents, or meets the listing description by virtue of the mixture or derived from rule with regards to the following spent solvents:

___ acetone (F003)	___ methylene chloride (F001, F002)
___ benzene (F005)	___ methyl ethyl ketone (F005)
___ n-butyl alcohol (F003)	___ methyl isobutyl ketone (F003)
___ carbon disulfide (F005)	___ nitrobenzene (F004)
___ carbon tetrachloride (F001)	___ 2-nitropropane (F005)
___ chlorobenzene (F002)	___ pyridine (F005)
___ cresols (and cresylic acid) (F004)	___ tetrachloroethylene (F001, F002)
___ cyclohexanone (F003)	___ toluene (F005)
___ 1,2-dichlorobenzene (also called ortho-dichlorobenzene) (F002)	___ 1,1,1-trichloroethane (F001, F002)
___ 2-ethoxyethanol (also called ethylene glycol monoethyl ether) (F005)	___ 1,1,2-trichloroethane (F002)
___ ethyl acetate (F003)	___ 1,1,2-trichloro-1,1,2-trifluoroethane (F002)
___ ethyl benzene (F003)	___ trichloroethylene (F001, F002)
___ ethyl ether (F003)	___ trichlorotrifluoromethane (F002)
___ isobutanol (F005)	___ xylene (F003)
___ methanol (F003)	

Rationale for determination:

B. OTHER LISTED WASTES FROM NON-SPECIFIC AND SPECIFIC SOURCES (F006 and up, K-Listed Wastes

This waste stream does / does not (circle one) meet the listing description of a listed hazardous waste from a non-specific or specific source (i.e., non-spent solvent F-listed or K-listed waste), either directly or by virtue of the mixture or derived from rules.

Hazardous waste codes identified, if any:

Rationale for determination:

C. LISTED DISCARDED COMMERCIAL CHEMICAL PRODUCTS

This waste stream does / does not (circle one) meet the listing description of a listed discarded commercial chemical products, off-specification species, container residues, and spill residues thereof (i.e., P and U-listed wastes), either directly or by virtue of the mixture or derived from rules.

Hazardous waste codes identified, if any:

Rationale for determination:

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6.7.3 "Hazardous Waste Characteristics - Worksheet"

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This section provides guidance for completing the "Hazardous Waste Characteristics - Worksheet," Form 6.7(c).

Ignitability (D001)

Ignitable liquids: Flash point data are required for a definitive determination on flash point in all cases. When sufficient information exists, materials should be identified as ignitable while analytical data are pending. Such information may be obtained from MSDS or standard references when the material can be identified. Materials that should be considered for ignitability include F-listed solvents, non F-listed solvents (e.g., acetonitrile from the lab), solvent-based paints, paint thinners, gasoline, kerosene, and certain mineral spirits.

Solids having a flash point of less than 140°F do not meet the criteria for ignitable wastes; this part of the characteristic only applies to liquids. [OSWER PD 943.001A]

EPA intends the exception for aqueous liquids with less than 24% alcohol to apply to alcoholic beverages (the term "ethanol" should have been used rather than alcohol). [OSWER PD 9443.02(85)]. If a waste containing 0-24% alcohol has a flash point of less than 140°F it exhibits the characteristic of ignitability. [PD 9443.06(84) and PD 9443.07(85)]

Ignitable reactives: Wastes that exhibit this characteristic are primarily inorganic solids such as reactive alkali metals (sodium, potassium, etc.) and calcium carbide slags. These wastes will react with water and generate gases that can ignite due to the heat of reaction. Finely divided solids such as aluminum and magnesium can also react vigorously when ignited. EPA distinguishes between this class of wastes and characteristic reactive wastes by the need for ignition: ignitable reactives are hazardous when ignited; reactive wastes are extremely reactive even in the absence of an ignition source.

Ignitable compressed gases: These include primarily compressed gas cylinders and aerosol cans that use flammable propellants (e.g., propane).

Oxidizers: Oxidizers are primarily inorganic peroxides, perchlorates, nitrates, and permanganates. The presence of any amount of these materials does not indicate that a material is an oxidizer, rather, one or more of these substances must be present in a quantity sufficient to yield oxygen and stimulate combustion.

Corrosivity (D002)

Testing for pH only provides meaningful results on aqueous waste streams. Waste streams that are not aqueous must be evaluated more carefully and may require evaluation by the second property. The pH of the free liquid portion of a waste, as determined by the pain filter liquids test (SW-846 Method 9095), should be evaluated for corrosivity. [OSWER PD

9443.03(83)] Common examples of aqueous corrosive wastes include: spent acids/bases, certain wastewaters, and spent strippers and cleaners.

Non-aqueous wastes must be evaluated by the corrosivity toward steel test (NACE Standard TM-01-69). Standard reference material should be consulted to evaluate whether materials may potentially exhibit this characteristic. Some common examples of nonaqueous liquid wastes that exhibit the characteristic of corrosivity are: metal cleaners and etchants, concentrated acids that have no water content, certain resins and catalysts, and other organic and inorganic chemicals.

Physically (solid) waste forms are not regulated as corrosive hazardous wastes. The corrosivity definitions only apply to liquids. [OSWER PD 9443.09(84)]

Reactivity (D003)

In the LDR third-third rule, EPA clarified the difference between an ignitable reactive (covered under OAC 3745-51-21) and a reactive waste (covered under OAC 3745-51-23) indicating that an ignitable reactive waste requires an ignition source.

For cyanide and sulfide bearing wastes, EPA has established test methods for quantifying constituent levels (SW-846 Methods 9010 and 9030, respectively). Wastes within levels of cyanides or sulfides below 10 ppm are not considered reactive for cyanides/sulfides; wastes with cyanides/sulfides above 200 ppm would be considered reactive. [OSWER PD 9443.09(84)]

Standard references and the applicable DOT references are consulted in making determination regarding reactivity.

Toxicity Characteristic (D004 - D043)

In general a combination of process knowledge and sampling and analysis are used to characterize waste with respect to the Toxicity Characteristic (TC). EP toxicity data are not valid as a means of determining whether wastes fail the TC for metals and herbicides/pesticides. However, EP toxicity results may be used as knowledge of the waste to support a determination based on process knowledge. All process knowledge (i.e., EP toxicity results <u>and</u> other process knowledge supporting a determination) must be documented in the waste determination file.

Totals data may be used to evaluate whether a waste would fail the TC. For liquid waste streams, the waste itself is the extract, and totals results should be compared directly to the regulatory level. For completely (solid) waste streams, it totals results are less than 20 times greater than the regulatory level, then the waste stream may be determined to be nonhazardous (this accounts for the 20-fold dilution in the extraction procedure). See Step 1.2 of the TCLP Method (SW-846 Method 1311).

Under the TCLP, wastes must either have a particle size greater than 1 cm in its narrowest dimension (i.e., is capable of passing through a 9.5 mm--0.375 inch--standard sieve) or have surface area per gram of material equal to or greater than 3.1 cm^2. Surface area criteria are meant for filamentous (e.g., paper, cloth and similar) waste materials. See Step 7.1.3 of the TCLP Method (SW-846 Method 1311).

Certain wastes (e.g., oily wastes) are difficult to analyze using the TCLP and return highly variable results. Case-by-case decisions may be made to use an alternative approach for determining whether these waste streams fail the TC. A conservative approach is to analyze the waste at the totals level to determine if there is any potential for it to fail the TC. If the totals results exceed the regulatory value then the waste must be evaluated under the TCLP test.

TC Metals: All waste streams must be evaluated to determine if they fail the TC for one or more of the eight metals listed under OAC 3745-51-24 Table 1. These TC metals may be evaluated based on process knowledge or sampling and analysis results. Process knowledge determinations for TC metals requires knowledge of the waste matrix and composition. TC metals of concern can be found in a number of materials for specific metals:

Arsenic: CCA treated wood, rodenticides and insecticides may contain arsenic compounds.
Barium: Barium salts were used in a number of heat treating operations onsite.
Cadmium: Certain dust collector bags used cadmium springs to hold them in place. Certain batteries also have high levels of cadmium.
Chromium: Acidic materials stored in stainless steel tanks for extended periods of time may leach chromium to the material stored in the tanks.
Lead: Lead-acid batteries, lead-based paint, lead solder and flux, lead pipes and pipe dope are all sources of lead.
Mercury: Thermometers, barometers, vacuum pumps from gas chromatography (GC) instruments, older electrical switches, and certain batteries contain or use mercury.
Selenium: Used in electronics industry; no direct uses onsite.
Silver: Used in photographic chemicals (e.g., developer solution).

For batteries that potentially fail the TC, the following protocol may be used for testing:

- Batteries that are not designed to prevent disintegration after disposal should be cut up into small pieces before being tested using the TCLP;

- Batteries that are designed in such a matter to prevent disintegration after disposal may be tested (pending development of other tests) by using a salt water bath solution. If, after submersion for one month in such a solution, no leakage occurs, the product can be considered to be corrosion resistant. [OSWER PD 9443.05(83)]

A methodology developed for evaluated materials painted with lead-based paint has been developed for evaluating these materials to determine if they potentially fail the TC (reference memo).

TC Volatile Organics

All wastes must be evaluated to determine if they contain leachable levels of any of the volatile organics listed in the second grouping on the worksheet. Certain of these constituents are also listed spent solvent constituents. If a waste is determined to be a listed spent solvent, then the TC code does not need to be applied to the waste (e.g., spent perchloroethylene listed as F001 does not need to be identified as D039). Benzene may be present in non-weathered gasoline at above the regulatory level. Lower cut petroleum distillates (e.g., kerosene, diesel) are less likely to fail the TC for benzene. As a product of breakdown, 1,2-dichloroethane is often found in waste streams with listed spent halogenated solvents.

TC Semi-Volatile Organics

The third group of TC constituents is the semi-volatile organics (excluding pesticides/herbicides). Although these constituents are much less likely to be found in FEMP waste streams at above the regulatory level, all wastes must be explicitly evaluated to determine if they fail the TC for any of these constituents.

TC Pesticides/Herbicides

In general, adequate process knowledge exists to rule out the herbicides and pesticides (i.e., D012 - D017) for most process waste streams. Process knowledge to rule out pesticides/herbicides for waste streams generated outside production buildings requires a greater degree of process knowledge, including documentation of pesticide/herbicide usage onsite. Using records of pesticide/herbicide application rates onsite combined with corroborative sampling it has been demonstrated that no soils generated from areas where pesticides/herbicides have been applied fail the TC.

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Worksheet 6.7(d)
Hazardous Waste Characteristics

HAZARDOUS WASTE CHARACTERISTICS - WORKSHEET

MEF Number: _____ *Rev No.:* _____

This worksheet documents evaluation of this material to determine if it exhibits any of the characteristics of hazardous waste under 40 CFR 261.21 - 23 /OAC 3745-51-21 - 23.

A. IGNITABILITY (D001)		
Exhibits the Characteristic	Evaluation Criteria	Rationale
___ yes ___ no	It is a liquid, with flash point less than 140 F - 261.21(a)(1)/OAC 3745-51-21(A)(1)	
___ yes ___ no	It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard - 261.21(a)(2)/OAC 3745-51-21(A)(2)	
___ yes ___ no	It is an ignitable compressed gas as defined in 49 CFR 173.300 - 261.21(a)(3)/OAC 3745-51-21(A)(3)	
___ yes ___ no	It is an oxidizer as defined in 49 CFR 173.151 - 261.21(a)(4)/OAC 3745-51-21(A)(4)	

B. CORROSIVITY (D002)		
Exhibits the Characteristic	Evaluation Criteria	Rationale
___ yes ___ no	It is aqueous and has pH of less than or equal to 2 - 261.22(a)(1)/OAC 3745-51-22(A)(1)	
___ yes ___ no	It is aqueous and has pH of greater than or equal to 12.5 - 261.22(a)(1)/OAC 3745-51-22(A)(1)	
___ yes ___ no	It is a liquid and corrodes steel (SAE 1020) at a rate greater than 1/4 inch per year at a test temperature of 130 F as determined by the NACE test method - 261.22(a)(2)/OAC 3745-51-22(A)(2)	

C. REACTIVITY (D003)		
Exhibits the Characteristic	Evaluation Criteria	Rationale
___ yes ___ no	It is normally unstable and readily undergoes violent change without detonating - 261.23(a)(1)/OAC 3745-51-23(A)(1)	
___ yes ___ no	It reacts violently with water - 261.23(a)(2)/OAC 3745-51-23(A)(2)	
___ yes ___ no	It forms potentially explosive mixtures with water - 261.23(a)(3)/OAC 3745-51-23(A)(3)	
___ yes ___ no	When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment - 261.23(a)(4)/OAC 3745-51-23(A)(4)	
___ yes ___ no	It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment - 261.23(a)(5)/OAC 3745-51-23(A)(5)	
___ yes ___ no	It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement - 261.23(a)(6)/OAC 3745-51-23(A)(6)	
___ yes ___ no	It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure - 261.23(a)(7)/OAC 3745-51-23(A)(7)	
___ yes ___ no	It is a forbidden explosive as defined in 49 CFR 171.51, or a Class A explosive as defined in 49 CFR 173.53 or a Class B explosive as defined in 49 CFR 173.88 - 261.23(a)(8)/OAC 3745-51-23(A)(8)	

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Worksheet 6.7(e)
Hazardous Waste Characteristics (Cont.)

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HAZARDOUS WASTE CHARACTERISTICS - WORKSHEET

MEF Number: _____ *Rev No.:* _____

This worksheet documents evaluation of this material to determine if it exhibits any of the characteristics of hazardous waste under 40 CFR 261.24 /OAC 3745-51-2[illegible]

A. TOXICITY CHARACTERISTICS

Exhibits the Characteristic	HW Code	Constituent	Regulatory Level (mg/L)	TCLP Concentration (mg/L) (if in excess of Reg Level)	Rationale
___ yes ___ no	D004	arsenic	5.0		
___ yes ___ no	D005	barium	100.0		
___ yes ___ no	D006	cadmium	1.0		
___ yes ___ no	D007	chromium	5.0		
___ yes ___ no	D008	lead	5.0		
___ yes ___ no	D009	mercury	0.2		
___ yes ___ no	D010	selenium	1.0		
___ yes ___ no	D011	silver	5.0		
___ yes ___ no	D018	benzene	0.5		
___ yes ___ no	D019	carbon tetrachloride	0.5		
___ yes ___ no	D021	chlorobenzene	100.0		
___ yes ___ no	D022	chloroform	6.0		
___ yes ___ no	D028	1,2-dichloroethane	0.5		
___ yes ___ no	D029	1,1-dichloroethylene	0.7		
___ yes ___ no	D035	methyl ethyl ketone	200.0		
___ yes ___ no	D039	tetrachloroethylene	0.7		
___ yes ___ no	D040	trichloroethylene	0.5		
___ yes ___ no	D043	vinyl chloride	0.2		
___ yes ___ no	D023	o-cresol	200.0		
___ yes ___ no	D024	m-cresol	200.0		
___ yes ___ no	D025	p-cresol	200.0		
___ yes ___ no	D026	cresol	200.0		
___ yes ___ no	D027	dichlorobenzene	7.5		
___ yes ___ no	D030	2,4-dinitrotoluene	0.13		
___ yes ___ no	D032	hexachlorobenzene	0.13		
___ yes ___ no	D033	hexachlorobutadiene	0.5		
___ yes ___ no	D034	hexachloroethane	3.0		
___ yes ___ no	D036	nitrobenzene	2.0		
___ yes ___ no	D037	pentachlorophenol	100.0		
___ yes ___ no	D038	pyridine	5.0		
___ yes ___ no	D041	2,4,5-trichlorophenol	400.0		
___ yes ___ no	D042	2,4,6-trichlorophenol	2.0		
___ yes ___ no	D012	Endrin	0.02		
___ yes ___ no	D013	Lindane	0.4		
___ yes ___ no	D014	Methoxychlor	10.0		
___ yes ___ no	D015	Toxaphene	0.5		
___ yes ___ no	D016	2,4-D	10.0		
___ yes ___ no	D017	2,4,5-TP Silvex	1.0		
___ yes ___ no	D020	Chlordane	0.03		
___ yes ___ no	D031	Heptachlor	0.008		

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6.7.4 Completing LDR Notification Forms

The LDR information worksheet is used to collect specific information required to complete LDR determinations that is not necessarily required to complete the initial hazardous waste determination. This information is used for determining the treatability group, waste subcategories, and information with respect to the California list prohibitions and specific statutory prohibitions.

The LDR Addendum to the MEF is used for recording the actual notification information. There are three pages to the LDR Addendum. The first page is required for all notifications. It identifies the waste stream and provides information on the applicable treatment standards. This page provides a space for identifying materials which meet the definition of hazardous debris.

The second page of the LDR Addendum to the MEF provides the required notification information for listed spent solvents (F001 - F005). For listed spent solvents wastes the notification must identify all spent solvent constituents present in the waste.

The third page of the LDR Addendum to the MEF is used for identifying treatment standards for wastes which are subject to one or more of the California list prohibitions. Each of the California list prohibitions is provided on this page along with the treatment standard or statutory prohibition level. Most of the California list prohibitions have been superseded by more stringent treatment standards, with the exception of the prohibitions for liquid hazardous wastes with nickel or thallium over 134 or 130 ppm, respectively and hazardous waste with halogenated organic constituents (HOCs) greater than 1000 ppm.

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Worksheet 6.7(f)
LDR Information

LDR INFORMATION WORKSHEET

MEF Number: _____ *Rev No.:* ____

A. EPA HAZARDOUS WASTE NUMBERS

LIST ALL EPA HAZARDOUS WASTE NUMBERS FROM SECTION B OF THE MEF EVALUATION SECTION, OR "NONE":

B. TREATABILITY GROUP DATA

	Rationale
TOTAL ORGANIC CARBON (TOC):	
__ TOC < 1% __ TOC ≥ 1%	
TOTAL SUSPENDED SOLIDS (TSS):	
__ TSS < 1%; __ TSS ≥ 1%	
MEETS THE DEFINITION OF HAZARDOUS DEBRIS: ___ yes ___ no	

C. ADDITIONAL CALIFORNIA LIST RESTRICTIONS DATA

	Rationale
FREE LIQUIDS TEST (PFLT):	
__ free liquids ___ no free liquids	
CALIFORNIA LIST METALS (mg/l):	
___ Ni < 134; or ___ Ni ≥ 134 *and* ___ Tl < 130; or ___ Tl ≥ 130	
PCBs (mg/l):	
__ < 50; __ 50 ≤ PCBs < 500; __ ≥ 500	
HALOGENATED ORGANIC COMPOUNDS (mg/kg):	
__ < 1,000; __ 1,000 ≤ HOCs < 10,000; __ ≥ 10,000	

D. SUBCATEGORIES OTHER THAN THOSE DEFINED BY PART 261 REGULATIONS:

D001 Ignitable Liquids based on 261.21(a)(1):
___ low TOC non-wastewaters (TOC < 10%)
___ high TOC non-wastewaters (TOC ≥ 10%)

D002 Corrosive Liquids based on 261.22(a)(1)
___ acid subcategory (pH ≤ 2)
___ alkaline subcategory (pH ≥ 12.5)

D006 Toxicity Characteristic for cadmium
___ cadmium batteries

D008 Toxicity Characteristic for lead
___ lead acid batteries
___ radioactive lead solids

D009 Toxicity Characteristic for mercury
___ high mercury non-wastewaters - organics (total Hg ≥ 260 mg/kg)
___ high mercury non-wastewaters - inorganics (total Hg ≥ 260 mg/Kg)
___ low mercury non-wastewaters (total Hg < 260 mg/Kg)
___ elemental mercury contaminated with radioactive materials
___ hydraulic oil contaminated with mercury

U151 Mercury
___ elemental mercury contaminated with radioactive materials

FORM LDRWORK, Revision 1.0 7/8/93 wcpformldrwork.frl

Form 6.7(g)
LDR Addendum to the MEF - Notification Form

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Fernald Environmental Management Project
LDR ADDENDUM TO THE MEF - NOTIFICATION FORM (page 1/3)

If the waste identified on the referenced MEF was described by any hazardous waste numbers, then this form MUST be completed as the required notification under 40 CFR 268.7/OAC 3745-59-07 or 40 CFR 268.9/OAC 3745-59-09.

A. WASTE STREAM IDENTIFICATION			
1. MEF #: Revision No.:		2. Date Completed:	3. Material Type / Source Code of original material: Mat. Src.
4. Evaluator:		5. Phone No.:	6. Badge No./Co. Name:

Provide the following information for each hazardous waste code identified on the referenced MEF:

B. TREATMENT STANDARDS

		Subcategory				
Haz Waste No.	Treatability Group (WW/NW)	NONE	Description	Treatment Standard*. OR Five Letter TECH Code	40 CFR 268/OAC 3745-59 Reference	Applicable Variance, Extension, or Exemption (See Notes)

Provide reference for any variance, extension or exemption cited above:

*Numerical treatment standards are expressed in ppm. 40 CFR 268.41/OAC 3745-59-41 treatment standards are based on constituent concentration in the waste extract (based on TCLP analysis). 40 CFR 268.43/OAC 3745-59-43 treatment standards are based on constituent concentration in the waste (based on total waste analysis - TWA).

HAZARDOUS DEBRIS:

_____ The waste meets the definition of hazardous debris at 40 CFR 268.2(g) and is subject to the alternate treatment standards of 40 CFR 268.45.

_____ The waste does not meet the definition of hazardous debris defined at 40 CFR 268.2(g).

TREATMENT STANDARDS FOR SPENT SOLVENTS:

_____ The waste is described by one or more of the hazardous waste codes: F001, F002, F003, F004, or F005. See page 2 for treatment standards.

_____ The waste not is described by any of the following hazardous waste codes: F001, F002, F003, F004, or F005.

CALIFORNIA LIST PROHIBITIONS:

_____ The waste stream is subject to one or more of the California List prohibitions. See page 3 for treatment standards and/or statutory prohibition levels.

_____ The waste stream is not subject to any California List Prohibitions.

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Form 6.7(h)
LDR Addendum to the MEF - Notification Form (Cont.)

Fernald Environmental Management Project
LDR ADDENDUM TO THE MEF - NOTIFICATION FORM (page 2/3)

Listed Spent Solvent Wastes (F001 - F005)

MEF Number: _____ *Rev No.:* ____

If the waste identified on page 1 of the LDR ADDENDUM TO THE MEF - NOTIFICATION is described by any of the following hazardous waste codes: F001, F002, F003, F004, or F005, then this page MUST be completed and this information MUST accompany any shipment of this waste as part of the required notification/certification.

Circle all solvent constituents known to be present in the waste and the treatment standard that applies for the treatability group.

C. SOLVENT WASTE TREATMENT STANDARDS

F001 through F005 spent solvent constituents and their associated hazardous waste code(s)	Treatment Standard*		F001 through F005 spent solvent constituents and their associated hazardous waste code(s)	Treatment Standard*	
	Wastewaters	Nonwastewaters		Wastewaters	Nonwastewaters
acetone (F003)	0.28	160.0	methanol (F003)	5.6	0.75 (40 CFR 268.41)
benzene (F005)	0.070	3.7	methylene chloride (F001, F002)	0.089	33.0
n-butyl alcohol (F003)	5.6	2.6	methyl ethyl ketone (F005)	0.28	36.0
carbon disulfide (F005)	0.014	4.8 (40 CFR 268.41)	methyl isobutyl ketone (F003)	0.14	33.0
carbon tetrachloride (F001)	0.057	5.6	nitrobenzene (F004)	0.068	14.0
chlorobenzene (F002)	0 .057	5.7	2-nitropropane (F005)	((WETOX or CHOXD) fb CARBN) or INCIN (40 CFR 268.42)	INCIN (40 CFR 268.42)
cresols (m- and p- isomers) (F004)	0.77	3.2	pyridine (F005)	0.014	16.0
o-cresol (F004)	0.11	5.6	tetrachloroethylene (F001, F002)	0.056	5.6
cyclohexanone (F003)	0.36	0.75 (40 CFR 268.41)	toluene (F005)	0.08	28.0
1,2-dichlorobenzene (F002)	0.088	6.2	1,1,1-trichloroethane (F001, F002)	0.054	5.6
2-ethoxyethanol (also called ethylene glycol monoethyl ether) (F005)	INCIN or BIODG (40 CFR 268.42)	INCIN (40 CFR 268.42)	1,1,2-trichloroethane (F002)	0.030	7.6
ethyl acetate (F003)	0.34	33.0	1,1,2-trichloro-1,1,2-trifluoroethane (F002)	0.057	28.0
ethyl benzene (F003)	0.057	6.0	trichloroethylene (F001, F002)	0.054	5.6
ethyl ether (F003)	0.12	160.0	trichloromonofluoromethane (F002)	0.02	33.0
isobutanol (F005)	5.6	170.0	xylenes (total) (F003)	0.32	28.0

*All spent solvent treatment standards taken from 40 CFR 268.43/OAC 3745-59-43, unless otherwise noted. Numerical treatment standards are expressed in ppm. 40 CFR 268.43/OAC 3745-59-43 treatment standards are based on constituent concentration in the wastes (based on total waste analysis - TWA). 40 CFR 268.41/OAC 3745-59-41 treatment standards are based on constituent concentration in the waste extract (based on TCLP analysis).

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Form 6.7(i)
LDR Addendum to the MEF - Notification Form (Cont.)

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Fernald Environmental Management Project
LDR ADDENDUM TO THE MEF - NOTIFICATION FORM (page 3/3)

California List Prohibitions

MEF Number: _____ *Rev No.:* _____

If the waste identified on page 1 of the LDR ADDENDUM TO THE MEF - NOTIFICATION is identified as a California List waste, then this page MUST be completed and this information MUST accompany any shipment of this waste as part of the required notification/certification.

Identify all California List Prohibitions that apply to the waste covered under this notification in Section D below.

D. CALIFORNIA LIST PROHIBITIONS

Prohibition Applies	California List Prohibition	Treatment Standard or Statutory Prohibition Level	40 CFR 268/OAC 3745-59 or RCRA 3004(d) Reference
___ yes ___ no	Liquid hazardous waste, contains free cyanides at concentrations greater than or equal to 1,000 mg/L	Treat to a concentration less than 1,000 mg/L. No specific treatment method is required.	RCRA Section 3004(d)
___ yes ___ no (if yes mark each applicable constituent)	Liquid hazardous waste, including any free liquids associated with any solid or sludge, contains the following metals, (or elements) or compounds of these metals (or elements) at concentrations greater than or equal to the concentrations specified in RCRA Section 3004(d). Mark each applicable constituent: ___ arsenic and/or compounds (as As) ≥ 500 mg/L ___ cadmium and/or compounds (as Cd) ≥ 100 mg/L ___ chromium VI and/or compounds (as Cr VI) ≥ 500 mg/L ___ lead and/or compounds (as Pb) ≥ 500 mg/L ___ mercury and/or compounds (as Hg) ≥ 20 mg/L ___ nickel and/or compounds (as Ni) ≥ 134 mg/L ___ selenium and/or compounds (as Se) ≥ 100 mg/L ___ thallium and/or compounds (as Tl) ≥ 130 mg/L	Treat to a concentration less than the prohibition level. No specific treatment method is required.	RCRA Section 3004(d)
___ yes ___ no	Liquid hazardous waste, pH less than 2.0	DEACT Treat to pH greater than 2.0. No specific treatment method is required.	40 CFR 268.42 Table 2 OAC 3745-59-42 Table 2
___ yes ___ no	Liquid hazardous waste, contains PCBs greater or equal to 50 ppm, but less 500 ppm	Incinerate in accordance with the technical requirements of 40 CFR 761.70 or burned in high efficiency boilers in accordance with the technical requirements of 40 CFR 761.60. Thermal treatment must also be in compliance with the applicable regulations in 40 CFR Parts 264, 265, and 266.	40 CFR 268.42(a)(1)/ OAC 3745-59-42
___ yes ___ no	Liquid hazardous waste, contains PCBs greater than or equal to 500 ppm	Incinerate in accordance with the technical requirements of 40 CFR 761.70. Thermal treatment must also be in compliance with the applicable regulations in 40 CFR Parts 264, 265, and 266.	40 CFR 268.42(a)(1)/ OAC 3745-59-42
___ yes ___ no	Hazardous waste (with or without free liquids, but other than those wastes prohibited under 40 CFR 268.32(a)(3)), contains halogenated organic compounds (HOCs) identified in 40 CFR Appendix III greater than or equal to 1,000 ppm.	Incinerate in accordance with the requirements of 40 CFR 264, subpart O or 40 CFR 265, subpart O.	40 CFR 268.42(a)(2)/ OAC 3745-59-42
___ yes ___ no	Liquid hazardous waste that are primarily water, contains halogenated organic compounds (HOCs) identified in 40 CFR Appendix III greater than or equal to 1,000 mg/L, but less than 10,000 mg/L	Treat to a concentration of less than 1,000 mg/L. No specific treatment method is required.	40 CFR 268.32(a)(3)/OAC 3745-59-32

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7.0 Radioactive Waste

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DOE Order 5820.2A, titled Radioactive Waste Management, establishes the policies, guidelines, and minimum requirements by which DOE manages the radioactive and mixed waste and contaminated facilities. The provisions of this Order apply to all DOE elements and all contractors and subcontractors performing work that involves management of waste containing radioactivity and/or radioactively-contaminated facilities for DOE under the Atomic Energy Act (AEA) of 1954.

7.1 Low Level Radioactive Waste (LLRW)

Low level radioactive waste (LLRW) constitutes by far the largest category of radioactive waste regulated under DOE Order 5820.2A at the FEMP. LLRW is defined in 5820.2A as waste that contains radioactivity and is not classified as high level waste, transuranic waste, or spent nuclear fuel or 11(e)(2) byproduct material. In addition, test specimens of fissionable material, irradiated for research and development only, and not for the production of power or plutonium, may be classified as LLRW, provided the concentration of transuranic is less than 100 nCi/g.

The FEMP Performance Objective for Radioactive Waste Characterization specifies the methodology to be used for identifying radioactive waste. In general, wastes that originate from Controlled Areas at the FEMP are considered radioactive waste unless demonstrated otherwise through analysis or administrative controls. Figure 7.6 provides the decisionmaking criteria for determining whether a waste is radioactive or not.

The Nuclear Regulatory Commission (NRC) regulates radioactive waste for commercial facilities. Under NRC regulation, LLRW are classified into four different classes (Class A, B, C, and greater-than-Class C) based on the concentration of specific radionuclides in the waste. NRC requirements for disposal of LLRW are dependent on this waste classification which is provided in 10 CFR 61.55. The DOE Nevada Test Site (NTS) waste management areas do not accept any DOE comparable greater-than-Class C waste for disposal. The FEMP does not have in its inventory any waste that would meet this classification.

7.2 Transuranic Waste (TRU)

DOE Order 5820.2A defines transuranic waste as any waste, without regard to source or form, that is contaminated with alpha-emitting transuranium radionuclides (I.e., atomic number greater than 92) with half-lives greater than 20 years and concentrations greater than 100 nCi/g at the time of assay.

Materials Control & Accountability (MC&A) records indicate there are no materials at the FEMP with TRU concentrations above the 100 nCi/g level. The highest TRU concentrations found were associated with some materials that were determined through analysis to contain in one case up to 93,904 dpm/g (42 nCi/g). Although not a probable scenario at the FEMP,

consideration must be given to any processing of waste materials that could potentially concentrate the TRU nuclides to levels that cause them to be regulated as TRU waste.

7.3 High Level Waste (HLW)

High levels wastes are defined under DOE Order 5820.2A as the highly radioactive waste material that results from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any (solid) waste derived from the liquid, that contains a combination of transuranic waste and fission products in concentrations requiring permanent isolation. The FEMP does not have any materials that are defined as high level wastes.

7.4 Naturally Occurring and Accelerator-Produced Radioactive Material (NOARM)

DOE Order 5820.2A defines NOARM material as any radioactive material that can be considered naturally occurring and is not source, special nuclear, or byproduct material or that is produced in a charged particle accelerator. The FEMP does not have any material that was generated from a charged particle accelerator. DOE Order 5820.2A specifies NOARM material be managed in accordance with the 40 CFR 192 residual radioactive material guidelines, but that small amounts of NOARM may be managed as LLRW.

7.5 AEA Section 11(e) Byproduct Material

Doe Order 5820.2A defines byproduct material as:

a. Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the radiation incident to the process of producing or utilizing special nuclear material. For purposes of determining the applicability of the Resource Conservation and Recovery Act to any radioactive waste, the term "any radioactive material" refers only to the actual radionuclides dispersed or suspended in the waste substance. The nonradioactive hazardous waste component of the waste substance will be subject to regulation under the Resource Conservation and Recovery Act. [AEA Section 11(e)(1)]

b. The tailings or waste produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content. Ore bodies depleted by uranium solution extraction operations and which remain underground do not constitute "byproduct material." [AEA Section 11(e)(2)].

The waste in the K-65 silos (Silos 1 and 2) and the drummed thorium waste stream referred to as "Brazilian sludge" are examples of AEA Section 11(e)(2) byproduct material.

DOE Order 5820.2A specifies that AEA Section 11(e)(2) byproduct material be managed in

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accordance with 40 CFR 192 residual radioactive material guidelines, but that small amounts may be managed as LLRW.

7.6 Mixed Waste

Mixed waste is defined by DOE Order 5820.2A as waste containing both radioactive and hazardous components as defined by the AEA and RCRA, respectively. The FEMP has a discrete inventory of mixed waste in storage onsite and is currently assessing options for waste inventory reduction.

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8.0 Polychlorinated Biphenyls (PCB) Waste 5690

Certain wastes that contain or have been in contact with polychlorinated biphenyls (PCBs) are regulated under the Toxic Substances Control Act (TSCA) as PCB wastes. The federal regulations that identify the materials that are regulated and have specified management and treatment/disposal requirements are codified at 40 CFR 761. Section 8.1 provides guidance for identifying PCB waste at the FEMP. The following definitions excerpted from 40 CFR Part 761.3 will help orient the reader for using the guidance. Additional definitions are provided as necessary in the narrative accompanying the decision diagrams.

"PCB waste(s)" means those PCBs and PCB Items subject to the storage and disposal requirements of 40 CFR, Subpart D.

"PCB" and "PCBs" means any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substance. Most of the provisions of 40 CFR 761, Subpart D apply to PCBs only if PCBs are present at concentrations of 50 ppm or above. Note, however, that no provision specifying a PCB concentration may be avoided as a result of dilution, unless specifically provided.

"PCB Item" is defined as any PCB Article, PCB Article Container, PCB Container, or PCB Equipment, that deliberately or unintentionally contains or has as a part of it any PCBs.

"PCB Article" means any manufactured article, other than a PCB Container, that contains PCBs and whose surface(s) has been in direct contact with PCBs. "PCB Article" includes capacitors, transformers, electric motors, pumps, pipes and any other manufactured item (1) which is formed to a specific shape or design during manufacture, (2) which has end use function(s) dependent in whole or in part upon its shape or design, and (3) which has either no change of chemical composition during its end use or only those changes of composition which have no commercial purpose separate from that of the PCB Article.

"PCB Article Container" means any package, can, bottle, bag, barrel, drum, tank, or other device used to contain PCB Articles or PCB Equipment, and whose surface(s) has not been in direct contact with PCBs.

"PCB Container" means any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB Articles and whose surface(s) has been in direct contact with PCBs.

"PCB Equipment" means any manufactured item, other than a PCB Container or PCB Article Container, which contains a PCB Article or other PCB Equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures.

Figure 8.1(a)
Regulated PCB Waste

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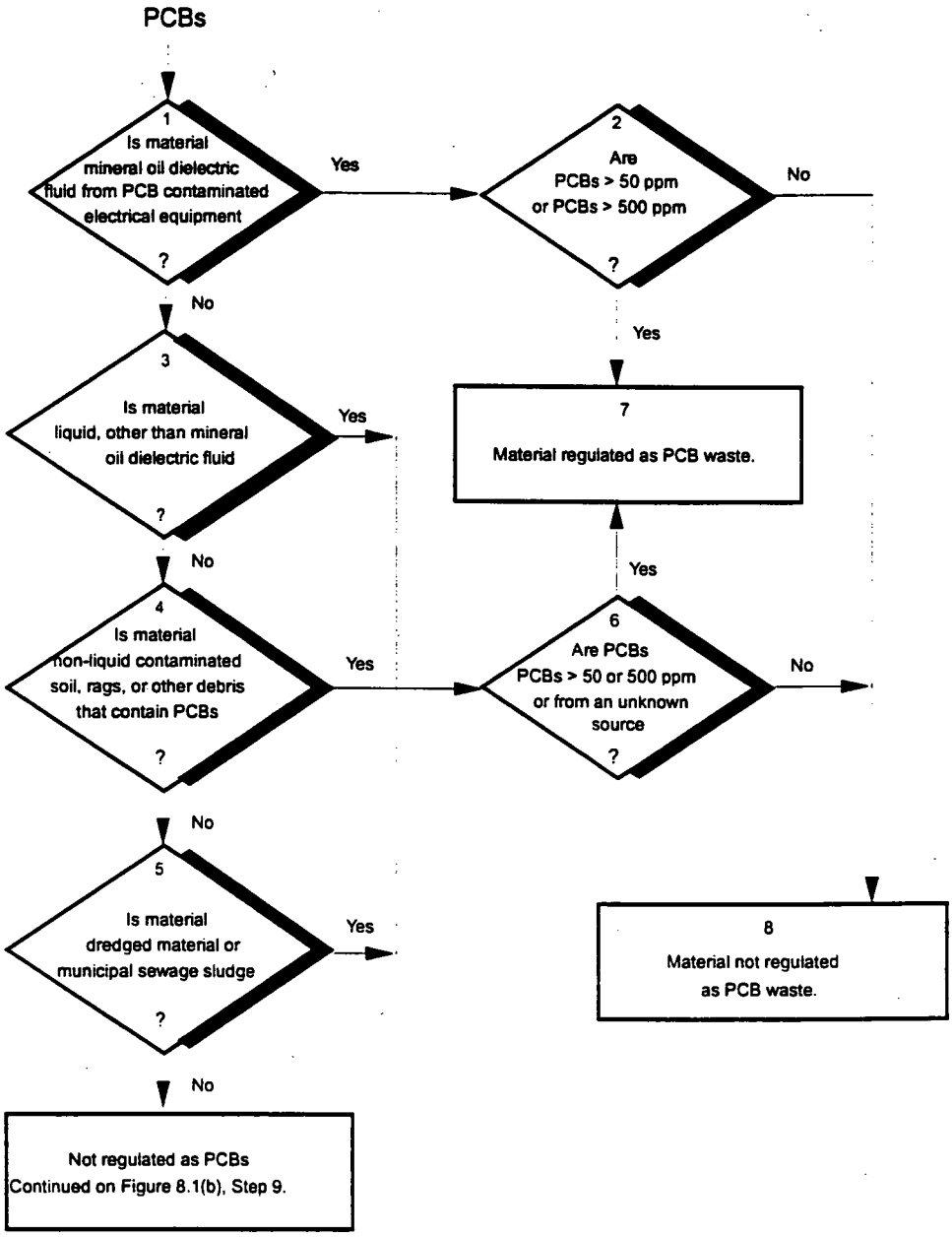

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8.1 Regulated PCB Waste

PCBs

PCB and PCBs means any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substance. Most of the provisions of 40 CFR 761, Subpart D apply to PCBs only if PCBs are present at concentrations of 50 ppm or above. Note, however, that no provision specifying a PCB concentration may be avoided as a result of dilution, unless specifically provided.

Step 1 "PCB-contaminated electrical equipment" means any electrical equipment, including but not limited to transformers (including those used in railway locomotives and self-propelled cars), capacitors, circuit breakers, reclosers, voltage regulators, switches (including sectionalizers and motor starters), electromagnets, and cable, that contain 50 ppm or greater PCB, but less than 500 ppm PCB. Oil filled electrical equipment other than circuit breakers, reclosers, and cable whose PCB concentration is unknown must be assumed to be PCB-contaminated electrical equipment.

Step 2 If the PCBs in this fluid are greater than 50 ppm, they are regulated as PCB waste. If the PCB concentration is between 50 and 500 ppm, the fluid must be disposed of in accordance with 40 CFR 761.60(a)(2). If the PCB concentration is greater than 500 ppm, the fluid must be disposed of in accordance with 40 CFR 761.60(a)(1) which specifies disposal in an incinerator which complies with 40 CFR 761.70.

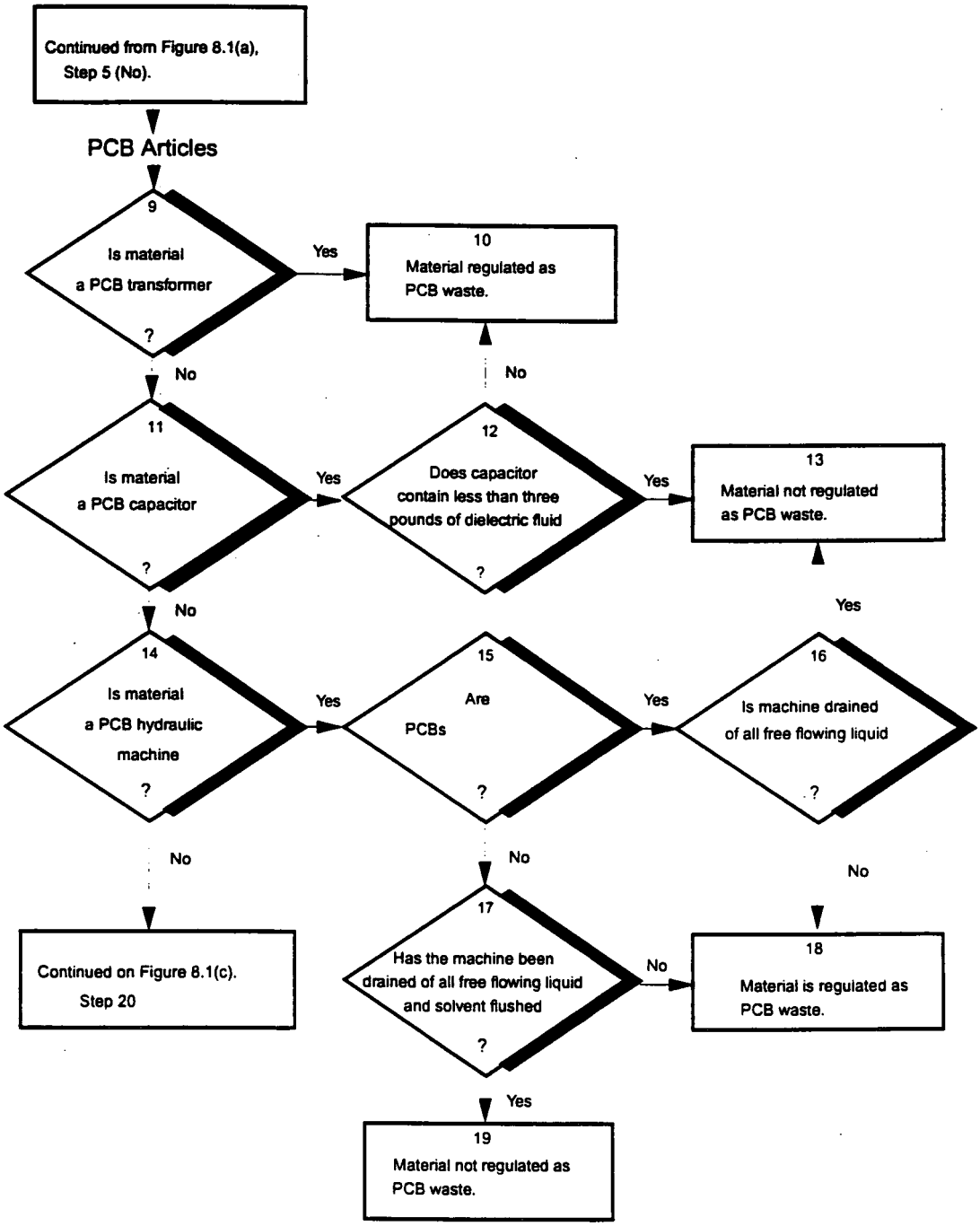
Steps 3 - 5 When these materials are contaminated with PCBs, through intentional or unintentional spills, leaks, and other uncontrolled discharges, they may be regulated as PCB waste(s). NOTE: These categories do not include PCB Articles, PCB Article Containers, PCB Containers, or PCB Equipment.

Step 6 The concentration of PCBs in these materials is determined by the concentration of PCBs spilled as opposed to the concentration of PCBs in the material onto which the PCBs were spilled. Where a spill of untested mineral oil occurs, the oil is presumed to contain greater than 50 ppm, but less than 50 ppm PCBs.

Step 7 When the materials identified in steps 3, 4, and 5 contain greater than 50 ppm PCBs they are subject to the disposal requirements of 40 CFR 761.60(a)(3), (4), and (5), respectively, or the requirements of 40 CFR 761.60(a)(1).

Step 8 When the materials identified in Steps 3, 4, and 5 contain less than 50 ppm PCBs they are not regulated as PCB waste. NOTE: remember that PCB concentration in these wastes is determined by the concentration of PCBs spilled as opposed to the concentration of PCBs in the material onto which the PCBs were spilled.

Figure 8.1(b)
Regulated PCB Waste (Cont.)



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8.1 Regulated PCB Waste (cont.)

PCB ARTICLES

PCB articles are defined as any manufactured article, other than a PCB Container, that contains PCBs and whose surface(s) has been in direct contact with PCBs. PCB articles include capacitors, transformers, electric motors, pumps, pipes, and any other manufactured item (1) which is formed to a specific shape or design during manufacture, (2) which has end use function(s) dependent in whole or in part upon its shape or design during end use, and (3) which has either no change in chemical composition during its end use or only those changes of composition which have no commercial purpose separate from that of a PCB article.

Step 9 PCB transformers are defined as any transformer that contains 500 ppm PCBs or greater. [40 CFR 761.30]

Step 10 PCB transformers are regulated as PCB waste. [40 CFR 761.60(b)(1)]

Step 11 Capacitors are defined as devices for accumulating and holding a charge of electricity and consisting of surfaces separated by a dielectric. [40 CFR 761.3]

Step 12 Capacitors that contain less than 3 pounds of dielectric fluid are defined as "small capacitors" and are not regulated as PCB waste *unless* they are owned by a person who manufactures or at one time manufactured PCB capacitors or PCB equipment and acquired the capacitors in the course of such manufacturing.

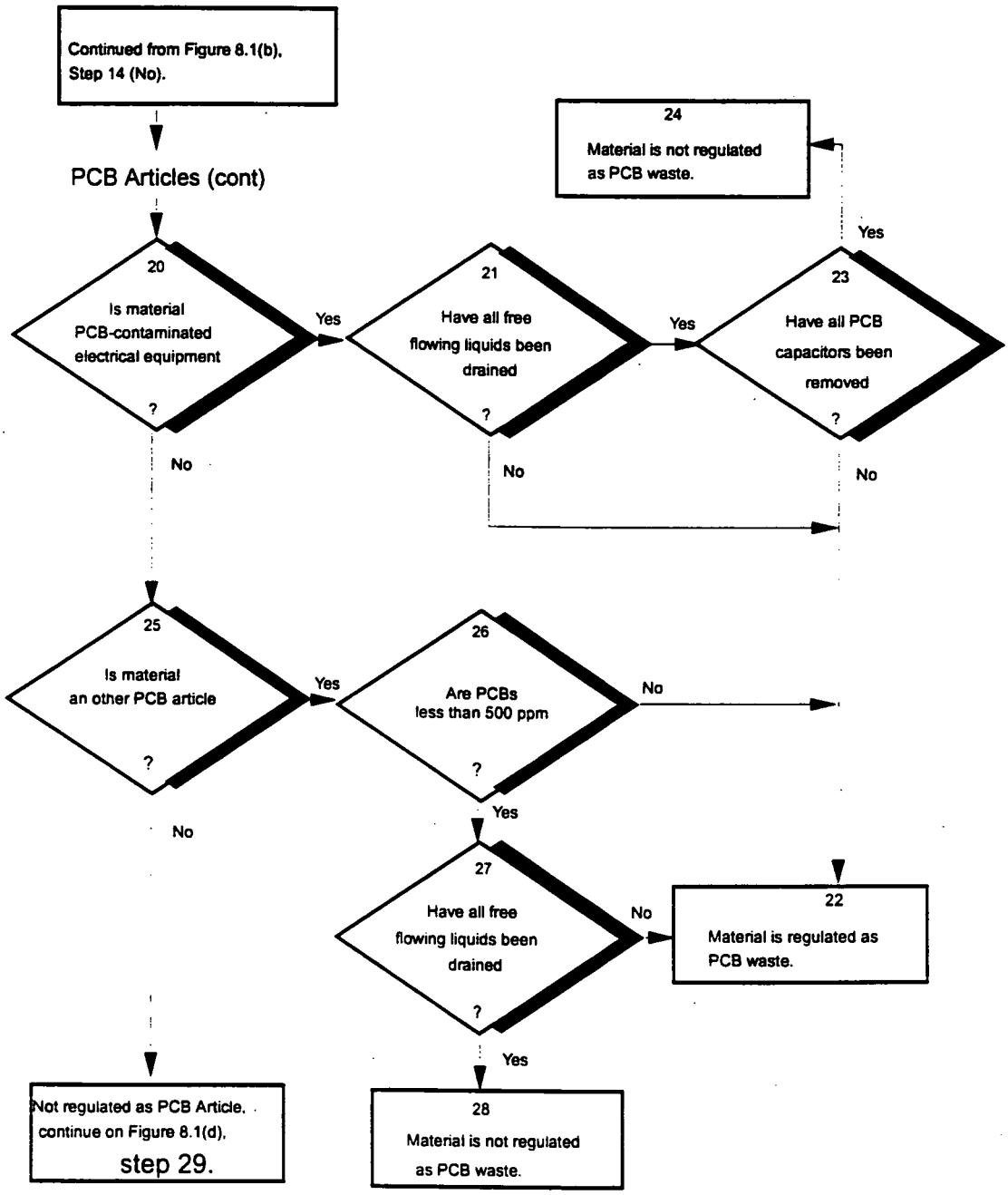
A capacitor whose total volume is less than 100 cubic inches may be considered to contain less than 3 pounds of dielectric fluid. Capacitors with total volume of greater than 200 cubic inches must be considered to contain greater than 3 pounds of dielectric fluid and are defined as "large capacitors." Capacitors whose total volume is between 100 and 200 cubic inches may be assumed to contain less than 3 pounds of dielectric fluid if the capacitor weighs less than 9 pounds. [40 CFR 761.3 and 761.60(b)(2)]

Step 13 Large capacitors are regulated as PCB waste. [40 CFR 761.60(b)(2)]

Steps 14 - 19 Hydraulic machines, such as die casting machines, that contain 50 ppm or greater PCBs are defined as PCB articles.

PCB hydraulic machines are not regulated as PCB waste if they contain PCBs less than 1000 ppm and all free flowing liquid has been drained and disposed of in accordance with 40 CFR 761.60(a). PCB hydraulic machines that contained 1000 ppm or greater PCBs must be flushed prior to disposal with a solvent containing less than 50 ppm PCBs. Appropriate solvents are listed under 40 CFR 761.60(b)(1)(i)(B). [40 CFR 761.60(b)(4)]

Figure 8.1(c)
Regulated PCB Waste (Cont.)



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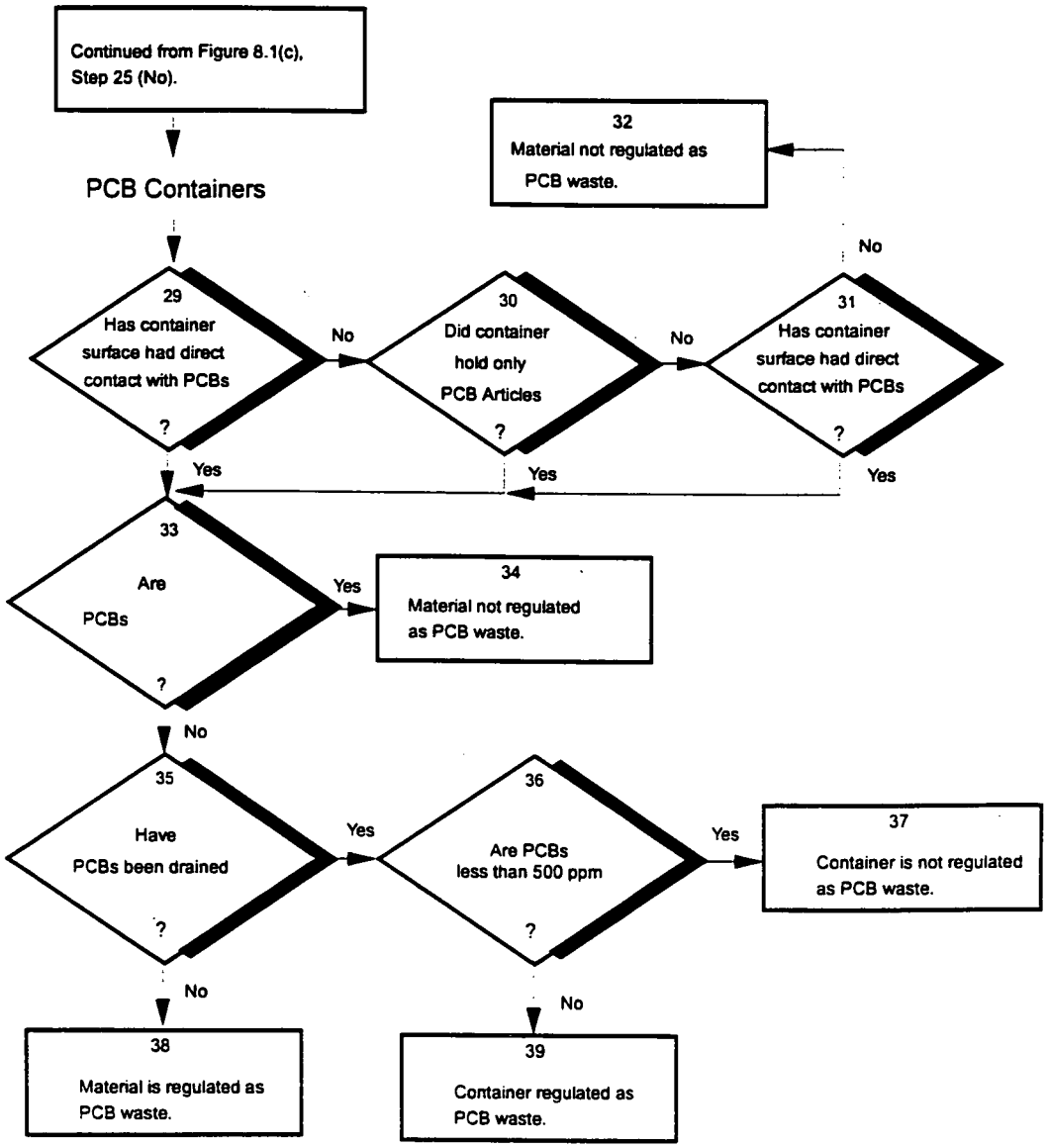
8.1 Regulated PCB Waste (cont.)

Step 20 PCB contaminated electrical equipment is any electrical equipment, including but not limited to, transformers (including those used in railway locomotives and self-propelled cars), capacitors, circuit breakers, reclosers, voltage regulators, switches (including sectionalizers and motor starters), electromagnets, and cable, that contain 50 ppm or greater PCBs, but less than 500 ppm PCBs. Oil-filled electrical equipment other than circuit breakers, reclosers, and cable whose PCB concentration is unknown must be assumed to be PCB-contaminated electrical equipment

Steps 21 - 24 If all free flowing liquid is drained and capacitors removed then PCB-contaminated electrical equipment is not regulated as PCB waste. If these two conditions are not met, then the equipment is regulated as PCB waste. Disposal of PCB capacitors must comply with the requirements of 761.60(b)(2). [40 CFR 761.60(b)(4)]

Steps 25 - 28 *Other PCB articles* with 500 ppm PCBs or greater are regulated as PCB waste. *Other PCB articles* with PCB concentration between 50 and 500 ppm are not regulated as PCB waste provided all free flowing liquids have been drained and disposed of in accordance with 761.60(a).

Figure 8.1(d)
Regulated PCB Waste (Cont.)



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8.1 Regulated PCB Waste (cont.)

PCB CONTAINERS

PCB containers are defined as any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB articles and whose surface(s) has been in direct contact with PCBs.

Steps 29 - 32 PCB article containers whose surface(s) have not had direct contact with PCBs are not regulated as PCB waste. [40 CFR 761.3]

Steps 33 - 34 PCB containers that contained PCBs less than 50 ppm are not regulated as PCB waste.

Steps 35 - 37 PCB containers that held PCBs with concentration between 50 and 500 ppm are not regulated as PCB waste provided all PCBs have been drained. [40 CFR 761.60(c)(2)]

Step 38 PCB containers that held PCBs with concentration between 50 and 500 ppm are regulated as PCB waste if all PCBs have not been drained. [40 CFR 761.60(c)(2)]

Step 39 Unless decontaminated in accordance with 40 CFR 761.79, PCB containers that held PCBs with concentration greater than 500 ppm are regulated as PCB waste regardless of whether all PCBs have been drained. [40 CFR 761.60(c)(1)]

8.2 Completing PCB Waste Worksheets

This section provides instructions for completing the TSCA PCB Regulated Waste Worksheet. This worksheet must be completed and included in the characterization file along with the other waste characterization worksheets.

Complete Section A with the requested information. This information provides the means to relate this worksheet to the rest of the information in the waste characterization file.

Complete Section B of the worksheet by indicating whether the waste stream meets any of the criteria for regulation as TSCA regulated PCB waste. For each criteria, or for specific groups of criteria, provide the rationale for determining whether or not the waste stream meets the criteria. If the waste stream does not meet any of the criteria (i.e., all responses "no") then the waste stream is not regulated as PCB waste. If any of the criteria are met, then the waste stream is regulated as PCB waste.

In certain cases it may be necessary to sample the waste stream to determine if it meets a criteria based on a PCB concentration threshold. For example, mineral oil dielectric fluids may require testing for PCBs if information on the PCB content is not already known through process knowledge. Process knowledge may include information from the nameplate on a piece of equipment or a conversation report with the manufacturer of a PCB article. Process knowledge may also include documentation of material control (i.e., lot marking information) to conclude that the material was not generated in an area where it could have become contaminated with PCBs.

When a waste stream is identified as PCB waste, the waste characterization personnel must provide a notification to the technical lead for the PCB component of Removal Action 9 to ensure compliance with the regulatory requirements for management of PCB waste and to plan for material disposition. In addition, the technical lead for the PCB component of RA 9 may be contacted as an information resource for completing waste characterizations.

Worksheet 8.2
TSCA Regulated PCB Waste

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TSCA Regulated PCB Waste - WORKSHEET

MEF Number: _____ *Rev No.:* _____

This worksheet documents evaluation of this material to determine if it is regulated under TSCA as PCB waste.

A. TSCA REGULATED PCB WASTE CRITERIA (materials regulated as PCB waste)		
Meets the criteria?	Criteria to Identify Regulated PCB Waste(s)	Rationale
__ yes __ no	Mineral oil dielectric fluid from PCB-contaminated electrical equipment with PCBs greater than 500 ppm **OR** liquids, other than mineral oil dielectric fluid, containing PCBs from a source greater than 500 ppm or from a spill of untested mineral oil dielectric fluid. NOTE: For liquids, concentration in the liquid determined by the concentration of the PCBs in the source material not in the liquids themselves. 40 CFR 761.60(a)(1).	
__ yes __ no	Mineral oil dielectric fluid from PCB-contaminated electrical equipment with PCBs greater than 50 ppm but less than 500 ppm. 40 CFR 761.60(a)(2).	
__ yes __ no	Liquids, other than mineral oil dielectric fluid, containing PCBs greater than 50 ppm but less than 500 ppm. NOTE: Concentration in the liquid determined by the concentration of the PCBs in the material which gave rise to the liquids. 40 CFR 761.60(a)(3).	
__ yes __ no	Non-liquid PCB-contaminated soil, rags, or other debris with PCBs greater than 50 ppm. NOTE: For soil, rags, and other debris, the concentration in the material is determined by the concentration of the PCBs in the source material not in the material itself. 40 CFR 761.60(a)(4).	
__ yes __ no	Dredged materials or municipal sewage sludge that contains PCBs greater than 50 ppm. NOTE: For dredged materials and municipal sewage sludge, the concentration in the material is determined by the concentration of the PCBs in the source material not in the material itself. 40 CFR 761.60(a)(5).	
__ yes __ no	PCB transformer. NOTE: PCB transformers contain, by definition, PCBs greater than 500 ppm. 40 CFR 761.60(b)(1).	
__ yes __ no	"Large" high or low voltage PCB capacitor. 40 CFR 761.60(b)(2).	
__ yes __ no	PCB hydraulic machine with PCBs greater than 50 ppm not drained of fluids OR PCB hydraulic machine with PCBs greater than 1000 ppm not drained of fluids and solvent flushed. 40 CFR 761.60(b)(3).	
__ yes __ no	PCB contaminated electrical equipment all fluids not drained OR all regulated PCB capacitors not removed. 40 CFR 761.60(b)(4).	
__ yes __ no	Other PCB article, PCBs greater than 50 ppm and all fluids not drained OR other PCB articles with PCBs greater than 500 ppm. 40 CFR 761.60(b)(5).	
__ yes __ no	PCB container not drained OR PCB container drained but held PCBs greater than 500 ppm and not decontaminated in accordance with 40 CFR 761.79. 40 CFR 761.60(c).	
__ yes __ no	Materials contaminated from a spill of PCBs greater than 500 ppm (concentration of PCBs spilled is determined by the PCB concentration in the material spilled as opposed to the concentration of PCBs in the material onto which the PCBs were spilled). Where a spill of untested mineral oil occurs, the oil is presumed to contain greater than 50 ppm, but less than 500 ppm PCBs. Soils at the FEMP are considered PCB-contaminated if the soils contain greater than 2 ppm of PCBs (See Removal Action 17). 40 CFR 761.60(d).	
__ yes __ no	Materials contaminated from a spill of PCBs between 50 and 500 ppm (concentration of PCBs spilled is determined by the PCB concentration in the material spilled as opposed to the concentration of PCBs in the material onto which the PCBs were spilled). Where a spill of untested mineral oil occurs, the oil is presumed to contain greater than 50 ppm, but less than 500 ppm PCBs. Soils at the FEMP are considered PCB-contaminated if the soils contain greater than 2 ppm of PCBs (See Removal Action 17). 40 CFR 761.60(d).	

FORM PCB, Revision 1.0 07/01/93 wcpform\pcb.fr1

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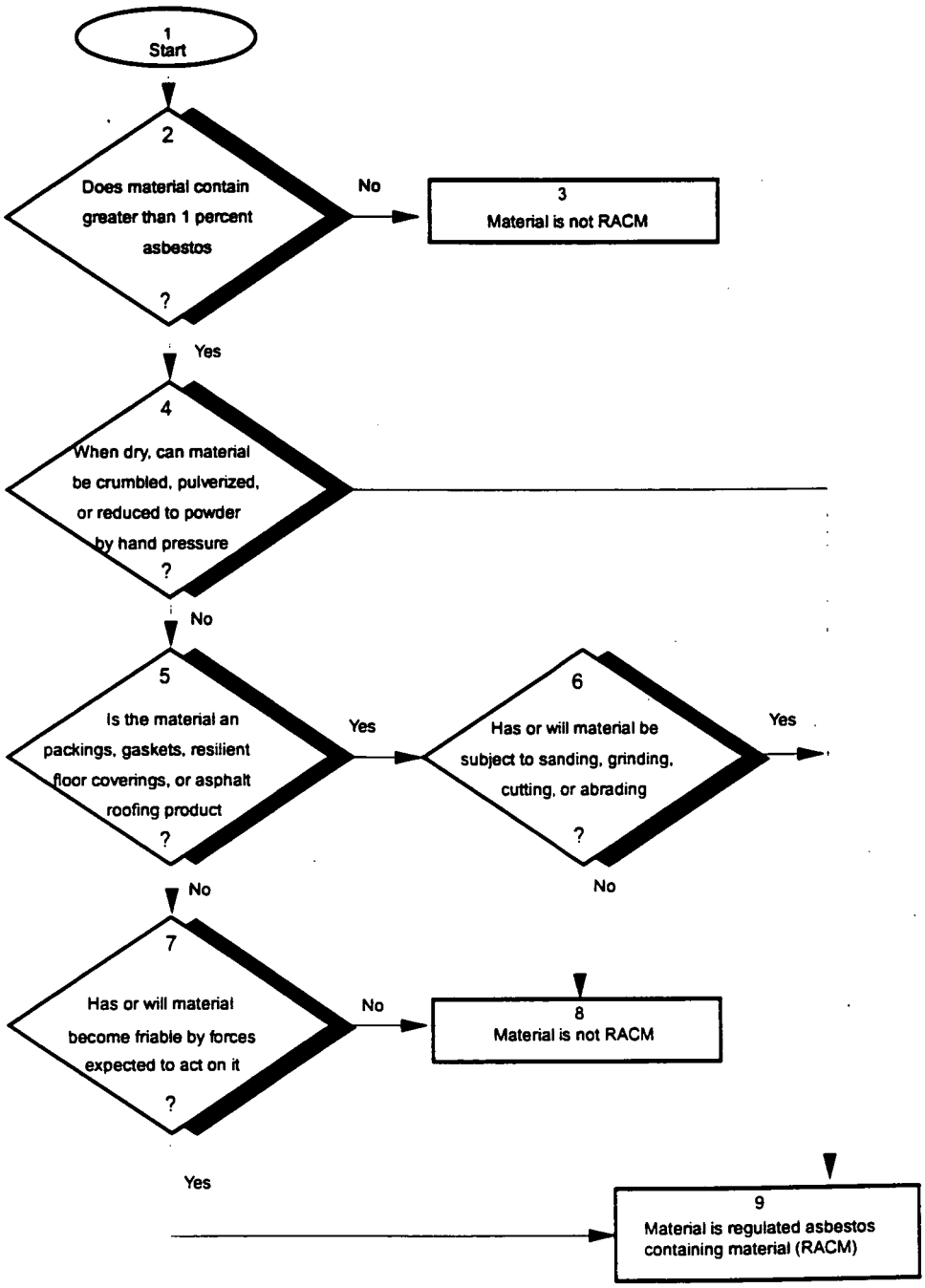
9.0 Asbestos-Containing Waste Material

Certain materials are regulated under the Clean Air Act (CAA) National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Asbestos at 40 CFR Part 61. In accordance with these regulations, asbestos-containing waste materials must be managed and disposed of in prescribed manners. The following section presents the criteria for identifying wastes that are identified as asbestos-containing waste materials at the FEMP. Proper identification of these wastes allows for appropriate management of the waste disposition of these materials from the FEMP as the facility proceeds through its safe shutdown and environmental restoration initiatives.

Asbestos-containing waste materials are either regulated asbestos containing materials (RACM) or materials that have become contaminated by asbestos during renovation or demolition activities to remove RACM. Section 9.1 provides an overview of the criteria for identifying RACM. Section 9.2 provides instructions on completing the characterization worksheet for asbestos-containing waste material.

Figure 9.1
Regulated Asbestos Containing Material



9.1 Regulated Asbestos Containing Material (RACM)

Step 1 Regulated asbestos containing materials (RACM) must be disposed of in accordance with the CAA Asbestos NESHAPs codified in 40 CFR Part 61.

Step 2 Polarized Light Microscopy (PLM) is the specified method used for determining if materials contain greater than one percent asbestos. This method is provided in Appendix F of 40 CFR Part 763, Section 1.

Step 3 Materials that contain less than one percent asbestos are not regulated as asbestos containing material (ACM) regardless of their other characteristics.

Step 4 Friable asbestos material is identified as any material containing more than one percent asbestos that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

Step 5 Category I non-friable ACM is defined as asbestos-containing packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than one percent asbestos that when dry, cannot be crumbled, pulverized, or reduced to powder by hand.

Step 6 If Category I non-friable ACM has or will be subject to sanding, cutting, grinding, or abrading, then the material is RACM.

Step 7 Category II non-friable asbestos is defined as any material, excluding Category I ACM, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Step 8 If Category II ACM has a high probability of becoming, or has become crumbled, pulverized, or reduced to powder by the forces expected to act on it in the course of demolition or renovation operations regulated by 40 CFR Subpart M.

9.2 Completing Asbestos-Containing Waste Material Worksheet

This section provides instructions for completing the Asbestos-Containing Waste Material Worksheet. This worksheet must be completed and included in the characterization file along with the other waste characterization worksheets.

Complete Section A with the requested information. This information provides the means to relate this worksheet to the rest of the information in the waste characterization file.

Complete Section B of the worksheet by indicating whether the waste stream meets any of the criteria for regulation as RACM or is an other waste material that has become contaminated with asbestos as a result of renovation or demolition activities. For each criteria, or for specific groups of criteria, provide the rationale for determining whether or not the waste stream meets the criteria. If the waste stream does not meet any of the criteria (i.e., all responses "no") then the waste stream is not asbestos-containing waste material. If any of the criteria are met, then the waste stream must be managed as asbestos-containing waste material.

In general, process knowledge may be used to determine if the material under evaluation is ACM (i.e., asbestos greater than 1 percent). In cases where process knowledge is inconclusive as to the asbestos content of a material, sampling and analysis may be required. WCS should coordinate any request for sampling and analysis for asbestos with the asbestos lead from the Clean Air Program (CAP) under the FERMCO Environmental Protection Division. Likewise, CAP staff are available to assist WCS personnel in determining whether ACM meets the criteria for regulation as RACM (i.e., by being friable, Category I ACM subject to sanding, cutting, grinding, or abrading; or Category II ACM with a high probability of becoming friable by the forces expected to act on it in the course of demolition or renovation operations).

Worksheet 9.2
Regulated Asbestos-Containing Waste Materials

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Regulated Asbestos-Containing Waste Materials - WORKSHEET

MEF Number: _____ *Rev No.:* _____

This worksheet documents evaluation of this material to determine if it is regulated under the CAA Asbestos NESHAPs as asbestos- containing waste materials subject to the disposal requirements of 40 CFR 61.150 for demolition and renovation operations.

A. CAA ASBESTOS NESHAPS - REGULATED ASBESTOS-CONTAINING WASTE MATERIALS

Regulated Material?	Evaluation Criteria	Rationale
___ yes ___ no	The material is friable asbestos material. Friable asbestos material contains greater than 1 percent asbestos and, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. [40 CFR 61.150 and definitions at 40 CFR 61.141]	
___ yes ___ no	Category I nonfriable asbestos containing material (ACM) that has become friable. "Category I non-friable ACM" means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing greater than 1 percent asbestos. [40 CFR 61.150 and definitions at 40 CFR 61.141]	
___ yes ___ no	Category I nonfriable ACM that will be or has been subject to sanding, grinding, cutting, or abrading. "Cutting" means to penetrate with a sharp-edged instrument and includes sawing, but does not include shearing, slicing, or punching. "Grinding" means to reduce to powder or small fragments by mechanical chipping or drilling. [40 CFR 61.150 and definitions at 40 CFR 61.141]	
___ yes ___ no	Category II nonfriable ACM that has a high probability of becoming, or has become, crumbled, pulverized, or reduced to powder by the forces expected to act on the material. "Category II non-friable ACM" is any material, excluding Category I non-friable ACM, containing more than 1 percent asbestos, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. [40 CFR 61.150 and definitions at 40 CFR 61.141]	
___ yes ___ no	Other waste materials that have become contaminated with asbestos as a result of renovation or demolition activities. Such material may include disposable equipment and contaminated clothing. [40 CFR 61.150 and definitions at 40 CFR 61.141]	

FORM RACM, Revision 2.0 7/7/93 wcpform\racm.fr1

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10.0 Infectious Waste

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The State of Ohio has promulgated rules which regulate the management, treatment and disposal of infectious waste. The Ohio infectious waste rules, codified in the Ohio Administrative Code (OAC) at 375-27-01 through 37, establish standards which generators, transporters, and treatment facilities must comply with in managing infectious waste in the State of Ohio. The definition of infectious waste is found in OAC 3745-27-01(V). The following section presents general guidance for identifying infectious waste pursuant to the Ohio regulations and provides implementing guidance for documenting the status of materials at the FEMP with respect to these regulations.

10.1 Completing Infectious Waste Worksheets

The criteria for identifying infectious waste are straight forward. The only significant source of potential infectious waste on-site is from medical services. Infectious waste from FEMP medical services are managed according to Ohio infectious waste law/regulation [ORC 3734 and OAC 3745-27-01 thru 25) which requires segregated packaging at the point of generation. Materials are placed in a red bag in a box premarked with the international biohazard label. These boxes are then transported by a registered transporter to a licensed treatment facility.

Worksheet 10.1
Infectious Waste

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Infectious Waste - WORKSHEET

MEF Number: _____ *Rev No.:* _____

This worksheet documents evaluation of this material to determine if it is regulated as infectious waste as defined under the Ohio Solid Waste Disposal Regulations at OAC 3745-27-01. Materials defined as OAC infectious waste must be managed in accordance with the OAC regulations for infectious waste promulgated at OAC 3745-27-30 through 37.

A. CRITERIA FOR IDENTIFYING OAC INFECTIOUS WASTE		
Meets the criteria?	Criteria to Identify Infectious Waste	Rationale
___ yes ___ no	Cultures and stocks of infectious agents and associated biologicals, including, without limitation, specimen cultures, cultures and stocks of infectious agents, wastes from the production of biologicals, and discarded live and attenuated vaccines. [OAC 3745-27-01(Z)(1)]	
___ yes ___ no	Laboratory wastes that were, or are likely to have been, in contact with infectious agents that present a substantial threat to public health if improperly managed. [OAC 3745-27-01(Z)(2)]	
___ yes ___ no	Pathological wastes, including, without limitation, human and animal tissues, organs, and body parts, and body fluids and excreta that are contaminated with or are likely to be contaminated with infectious agents, removed or obtained during surgery or autopsy or for diagnostic evaluation. [OAC 3745-27-01(Z)(3)]	
___ yes ___ no	Waste materials from the rooms of humans, or the enclosures of animals, that have been isolated because of diagnosed communicable disease that are likely to transmit infectious agents. Also included are waste materials from the rooms of patients who have been placed on blood and body fluid precautions under the universal precaution system established under the "Centers for Disease Control" in the public health service of the United States department of health and human services, if specific wastes generated under the universal precautions system have been identified as infectious wastes by rules referred to in OAC 3745-27-01(Z)(8). [OAC 3745-27-01(Z)(4)]	
___ yes ___ no	Human and animal blood specimens and blood products that are being disposed of, except that "blood products" does not include patient care waste such as bandages or disposable gowns that are lightly soiled with blood or other bodily fluids, unless such wastes ares oiled to the extent that the generator of the wastes determines that they should be managed as infectious wastes. [OAC 3745-27-01(Z)(5)]	
___ yes ___ no	Contaminated carcasses, body parts, and bedding of animals that were intentionally exposed to infectious agents during research, production of biologicals, or testing of pharmaceuticals, and carcasses and bedding of animals otherwise infected that may present a substantial threat to public health if improperly managed. [OAC 3745-27-01(Z)(6)]	
___ yes ___ no	Sharp wastes used in treatment, diagnosis, or inoculation of human beings or animals or that have, or are likely to have, come in contact with infectious agents in medical, research, or industrial laboratories, including, without limitation, hypodermic needles and syringes, scalpel blades, and glass articles that have been broken. Such wastes are referred to as "sharp infectious wastes" or "SHARPS". [OAC 3745-27-01(Z)(7)]	
___ yes ___ no	Any other waste materials generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals, that the public health council created in section 3701.33 of the Ohio Revised Code, by rules adopted in accordance with Chapter 119. of the revised Code, identifies as infectious wastes after determining that the wastes present a substantial threat to human health when improperly managed because they are contaminated with, or are likely to be contaminated with, infectious agents. [OAC 3745-27-01(Z)(8)	
___ yes ___ no	Any other waste materials the generator designates as infectious waste. [OAC 3745-27-01(Z)(9)]	

FORM INFECT. Revision 2.0 7/9/93 wcpforminfect.fr1

11.0 Solid Waste (RCRA Subtitle D)

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11.1 OAC Solid Waste

Solid wastes are regulated by the Ohio EPA under the Solid Waste Disposal Regulations (OAC 3745-27). "Solid wastes" means such unwanted residual solid or semi-solid material as results from industrial, commercial, agricultural, and community operations, *excluding* earth or material from construction, mining, or demolition operations, or other waste materials of the type that would normally be included in construction debris, nontoxic flyash, spent nontoxic foundry sand, and slag and other substances that are not harmful or inimical to public health, and includes, but is not limited to. garbage, tires, combustible and noncombustible material, street dirt, and debris. Solid waste does not include any material that is infectious or hazardous waste.

For the purposes of this definition, "material from construction or demolition operations" are those items affixed to the structure being constructed or demolished such as brick, concrete, stone, glass, wallboard, framing and finishing lumber, roofing materials, plumbing, plumbing fixtures, wiring, and insulation, but excludes materials whose removal has been required prior to demolition.

For purposes of this definition, "semisolid material" does not contain liquids which can be readily released under normal climatic conditions, as determined by method 9095 (paint liquid filter test) in SW-846: "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods". [OAC 3745-27-01(III)]

NOTE: Remember that the definition of "solid waste" provided above **is not** the same as the definition of "waste" in OAC 3745-51-02. The OAC definition of "waste" is equivalent to the 40 CFR 261.2 definition of solid waste. The definition at OAC 3745-51-02 is used to determine if a material is classified as a waste and thus potentially regulated as hazardous waste. See Section 5 of this Manual for further clarification.

11.2 OAC Exempt Solid Waste

In addition to the materials excluded from the definition OAC Solid Waste (i.e., material from construction, mining, or demolition operations, etc.), certain materials are exempted from regulation as OAC solid waste when they are managed in a specific manner. The following exemptions potentially apply to materials managed at the FEMP:

- Scrap metal processing facilities, as defined by section 4737.05 of the Ohio Revised Code (ORC). [OAC 3745-27-03(G)]

- Lime sludge disposal or storage as approved under Chapter 6111. of the ORC. Lime sludge is defined as a material resulting from the treatment of a water supply for drinking or industrial purposes. ORC Chapter 6111. requires... [OAC 374 5-27-03(H)(2)]

11.3 OAC Residual Solid Waste

"Residual solid wastes" or "residual wastes" are defined as specific types of solid)waste. Residual wastes may be disposed of in residual waste landfill facilities provided they meet the requirements outlined in OAC 3745-30. The following specific solid wastes are defined as residual solid wastes:

- The following wastes generated by fuel burning operations which burn as fuel primarily coal: air pollution control wastes, water pollution control wastes, and other wastes with similar characteristics which are approved by the OEPA director or his authorized representative. [3745-30-01(B)(1)]
- Specific wastes from foundry operations. [3745-30-01(B)(2)]
- Specific wastes from pulp and papermaking operations. [3745-30-01(B)(3)]
- Specific wastes generated from steelmaking operations. [3745-30-01(B)(4)]
- Specific wastes generated from gypsum processing plant operations. [3745-30-01(B)(5)]
- Specific wastes generated from lime processing operations. [3745-30-01(B)(6)]
- Specific wastes generated from portland cement operations. [3745-30-01(B)(7)]

The FEMP currently generates, and has generated in the past, the first type of residual solid waste in the form of flyash and bottom ash from the boiler plant. Residual solid wastes must be characterized to determine the classification of residual waste landfill facility in which they may be disposed. The characterization requirements for residual waste are specified in OAC 3745-30-03. Flyash and bottom ash must be tested using the TCLP method for parameter numbers 1 through 15 and 42 of appendix I of OAC 3745-30-04.

12.0 Onsite Waste Management Programs

This section undergoing development as onsite waste management programs define waste characterization requirements to support operational requirements.

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13.0 Offsite Waste Management Programs

Offsite waste management programs include facilities that are recycling, treating or disposing of FEMP waste. These facilities generally have a set of Waste Acceptance Criteria (WAC) with which FEMP materials must comply. The FEMP waste characterization program plays a key role in documenting conformance with WAC that relate to the regulatory status of a waste or to specific physical, chemical, or radiological characteristics.

13.1 LLRW Shipping to NTS

The FEMP utilizes the Nevada Test Site (NTS) for disposal of low level waste. The requirements, terms, and conditions under which NTS will accept low level waste for disposal are provided in the Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements, NVO-325, Revision 1. The FEMP stipulated to the NVO-325 requirements in its approved Application to Ship Waste to the Nevada Test Site. A major element of the FEMP program presented in the application is certifying conformance to the NVO-325 Waste Acceptance Criteria (WAC) that pertain to waste form. WCS is charged with the primary responsibility for documenting the objective information with which a Waste Certification Official (WCO) can verify that waste meet the NVO-325 WAC and certify the waste for shipment.

Guidance for evaluating materials with respect to each criterion is provided below. WCS completes the NVO-325 WAC Review Form to document whether the waste stream meets all of the NVO-325 WAC. An example of this form is provided in Figure NTS. If all items are marked "yes" then the waste is acceptable for shipment to the NTS.

13.1.1 General Waste Form Criteria

NVO-325 WAC which require determinations of the regulatory status of a waste are addressed under the core waste characterization program. Other NVO-325 WAC require additional determinations regarding physical/chemical characteristics of the waste. The decisionmaking criteria for evaluating these additional items are provided below. WCS documents whether materials evaluated conform to each specific waste form WAC or not on the NVO-325 WAC Review Form. When a material does not meet a specific WAC it is not acceptable for shipment to NTS unless corrective actions are taken.

Low-Level Radioactive Waste (LLRW): The material shall be defined as LLRW per DOE Order 5820.2A guidelines. [NVO-325 5.5.1.1]

Evaluation Criteria: Addressed under Radioactive Waste - Section 7.1.

Transuranics: LLRW must have a transuranic nuclide (TRU) concentration less than 100 nCi/g. The mass of the waste container, including shielding shall not be used in calculating the specific activity of the waste. [NVO-325 5.5.1.1(A)]

Evaluation Criteria: Addressed under Radioactive Waste - Section 7.2.

Hazardous Waste: LLRW offered for disposal at NTS waste sites shall not exhibit any characteristics of, or be listed as, hazardous waste as identified in Title 40 CFR 261, "Identification and Listing of Hazardous Waste" or state of generation of hazardous waste regulations. [NVO-325 5.5.1.1(B)]

Evaluation Criteria: Addressed under Hazardous Waste - Section 6.0.

Free Liquids: Free liquids means liquids which readily separate from the solid portion of a waste under ambient temperature and pressure conditions. LLRW disposed at NTS waste management sites shall contain as little free liquids as is reasonably achievable, but in no case shall the liquid equal or exceed 0.5 percent by volume of the external waste container.

Evaluation Criteria: This WAC may be evaluated based on process knowledge or waste testing to determine whether the waste stream fails this criteria. Determinations based on process knowledge may be substantiated by a visual inspection of the container population. Working fluids from equipment will be determined to contain no free liquids when the chamber containing the liquid has been drained completely and no dripping is observed. Chambers will be plugged or sealed and the equipment tagged as being drained after this demonstration is made. Free liquids determinations are generally completed as part of the RCRA waste characterization process. The PFLT test is performed to determine the presence of free liquids when process knowledge does not yield sufficient information to complete this determination. If the waste is identified as containing free liquids then LLWM Programs will be responsible for ensuring that operations personnel perform required actions to eliminate free liquids (e.g., by decanting and/or adding absorbent material(s) before the waste is determined to be acceptable.

Particulates: Fine particulate wastes shall be immobilized so that the waste package contains no more than 1 weight percent of less-than-ten-micrometer-diameter particles, or 15 percent of less than-200-micrometer- diameter particles or be in a form that could reasonably be transformed to a particulate during handling and interim storage. [NVO-325 5.5.1.1(D)]

Evaluation Criteria: Certain waste streams on-site will categorically fail the particulates WAC and while others may require testing to complete a rigorous

evaluation. In addition, depending on the moisture content, many of the soils on-site will fail these limits. If testing is required because the waste form does not clearly meet the WAC, the waste stream shall be identified as requiring testing. Testing may be conducted using a particle size impactor or some other form of particle sizing equipment. If the waste stream fails to meet this criteria LLWM Programs will be responsible for ensuring the waste is either immobilized or shipped in an acceptable waste package.

Gases: Radioactive gases shall be stabilized or absorbed so that pressure in the waste package does not exceed 1.5 atm at 20°C. Compressed gases as defined by Title 49 CFR 173.300, including unpunctured aerosol cans, will not be accepted for disposal. Aerosol cans shall have puncture disfigurements readily recognizable by Real-Time-Radiography (RTR). Expended gas cylinders shall have the valve mechanism removed.
[NVO-325 5.5.1.1(E)]

Evaluation Criteria: All waste streams are evaluated to determine if they contain any items that potentially fail this WAC. Compressed gas cylinders shall have their valves removed to demonstrate that they are at atmospheric pressure. Aerosol cans shall be punctured and void of all free liquids to demonstrate that they meet the WAC.

Stabilization: Where practical, waste shall be treated to reduce volume and provide a more structurally and chemically stable waste form. [NVO-325 5.5.1.1(F)]

Evaluation Criteria: WCS will identify all LLRW streams that have potential to generate harmful gases, vapors, or liquids. In addition, WCS will identify waste streams that are candidates for treatment to reduce volume or provide a structurally more stable waste form.

Etiologic Agents: LLRW containing pathogens, infectious wastes, or other etiologic agents as defined in Title 49 CFR 173.386 will not be accepted for disposal at NTS. [NVO-325 5.5.1.1(G)]

Evaluation Criteria: The only significant source of potential etiologic agents on-site is from medical services. Such materials may include band aids, tongue blades, syringes, cotton balls, other materials stained with blood or other body fluids, and outdated pharmaceuticals. These materials are managed according to Ohio infectious waste law/regulation [ORC 3734 and OAC 3745-27-01 thru 25) which requires segregated packaging at the point of generation. Materials are placed in a red bag in a box premarked with the international biohazard label. These boxes are then transported by a registered transporter to a licensed treatment facility.

Chelating Agents: LLRW containing chelating or complexing agents at concentrations greater than one percent by weight will not be accepted. [NVO-325 5.5.1.1(H)]

Evaluation Criteria: Chelating agents form coordination compounds by offering two or more chemical bonds (through ligands) to a central metal ion. The most common chelating agent is EDTA (ethylenediaminetetraacetic acid). Other common chelating agents are aminopolyacetic acids. Excess chemicals from the onsite lab are the primary potential source of materials that may be identified as true chelating agents. WCS has generated a list of potential chelating or complexing agents through an on-line database search and will consult this list to evaluate potential chelating or complexing agents.

Polychlorinated Biphenyls (PCBs): PCB-contaminated LLRW will not be accepted for disposal at NTS unless the PCB concentration meets the municipal solid waste disposal labels. See Title 40 CFR 761.60 for PCB disposal requirements. [NVO-325 5.5.1.1(I)]

Evaluation Criteria: Addressed in Section 8.0.

Explosives and Pyrophorics: LLRW shall not contain potentially explosive or pyrophoric material in a form that may spontaneously combust if the container is breached. [NVO-325 5.5.1.1(J)]

Evaluation Criteria: This WAC is generally addressed under the hazardous waste evaluation, however certain cases may exist where a material is excluded from the definition of (solid) waste under the AEA exclusions, but is still a potentially pyrophoric waste (e.g., uranium chips and turnings). Any waste streams that potentially fail this WAC shall be identified by WCS.

13.1.2 Confirmatory Sampling

Under the core program, waste streams may be characterized by process knowledge when sufficient information exists to support the determination. Under NVO-325, sampling and analysis is required to support characterization unless one or more of the following conditions are met:

- Waste stream is difficult to sample because of physical form,
- Sampling and analysis of waste stream would result in unacceptable risks of radiation exposure (i.e., violate the ALARA precept of the DOE), or
- Waste is too heterogeneous in composition.

For waste streams that do not meet one or more of these conditions and that are characterized based on process knowledge, the FEMP must conduct confirmatory

sampling to meet the requirements of NVO-325. Confirmatory sampling is conducted in accordance with the analytical methodologies provided by SW-846 (ASL C) but at a lower sampling rate than characterization sampling. Confirmatory sampling for containerized waste is completed in accordance with the protocol established in the Prototype SAP for Containerized Waste, but with the following logarithmic schedule [# samples = 1 + log(# drums)] for determining number of samples:

Number of containers	Number of samples
1 - 10	2
11 - 100	3
101 - 1000	4
>1001	5

Confirmatory sampling essentially serves as a quality assurance (QA) check on process knowledge for to ensure that materials meet the NVO-325 WAC for shipment to the NTS. To ensure that there is no confusion regarding the intended use of the data from confirmatory sampling, the "Request for Sampling and Analysis" Form indicates that confirmatory sampling results are a QA check on the process knowledge determination. If confirmatory sampling fails to substantiate the process knowledge determination, then the waste stream is re-evaluated.

During review of a material for conformance to NVO-325 WAC, WCS identifies on the NTS Review Form whether sampling and analysis has been completed for a waste stream. WCS is responsible for submitting a request for sampling and analysis to meet this WAC. No wastes that are amenable to sampling will be identified as meeting the NVO-325 WAC without sampling results (characterization or confirmatory) documented in the waste characterization file.

13.1.3 Data Points Exceeding a RCRA Regulatory Limit

NVO-325 requires that in addition to the statistical treatment of sampling and analysis data, any waste represented by an individual sample that surpasses the RCRA threshold for a specific analyte will not be accepted for disposal at NTS. That is, regardless of where the 90% confidence limit falls with respect to the regulatory limit, NTS will not accept the waste. The FEMP will continue to rely on statistical treatment of data for waste characterization (i.e., does not recognize the validity of point estimates for waste characterization) but will comply fully with this NVO-325 requirement. If any data points for a waste stream exceed the regulatory limit the waste stream will be determined not to meet the NVO-325 WAC. If a second valid characterization sampling of the waste stream yields results such that 1)

the 90% confidence limit for all constituents of concern is below the regulatory limit, and 2) no individual data points exceed the regulatory limit, then the waste stream will be determined to be acceptable for shipment to NTS.

13.2 Completing NTS Waste Acceptance Criteria Worksheet

WCS completes the NTS Waste Acceptance Criteria (WAC) Worksheet indicating whether the waste stream under evaluation meets each WAC. In cases where corrective actions must be taken before a waste stream meets the WAC, WCS will indicate that the waste stream fails to meet the WAC and may provide a recommended corrective action (e.g., a waste package may contain a prohibited item such as an unpunctured aerosol can which must be removed from the waste package before the waste stream meets the WAC).

LLWM programs is responsible for initiating required corrective actions. The WCO is responsible for verifying that corrective actions have ben completed.

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Form 13.2
NTS Waste Acceptance Criteria

Fernald Environmental Management Project
NTS WASTE ACCEPTANCE CRITERIA FORM

This worksheet documents evaluation of this material to determine if it meets the NVO-325 Waste Acceptance Criteria (WAC) for shipment to the Nevada Test Site.

A. WASTE STREAM IDENTIFICATION	
1. MEF #:	2. MTC _____ SRC _____ (see MEF for 15 digit lot codes)
3. EVALUATOR:	4. DATE:

If any of the criteria are not met, or are "unknown," then the material may not be shipped to the NTS unless corrective action is taken to alleviate the nonconformance. Material status with respect to NVO-325 WAC (i.e., "Meets the Criteria?") must be revised on this form following corrective action.

B. NVO-325 WAC Pertaining to Waste Form		
Meets the Criteria?	Evaluation Criteria	Corrective Action Required
___ yes ___ no (NVO-325 5.5.1.1)	Low Level Radioactive Waste (LLRW): The material is defined as LLRW under DOE Order 5820.2A.	
___ yes ___ no (NVO-325 5.5.1.1(A))	TRU Waste: The material is not regulated as TRU waste. TRU radionuclide concentration less than 100 nCi/g.	
___ yes ___ no (NVO-325 5.5.1.1(B))	RCRA Hazardous Waste: The material not regulated as hazardous waste under the federal or Ohio hazardous waste regulations.	
___ yes ___ no ___ unknown (NVO-325 5.5.1.1(C))	Free Liquids: The material does not contain free liquids which readily separate from the solid portion of the waste under ambient temperature and pressure conditions.	
___ yes ___ no (NVO-325 5.5.1.1(D))	Particulates: The material contains less than one weight percent of less-than-ten-micrometer-diameter particles, or 15 weight percent of less-than-200-micrometer particles.	
___ yes ___ no ___ unknown (NVO-325 5.5.1.1(E))	Gases: The material has been stabilized or absorbed such that the pressure in the waste package does not exceed 1.5 atmosphere at 20°C. The material does not contain any compressed gases as defined by Title 49 CFR 173.300, including unpunctured aerosol cans. Aerosol cans have been punctured such that the puncture disfigurements are recognizable by Real-Time Radiography. Expended gas cylinders have valve mechanism removed.	
___ yes ___ no (NVO-325 5.5.1.1(F))	Stabilization: Where practical, the material has been treated to reduce volume and provide a more structurally and chemically stable waste form.	
___ yes ___ no (NVO-325 5.5.1.1(G))	Etiological Agents: The material does not contain any pathogens, infectious waste, or other etiological agents as defined in 49 CFR 173.386.	
___ yes ___ no (NVO-325 5.5.1.1(H))	Chelating Agents: The material does not contain chelating or complexing agents at concentrations greater than one percent by weight.	
___ yes ___ no (NVO-325 5.5.1.1(I))	Polychlorinated Biphenyls (PCBs): The material does not contain any PCB materials that are regulated under TSCA. In addition, the material does not contain any PCB materials with greater than 2 ppm PCBs (Westinghouse Corporate Policy).	
___ yes ___ no (NVO-325 5.5.1.1(J))	Explosives and Pyrophorics: The material does not contain any explosive or pyrophoric materials that may spontaneously combust if the container is breached.	

C. NVO-325 S&A Data Requirements	
All individual S&A results below regulatory level: ___ yes ___ No	Waste sampled if practicable (including confirmatory): ___ yes ___ no

FORM NTS, Revision 2.0 7/7/93 wcpformnts.fr1

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14.0 Documentation Systems

Documentation systems related to waste characterization include the physical Waste Characterization Files, the Waste Characterization Database, and the Material Control & Accountability inventories. These documentation systems are structured and maintained to meet the following objectives:

1. To provide explicit documentation of the regulatory status of each material evaluated under the waste characterization program;

2. To document the processes and decisionmaking criteria used in characterizing each material evaluated;

3. To meet regulatory requirements for records retention related to waste characterization;

4. To provide a unique correlation between inventoried waste and the supporting waste characterization documentation;

5. To support internal and external FEMP client programs that utilize waste characterization information to meet their program objectives; and

6. To provide a means for independent verification of waste characterization program performance through audit or surveillance.

14.1 Waste Characterization Files

The WCS maintains the Waste Characterization Files which contain the documentation to support characterization of each material at the FEMP. These files contain the following types of information:

- Characterization documentation
  - MEF and/or RD/RC letter
  - MEF worksheets
  - Characterization review sheets

- Supporting PK information
  - Personnel affidavits
  - Material Safety Data Sheets
  - Excerpts from SOPs/Manufacturing Specifications
  - Technical references

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- Supporting S&A information
  - S&A Request
  - Sampling plan
  - Logbook notes
  - Analytical data report
  - Offsite data review checklist
  - Visual inspection form

Access to the Waste Characterization Files is limited to WCS and personnel assisted by WCS. Files removed from the file cabinets must be signed out. Sign out cards are located on top of each file cabinet. Duplicate copies of each element of the file are maintained at a separate location to provide backup documentation. The Waste Characterization Files are maintained in a secured office with limited access.

14.2 Waste Characterization Database

The WCS Waste Stream Database provides a convenient way to track a material's status through waste characterization, to check the status of an evaluated waste stream, or to summarize information across broad categories of waste streams. Other common uses for the database include:

- Identify wastes similar to a waste requiring evaluation;
- Support release evaluation for waste materials (spill reporting);
- Update the RCRA Part A and Part B applications (Table C-1);
- Identify materials for potential waste minimization initiatives; and
- Identify materials for treatment/disposal.

The database is updated by WCS on a regular basis. A summary of the database structure is provided in Appendix A.

14.3 Materials Control & Accountability (MC&A) Inventory

The MC&A inventories provide a means for tracking the physical location of all waste materials at the FEMP. The inventories also track certain key information related to materials waste characterization that must be coordinated for materials management onsite (e.g., free liquids content and RCRA status). The MC&A inventories also provide a means for tracking nuclear materials onsite.

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SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-0044
REVISION NO. 1

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MANAGEMENT OF EXCESS SOIL, DEBRIS, AND WASTE FROM A PROJECT

SSOP-0044

Effective Date: 01-31-94

AUTHORIZED BY: J. Thiesing, Executive Vice President — Date: 2-3-94

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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

PREFACE

This revision of SSOP-0044 (Site Standard Operating Procedure) incorporates the Fernald Environmental Management Project (FEMP) site-wide management concepts and implementation strategy for managing soil and debris established in Removal Action 17 (RA 17) Work Plan that was approved by both the Ohio Environmental Protection Agency (OEPA) and United States Environmental Protection Agency (U.S. EPA). The new management concept streamlines the process of dealing with materials and wastes from pre-Record of Decision (ROD) removal sources by standardizing and simplifying characterization steps while still being protective of human health, safety and the environment. These management procedures parallel those on other Superfund sites being remediated under the guidance of the U.S. EPA or by firms under contract to the U.S. EPA.

The initiating activity for delineating the appropriate soil and debris or waste controls will be a contaminant assessment. The assessment of contaminants in the affected soil and debris or waste will include a review of existing characterization data or sampling and analysis results, historical records, and process knowledge. NO SAMPLING IS REQUIRED AT THIS STAGE OF PLANNING. The assessment results will be used to determine the management options according to the RA 17 work plan and this procedure.

These new concepts (new with respect to previous FEMP Waste Handling Procedures), as applied to the planning of removal action projects, begin with the proposition that soil and debris that are to be managed as a result of removal actions are <u>not</u> automatically classified as hazardous for management purposes. The required level of control and mechanisms for managing soil and debris are dependent upon such factors as material, its regulatory status, and the risks associated with managing the material. A practical approach for storage or disposition of these materials is needed if an aggressive, yet prudent, approach to FEMP cleanup is implemented. This new revision of SSOP-0044 was developed to recognize the environmental cleanup mission of the FEMP versus the site's previous mission as an operating facility. To do this, the new SSOP-0044 properly separates the management of soil, debris, and wastes subject to regulation under RCRA Subtitle C hazardous waste requirements from the relatively larger volume of non-RCRA contaminated excess soil, debris, and wastes that must be managed under Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) removal actions. Proper separation is a cost-effective means to minimize the volume of excess soil, debris, and wastes subject to increased regulation and higher costs associated with hazardous waste storage, treatment, and disposal requirements.

Other procedures and documentation exist including Occupational Safety and Health Administration (OSHA) and As Low As Reasonably Achievable (ALARA) concepts from DOE orders and guidelines that must be considered when planning a project. This procedure specifically addresses planning for the disposition of soil, debris, and waste.

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
12-14-93	0	Procedure for controlling and minimizing waste produced by construction and/or maintenance project, required per Request No. P91-028, initiated by S. Lund.
01-31-94	1	Major revision to reflect changes implementing RA17 W.P. concepts, responsibilities and procedure, per Request No. S93-299, initiated by T. Weese.

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1.0 PURPOSE

This procedure provides criteria for identifying and categorizing disposition options for excess soil, debris, and waste materials from a project. The procedure provides instructions for planning the appropriate management and disposition of these materials from the planning stages of the project up to project implementation (field work) into the appropriate Fernald Environmental Management Project (FEMP) material management system.

2.0 SCOPE

This procedure is directly applicable to excess soil, debris, and waste generated from the following interim activities and projects at the FEMP:

- Removal Actions and any interim activities when use of the procedure is referenced in the work plan
- Construction projects and new facilities
- RCRA closures
- Large scale and non-routine maintenance projects
- Emergency response actions after the Emergency has been mitigated
- The Operable Unit 3 (OU3) Interim Record of Decision (IROD)

This procedure is not applicable to post-Record of Decision (post-ROD) activities.

Approved U.S. EPA and Ohio EPA work plans may have precedence over some requirements provided herein.

This procedure does not apply to RI, FS, Treatability and Geotechnical studies, Investigative Activities or Sampling and Analysis activities. These activities will be managed as Investigation-Derived Wastes as per U.S. EPA guidance (Figure 1).

In general, this procedure will not apply to routinely or continuously generated waste streams during routine maintenance.

3.0 DEFINITIONS

3.1 Material Types

Bulk Materials - Materials to be managed in bulk form. They include solid materials in tanks/bins, surface impoundments, piles, storage pads, containment buildings, or other bulk material management facilities. Also includes bulk materials collected or transported in bulk material containers such as roll-off boxes or other bulk waste collection/transportation equipment. Bulk materials do not include materials managed in the onsite containerized material inventories.

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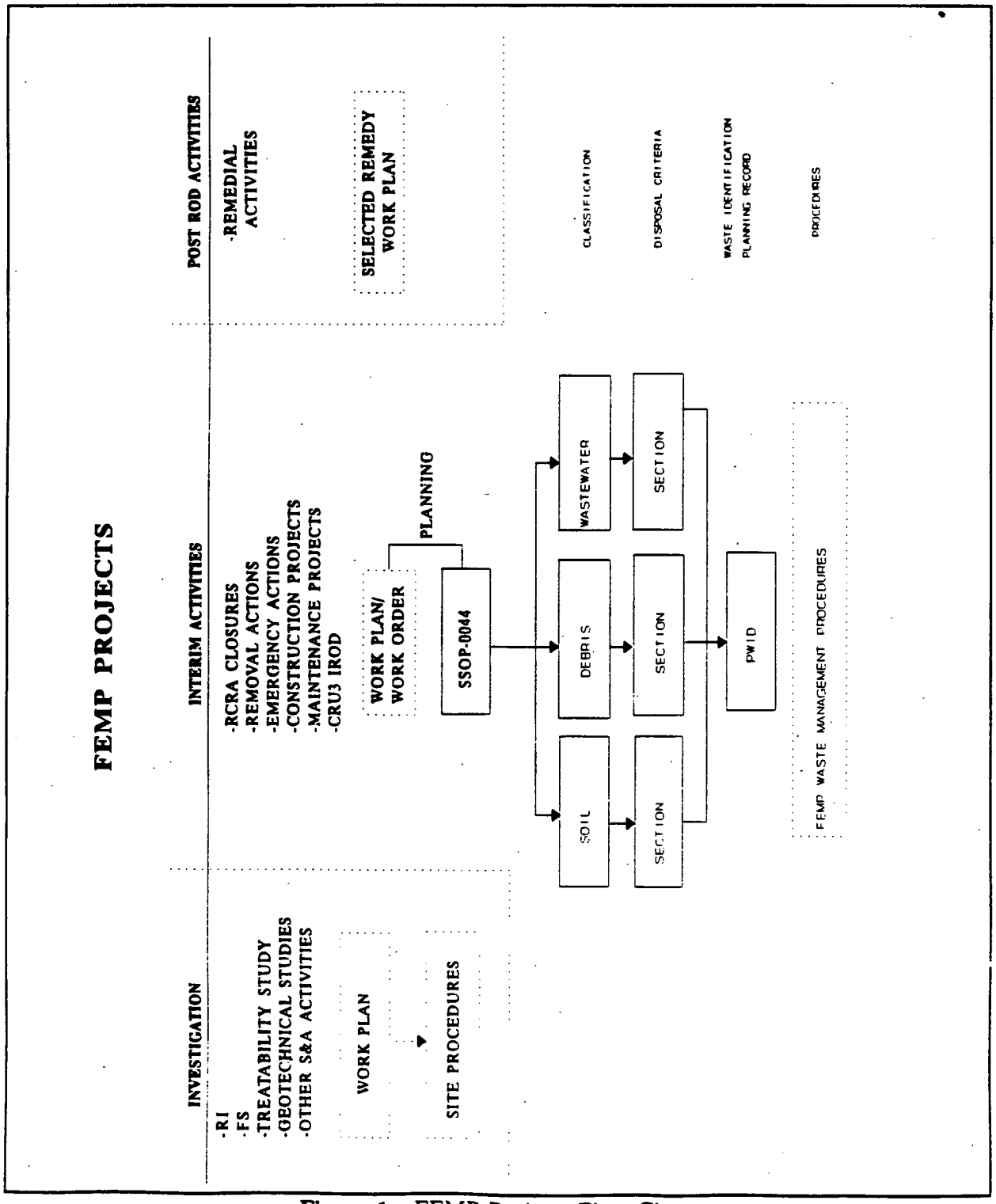

Figure 1 - FEMP Projects Flow Chart

3.0 DEFINITIONS (cont.)

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Non-contaminated Construction Waste - Construction waste materials from construction activities that, if handled appropriately, can be surveyed and released out of the project boundaries or offsite as a non-radioactive waste. Examples include, but are not limited to, packaging from new material or excess building material from a new construction site such as drywall, piping, insulation, etc.

Containerized Materials - Materials intended for management in containerized form. Includes materials managed in drums, wood boxes, white metal boxes, and ISO (Sea/Land-type) containers. Containerized materials includes all materials managed in the onsite containerized material inventories.

Continuously or Routinely Generated Waste Materials - Waste streams generated such as from activities such as oil changes, light bulb ballasts replacements, or from FEMP facilities such as Plant 8 and General Sump, Advanced Waste Water Treatment (AWWT) facility, etc.

Debris - Solid materials that exceed a 60 mm (2.5 inch) particle size and are manufactured objects, plant or animal matter, or natural geologic material except for the following: process residuals (e.g., unmilled magnesium fluoride [MgF_2]) and residues from the treatment of waste, wastewater, sludges, or air emission residues; intact containers of hazardous waste that are not ruptured and retain at least 75% of their original volume; and certain hazardous waste for which EPA has promulgated specific treatment standards under 40 CFR Part 268, Subpart D. Debris is defined in 40 CFR 268.2(g).

Excess Soil - Soil generated from a project that can not be returned to an excavation utilized within the project boundaries or has not been identified in the work scope to be utilized for a specific use.

Hazardous Debris - Debris, as defined above, that contains listed hazardous wastes (either on the debris surface, or in its interstices, such as pore structure), or debris that exhibits a characteristic of hazardous waste.

Hazardous Waste - Waste that is specifically listed as a hazardous waste or exhibits one or more of the hazardous waste characteristics (i.e., ignitability, corrosivity, reactivity, or toxicity) as defined in Chapter 3745-51 of the Ohio Administrative Code (OAC) and 40 CFR 261.

In situ soil - Soil in its original or natural position (i.e., prior to any excavations or disturbance).

Mixed Waste - Waste containing both radioactive and hazardous components as defined by the Atomic Energy Act and RCRA, respectively.

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3.0 DEFINITIONS (cont.)

Radioactive Waste - Solid, liquid, or gaseous material that contains radionuclides regulated under the Atomic Energy Act of 1954, as amended, and of negligible value considering costs of recovery. Surface contaminated materials with radiation limits above DOE Order 5400.5 limits are considered radioactive waste. Surface contaminated materials include metals and other non-porous matrices where the radioactive contamination is limited to the surface of the material and where all surfaces of the material that could have been contaminated can be monitored. Volume contaminated materials that have added radioactivity from DOE activities are also considered radioactive waste. Volume contaminated materials include materials with porous matrices and other materials for which the radioactive contamination is not necessarily limited to the surface or materials where all surfaces that could have been contaminated can not be monitored.

Recoverable Metals - Metals that are radiologically and/or chemically contaminated and can be processed for unrestricted release or controlled reuse. Generally, this category includes all metal that does not have the Refuse Metal characteristics.

Refuse Metal - Metal that is radiologically and/or chemically contaminated or suspected of radioactive contamination and is either excessively oxidized or else separation of the metal from other materials is not cost effective. Evaluation of the cost effectiveness requires a comparison of the cost of managing the material as a refuse considering the regulatory status of the material as a mixed waste or low level radioactive waste.

Regulated Asbestos Containing Material (RACM) - Material that contains greater than one percent asbestos and is either friable or has a high probability of becoming friable by the forces expected to act on it during demolition or renovation operations.

Regulated Polychlorinated Biphenyls (PCBs) - Those PCBs and PCB items that are subject to the disposal requirements of 40 CFR 761 Subpart D. PCBs and PCB items become subject to disposal requirements under subpart D when they have been determined to no longer serve their intended purpose and are to be disposed of. Unregulated items such as intact, non-leaking small capacitors and drained and triple rinsed PCB contaminated equipment are not subject to Subpart D disposal requirements and, therefore, are not included in this definition.

Soil - Unconsolidated earth material composing the surficial geologic strata, consisting of clay, silt, or gravel size particles (sizes as classified by the U.S. Soil Conservation Service). Soil may also include roots, grasses, weeds, or leaves, and a mixture of unconsolidated earth material with other liquids, sludges or solids that are inseparable by simple mechanical processes.

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3.0 DEFINITIONS (cont.)

Waste - Materials that have been discarded by virtue of being abandoned, recycled, or considered inherently waste. This includes materials that are accumulated, stored, or treated before or in lieu of being disposed, burned or incinerated. Waste materials may be composed of solids, liquids, or containerized gases. (OAC 3745-51-02 and 40 CFR 261.2)

Wastewaters - Aqueous wastes intended for management in the FEMP wastewater treatment facility. Wastewaters are wastes that contain less than 1 percent (1%) by weight total organic carbon (TOC) and less than 1% by weight total suspended solids (TSS). Wastewaters must meet the acceptance criteria for management in the onsite wastewater treatment system.

3.2 Terminology/Definitions

Area of Contamination (AOC) - An AOC may be established if it is estimated prior to the start of excavations or once excavations are complete for a project, that large quantities of excess soils remain that are known (through known spills or sampling and analysis data) to contain hazardous waste and it would prove inappropriate and not feasible (due to the large quantity of soil) to eventually store this excess soil in an improved storage structure.

Design-Engineering-Construction (DEC) Team - A project team led by the Project Engineer (PE) and consisting of individuals matrixed to represent several divisions within FERMCO, including but not limited to, Environmental Safety and Health, Construction, Engineering, Remedial Support Operations (which must include Waste Programs Management department representative), Public Affairs, Regulatory Programs, Recycling Programs, Quality Assurance, and the Architect/Engineer (also a subcontractor, if applicable).

NOTE: The PE leads the DEC Team during planning/design phase and again during project closeout phase while the Construction division representative will typically lead DEC Team during project implementation phase (field work) of the project to provide effective project interface and continuity.

Interim Record of Decision (IROD) - CRU3 proposed work plan for interim remedial actions for Operable Unit 3 (OU3) prior to obtaining the final OU3 ROD from the US EPA.

Project Boundaries - The physical areas in which all project activities take place as defined in the project drawings and specifications and/or work plan. This may include specified laydown areas and other staging areas.

3.0 DEFINITIONS (cont.)

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Radiological Storage Administrative Levels - Established levels of radioactivity concentrations, (in pCi/g) used to determine storage requirements. The activity concentrations of 100 pCi/g for total Uranium, 5 pCi/g activity concentration for total Radium, and 50 piC/g activity concentration for total Thorium are the levels that have been accepted by the US EPA as part of the approval of the Removal Action 17 Work Plan. These activity concentrations are applicable for both soil and debris.

NOTE: These are not final cleanup standards, only management levels that will be used to determine interim storage disposition at the FEMP.

Record of Decision (ROD) - Final remedial decision that will establish cleanup standards and treatability methods to use.

Removal Action (RA) 17 Work Plan - This RA is identified in the Amended Consent Agreement between the US DOE and the US EPA (September 1991) for the improved storage of soil and debris generated at the FEMP. The approved RA work plan (Rev. No. 2) provides a sitewide management concept and implementation strategy for improved storage of excess soil and debris by implementing controls on existing and future soil and debris piles both prior to completed construction (Phase 1) and then upon completed construction (Phase 2) of three improved storage facilities and containment of the soil and rubble pile north of 3rd Street.

Resource Conservation and Recovery Act (RCRA) - The congressional act that established safe and environmentally acceptable management practices for specific hazardous wastes. RCRA requires strict "Cradle to Grave" control, documentation, and proper management of hazardous wastes.

RCRA Closures - The act of securing a Hazardous Waste Management Unit (HWMU) pursuant to the requirements in Chapter 3745-55 of the OAC and 40 CFR 264.

3.3 Management/Storage Facilities

Central Storage Facility (CSF) - One of the containment Tension Support Structures (TSS) in the scope of RA 17 that will store contaminated soil and nonrecoverable debris. Materials will be segregated within this facility based on type of contaminant (e.g., inorganic hazardous waste, organic hazardous waste, PCB, asbestos, petroleum, radioactive).

Commercial/Industrial Landfill - Disposition option for noncontaminated, nonhazardous debris (i.e., debris that is only regulated as solid or residual solid waste).

3.0 DEFINITIONS (cont.)

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Decontamination Facility Pad (DFP) - One of the containment TSS to be utilized for staging contaminated scrap metal/debris prior to decontamination at the FEMP Decontamination & Decommissioning (D&D) Facilities.

Nevada Test Site (NTS) - One of the disposition options for storing low level waste that is included in the FEMP Application to Ship Waste to the NTS.

Permitted Storage Facility - EPA-approved storage facility (either onsite or offsite) that is permitted to store regulated waste (i.e., hazardous waste, asbestos, or PCBs).

Scrap Metal Pad (SMP) Structure - One of the containment TSS utilized for storing contaminated scrap metal until the material is ready for decontamination, recycling, treatment, or packaging for final disposal.

Scrap Wood Pile (SWP) - Designated pile(s) at the FEMP used for centralized packaging of radiologically contaminated wood that meet the waste acceptance criteria for shipment to NTS.

Trash Bailer - Centralized packaging and volume reduction facility for radiologically contaminated trash.

NOTE: Future engineered interim storage facilities (similar to the CSF) currently being proposed may be used as they become available.

3.4 Documents and Forms

Containerized Waste Checklist - A document for a specific container of waste that is used to validate the contents of the container against the physical characterization criteria noted in the completed MEF. Contents are validated by visual inspection and results noted on the checklist.

Material Evaluation Form (MEF) - The document that identifies unique waste streams for management at the FEMP. A completed MEF establishes a "waste profile" that identifies requirements for managing materials that match the profile. SSOP-0002 describes the use of the MEF for waste characterization.

Project Waste Identification and Disposition (PWID) Form (Attachment B) - The form utilized for planning and disposition of excess soil, debris, and waste from a project.

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3.0 DEFINITIONS (cont.)

Project-specific Sampling and Analysis Plan (PSAP) - The plan used for collecting samples for purposes of waste characterization.

Request for Sampling and Analysis (RSA) Form - The form used to request sampling and analysis in support of waste characterization. This form identifies the materials to be sampled, the sampling objectives, the parameters for analysis, the associated analytical support level (ASL), and the sampling approach to be utilized.

4.0 RESPONSIBILITIES

4.1 Project Engineer

- Coordinates with the Waste Management Department of RSO managers to ensure that a RSO Waste Management Lead (RSO WML) Representative, Waste Characterization (WC) Representative and Quality Control (QC) Representative are matrixed to the project DEC team.

- Coordinates with Construction Division Manager to ensure a Construction Management Team Representative (CMTR) is matrixed to the project during the planning/design phases of the project.

- Completes the PWID form by identifying and categorizing the types of excess soil, debris, and waste materials anticipated from the project.

- Ensures that the contaminant assessment and disposition options have been objectively selected for the excess soil, debris, and waste material anticipated from the project in accordance with RA 17 work plan management concepts and most recent regulatory guidance.

- Coordinates with the Environmental Safety & Health (ES&H) representative matrixed to the project DEC team to identify any contamination concerns.
- Coordinates with the project DEC Team to ensure that any possible waste avoidance is accomplished throughout all phases of the project.

- Coordinates with the RSO WML and the CMTR to ensure that all excess materials and wastes are properly stored and/or dispositioned in accordance with the PWID, related site procedures and requirements, packaging procedures (if applicable), and regulatory guidelines at the completion of field activities in order to incorporate this information into the project closeout and final reporting documentation.

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4.0 RESPONSIBILITIES (cont.)

- Provides concurrence along with the WC representative on the Request for Sampling and Analysis Form, that may be required to complete waste characterization.

- Consults with WC representative to ensure that soil designated as excess debris, and waste material that may remain after the project field activities, will be properly characterized through MEF verification forms, and sampling and analysis (if applicable), to ensure the appropriate interim storage or final disposition location will be chosen.

- Ensures that a Quality Assurance (QA) representative has been matrixed to the project DEC team in the planning stages of the project.

- Initiates a new MEF for waste streams not previously listed on an MEF at the FEMP.

4.2 RSO Waste Management Lead (RSO WML)

- Provides technical consultation and assistance to the Project Engineer (PE) in the completion of the PWID form for categorizing waste and estimating waste quantities.

- Coordinates with CMTR and PE to plan and facilitate the proper storage and disposition of all expected excess soil, debris and waste materials according to the information as listed on the PWID and or project-specific work plan.

- Identifies the type of waste containers required (notifies MC&A) for the disposition location selected by the DEC Team for all waste materials generated from the project, both offsite and onsite.

- Notifies PE if, as a result of field activities, a new waste stream category has been discovered that was not previously anticipated or identified in the PWID form.

- Provides necessary assistance to the PE for updating the PWID form following any changes to the anticipated wastes, actual waste generated, or changes in disposition options previously selected.

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4.0 RESPONSIBILITIES (cont.)

4.3 Waste Characterization (WC) Representative

- Performs a contaminant assessment of the project areas and wastes anticipated based on the compilation of any process knowledge (PK) and/or any previous or project-specific sampling and analysis data/results that may be available in the specific project area or for the waste categories identified in the PWID.
- Identifies the presence of any RCRA contaminants in the project area through MEF verification process.
- Assists in the completion of the PWID form.
- Verifies that the MEFs are consistent with the waste categories identified in the PWID.

4.4 Construction Management Team Representative (CMTR)

- Assists in the completion of the PWID form.
- Contacts RSO WML and PE if either an unidentified or a new waste stream (not identified on the PWID form) has been discovered as a result of field activities.

5.0 GENERAL

None

6.0 PREREQUISITES

- In order to confirm knowledge of soil, debris, and waste categorization and disposition options, read Attachment A before continuing with Section 7.0 (Procedure).

7.0 PROCEDURE

7.1 CONDUCTING THE SITE WALKDOWN

PE, ES&H representative, RCT, CMTR, RSO WML and WC representative

1. Conduct project site walkdown.

RCT

a. Perform radiological field survey of project area.

WC

b. Visually inspect project area to assess any noticeable signs of contamination.

PE, RSO WML, CMTR and ES&H representative

c. Observe site accessibility and boundaries, surrounding physical characteristics and note special safety concerns/hazards.

7.2 ESTIMATING QUANTITIES OF EXCESS SOIL, DEBRIS, AND WASTE MATERIALS

NOTE: It is important that the PE, CMTR, RSO WML and others within the DEC Team utilize prudent measures during design and planning stages to **minimize or eliminate** potential excess soil as a result of the project (i.e., compaction, topsoil reuse, balance cut and fill, etc.). Minimization of the generation of soil wastes can be obtained by returning the excavated soil to its source where applicable (see Figure 3, Soil Management Plan Flow Diagram). Refer to Attachment A, Section 1.1 of this procedure to clarify categorization and Attachment A, Section 2.1 for clarifying disposition options.

NOTE: Construction contracts and/or work plans will include instructions to subcontractors/field work forces to uncrate packaging used for shipping in clean areas and limit the tools and equipment brought into controlled areas to minimize waste generation. These waste types shall not be estimated as part of the total waste streams identified on the PWID.

7.2 ESTIMATING QUANTITIES OF EXCESS SOIL, DEBRIS, AND WASTE MATERIALS (cont.)

PE

1. Forward a copy of initial radiological survey reports and RCRA field screening data obtained from the project site walkdown to WC representative.

2. Complete the PWID form (Attachment B) by coordinating with the CMTR and RSO WML to estimate quantities of excess soil, construction debris, and other wastes to be generated as a result of project activities.

3. Consult the FEMP Build-Over policy to define the "Temporary" versus "Permanent" nature of any structures erected as defined in project scope. See Section 3.3 of the RA 17 Work Plan for implications with regard to soils management.

WC representative

4. Review any process knowledge (PK) and existing sampling analysis results pertaining to the area and identify any existing MEFs that correspond to the waste categories identified on the PWID form.

   a. If an MEF is currently on file for <u>all</u> the anticipated debris, waste materials, and excess soils as a result of the project, the WC representative completes the MEF verification forms for each stream identified on the PWID form and the PWID shall be considered complete.

   b. If there is no existing MEF for a waste type identified on the PWID form, a contaminant assessment must be performed for those waste types. The steps taken to perform the contaminant assessments is outlined in Section 7.3.2 for **soils** and Section 7.5.2 for **debris** and **waste**.

PE

5. Sign and obtain other approval signatures on the PWID form.

7.2 ESTIMATING QUANTITIES OF EXCESS SOIL, DEBRIS, AND WASTE MATERIALS (cont.)

6. Proceed to Section 7.4 for soils and/or Section 7.6 for debris and waste materials to establish disposition options.

NOTE: At this stage of planning, the PE, RSO WML, WC representative, QA Representative, and CMTR shall develop a waste container matrix that identifies the waste container (if applicable) and sequencing for the removal of the waste streams (if possible) to be utilized for anticipated excess soil, debris, and waste materials generated as a result of the project activities.

(See example of Waste Container Matrix (Figure 2) on the following page)

FOR THE REMAINDER OF THIS PROCEDURE, REFER TO SECTIONS 7.3, 7.4, FOR SOILS AND SECTIONS 7.5, 7.6 FOR DEBRIS AND WASTE MATERIALS

7.3 PLANNING SOIL MANAGEMENT AND DISPOSITION PLANNING OF EXCESS SOIL

[SEE FIGURE 3, SOIL MANAGEMENT PLAN FLOW DIAGRAM - PHASES I AND II]

7.3.1 For all anticipated soil categories that are already identified under existing MEFs, the Project Engineer, WC representative, and RSO WML can determine the disposition options.

1. Proceed to Section 7.4 for interim soil disposition options (refer to Attachment A, Section 2.1 - Excess Soil Disposition Options).

7.3.2 Perform a contaminant assessment for all anticipated soil categories that do not have existing MEFs. The following steps must be taken in order to perform a contaminant assessment.

PE

1. Provide any relevant information regarding the soil being evaluated, complete the requestor section of the new MEF, and submit to WC representative.

"TYPICAL" WASTE CONTAINER MATRIX

				CONTAINERS				
TASK	WASTE STREAM	TYPE			ISO CONT		Rubble	
	PWID		ISO	White	Construction	Barrels	White	RCRA
			Containers	Boxes	Debris	(55 Gal.)	Box	Material
Salvageable	Temp Xlmr's							
Material	Electrical Dolly's							
	Water Hose							
	Clothing-FERMCO							
	HEPA Units							
	HEPA Vacuums							
	Construction Tools & Equipment							
ASBESTOS REMOVAL								
	Wood framing				x			
	Poly				x			
	Piping Insulation		x					
	Floor tile		x					
	Floor tile adhesive		x					
	Equipment Insulation		x					
	Water Filters		x					
GROSS DECON								
	Waste water(TO TEMP HOLDING TANK)							
	Lead Chips							x
	Dirt					x		
Construction Debris								
	Surfactant Containers			x				
	PPE	Gloves				x		
	PPE	Tyvex				x		
	PPE	Respirator Cartridges				x		

Figure 2 - Example of Waste Container Matrix

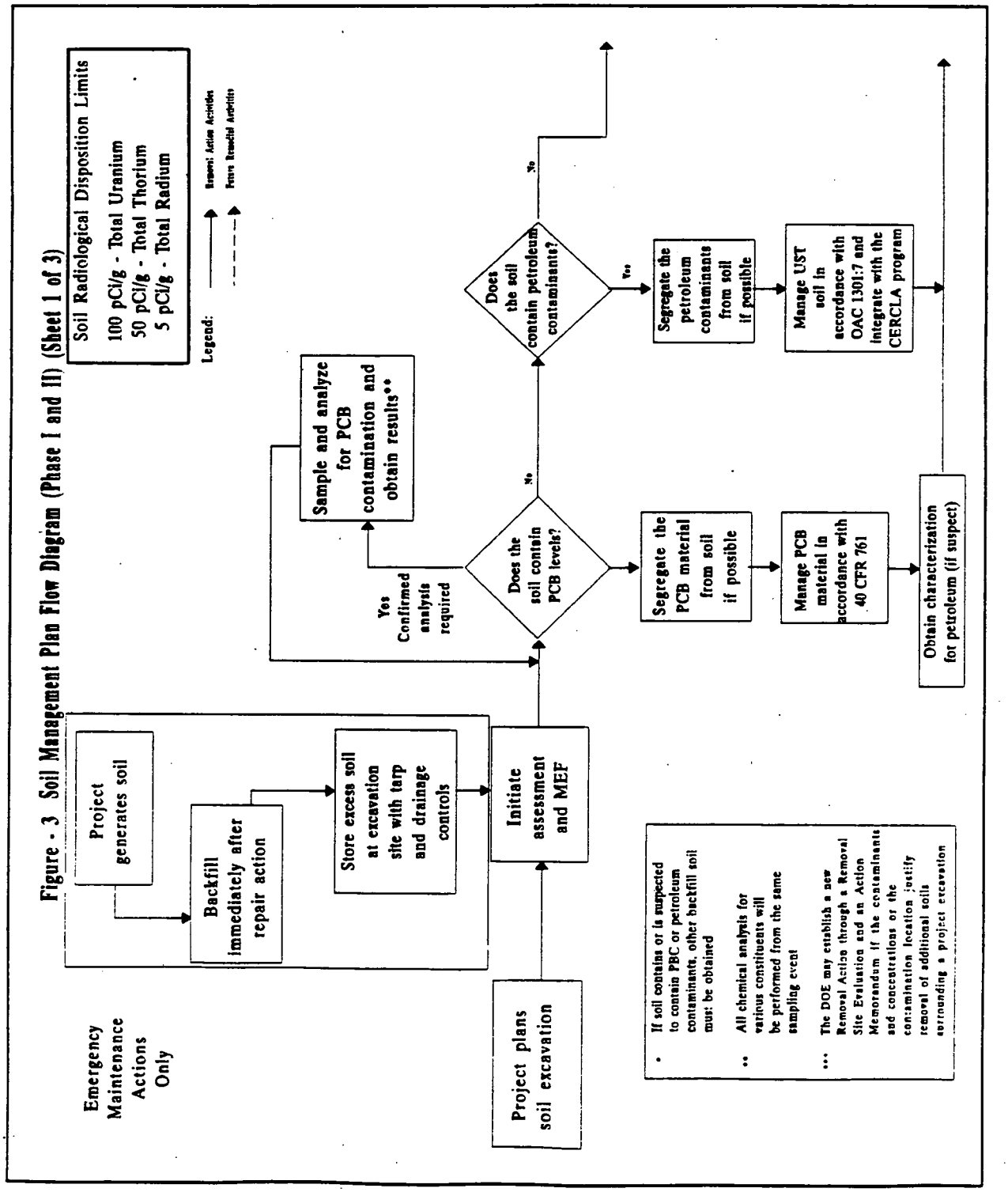

Figure 3 - Soil Management Plan Flow Diagram (Phase I and II) (Sheet 1 of 3)

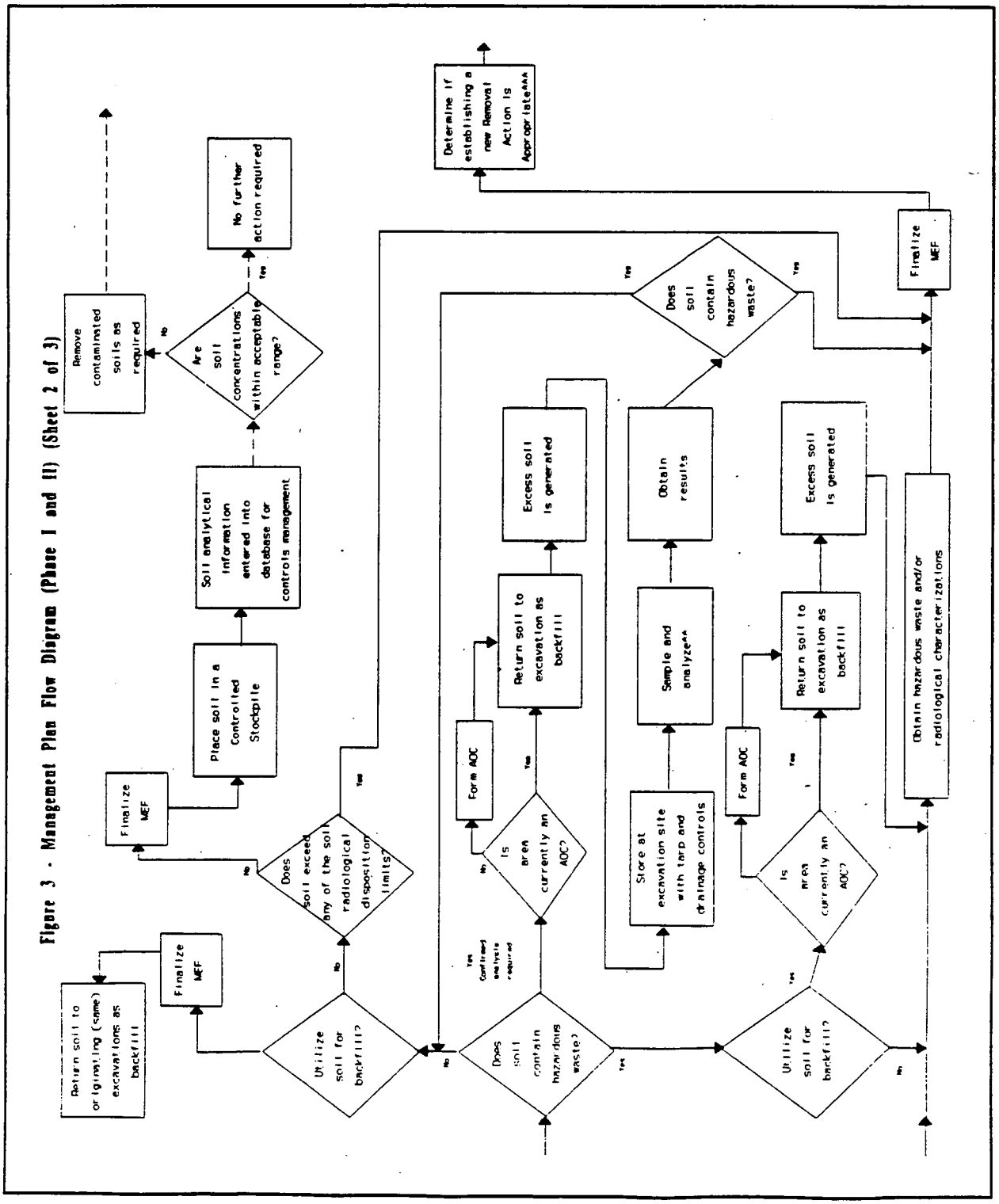

Figure 3 - Management Plan Flow Diagram (Phase I and II) (Sheet 2 of 3)

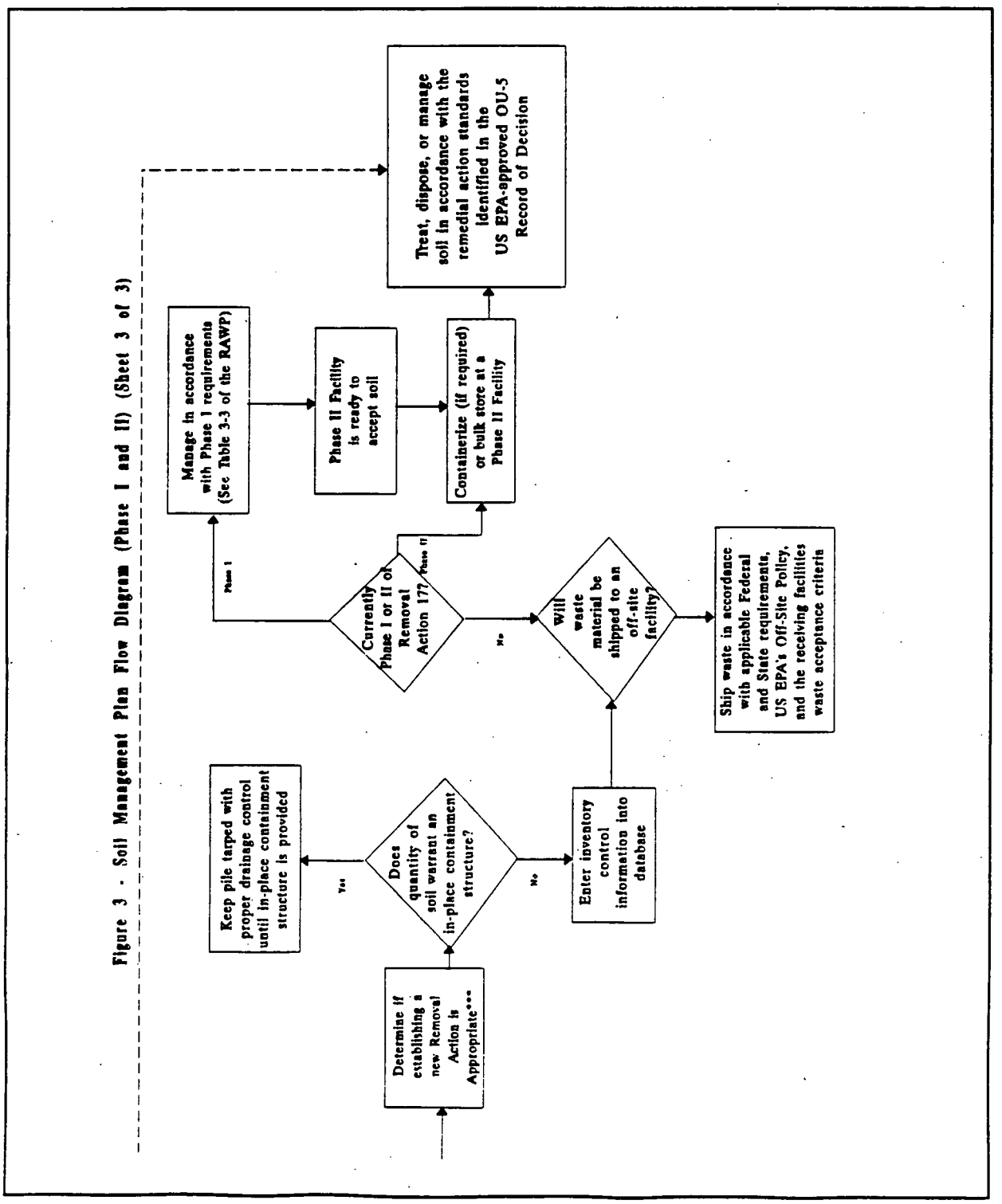

Figure 3 - Soil Management Plan Flow Diagram (Phase I and II) (Sheet 3 of 3)

7.3 PLANNING SOIL MANAGEMENT AND DISPOSITION PLANNING OF EXCESS SOIL (cont.)

WC representative

2. Review all available data and PK on file to complete the evaluation.

3. Complete the MEF per SSOP-0002 and submit to the PE.

PE

4. Review new MEF, add the waste quantity to the PWID and identify the soil disposition.

   NOTE: The newly completed MEF for the soil category will dictate one of the following management options as described in Attachment A, Section 2.1 of this procedure:

5. If the in situ soil, by PK, sampling analysis results, or physical visual evidence, contains or is suspected of containing PCBs, these excavated soils must be staged apart from other soil piles and, if possible, the PCB material should be segregated from the soil.

6. If the in situ soil, by PK, existing sampling analysis results, or physical evidence, contains or is suspected of containing petroleum contaminants, these excavated soils must be staged apart from other soil piles and the petroleum material, if possible, should be separated from the soil.

7. If the in situ soil, by PK, existing sampling analysis results, or physical evidence, contains known RCRA hazardous contamination or originated from closure of a HWMU, the following steps should be taken:

   a. Determine if the soils to be excavated (or the project site itself) are or have been previously declared an Area of Contamination (AOC);

7.3 PLANNING SOIL MANAGEMENT AND DISPOSITION PLANNING OF EXCESS SOIL (cont.)

PE

(1) If in an AOC, the soils excavated can be returned to the originating excavation.

(2) If not in an AOC, the Project Engineer, with CRU Manager concurrence, must assess the feasibility of managing the soils based on the quantity of the contaminated soils to be excavated.

NOTE: For significant quantities of hazardous soil, an AOC should be established (notification to US EPA and Ohio EPA required). For a small quantity of soil, contaminant assessment on affected excavations only.

b. AOC Determination Prior To Start of Field Work: If prior to start of project PE, with CRU management concurrence, has determined that the project area should be considered an AOC this determination must be conveyed to the US and Ohio EPAs in writing per RA 17 Work Plan.

8. If none of the conditions apply to the newly formed MEF for the soil in steps 5 through 7 above (i.e., no RCRA constituents, No HWMU sources, PCB contamination, or petroleum contamination in these soils and none suspected, and there are no high radiological concerns), this soil will be categorized under the existing MEF for Category I or II Radiologically contaminated soils (Category I or II determined in field by the use of beta/gamma friskers at the time of excavation) that may be either staged in a controlled stockpile onsite or staged beside the excavation and utilized for backfill as appropriate. The contamination assessment can be determined on this basis and field activities can proceed without sampling.

NOTE: If excess topsoil or excavated soil remain from the controlled stockpiles mentioned in item 4 above, these piles will be managed according to the disposition option chosen in the PWID or by results of sampling and analysis if required by WC representative.

7.4 INTERIM SOIL STORAGE OPTIONS (See Attachment A, Section 2.1)

NOTE: The determination to containerize, store in a controlled stockpile, or store in an improved storage facility for an excess soil must be based on the completed PWID, a completed MEF, or a contaminant assessment conducted by WC representative.

WC representative

1. Verify and ensure all MEFs are properly established for the soils generated before the disposition options are considered.

WC representative, PE and RSO WML

2. Assess the interim storage options of excess soil (i.e., soil remaining at the completion of the project) based on the identified contaminants and quantities in the PWID form and the options for the categories listed in Attachment A, section 2.1.

   NOTE: The WC representative may require that a MEF, which was completed based on a contaminant assessment process, must be verified through sampling and analysis of the excess soil remaining after completion of project or at the time when the actual disposition option must be implemented.

WC representative

3. Once sampling and analysis or further PK is confirmed by the WC representative, the WC representative will then complete a MEF verification form.

   NOTE: If a soil category has been generated from field activities that was not previously accounted for on the PWID, the WC representative may require verification of the MEF through the contaminant assessment process or sampling and analysis as described in step 2 above.

7.4 INTERIM SOIL STORAGE OPTIONS (See Attachment A, Section 2.1) (cont.)

PE

4. Inform WC representative of any changes to the original quantities and types of wastes in the soils specified in the PWID that have been actually generated from field activities.

WC representative, PE, and RSO WML

5. Refer back to Steps 2 and 3 above in order to assess interim storage options of the unanticipated (i.e, not in the PWID) or newly identified soil category.

PE

6. Notify RSO WML to arrange for the appropriate storage requirements (containers, laydown areas, staging areas, etc.) as determined in the steps above and the categories of soils generated. Generally these arrangements/requirements will include:

   a. During Phase I - Staged in a controlled stockpile for the OU of its origin.

      NOTE: Separate controlled stockpiles will be formed for Category I radiologically contaminated excess soils (to be used for backfill within that OU), Category II radiologically contaminated soils, and other RCRA or contaminant-specific controlled stockpiles for that OU.

   b. During Phase II - Bulk stored or containerized in the CSF or similar containment structure for excess soils KNOWN to be RCRA or exceeding the Radiological control limits (Category II).

7. With concurrence from Project Manager, may establish an AOC during project if most of the soils actually encountered during excavation activities were found to contain or be hazardous and/or exceed the radiological administrative limits.

7.4 INTERIM SOIL STORAGE OPTIONS (See Attachment A, Section 2.1) (cont.)

PE

a. If a large quantity of RCRA hazardous soils or Category II soils is encountered (determined either by sampling, radiological frisking in field, or visual inspection), the PE, with CRU management concurrence, may establish a new AOC and maintain these soils for in-place containment, utilizing tarps and other control measures, until further remediation is determined (i.e., New Removal Action, OU3 or OU5 ROD).

8. Establish a new Removal Action, if applicable.

a. Begin management processes involved with preparing basis for the need of a another Removal Action (RSE, RA Work plan, etc.) as a result of the contaminants discovered from the project.

7.5 PLANNING DEBRIS AND WASTE MATERIALS MANAGEMENT AND DISPOSITION PLANNING OF DEBRIS AND WASTE MATERIALS

[SEE FIGURES 4 & 5, DEBRIS MANAGEMENT PLAN FLOW DIAGRAM (PHASE I AND PHASE II)]

7.5.1 For all anticipated debris and waste materials that are identified in the PWID under existing MEFs, the Project Engineer, WC representative, and RSO WML can determine the disposition options (see Section 2.2 of Attachment A) or reference the project specific work plan for disposition instructions.

7.5.2 For all anticipated debris and waste materials that do not have existing MEFs the following steps must be taken in order to perform a contaminant assessment:

PE

1. Provide any relevant information regarding the material being evaluated, complete the requestor section of the new MEF, and submit to WC representative.

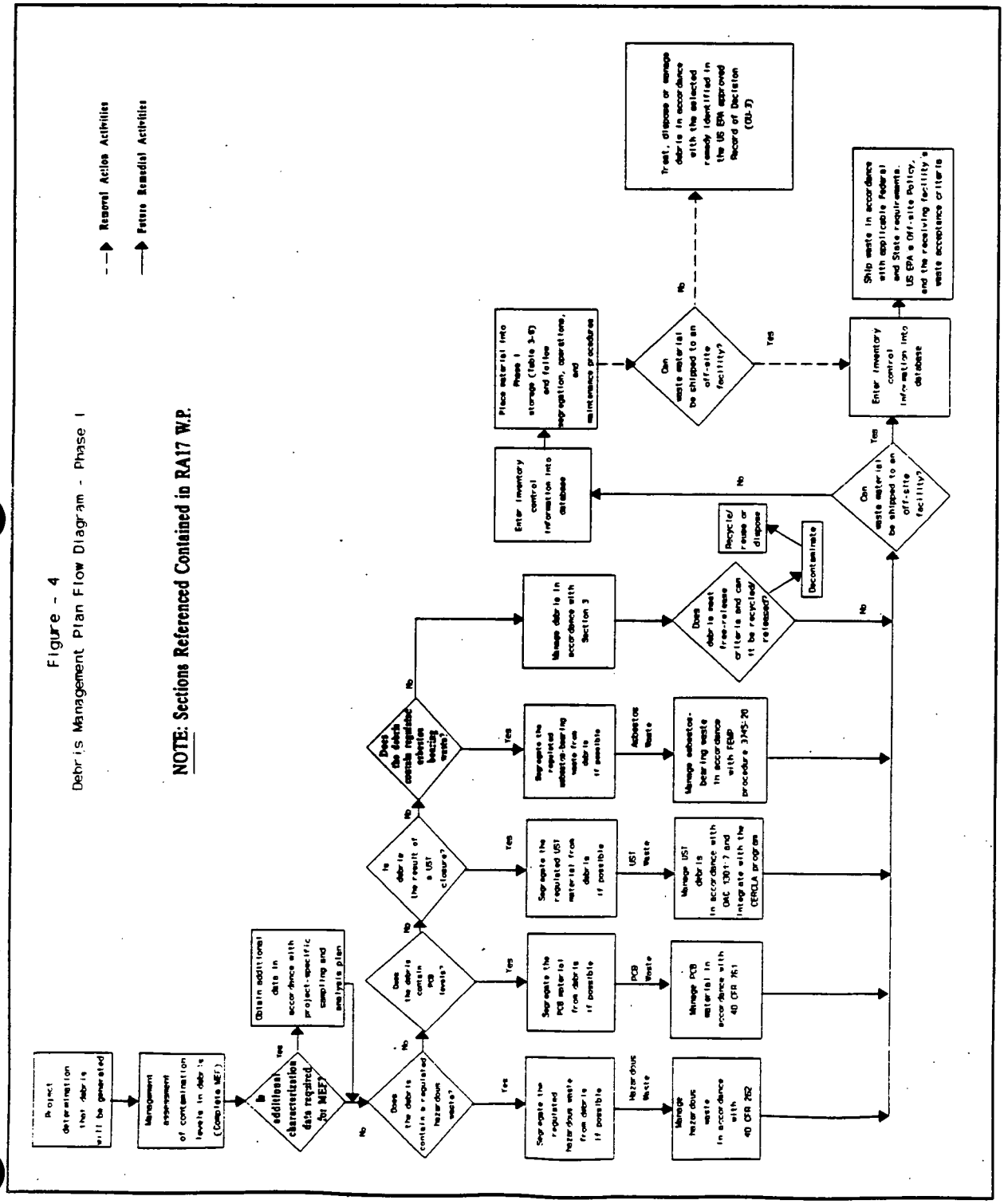

Figure 4 - Debris Management Plan Flow Diagram - Phase I

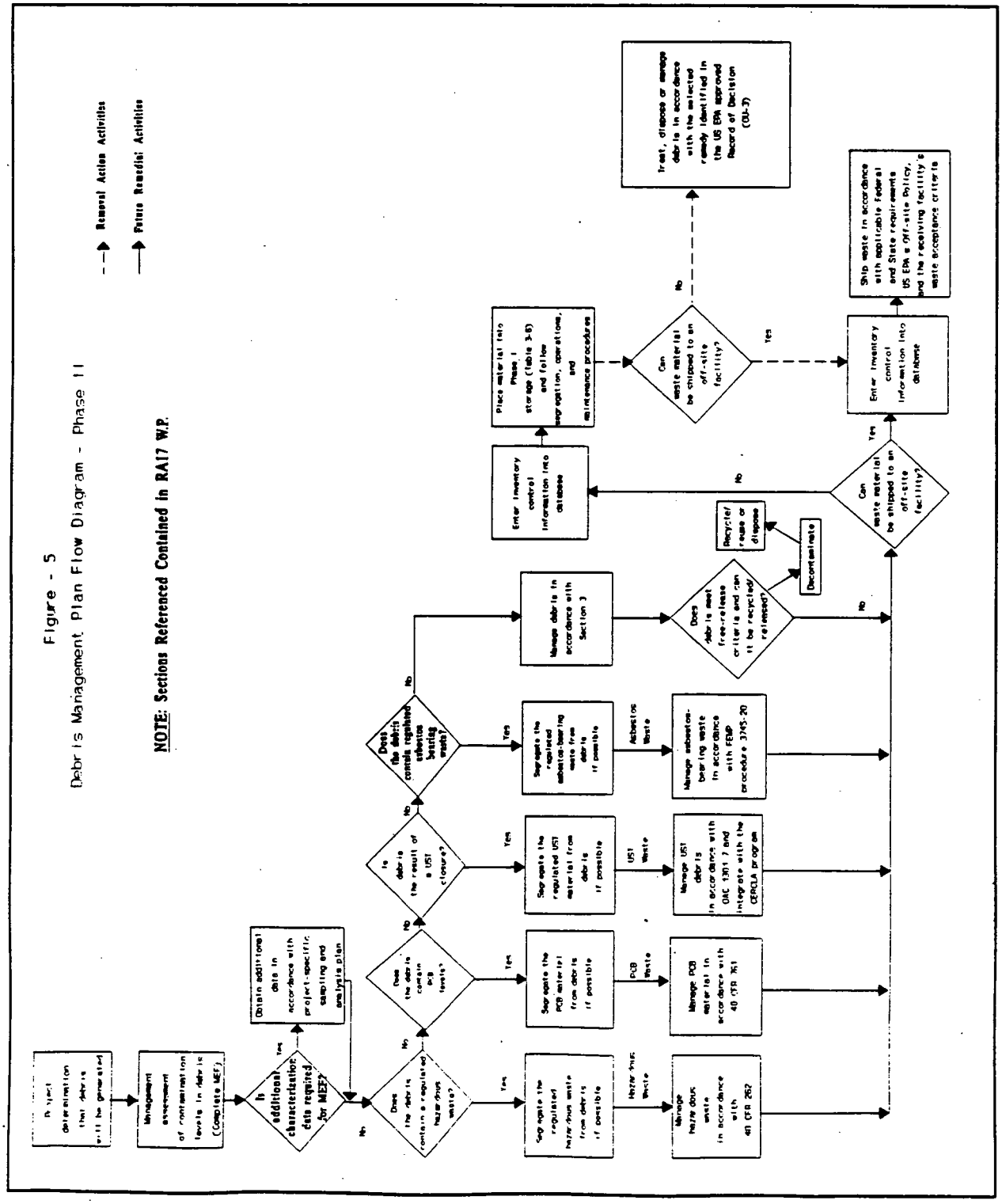

Figure 5 - Debris Management Plan Flow Diagram - Phase II

7.5 PLANNING DEBRIS AND WASTE MATERIALS MANAGEMENT AND DISPOSITION PLANNING OF DEBRIS AND WASTE MATERIALS (cont.)

WC representative

2. Review all available data and PK on file to complete the evaluation.

3. Complete the MEF per SSOP-0002 and submit to MEF to the PE. The WC representative completes MEF according to SSOP-0002.

4. If additional characterization data required to complete a new MEF:

   a. Obtain additional data by completing the RSA and require analysis in accordance with the PSAP.

   b. Obtain results from sampling and complete MEF per SSOP-0002.

   NOTE: For large scale Dismantling and Decommissioning projects, most storage and disposal options will already be determined according to the project specific work plan.

7.5.3 If the debris or waste, by PK, existing sampling analysis results, or physical evidence, contains or is suspected to contain PCBs, these waste materials/debris should be staged apart from other waste materials/debris and the PCB material should be segregated from the debris if possible.

7.5.4 If the debris or waste, by PK, existing sampling analysis results, or physical evidence, contains petroleum contaminants, these waste materials/debris must be staged apart from other debris piles and the petroleum material should separated from the debris if possible.

7.5.5 If the debris or waste, by PK, existing sampling analysis results, or physical evidence contains RCRA-hazardous waste, these waste materials/debris must be staged apart from other debris piles and the hazardous waste be separated from the debris if possible.

7.5 PLANNING DEBRIS AND WASTE MATERIALS MANAGEMENT AND DISPOSITION PLANNING OF DEBRIS AND WASTE MATERIALS (cont.)

WC representative

7.5.6 If the debris or waste, by PK, existing sampling analysis results, or physical evidence contains asbestos bearing wastes, these waste materials/debris must be staged apart from other debris piles and must be managed according to Ohio Administrative Code (OAC) 3745-20, "Asbestos Handling, Demolition Renovation, Disposal".

NOTE: See Table 1 and 2 for Debris Disposition Planning.

7.6 INTERIM DEBRIS/WASTE STORAGE OPTIONS (See Attachment A, Section 2.2)

NOTE: The determination to containerize, place in a controlled stockpile, or store in an improved storage facility for the debris/waste material must be based on the completed PWID, a completed MEF, or a contaminant assessment conducted by WC representative.

WC representative

1. Verify and ensure that all MEFs are properly established for the wastes and debris generated before the disposition options are considered.

NOTE: This may require a MEF that was completed based on a contaminant assessment process be verified through sampling and analysis of the debris or waste material after it has been generated from field activity or at the time when the actual disposition option must be implemented for interim storage.

WC representative, PE, RSO WML

2. Assess the interim storage options of the debris or waste material based on the identified contaminants and quantities in the PWID or by the options described for the categories in Attachment A, Section 2.2.

Table 1 - Management Alternatives for Debris - Manufactured Objects

	Packaging Alternatives		Storage Alternatives		Disposition Alternatives	
Debris Category	At Point of Generation	Staged then to Central Packaging Facility	Interim Bulk Storage	Interim Containerized Storage	Offsite for disposal or reuse	Onsite or As defined in Work plan
Metal for Decontamination	X		X			X
Metal for Remelt	X		X			X
Non-recoverable metal	X			X	X	X
Scrap Wood	X			X	X NTS	X
Glass, Paper, Cardboard, Plastic, non-hazardous PPE	X	X If compactable		X	X Commercial landfill/ Recycle	
Asphalt, Concrete, Bricks	X		X			X CSF,Stockpile
Regulated Asbestos Containing Material (RACM)	X			X	X	X
Non-regulated ACM	X			X	X NTS	
Non-contaminated, non-hazardous debris	X			X	X Commercial Landfill	
PPE contaminated with regulated waste		X		X	X CSF	
Debris containing hazardous waste or regulated as PCB item	X If HW not separable	X If HW separable		X CSF		X

[1]DFP - Decontamination Facility Pad.
[2]SMP - Scrap Metal Pad.
[3]NTS - Nevada Test Site.
[4]SWP - Scrap Wood Pile.
[5]CSF - Central Storage Facility for soil and debris.

Table 2 - Management Alternatives for Debris - Natural/Geologic Objects

	Management Alternative(s)				
Debris Category	Shredder/ Chipper	Habitat Enhancement	Erosion Control	Interim Bulk Storage	Disposition Defined in Work Plan
Trees	X	X	X		X
Shrubs	X	X			X
Rocks			X		X
Chemical or Radiologically contaminated trees, shrubs, rocks				CSF[1]	X

[1]CSF - Central Storage Facility

7.6 INTERIM DEBRIS/WASTE STORAGE OPTIONS (See Attachment A, Section 2.2) (cont.)

WC representative

3. Once sampling and analysis or further PK is confirmed by the WC representative, the WC representative will then complete a MEF verification form.

   NOTE: If a debris or waste material category has been generated as a result of field activities that was not previously accounted for on the PWID, the WC representative may require verification of the MEF through the contaminant assessment process or sampling and analysis as described in step 2 above.

CMTR

4. Inform PE and RSO WML of any changes to the original quantities and types of wastes in the soils specified in the PWID that have been actually generated from field activities.

WC representative, PE, and RSO WML

5. Refer back to Steps 2 and 3 above in order to assess interim storage options of the unanticipated (i.e, not in the PWID) or newly identified debris category.

6. Determine, with consultation from WC representative, if the debris or waste material can be free-released or recycled.

   a. If free-release or recycling is possible, contact the recycling department to determine most feasible option.

PE

7. Inform RSO WML/CMTR to arrange for the appropriate storage requirements (containers, laydown areas, staging areas) and plan for one of the following debris storage options:

   a. Packaged for disposal at the point of generation to an approved offsite facility.

7.6 INTERIM DEBRIS/WASTE STORAGE OPTIONS (See Attachment A, Section 2.2) (cont.)

PE

b. Staged in bulk in a controlled covered stockpile until offsite shipment can be arranged (PHASE I).

c. Staged in bulk in an improved storage facility until decontamination can be performed (PHASE II).

d. Containerized in an improved storage facility for eventual offsite shipment (PHASE II).

e. Packaged for offsite shipment for recycling.

f. The disposition option outlined in the Work Plan and project performance specifications and drawings.

g. Packaged for shipment to commercial/industrial landfill.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- U.S. DOE, FMPC, and US EPA 1991 Consent Agreement as Amended Under CERCLA Sections 120 and 106(a).
- DOE Order 5400.5, "Radiation Protection of the Public and the Environment"
- DOE Order 5480.11, "Radiation Protection of the Occupational Workers"
- Title 40 CFR, Parts 260, 261 - "Resource Conservation and Recovery Act", 268, and 300 - "Comprehensive Environmental Response Compensation Liability Act"

8.2 REFERENCES

- Removal Action 17 Work Plan - Improved Storage of Soil and Debris, Revision No. 2, February 1993
- SSOP-0002, "Initiating Waste Characterization Activities Using the Material Evaluation Form (MEF)"
- Project/Construction Waste Management procedure

CATEGORIZATION AND DISPOSITION

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1.0 Categorizing Materials

Materials generated from projects at the FEMP may be broadly categorized as excess soils, debris, waste materials, and wastewaters. Materials within each of these categories have distinct requirements for segregation/management/disposition. The following sections discuss the criteria for categorizing specific types of materials within each of these four general categories.

1.1 Excess Soils

NOTE: Beta-gamma friskers may be used only for screening soil for Uranium contamination. Quantitative analysis must be performed by other analytical techniques. Beta-gamma friskers can not be used to detect administrative limits of Thorium or Radium as the levels are below the minimum detectable activity of the instrument.

In the planning stages of projects, many in situ soils, especially topsoils, will be assumed to potentially exceed the radiological storage administrative levels (greater than 100 pCi/g U, etc.) at least in some areas where excavations will occur. Soils determined (through PK) to be only radiological contaminated will be managed throughout the project based on the field surveys conducted during the excavations with beta/gamma friskers. Note that the proper use of beta/gamma friskers to verify radiological levels requires procss knowledge of the radionuclides of concern (i.e., U, Th, Ra)

Excavated soils will be stockpiled within project boundaries throughout all field activities into staging areas. Soils determined radiologically contaminated above the administrative levels (based on results using beta/gamma friskers in the field) will be staged separately from soils determined to be below the radiological administrative levels (i.e, not detected by the beta/gamma friskers). All excavated soils staged on the project site are required to be tarped. Only non-radiologically contaminated soil (below the radiological administrative levels) from these staging areas can be borrowed from and utilized for backfill throughout construction activities within the project boundaries if the project site is NOT regarded as an AOC. Soils from a site that has already been classified as an AOC may be used as backfill from staging areas within the designated AOC project boundaries. Upon completion of the project, if any or all of these staging area stockpiles still exist, it is only then that excess soil quantities can be identified.

Measures such as compaction, topsoil reuse, balance of cut and fill, and other means possible to return soil to the original area of excavation shall be employed to minimize quantities of excess soils. Soils that cannot be minimized in one of these ways will need to be managed as excess soils.

Excess soils at the FEMP fall into one of several categories depending on their radiological and chemical composition. The criteria for classifying specific soils into one of the general categories are discussed in the subsections that follow.

1.1.1 Category I Radiologically Contaminated Soils

Excess soils may be classified as Category I soils when they contain equal to or less than 100 pCi/g total U, equal to or less than 5 pCi/g total Ra, and equal to or less than 50 pCi/g total Th. In addition, Category I soils may not contain any hazardous waste or PCBs, or be contaminated with petroleum products. (Typically MEF# 2503)

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1.1.2 Category II Radiologically Contaminated Soils

Category II rad contaminated soils are defined as those soils which contain greater than 100, 5, or 50 pCi/g total U, Ra, or Th, respectively. (Typically MEF #2504). Category II soils which contain hazardous waste or PCBs, or are contaminated with petroleum products **are not** included under this category, but are categorized according to their chemical contamination as discussed below.

1.1.3 Soils Containing Hazardous Waste

Soils that contain hazardous waste are classified under this category. Soils may be determined to contain a hazardous waste by virtue of either containing a waste material which causes the mixture of soil and waste to exhibit one of the hazardous waste characteristics, or containing a waste which meets the description of a listed hazardous waste. Note that the presence of listed hazardous waste constituents does not mean that the soils necessarily contain a listed hazardous waste. In order for soils to be determined to contain a listed hazardous waste there must be sufficient objective evidence to demonstrate that the constituents came from a listed hazardous waste, a mixture of a listed hazardous waste and a solid waste, or were derived from a listed waste source (e.g., a treatment **residual**).

Disposition options will reflect the need to segregate these materials in interim storage facilities based on the radiological composition and the type of hazardous waste which they contain.

1.1.4 PCB Contaminated Soils

This category includes soils contaminated with regulated PCBs. Excavated soils in an area where there exists process knowledge of a previous PCB spill, or the appearance of an oily substance is discovered, must be removed and isolated by tarps or containerized for staging until characterization can be performed.

1.1.5 Petroleum Contaminated Soils

Soils contaminated with a petroleum product, but which do not contain hazardous waste or PCBs are classified under this category. Limits for benzene, toluene, xylene, ethyl benzene, and total petroleum hydrocarbons (TPH) apply to petroleum contaminated soils from Underground Storage Tank (UST) removals, in accordance with OEPA policy, "The Division of Solid and Hazardous Waste Management Policy on Petroleum Contaminated Soils".

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1.2 Debris

Debris at the FEMP falls into general categories depending on the physical form and matrix of the debris and the radiological and chemical contamination. Some of the categories are described below for clarity. (See the PWID form)

NOTE: Some types of debris may continue to exhibit the Toxicity Characteristic. Examples include certain metal alloys containing chromium such as stainless steel. For example; certain high chromium stainless steels, if included with all demolition debris, would be deemed hazardous waste if a representative sample of the debris exhibited a hazardous waste characteristic. However, if the stainless steel is removed and segregated prior to the demolition activities, the stainless steel could be managed separately by recycling it as scrap metal and would be exempt from further regulation.

1.2.1 Scrap Metal

Scrap metals are divided into two general categories; refuse and recoverable. Recoverable scrap metals are further divided into two subcategories; recyclable and reusable. Disposition of the materials can only be identified once the materials are appropriately categorized. Appropriate segregation into these categories will facilitate the most cost effective and timely final disposition of scrap metal waste. Scrap metal can be identified as those materials which meet the criteria of the scrap metal checklist contained in SOP 20-C-625.

Recoverable Metal: Metal which can be radiologically and/or chemically decontaminated or processed for release for use off site. Decontamination may occur onsite or at offsite locations. Disposition of metal for decontamination in this manner helps support FEMP waste volume reduction objectives by reducing the amount of material that must be managed as regulated waste.

Examples of metal for decontamination include: structural steel, Juice (UO_3) Hoppers, rolling mill components, and bulk storage tanks.

Metal for Recycle: Radiologically contaminated metals may be remelted for beneficial reuse in applications where the dose associated with the recycled (e.g., remelted) metal is negligible compared to the dose associated with the application where the remelted metal is used. For example, remelted metals may be cast into shielding blocks, rolled into metal sheets for fabrication of waste disposal containers, or reformed into structural steel or other building materials (e.g., rebar) for use in radioactive material management facilities (e.g., an engineered waste management facility).

Metals for recycle must be free from non-metallic materials (e.g., plastic/rubber fittings, gaskets, etc.).

Examples of metal for remelt include: pipes, conduits, process equipment (e.g., pumps), and other thin gauge metals.

Refuse Metal: Generally non-recoverable metals that are not categorized as metal for decontamination or metal for recycle/reuse. This type of debris will generally be prepared for disposal.

Examples of refuse metals include: metal attached to other materials, extremely rusted metals, etc.

1.2.2 Scrap Wood

In order to be managed as low level waste, scrap wood must meet the criteria specified on the scrap wood checklist contained in SOP 20-C-625. Examples of common types of scrap wood at the FEMP include: pallets, packaging materials, concrete formwork, and two-by-four framing.

1.2.3 Plastic, Paper, Rubber, Cardboard, Fiberglass, Rope, Non-Hazardous PPE

Generated routinely from construction projects at the FEMP. These items must meet the criteria on the completed checklist contained in SOP-C-625.

1.2.4 Asphalt, Bricks, Non-Hazardous/Non-Radioactively Contaminated Concrete

Consult with WC representative to determine which MEF number is applicable for the asphalt, concrete, and brick waste that may be generated (as listed on the PWID).

1.2.5 Regulated Asbestos Containing Materials (RACM)

Suspected ACM needs to be evaluated by the Asbestos Program Coordinator to determine if it is ACM. If it is ACM, then its condition needs to be assessed to determine if it is Regulated ACM (RACM). If it is RACM, then it must be packaged and disposed as such.

1.2.6 Non-Regulated and/or Stabilized ACM

Evaluation by the Asbestos Program Coordinator of asbestos content and condition. Will be verified through the results obtained from stabilization study for transite.

1.2.7 Electrical Equipment

Includes ordinary light fixtures (without the ballasts) including incandescent bulbs, dry-type transformers, conduit, wire and cable, panelboards, and switches. EXCLUDES FLUORESCENT LIGHT TUBES OR ANY GAS TUBES/BULBS, TRANSFORMERS, PANELBOARDS WITH MERCURY SWITCHES.

1.2.8 PPE or Other Trash Contaminated with Regulated Waste

Consult with WC representative to determine which MEF number is applicable for contaminated versus non-contaminated PPE (as listed on the PWID).

1.2.9 Debris Containing Hazardous Waste or Regulated as a PCB Item

Debris that fails criteria for other categories must be evaluated individually to determine if it contains hazardous waste or is regulated as PCB items. It is documented via the MEF verification process and managed accordingly.

1.2.10 Trees, Shrubs and Rocks

Excavated trees and shrubs will be stockpiled within project boundaries throughout all field activities. The trees and shrubs can be used during construction for habitat enhancement throughout the FEMP site or shredded and chipped for mulch. Any excess rocks can be stockpiled and used where necessary for erosion control. At any time, if it is determined that the stockpiled trees, rocks (over 60 mm in size), or shrubs are to be discarded or intended for eventual discard, they shall be managed as debris.

1.2.11 Chemically or Radioactively Contaminated Trees, Shrubs, and Rocks

Any trees, shrubs or rocks that have been characterized by Waste Characterization (through sampling and analysis) to be subject to management as low level radioactive and/or chemically contaminated will be stored, in some form, in the CSF or approved hazardous material storage area. Trees and shrubs shall be reduced in size to make storage more manageable.

1.3 Wastewaters

Wastewaters generated during various projects require an evaluation for several factors; 1) to ensure the NPDES permit and other CWA regulations are complied with; 2) what type of treatment can be provided through other FEMP waste water treatment system; and 3) what , if any, notifications are required for obtaining agency approval for discharge. Consult with a representative from the Regulatory Technical Support (RTS) department of the Regulatory Programs division for completing the PWID if wastewater discharges during projects are anticipated.

The PE and DEC team must determine the following information and provide it to the RTS representative:

1. Quantity of wastewater anticipated during disposition.
2. Frequency of generation.
3. Source of the wastewater (decontamination water, stormwater from excavations, etc.)

CATEGORIZATION AND DISPOSITION

With this data, the project DEC team and RTS representative will develop a list of contaminants of concern identifying the necessary analytical data used to determine whether a discharge can be made; and, if allowed, the discharge sequence. Knowledge of how the wastewater became generated is important in this process of determining the contaminants of concern.

Existing data on wastewaters generated during a prior characterization may be used for this determination. However, all analytical results must be in "totals" (as opposed to TCLP or soluble portions).

1.3.1 Non-Hazardous, Low Organics/No Metals, Wastewater Media:

For the purposes of this section and this procedure, low organics is defined as all organics measured above detection are less than 100 ppb. "No metals" is defined as none of the Clean Water Act (CWA)/RCRA Toxic Metals, have been detected above the detectable levels.

1.3.2 Non-Hazardous, No Organics/Low Metals, Wastewater Media:

For the purposes of this section and this procedure, low metals is defined as less than 100 ppb for all of the CWA/RCRA toxic metals except for Cr, Cu, and Ni. These levels are 27, 90, and 42 ppb respectively. "No Volatile Organic Compound (VOCs)" is defined as non-detection at an analytical detection limit of at least 10 ppb.

1.3.3 Non-Hazardous, Low Organics/Low Metals, Wastewater Media:

* Wastewater meeting the criteria in 1.3.1 and 1.3.2 may be discharged to General Sump.

* Wastewater exceeding the criteria for VOCs in 1.3.1 must be discharged to Plant 8 VOC treatment system.

* Wastewater exceeding the criteria for metals in 1.3.2 but meeting the VOC criteria must be discharged such that treatment through the Plant 8 Filtration system is required.

* Wastewater exceeding both the VOC and metals criteria must be discharged to the Plant 8 VOC treatment system.

  NOTE: Effluent from the Plant 8 VOC treatment system is pumped directly to the Plant 8 filtration system.

1.3.4 Wastewater/Media Containing Listed Waste, Organics

This category must be handled on a case-by-case basis.

1.3.5 Wastewater/Media Containing Hazardous Waste, TC Metals

This category must be handled on a case-by-case basis.

1.3.6 Wastewater/Media Containing Hazardous Waste, TC Organics

This category must be handled on a case-by-case basis.

2.0 IDENTIFYING DISPOSITION OPTIONS

The following subsections identify discriminators for selecting management alternatives and/or disposition options for materials identified in this Attachment generated from FEMP projects. The mechanism for moving materials into the management system and the acceptance criteria for the selected management facility are also identified.

2.1 Excess Soil Disposition Options

2.1.1 Phase I R.A. 17 Disposition Options

NOTE: Phase I (according to RA 17 work plan) addresses storage options prior to completed construction of the 3 Improved Storage Structures; CSF, SMP, DFP).

- **Cover With Tarp and Extend security fence around pile**
  For soils that exceed the radiological administrative levels (greater than 100 pCi/g total Uranium, greater than 5 pCi/g total Radium or greater than 50 pCi/g total Thorium) and are not suspect of/or not known (through analytical sampling results) to contain hazardous waste (See 1.1 under "Categorizing Materials")

- **Controlled stockpiles**
  For soils that do not exceed the radiological administrative levels and are considered non-hazardous. This criterion is verifiable by the completion of the MEF verification form by the WC representative through analytical data or if sufficient objective PK has been provided.

- **Containerize and Store in Hazardous Waste storage area/facility**
  For soils containing PCBs or soils known to contain hazardous waste (supported by analytical results).

- **UST Soils pile**
  For soils known to be contaminated with petroleum products (See 1.1.5 under "Categorizing Materials")

- **Establish AOC/Provide Engineered Cover in-place**
  These options apply if it is estimated prior to the start of excavations or once excavations are complete for a project, that large quantities of excess soils remain that are known (through known spills or sampling and analysis data) to contain hazardous waste and it would prove inappropriate and not feasible (due to the large quantity of soil) to eventually store this excess soil in an improved storage structure. The decision to determine the quantities of excess soil considered too large for storage (i.e., determine the area to be an AOC) in an improved storage facility will be made on a case-by-case basis by PE, the RSO WML, and the project manager. The establishment of an AOC will require USEPA and Ohio EPA concurrence.

2.1.2 Phase II (Removal Action 17) Disposition Options

NOTE: Phase II (according to RA 17 Work plan) addresses storage options and soil/debris management from the time improved storage structures are completed until the final ROD.

- **Central Storage Facility (CSF)**
  Bulk and containerized storage of soil and debris that exceed the radiological administrative action levels or contain other regulated wastes.

- **Maintain in Controlled Stockpile**
  Excess soils from projects that do not exceed the radiological action levels and do not contain regulated wastes will be transferred to a designated controlled stockpile within the AOC where the excess soil originated. These stockpiles are covered with tarps to ensure physical access is limited (bounded with fencing, if one is not already in place). Drainage controls shall be established around the pile to minimize run-on and provide runoff controls from these controlled stockpiles.

2.2 Debris Disposition Options

2.2.1 Package for Disposal at Point of Generation

Based on the information provided in the PWID, if the disposition of certain waste streams, as well as the size and type of container to be used is already known, the waste packaging may occur at the point of generation if it proves to be a safe and prudent method of packaging.

2.2.2 LLW Packaged for Disposal at NTS

The RSO WML shall provide and coordinate the transport of the appropriate approved containers for packaging debris. All packaging shall be completed in accordance with the SSOP(s) for packaging of low-level radioactive wastes for offsite shipment to NTS. RSO shall provide for the transfer of containers from the FEMP staging areas to the project staging areas for shipment preparation. The waste management goal is to provide just-in-time (JIT) inventory for NTS shipments (i.e., to package and transfer materials for shipment without the need for interim storage).

<u>NOTE</u>: For large scale Dismantling and Decommissioning projects, most of the interim storage options mentioned below are not feasible. Most of the wastes generated from these actions, specifically non-RCRA and Low Level Radioactive Wastes, will be packaged at the generation point for shipment to a DOE-approved facility or for recycle/reuse as specified in the project-specific work plans or contract documents with the dismantling subcontractor.

2.2.3 Non-contaminated, Non-hazardous Debris for Industrial Landfill

Non-contaminated, non-hazardous debris (many compactable wastes) are placed into clean construction waste containers (dumpsters) for disposal at a commercial or industrial landfill. When appropriate, a lockable clean waste container shall be staged in the vicinity of the project site. This area should also be monitored using radiological control personnel and instrumentation to ensure background levels are low enough to permit release surveys in that area.

2.2.4 Central Processing/Packaging Facility

Certain debris may be managed more efficiently in a centralized packaging/processing facility when either one of two conditions is met: 1) the debris is amenable to processing onsite to reduce the volume or toxicity or to improve its physical or chemical form for disposal (e.g., compaction or stabilization), or 2) the material is generated at a sufficiently slow rate that labor-hours and equipment resources are more efficiently deployed at a central location. The central packaging/processing facility will be utilized for any project generating less than 1/2 White Metal Box (3 cubic yards) of debris per week or less than a total of 1 WMB total debris over the life of the project.

RSO or subcontractor forces shall provide roll-off boxes for transfer of the material from the point of generation to the central packaging/processing location. Use of roll-off boxes (in lieu of WMBs) eliminates confusion as to whether debris is in transit or packaged appropriately for disposal.

<u>NOTE</u>: Hazardous debris would be limited to a 90 day accumulation period under this scenario.

2.2.5 Interim Bulk Storage Facilities

RSO or subcontractor shall provide personnel and equipment for transfer of debris to interim bulk storage facilities. **This option is particularly applicable to RCRA contaminated debris that cannot be shipped offsite.** Roll-off boxes shall be used for the transfer of bulk materials. Debris being transferred to an interim bulk storage facility must meet the acceptance criteria for that facility. Materials that do not meet the acceptance criteria of a specified interim bulk storage facility shall be returned to the point of generation for appropriate disposition. Non-conformance to the acceptance criteria shall be documented to collect an appropriate data set for trends analysis and process improvement. Table 1 identifies the acceptance criteria for receiving materials into specific interim bulk storage facilities.

2.2.6 Scrap Metal Pad (SMP) tension support structure

Storage of scrap metal prior to decontamination or offsite shipment

2.2.7 Decontamination Facility Pad (DFP) tension support structure

Staging of contaminated metal/debris prior to decontamination or recycling.

Table 3 - Interim Bulk Storage Facility Acceptance Criteria

Interim Bulk Storage Facility	Acceptance Criteria
Decontamination Facility Pad (DFP)	Metal must not be excessively rusted and not have areas of inaccessible contamination. Material must conform to the metals checklist criteria of SOP 20-C-625.
Scrap Metal Pad (SMP)	Metal must conform to the metals checklist criteria of SOP 20-C-625.

2.2.8 Central Storage Facility (CSF)

Bulk and containerized storage of radioactively contaminated (confirmed through sampling and analysis above the radiological administrative levels) and/or hazardous (confirmed through sampling and analysis) soil and non-recoverable debris.

2.2.9 Interim Containerized Storage Facility

RSO or subcontractor shall provide for transfer of containerized debris requiring storage in an interim container storage facility. Containers will not be transferred to a container storage facility or accepted into a container storage facility without either a completed checklist or a completed MEF and MEF Inventory Attachment. Refer to procedure SOP 20-C-625 for directions on use of checklists. Refer to procedure SSOP-0002 for instructions on completing the MEF and MEF Inventory Attachment.

2.2.10 Disposition Specified in the Project Work Plan

Disposition options for specific types of debris may be called out in the Project Work Plan (e.g., a specific Removal Action Work Plan). These project-specific alternatives will generally be specified to accommodate special handling requirements or to support technology demonstration projects.

2.3 Wastewater Disposition Options

The primary impacts of wastewater discharges is a function of mass loading (mass loading = flow times (x) concentration). Consultation with the RTS representative must occur to determine if the threshold volumes are to be generated as a result of the project.

2.3.1 Non-Hazardous, Low Organics/No Metals, Wastewater Media:

This type of wastewater may be discharged to General Sump. If any VOC measures above 100 ppb, then treatment through the Plant 8 VOC treatment system is required. Large volumes of wastewater with VOCs above 100 ppb may require special disposition.

2.3.2 Non-Hazardous, No Organics/Low Metals, Wastewater Media:

Wastewater meeting these criteria may be discharged to General Sump. Wastewater exceeding these criteria must be discharged so that they are routed to the Plant 8 filtration system.

2.3.3 Non-Hazardous, Low Organics/Low Metals, Wastewater Media:

Wastewater meeting the criteria in 1.3.1 and 1.3.2 may be discharged to General Sump.

Wastewater exceeding the criteria for VOCs in 1.3.1 must be discharged to Plant 8 VOC treatment system.

Wastewater exceeding the criteria for metals in 1.3.2 but meeting the VOC criteria must be discharged such that treatment through the Plant 8 Filtration system is required.

Wastewater exceeding both the VOC and metals criteria must be discharged to the Plant 8 VOC treatment system.

NOTE: Effluent from the Plant 8 VOC treatment system is pumped directly to the Plant 8 filtration system.

2.3.4 Wastewater/Media Containing Listed Waste, Organics

Discharged to the Plant 8 VOC treatment system, regardless of concentration.

2.3.5 Wastewater/Media Containing Hazardous Waste, TC Metals

Disposition must be handled on a case-by-case basis.

2.3.6 Wastewater/Media Containing Hazardous Waste, TC Organics

Disposition must be handled on a case-by-case basis.

ATTACHMENT B (Sheet 1 of 4)

PROJECT WASTE IDENTIFICATION AND DISPOSITION (PWID) FORM

A. General

Project Title:	**Date of Original PWID:**	**Current Revision:**
Project Location: **CRU:**	**Project Engineer/Phone #:**	

Summary Project Description:

Additional detail provided in: __ **Work Plan** __ **Work Order** __ **Other, specify:** _____

B. Excess Soils - Identification and Disposition

Excess Soil Type	Volume (m^3)	Weight (kg)	Characterized By	Disposition By
1. Non-RCRA, Equal to or less than 100 pCi/g U, (Cat. I) (SSOP-0044, Section 1.1.1)			MEF Number 2503	
2. Non-RCRA, Greater than 100 pCi/g U (Cat. II) (SSOP-0044, Section 1.1.2)			MEF Number 2504	
3. Soils Containing Hazardous Waste - TC Metals			MEF Number AAAA	
4. Soils Containing Hazardous Waste - TC organics			MEF Number BBBB	
5. Soils Containing Hazardous Waste - listed waste (SSOP-0044, Section 1.1.3)			MEF Number CCCC	
6. Soils Containing PCBs (SSOP-0044, Section 1.1.4)			MEF Number DDDD	
7. Soils Contaminated w/Petroleum Products (SSOP-0044, Section 1.1.5)			MEF Number EEEE	
8. Soils, specify:			MEF Number FFFF	

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PROJECT WASTE IDENTIFICATION AND DISPOSITION (PWID) FORM

C. Debris - Identification and Disposition

Debris Type	Volume (m^3)	Weight (kg)	Characterized By	Disposition By
1. Scrap metal for decontamination (SSOP-0044, Sec. 1.2.1)			SOP 20-C-625, MEF # 1088 and Scrap Metals Checklist	
2. Scrap metal for recycle (SSOP-0044, Sec. 1.2.1)			SOP 20-C-625, MEF # 1088 and Scrap Metals Checklist	
3. Scrap metal for disposal (SSOP-0044, Sec. 1.2.1)			SOP-20-C-625, MEF # 1088 and Scrap Metals Checklist	
4. Scrap wood (SSOP-0044, Sec. 1.2.2)			SOP-20-C-625, MEF # 905 and Scrap Wood Checklist	
5. Plastic, rubber, paper, fiberglass, rope (SSOP-0044, Sec. 1.2.3)			SOP-20-C-625, MEF # 1539 and Completed Checklist	
6. Glass (SSOP-0044, Sec. 1.2.3)			SOP-20-C-625, MEF # 1284 and Completed Checklist	
7. Concrete, Non-hazardous, Radiologically Contaminated (SSOP-0044, Sec. 1.2.4)			MEF Number 2007	
8. Concrete, Non-hazardous, Non-Radiologically Contaminated (SSOP-0044, Sec. 1.2.4)			MEF Number 2512	
9. Asphalt, Non-hazardous, Radiologically Contaminated			MEF Number 2136	
10. Asphalt, Non-hazardous, Non-Radiologically Contaminated (SSOP-0044, Sec. 1.2.4)			MEF Number GGGG	
11. Bricks, (furnace, acid)			MEF Number HHHH (furnace) MEF Number IIII (acid)	
12. Regulated Asbestos Containing Material (friable) (SSOP-0044, Sec. 1.2.5)			MEF Number 1340	
13. Non-regulated Asbestos Containing Material (non-friable) (SSOP-0044, Sec. 1.2.6)			MEF Number JJJJ	
14. Electrical Equipment (wire, conduit, light, switches, etc.) (SSOP-0044, Sec. 1.2.7)			MEF Number 2008	
15. Debris Containing Hazardous Waste (SSOP-0044, Sec. 1.2.9)			Appropriate MEF	
16. Debris regulated as PCB Items or Article (SSOP-0044, Sec. 1.2.9)			MEF Number KKKK	

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PROJECT WASTE IDENTIFICATION AND DISPOSITION (PWID) FORM

D. Residues and Other Waste - Identification and Disposition

Residue/Waste Type	Volume (m^3)	Weight (kg)	Characterized By	Disposition By
1. Lead based paint chips/scrapings			MEF Number 817	
2. Wood, Railroad Ties, Non-hazardous, Radiologically contaminated			MEF Number 2136	
3. Trees, shrubs, rocks (SSOP-0044, Sec. 1.2.10)			MEF Number LLLL	
4. Others, specify:				
5. Others, specify:				
6. Others, specify:				
7. Others, specify:				

E. Waste Waters - Identification and Disposition - (IDW)

Aqueous Waste Type	Volume (l)	Weight (kg)	Characterized By	Disposition By
1. Aqueous waste which contains a listed VOC. (SSOP-0044, Sec. 1.3)			MEF Number MMMM	
2. Aqueous waste containing VOCs above 100 ppb (SSOP-0044, Sec. 1.3)			MEF Number NNNN	
3. Aqueous waste with no VOC or VOC below 100 ppb (SSOP-0044, Sec. 1.3)			MEF Number 2493	
4. Aqueous wastes which contain listed metals and F-Listed constituents			MEF Number 2498	
5. Others, Specify:				
6. Others, Specify:				
7. Others, specify:				

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ATTACHMENT B (Sheet 4 of 4)
PROJECT WASTE IDENTIFICATION AND DISPOSITION (PWID) FORM

F. Approvals

1. Project Engineer:	Date:	Comments:
2. RSO Waste Programs Management:	Date:	Comments/Special Instructions:
3. Waste Characterization:	Date:	Comments:
4. Radiological Control:	Date:	Comments:
5. Waste Management Coordinator:	Date:	Comments:

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CONTROL NO. _____

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REQUIREMENTS MANUAL

RM-0005

Issue Date: 08-23-93

Revision No. 4

FEMP

LOT MARKING

AND

COLOR CODING SYSTEM

AUTHORIZED BY: _____ 8/23/93

N. C. Kaufman, President — Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
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CINCINNATI, OHIO 45239-8704

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RECORD OF ISSUE/REVISIONS

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DATE	REV. NO	DESCRIPTION AND AUTHORITY
08-23-91	0	Original issue of RM-0005 supersedes Internal Special FMPC-2178, Dated 7/1/89.
12-27-91	1	Incorporation of T91-004, T91-005, T91-006, and T91-031 per Request No. S92-034, S92-035, S92-036, and S92-037, initiated by D. Dunaway.
06-05-92	2	Minor revision to RM-0005 updating source or origin codes in Chapter 4, per Request No. S92-076, initiated by D. Dunaway.
05-05-93	3	Minor revision adding additional information to sections 1, 3, and 4 per Request No. S93-050, initiated by D. Dunaway. This document supersedes RM-0005, dated 06/05/92, Rev. 2.
08-23-93	4	Minor revision reflecting additions and corrections per request No. S93-124, initiated by D. Dunaway. This document supersedes RM-0005, dated 05/05/93, Rev. 3.

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3	3.13 through 3.20	0	08-23-91
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INTRODUCTION

R The Fernald Environmental Management Project (FEMP) Lot Marking and Color Coding
R System has been in use at the FEMP to provide a means for the control and accountability of nuclear materials. Although the FEMP is no longer a production facility, there is still a large amount of nuclear material stored at the FEMP that requires the same degree of control and accountability. The same system used for the identification of nuclear materials is now being applied to hazardous waste, i.e., Resource Conservation and Recovery Act (RCRA) and Toxic
R Substance Control Act (TSCA) waste and low-level radioactive waste in Westinghouse Environmental Management Company of Ohio (WEMCO) remediation activities. Control and accountability is required to satisfy Department of Energy (DOE) and Environmental Protection Agency (EPA) concerns. WEMCO is in
R the process of identifying all packaged materials on-site according to the Lot
R Marking and Color Coding System. This procedure is intended to provide the
R information necessary to identify any container of waste material.

* * * * * *

CHAPTER 1 Lot Marking System

The FEMP lot mark will consist of five basic elements as follows: 5690

	Element	Thorium	Enriched, Depleted, and Normal Uranium
1.0	Production Order Number	None	4 digits
2.0	Origin or Source Code	3 digits	3 digits
3.0	Class or Enrichment Code combined with	1 digit	1 digit
4.0	Material Description Code	3 digits	3 digits
5.0	Lot or Sequence Number	4 digits	4 digits
	Total Digits	11 digits	15 digits

Elements 1.0, 2.0, 3.0, and 5.0 are alpha-numeric (contain numbers or letters or both).

Element 4.0 is numbers only.

Elements 3.0 and 4.0 will be combined into a four-character material type code.

Elements 2.0, 3.0 and 5.0 will be separated from their predecessors by hyphens or dashes.

A detailed description of the composition of each element follows:

1.0 Production Order Number (P.O.)

This designation was assigned by the Production Scheduling Section to identify certain key production activities. It usually consisted of one letter followed by three digits, e.g., A500. In the lot marking system, it is always used in identification of enriched, depleted and normal materials. Waste packaged specifically for shipment to NTS may be marked with the PO Number N003 for uranium and N004 for thorium.

000504

CHAPTER 1 Lot Marking System (cont.)

When enriched uranium materials of irregular percent U^{235} content, for which no Production Order is applicable, are received or generated, special designations are assigned as outlined in the following paragraphs:

1.1 "S", followed by three digits indicating the shipper's percent U^{235} to two decimal places, is used to identify receipts of unusual U^{235} levels.

1.2 "S", followed by three digits, indicates the on-site producing plant's best estimate of the highest isotopic processed over a particular campaign. It is used to identify residue materials generated from the processing of materials of irregular U^{235} levels in FEMP operations. Materials containing up to 9.99 percent U^{235} will be coded as S plus the 3 digit isotopic value. Materials containing 10.00 to 19.99 percent U^{235} will be coded with only the isotopic value (4 digits).

1.3 "W", followed by three digits, indicates the on-site generating plant's best estimate of the highest isotopic associated with nonrecoverable contaminated waste material.

1.4 "X", followed by three digits, as indicated in the summary below, designating a range of percent U^{235}, will be used to identify certain residues produced from the mixing of materials of regular production but differing U^{235} levels (all numbers are inclusive):

1.4.1 X948 for 0.148 to 0.193 & 0.207 to 0.709

1.4.2 X110, X111, X118 & X119 for 0.710 to 0.712

1.4.3 X008 for 0.713 to 0.756

1.4.4 X884 for 0.757 to 0.853

1.4.5 X500 for 0.867 to 0.940

1.4.6 X888 for 0.954 to 1.243

1.4.7 X767 for 1.257 to 1.593

1.4.8 X911 for 1.607 to 2.093

1.5 "P", followed by three digits, indicates the on-site producing plant's estimate of the highest isotopic associated with uranium products or residues containing trace quantities of plutonium requiring special handling.

1.6 "R", followed by three digits, indicate the on-site producing plant's estimate of the highest isotopic associated with uranium products or residues containing RCRA mixed hazardous materials requiring special handling.

2.0 Origin or Source Code

This is a three-digit code with a block of 100 numbers assigned to each plant, as indicated in the following table. The plants are divided into sub-areas with subordinate blocks of numbers assigned to each.

FEMP Origin or Source Code

000-099	Reserved for future needs	500-599	Plant 5
		600-699	Plant 6
100-199	Plant 1	700-799	Miscellaneous facilities
200-299	Plants 2 & 3		
300-399	Pilot Plant	800-899	Plant 8
400-499	Plant 4	900-999	Plant 9

CHAPTER 1 Lot Marking System (cont.)

2.1 For example, Plant 5 is assigned 500-599 and the Reduction Area in Plant 5 is assigned 510 to 529. Within the area, each operation or piece of equipment which may generate a material for coding is assigned a source number. In the Plant 5 Metal Reduction Area, the Rockwell furnaces are assigned 516 and the breakout area dust collectors 520. The intention is to provide a flexible system which can be used to identify a particular item of equipment as a source, if this is desirable, or to allow coding by general area or by plant if this is all that is required.

2.2 A complete list describing all FEMP Source or Origin codes currently assigned will be found in Chapter 4.

2.3 Off-site origin codes used in processing receipts from other nuclear facilities are alphabetically designated using the three-letter Reporting Identification Symbol (RIS) of the shipper. See discussion on special handling of external receipts on page 1.11.

3.0 Class or Enrichment Code

This code consists of one digit or letter designating the general class or enrichment into which the material falls. Those categories currently most important in our operations have been assigned a number or letter as indicated.

CHAPTER 1 Lot Marking System (cont.)

Class or Enrichment Codes - Alphabetic

Code	Category	Detail	$\%U^{235}$	Additive or Alloy Level
A	Normal	Alloy		Alloy
B	Enriched	Alloy	Various	Alloy
C	Enriched		2.10	Other[1]
D	Depleted			Standard
E				
F				
G	Normal			Alloy 601
H	Enriched		0.947	Alloy 601
J				
K				
L	Enriched		0.947	Other[1]
M	Enriched		1.25	Alloy 601
N	Normal	Waste	0.710 to 0.712	None
P	Depleted	Waste	<0.710	None
Q				
R				
T	Thorium			None
U				
V	Enriched	Waste	>0.712	None
W				
X	Enriched		Other[1]	Other[1]
Y				
Z				

NOTE: Letters I, O, and S will not be used.

[1] Not specified. Refer to P.O. for U^{235} or additive level.

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CHAPTER 1 Lot Marking System (cont.)

R

Class or Enrichment Codes - Numeric

Code	Category	Detail	$\%U^{235}$	Additive or Alloy Level
1	Normal		0.710 to 0.712	Std
2	Enriched	Recycle Tails	Various	None
3	Enriched		1.10	Std
4	Enriched		1.25	Std
5	Enriched		0.947	Std
6				
7	Enriched	Sweetener	Various	None
8	Enriched		0.86	Std
9	Enriched		2.10	Alloy 601
0	Enriched		Other[1]	Std

[1] Not specified. Refer to P.O. for U^{235} or additive level.

The use of this code in combination with the Material Description Code makes it possible to assign the same material description code to similar materials regardless of their class, enrichment or special nature.

For ready reference, a table of class codes arranged by material categories, $\%U^{235}$ and additive or alloy levels is also included below.

000509

CHAPTER 1 Lot Marking System (cont.)

Class Codes by Material Categories

Category	Detail	$\%U^{235}$	Additive or Alloy Level				
			None	Std	601[2]	Other[2,3]	Alloy[4]
Depleted				D			
Depleted	Waste	<0.710	P				
Normal	Waste	0.710 to 0.712	N				
Enriched	Waste	>0.712	V				
Enriched		0.86		8			
Enriched		0.947		5	H	L	
Enriched		1.10		3			
Enriched		1.250		4	M		
Enriched		2.10			9	C	
Enriched	Alloy	Other[1]		0		X	B
Enriched	Recycle Tails	Various	2				
Enriched	Sweetener	Various	7				
Thorium			T				

1 Not specified. Refer to P.O. for U^{235} or additive level.

2 Properly applied to only material which has actually achieved this additive level; not appropriate for UO_3, UF_4, or derbies.

3 Any additive level other than "Standard" or Alloy 601; refer to P.O. or I.P.O. (Interplant Production Order) for details.

4 Materials, ordinarily from off-site, containing a concentration of alloying materials usually far above additive (ppm) levels.

CHAPTER 1 Lot Marking System (cont.)

4.0 Material Description Code

This is a three digit code, subdivided into residue and product categories as follows:

Low Grade Residues	000-099
High Grade Residues	100-149
Refinery Feeds	150-199
Intermediate Products	200-299
Remelt Feeds	300-399
Casting Products	400-449
Rolling and Extrusion Products	450-499
Machining Products	500-599

The intent in setting up the material descriptions was to make them general whenever possible, with the Class and Source Codes aiding in the specific identification of the material.

A complete list of all Material Description Codes currently assigned will be found in Chapter 3.

The one-digit or letter Class or Enrichment Code and the three-digit Material Description Code are combined into a four-character Material Type Code which is the basic unit of the FEMP Lot Marking system.

4.1 The low grade residue category (000-099) is intended to include all low uranium or thorium content residues and some higher grade uranium or thorium content residues which require extensive handling and processing before use as oxidation or refinery feed. In general, the low grade residues have been arranged in order of increasing quality. In other words, the lowest uranium or thorium content and lowest quality materials are designated by lower numbers and the high quality materials by higher numbers.

4.2 High grade residues (100-149) are, in general, high uranium or thorium content residues which require some processing such as screening or oxidation. They correspond in many cases to the feed for Plant 8.

4.3 Refinery feeds (150-199) are materials which were suitable for introduction into the refinery without further processing.

CHAPTER 1 Lot Marking System (cont.)

4.4 The intermediate product category (200-299) includes products from the various processes involved in converting refinery feed to metal. It also includes recycle metal which requires some pretreatment such as sawing or pickling before remelting.

4.5 Remelt feeds (300-399) are materials ready for remelt without further treatment.

4.6 Casting products (400-449), rolling and extrusion products (450-499), and machining products (500-510) are the products from these operations.

5.0 Lot or Sequence Number

This is a four-digit number which is used to identify consecutive lots of specific material in sequence where more than one lot is produced per month. Where not more than one lot is produced per month, the lot sequence number indicates the consecutive month of production starting with January 1962 as lot 0001. October 1991 is lot 0358.

To identify the category of trash, the lot or sequence number should include the product month number (May 1989 = 329), preceded by a numeric code that represents the category of 003 material. These categories are:

1 - Glass
2 - Rubber Hose
3 - Plastic
4 - Metal
5 - Concrete, Ceramics, Soil
6 - Contaminated Burnables
7 - Oily Rags, Air Filters and Gaskets
8 - Floor Sweepings
9 - Other - Stencil type of trash on containers

CHAPTER 1 Lot Marking System (cont.)

6.0 Additional Information

6.1 Examples of Lot Marking

The preceding sections of this discussion have been generalized to explain the intent of the system. The following examples are offered to illustrate the application of the general system structure in developing lot markings to identify specific material produced at the FEMP. Marking of material received from off-site is discussed in subsequent paragraphs.

Example 1 (Normal) H110 - 263 - 1200 - 0418

H110	Applicable to P.O. H110
263	Produced in Plant 2/3 (Refinery), Denitration System North Side Packaging
1	"Normal" Uranium
200	UO_3, Product
0418	Lot Sequence Number

Example 2 (Enriched) A500 - 965 - 5069 - 0541

A500	Applicable to P.O. A500
965	Produced in Plant 9, Sump Liquor Processing Area
5	0.947% U^{235} Enriched Uranium
069	Wet Sump Cake, Non-Oily, Non-Halide
0541	Lot Sequence Number

Example 3 (Thorium) 380 - T069 - 0126

380	Produced in Pilot Plant Sump Area
T	Thorium
069	Wet Sump Cake, Non-Oily, Non-Halide
0126	Lot Sequence (Indicates June 1972)

Example 4 (Depleted) A948 - 951 - D110 - 0329

A948	Applicable to P.O. A948
951	Produced in Plant 9, LeBlond Rapid Borer
D	Depleted Uranium
110	Non-briquettable Chips and Turnings for Oxidation
0329	Lot Sequence (Indicates May 1989)

CHAPTER 1 Lot Marking System (cont.)

Example 5 (Depleted) W020 - 501 - P003 - 6329

W020	Applicable to Waste (0.20% U^{235})
501	Plant 5 Maintenance
P003	Depleted Non-recoverable Trash - for storage or shipment for off-site burial
6	Contaminated Burnables
329	May 1989

6.2 Lot Marking of External Receipts

Lot marking of material received from off-site by WEMCO will conform in general to the format described in previous sections. There are, however, certain exceptions which should be noted:

6.2.1. The Source Code will be the three-letter Reporting Identification Symbol (RIS) as illustrated in the table below.

6.2.2. The Lot Sequence Number will be the DOE Form 741 number assigned by the shipper in all cases except:

FTA Extrusions - Use 0000

Example 6 (Depleted Receipt) H082 - FTA - D455 - 0000

H082	Applicable to P.O. H082
FTA	RMI Company, Inc. (Shipper)
D	Depleted Uranium
455	Mark 31 Extruded Tubes - Inner
0000	Indeterminate Lot Sequence Number

6.3 External Source or Origin Codes

The table below shows the external source or origin codes that have been used for lot marking material received from off-site.

CHAPTER 1 Lot Marking System (cont.)

SOURCE OR ORIGIN CODES FOR OFF-SITE RESIDUES AND SCRAP AT THE FEMP

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
AIC	Atomics International	NA Aviation	Canoga park, California
AGT	General Electric Company	ANP Project	Cincinnati, Ohio
ALA	Sandia Corp.	Sandia Lab.	Albuquerque, New Mexico
ALD	Sandia Corp.	Sandia	Livermore, California
ALO	Dow Chemical	Rocky Flats	Golden, Colorado
ARF	Rockwell International	Rocky Flats	Golden, Colorado
ARM	IIT Research Inst.		Chicago, Illinois
ASA	Dow Chemical Company	Rocky Flats	Golden, Colorado
ATA	Mason & Hanger	Silas Mason	Burlington, Iowa
AUA	Los Alamos Nat. Lab.		Los Alamos, New Mexico
AVA	Monsanto	Mound	Miamisburg, Ohio
AVB	EG&G	Mound	Miamisburg, Ohio
AWA	Mason & Hanger	Pantex	Amarillo, Texas
AXA	General Electric Company	Neutron	St. Petersburg, Florida
AYA	Mason & Hanger		San Antonio, Texas
AZA	Mason & Hanger		Fort Campbell, Kentucky
BBA	Bridgeport Brass Company	Extrusion Plant	Ashtabula, Ohio
BMI	Battelle Memorial Inst.		Columbus, Ohio
BWD	Martin Marietta	Gaseous Diff.	Oak Ridge, Tennessee
BXA	Martin Marietta	Gaseous Diff.	Portsmouth, Ohio
BYC	Martin Marietta	Gaseous Diff.	Paducah, Kentucky
BZA	Brookhaven Laboratory		Upton, New York
CAA	USAEC	Chicago Office	Chicago, Illinois

CHAPTER 1 Lot Marking System (cont.)

SOURCE OR ORIGIN CODES FOR OFF-SITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
CAE	Atomics International	NA Aviation	Canoga Park, California
CAF	Battelle Memorial Inst.		Columbus, Ohio
CAK	Ames Laboratory	Iowa State U.	Ames, Iowa
CBH	New Brunswick Laboratory	NBL	New Brunswick, New Jersey
CBJ	New Brunswick Laboratory		Argonne, Illinois
CCP	MIT		Cambridge, Mass.
CCS	Babcock and Wilcox Company	Research Cen.	Lynchburg, Virginia
CDY	Whittaker Corporation	Nuclear Metals	West Concord, Mass.
CGE	General Electric Company	ANP Project	Cincinnati, Ohio
CKY	Union Carbide	Gaseous Diff.	Paducah, Kentucky
CWA	Fermi Laboratory		Batavia, Illinois
CYT	Union Carbide	Y-12 Plant	Oak Ridge, Tennessee
CZA	Argonne National Laboratory		Argonne, Illinois
CZC	Argonne National Laboratory		Argonne, Illinois
DCC	Nuclear Fuel Services, Inc.	Davidson Chem.	Erwin, Tennessee
DYA	Sylcor Division	Sylvania EPI	Hicksville, L.I., New York
DZA	Westinghouse Savannah River Co.	Savannah River	Aiken, South Carolina
FAA	Oak Ridge Operations	USDOE	Oak Ridge, Tennessee
FAK	Middlesex Storage Plant	USAEC	New Brunswick, New Jersey
FAL	University of Virginia		Charlottesville, Virginia
FAQ	National Lead	Albany	Albany, New York
FAV	Kerr-McGee Nuclear Products		Cushing, Oklahoma
FAX	Nuclear Fuel Services, Inc.	Davidson Chem.	Erwin, Tennessee

CHAPTER 1 Lot Marking System (cont.)

SOURCE OR ORIGIN CODES FOR OFF-SITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
FBA	General Electric Company	Energy Systems	Evendale, Ohio
FBB	General Electric Company	NMPO	Idaho Falls, Idaho
FBE	New Brunswick Laboratory	USAEC	New Brunswick, New Jersey
FBX	Vitro Chemical Company		Chattanooga, Tennessee
FCZ	Tenessee Nuclear Spec.		Jonesboro, Tennessee
FTA	Reactive Metals Inc.	Extrusion Plant	Ashtabula, Ohio
FUA	Reactive Metals Inc.	Extrusion Plant	Ashtabula, Ohio
FVA	National Lead of Ohio	FEMP	Cincinnati, Ohio
FVB	General Atomic	Storage Fac.	Youngsville, North Carolina
FVC	WEMCO	FEMP	Cincinnati, Ohio
FWA	Mallinckrodt Chemical Works		Weldon Spring, Missouri
FXA	Goodyear Atomic	Gaseous Diff.	Portsmouth, Ohio
FYA	Union Carbide	Gaseous Diff.	Paducah, Kentucky
FYC	Martin Marietta	Gaseous Diff.	Paducah, Kentucky
FZA	Union Carbide	Gaseous Diff.	Oak Ridge, Tennessee
FZB	Union Carbide	Y-12 Plant	Oak Ridge, Tennessee
FZC	Union Carbide	ORNL	Oak Ridge, Tennessee
FZE	Martin Marrietta	Gaseous Diff.	Oak Ridge, Tennessee
FZF	Martin Marrietta	Y-12 Plant	Oak Ridge, Tennessee
FZG	Martin Marrietta	ORNL	Oak Ridge, Tennessee
GAT	Goodyear Atomic	Gaseous Diff.	Portsmouth, Ohio
GDA	General Dynamics	General Atomic	San Diego, California
HGE	General Electric Company	Hanford	Richland, Washington

CHAPTER 1 Lot Marking System (cont.)

SOURCE OR ORIGIN CODES FOR OFF-SITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
HRA	Rockwell Int.	Hanford	Richland, Washington
HUA	Westinghouse Hanford Co., HEDL	Hanford	Richland, Washington
HUD	Westinghouse Hanford Co., CPD	Hanford	Richland, Washington
HUE	Westinghouse Hanford Co., DRD	Hanford	Richland, Washington
HVA	Atlantic Richfield	Hanford	Richland, Washington
HWA	Isochem, Inc	Hanford	Richland, Washington
HXA	United Nuclear Corp. Inc.	Hanford	Richland, Washington
HYA	Battelle Memorial Inst., PNL	Hanford	Richland, Washington
HZA	General Electric Company	Hanford	Richland, Washington
JSA	Allied Chemical	Aerojet	Idaho Falls, Idaho
JSB	Aerojet Nuclear	Idaho Falls	Idaho Falls, Idaho
JSG	EG&G Idaho	Idaho Falls	Idaho Falls, Idaho
JWB	Idaho Nuclear Corp.	Idaho Falls	Idaho Falls, Idaho
JXI	Westinghouse Idaho Nuclear Co.	Idaho Falls	Idaho Falls, Idaho
KMG	Kerr-McGee Nuclear Products		
KZA	Knolls Atomic Power Laboratory		Schnectady, New York
LAB	University of California	Lawrence Lab.	Livermore, California
LAE	Atomics International		Canoga Park, California
LAL	Rockwell International		Canoga Park, California
LAQ	Bureau of Mines		Albany, Oregon
LAW	(Gulf) General Atomic		San Diego, California
LAZ	General Electric Company	Nuclear Energy	San Jose, California
LLB	Sandia Corp.	Livermore	Livermore, California

CHAPTER 1 Lot Marking System (cont.)

SOURCE OR ORIGIN CODES FOR OFF-SITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
LZA	University of California	Berkeley	Berkeley, California
LZB	University of California	Livermore	Livermore, California
MAA	Worchester Polytechnic	USAEC	New York, New York
MAD	Pratt & Whitney Aircraft Div.	CANEL	Middletown, Connecticut
MAP	Aeroprojects, Inc.		West Chester, Pennsylvania
MAY	Nat. Bureau of Standards		Washington, D. C.
MBB	Reactive Metals Inc.	Extrusion Plant	Ashtabula, Ohio
MBL	Martin Marietta	Nuclear Div.	Baltimore, Maryland
MBM	MIT		Cambridge, Mass.
MBN	Nuclear Metals Inc.	Textron	West Concord, Mass.
MBP	U. of Rochester		Rochester, New York
MBR	Babcock and Wilcox Company	R&D Div.	Lynchburg, Virginia
MBT	Babcock and Wilcox Company	R&D Div.	Lynchburg, Virginia
MBU	United Nuclear Corp.	Development	White Plains, New York
MBW	Babcock and Wilcox Company		Lynchburg, Virginia
MBY	Vitro Laboratories		West Orange, New Jersey
MCW	Mallinckrodt Chemical Works	Uranium Div.	Weldon Spring, Missouri
MCY	Westinghouse Electric Co.	NES	Pittsburgh, Pennsylvania
MIO	Nuclear Metals Inc.		West Concord, Mass.
MPW	Pratt & Whitney Aircraft Div.	CANEL	Middletown, Connecticut
MSA	USAEC, NY Operations		New York, New York
NBL	New Brunswick Laboratory	USAEC	New Brunswick, New Jersey
NBX	Middlesex Storage Plant	USAEC	New Brunswick, New Jersey

CHAPTER 1 Lot Marking System (cont.)

SOURCE OR ORIGIN CODES FOR OFF-SITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
NCF	National Carbon Co.	Union Carbide	Fostoria, Ohio
NLA	National Lead	Albany	Albany, New York
NMC	Martin Marietta	Nuclear Div.	Middle River, Maryland
NME	Nuclear Mat. & Equip. Corp.	NUMEC	Apollo, Pensylvania
OGE	General Electric Company	NM Propulsion	Cincinnati, Ohio
ORF	EG&G	Rocky Flats	Golden, Colorado
PAB	Duquense Light Co.	Shippingport	Shippingport, Pennsylvania
PAP	Babcock and Wilcox Company		Apollo, Pensylvania
PZA	Westinghouse Electric Co.	Bettis APL	West Mifflin, Pennsylvania
QAA	USAEC	Headquarters	Washingtion, D. C.
SAF	Mason & Hanger	Silas Mason	Fort Campbell, Kentucky
SBN	Mason & Hanger	Silas Mason	San Antonio, Texas
SBX	Monsanto	Mound	Miamisburg, Ohio
SRS	Sylcor Division	Sylvania EPI	Hicksville, L.I., New York
RBR	Brazil		
TOA	K-65, Q-11		
VAC	National Research		Cambridge, Mass.
VCC	Vitro Chemical Company		Chattanooga, Tennessee
VXB	UNC Industries (Waste)	Hanford	Richland, Washington
WCP	Combustion Engineering, Inc.	Naval Reactors	Windsor, Connecticut
WEB	Westinghouse Power Div.	Bettis APL	Pittsburg, Pennsylvania
XHP	General Atomic	Storage Fac.	Youngsville, North Carolina
YAK	Department of the Navy	NFEC	Alexandria, Virginia

CHAPTER 1 Lot Marking System (cont.)

SOURCE OR ORIGIN CODES FOR OFF-SITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
YAM	Coast Guard Academy		New London, Connecticut
YAQ	National Electric Coil		Louisville, Kentucky
YDE	Nuclear Fuel Services	West Valley	West Valley, New York
YEC	Kerr-McGee	Cimarron	Crecent, Oklahoma
YEF	Smithsonian Inst.	Hist. & Tech.	Washingtion, D. C.
YJL	Colgate University		Hamilton, New York
YLE	Westinghouse	Waltz Mill	Madison, Pennsylvania
YPF	U. of Alabama at Auburn		Auburn, Alabama
YQK	GSA Stockpile		Washingtion, D. C.
YST	TNS		Jonesboro, Tennessee
YQM	Frankfork Arsenal	DOD	Philadelphia, Pennsylvania
YUD	Exxon Nuclear	Hanford	Richland, Washington
YVX	Nuclear Metals		Concord, Mass.
ZCM	Bucknell University		Lewisburg, Pennsylvania
ZCY	Carnegie-Mellon U.		Pittsburgh, Pennsylvania
ZDB	Case Western Reserve U.		Cleveland, Ohio
ZDC	Catholic University		Washingtion, D. C.
ZFZ	Fairleigh Dickenson U.		Teaneck, New Jersey
ZDP	University of Cincinnati		Cincinnati, Ohio
ZDS	Clarke College		Dubuque, Iowa
ZDT	Clarkson University		Potsdam, New York
ZEF	Combustion Engineering		Windsor, Connecticut
ZIB	Scientific Ecology		Oak Ridge, Tennessee

CHAPTER 1 Lot Marking System (cont.)

SOURCE OR ORIGIN CODES FOR OFF-SITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
ZKB	Iowa State University		Ames, Iowa
ZKL	Kansas State U.		Manhattan, Kansas
ZLD	Ledoux & Co.		Teaneck, New Jersey
ZLR	Louisiana Tech. U.		Ruston, Louisiana
ZLU	University of Louisville		Louisville, Kentucky
ZMH	Manhattan College		Riverdale, Bronx, New York
ZMK	Marquette University		Milwaukee, Wisconsin
ZMR	University of Maryland		College Park, Maryland
ZND	University of Minnesota		Minneapolis, Minnesota
ZNE	3M Company		St. Paul, Minnesota
ZNG	University of Mississippi		University, Mississippi
ZNX	National Lead	Albany	Albany, New York
ZOV	Manufacturing Sciences		
ZPG	University of Nevada		Reno, Nevada
ZQC	Northeastern University		Boston, Mass.
ZQG	Northwestern University		Chicago, Illinois
ZQM	Nuclear Fuel Services, Inc.		Erwin, Tennessee
ZQN	Nuclear Mat. & Equip. Corp.	NUMEC	Apollo, Pensylvania
ZQX	Ohio University		Athens, Ohio
ZSF	Pittsburgh University		Pittsburgh, Pennsylvania
ZSK	Princeton University		Princeton, New Jersey
ZST	Chamberlain Mfg.		Waterloo, Iowa
ZVF	Syracuse University		Syracuse, New York

SOURCE OR ORIGIN CODES FOR OFF-SITE RESIDUES AND SCRAP AT THE FEMP (cont.)

SOURCE CODE	NAME OF SHIPPER	PLANT	ADDRESS
ZVX	Texas Tech. University		Lubbock, Texas
ZWB	Toledo University		Toledo, Ohio
ZWY	Utah State University		Logan, Utah
ZXA	Vanderbilt University		Nashville, Tennessee
ZXC	U. of Virginia		Charlottesville, Virginia
ZXF	Villanova University		Villanova, Pennsylvania
ZXH	Virginia Polytechnic Inst.		Blacksburg, Virginia
ZXZ	Washington University		St. Louis, Missouri
ZYG	West Virginia Inst. of Tech.		Montgomery, West Virginia
ZYP	Westinghouse	Atomic Power	Cheswick, Pennsylvania
ZZA	University of Wisconsin		Madison, Wisconsin
ZZM	Yale University		New Haven, Connecticut

CHAPTER 1 Lot Marking System (cont.)

7.0 SOLVENT AND ORGANIC CHEMICALS NAMES TO BE STENCILED ON CONTAINERS

	Acetone
	Acetonitrile
	Agitene
	Benzene
	n-Butyl alcohol
	Carbon disulfide
	Carbon tetrachloride
	Chlorinated fluorocarbons
P	Chlorobenzene
P	Chlorodane
	Chloroform
	m-Cresol
	o-Cresol
	p-Cresol
	Cresols
	Cresylic Acid (Cresols plus phenols)
	Cyclohexane
	Cyclohexanone
P	2, 4-D
P	o-Dichlorobenzene
P	1, 4-Dichlorobenzene
	1, 2-Dichloroethane
	1, 1-Dichloroethylene
	2, 4-Dinitrotoluene
	1, 4-dioxane
P	Endrin
	2-Ethoxyethanol
	Ethyl acetate
	Ethyl benzene
	1, 1, 2-Trichloro-1, 2, 2-trifluoroethane
	Ethyl ether
P	Heptachlor (and its hydroxide)
P	Hexachlorobenzene
	Hexachlorobutadiene
	Hexachloroethane
	Isobutanol
P	Lindane
	Methanol
P	Methoxychlor
	Methyl ethyl ketone (2-Butanone)
	Methyl isobutyl ketone
	Methylene chloride
	Nitrobenzene
	2-Nitropropane
P	Pentachlorophenol
	Phenol
	Pyridine
	Tetrachloroethylene
	Toluene
P	Toxaphene
P	2, 4, 5-TP acid Silvex
	1, 1, 1-Trichloroethane
	1, 1, 2-trichloroethane
	Trichloroethylene
	Trichlorofluoromethane
P	2, 4, 5-Trichlorophenol
P	2, 4, 6-Trichlorophenol
	Vinyl chloride
	Xylene

P = Pesticide

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CHAPTER 2 Color Coding System

In addition to the lot marking system described for identifying nuclear materials, color coding is applied as a secondary method of designating depleted, normal, and enriched uranium and thorium.

Three basic colors, black, red and white, are used for painting the body of containers in service at the FEMP.

Black drums are used for depleted uranium, normal uranium, unrestricted (for Nuclear Safety) enriched uranium compounds and residues, RCRA and TSCA waste and thorium.

All-red drums are used for enriched, restricted uranium (e.g., mass, geometry, or concentration).

White drums and white metal boxes are used for off-site shipment of low-level uranium waste; white drums are used for thorium waste.

Container identification markings required for long-term storage such as lot marks, weights, drum numbers, alloying chemical symbols and percent U^{235} are routinely applied by stencil over the basic paint colors as specified in Table I. "Markal" or equivalent type white or black paint sticks are used for applying temporary identification markings to residue and waste containers and to other specific materials in the production areas, including some off-site receipts and the reidentification of materials on the storage pad. Pre-printed identification labels that contain barcodes may also be used.

Color coding of black drums will be further implemented by application of a narrow stripe around the circumference above the gross, tare and net weight information on each container. The colors to be used for this stripe are as follows:

CHAPTER 2 Color Coding System (cont.)

Material in Black Drums		% U^{235}	Stripe Color
(a)	Depleted Uranium	<0.710	Green
(b)	Normal Uranium	0.710 to 0.712	Yellow
(c)	Enriched Uranium - Unrestricted compounds and residues	>0.712	Red
(d)	Thorium		Blue
(e)	RCRA and TSCA waste		None

An exception to the container body painting and stencilling requirement is permitted for enriched oxides packaged in 6" diameter by 15" high metal cans. A narrow red-tape stripe around the periphery of the can and a printed label are applied.

It will not be necessary to apply a stripe to all drums.

Containers characterized and identified as containing RCRA and TSCA waste and which have been declared to be below the economic discard limit will have their color stripe obliterated with black paint before they are placed in storage in the RCRA warehouses.
NOTE: Drums with color stripes which are already in storage need not be changed.

Red targets or red-white cards, or yellow-white or green-white cards and pressure-sensitive tape are used to color code enriched, normal and depleted uranium metal on skids, hoppers, dollies, metal pieces not in containers, or boxes and major components of process equipment such as vessels, sumps, machinery, dust collectors, etc. An explanation of their use is detailed in procedures 20-C-100, "Moving and Storing Depleted, Normal, and Enriched Uranium Materials < 20% U^{235} and Thorium Metal and Materials", and 20-C-904, "SOP-Nuclear Safety General Requirements."

Old identification markings will be obliterated with paint immediately upon emptying containers.

Offsite receipts which do not comply with FEMP color coding requirements are color coded with a band of paint around the periphery of the container - yellow for normal, red for enriched, green for depleted, and blue for thorium, as a substitute for painting the entire container. The proper color coding is applied as soon as the analytical results are received from the Laboratory.

CHAPTER 2 Color Coding System (cont.)

TABLE I

FEMP Color Code Specification
for Basic Container Paints and
Identification Markings

Type of Material	Basic Container Paint Color	Identification Markings Paint Color	Stripe Paint Color
Normal uranium	Black	White	Yellow
Enriched uranium, unrestricted	Black	White	Red
Enriched uranium mass, geometry or concentration restricted	Red	White	None
Depleted uranium	Black	White	Green
Thorium	Black	White	Blue
Thorium Waste	White	Black	Blue
Uranium Waste Shipments	White	Black	None
RCRA and TSCA Waste	Black	White	None

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CHAPTER 3 MATERIAL DESCRIPTION CODES

LOW-GRADE RESIDUES

001 DISCARD PROCESS RESIDUES, TRAILER CAKES, WASTE SLURRIES, RAFFINATES, ETC.

002 SUMP CAKE - COPPER CONTAMINATED, LOW URANIUM

003 NON-RECOVERABLE TRASH - FOR STORAGE OR SHIPMENT FOR OFF-SITE BURIAL. see p. 1.09

004 CONTAMINATED STEEL AFTER WASHING AND/OR CLEANING

005 CONTAMINATED ZIRCONIUM

006 CONTAMINATED LEATHER GLOVES FOR LAUNDRY

007 TRAILER CAKES, WASTE SLURRIES, RAFFINATES NOT MEETING DISCARD SPECIFICATION

008 GRIT BLAST RESIDUE

009 CONTAMINATED OIL - SOLUBLE; COOLANT

010 CONTAMINATED WATER, CONTAINING CHLORIDES

011 CONTAMINATED SOIL, ROCKS, SAND, BRICKS AND CERAMICS

012 CONTAMINATED WATER OR SUMP LIQUOR, NON-CHLORIDE

013 CONTAMINATED SOLVENT OR ORGANIC CHEMICAL - STENCIL TYPE OF CHEMICAL OR SOLVENT ON CONTAINER (SEE LIST OF SOLVENT AND CHEMICAL NAMES ON PAGE 1.21.)

014 GLASS AND SAMPLE BOTTLES

015 CONTAMINATED OIL, INSOLUBLE

016 CONTAMINATED COPPER - FOR DISCARD

017 CONTAMINATED GRAPHITE - UNCRUSHED BUT BROKEN INTO LARGE PIECES

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

LOW-GRADE RESIDUES (cont.)

018 CONTAMINATED ALUMINA-SODA LIME (HIGH Cl^-)

019 CONTAMINATED MAGNESIUM

020 CONTAMINATED MERCO-DRI AND HILCO CAKE

021 DRUM DECONTAMINATION RESIDUES; WET MgF_2

022 CONTAMINATED TBP AND/OR KEROSENE MIXTURES AND SLUDGES

023 OILY MgF_2

024 CONTAMINATED GRAPHITE - CRUSHED

025 CONTAMINATED METALLIC FILTER ELEMENTS

026 CONTAMINATED CARBON FILTER ELEMENTS

027 CONTAMINATED RAGS, PAPER AND POLYETHYLENE

028 CONTAMINATED ASBESTOS MATERIALS

029 DUST COLLECTOR BAGS

030 MAGNESIUM OXIDE AND MAGNESIUM ZIRCONATE FROM CRUCIBLE CLEANOUT

031 ROASTED MgF_2 (BLENDED WITH OTHER MATERIALS)

032 INCINERATOR ASHES - MATERIAL PASSING THROUGH GRATE OR SCREEN

033 INCINERATOR CINDERS - MATERIAL NOT PASSING THROUGH GRATE OR SCREEN

034 MgF_2 FOR MILLING OR DISCARD

035 MgF_2 OR CaF_2, GOOD LINER MATERIAL

036 MgF_2, -20 MESH, HIGH FREE METAL FOR PLANT 8 ROASTING (ENRICHED ONLY)

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

LOW-GRADE RESIDUES (cont.)

037 MgF_2, GROUND

038 MgF_2, +20 MESH, LOW U CONTENT, TO BE CRUSHED

039 SLUDGES, OILY

040 SLUDGES, FOR BLENDING AND SCREENING

041 SLUDGES, OILY, FOR OXIDATION, HIGH FREE METAL

042 SLUDGES, CLEANOUT, NON-OILY, FOR ROASTING

043 SLUDGES, SOLVENT - STENCIL TYPE OF SOLVENT ON CONTAINER (SEE LIST OF SOLVENT AND ORGANIC CHEMICAL NAMES ON PAGE 1.21.)

044 SLUDGES, SALT, SOFT, CHLORIDE (FOR PLANT 8 RECOVERY)

045 SLUDGES, SALT, SOFT, NON-CHLORIDE

046 SLUDGES, NON-OILY, FOR OXIDATION INCLUDING HIGH OR LOW FREE METAL

047 SAMPLES, NON-METALLIC, MISCELLANEOUS

048 OIL BURNER ASH

049 LEAD AND LEAD-CONTAMINATED MATERIALS

050 PCB MATERIALS, BALLAST, PCB-CONTAMINATED RAGS

051 MERCURY-CONTAMINATED MATERIALS, MERCURY BATTERIES

052 BARIUM-CONTAMINATED MATERIALS

053 NON-BURNABLE METAL WITH URANIUM CONTENT

054 HIGH LEVEL CLEANING RESIDUES

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

LOW-GRADE RESIDUES (cont.)

055 DEPLETED U METAL - NOT SUITABLE FOR REACTOR PRODUCT STREAMS (NOT TOP CROPS)

056 DEPLETED U INGOT CROPS (TOP CROPS) FROM PRIMARY INGOTS

057 WET CRUSHED SLAG FROM FURNACE POT BLOW-OUTS

058 CONTAMINATED CaF_2 - MgO

059 ASH FROM BURNING DUST COLLECTOR BAGS

060 FURNACE SALT, SOLIDIFIED, CHLORIDE (FOR PLANT 8 RECOVERY)

061 FURNACE SALT, SOLIDIFIED, NON-CHLORIDE

062 DUST COLLECTOR RESIDUES - HIGH FLUORIDE

063 KOH REVERSION CAKE

064 DUST COLLECTOR RESIDUES, PYROPHORIC, HIGH FLUORIDE

065 SCRAP SALTS, HIGH FLUORIDE, INCLUDING FLOOR SWEEPINGS

066 SCRAP SALTS, LOW FLUORIDE, INCLUDING FLOOR SWEEPINGS

067 WET SUMP OR FILTER CAKE, HALIDE CONTD

068 WET SUMP OR FILTER CAKE, OIL CONTD

069 WET SUMP OR FILTER CAKE, NON-OILY AND NON-HALIDE

070 ROCKWELL SPILLS

071 ROCKWELL CLEANINGS

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

LOW-GRADE RESIDUES (cont.)

072 U OR Th NITRATE SOLUTIONS, HIGH IMPURITY SUCH AS ZIRNLO DECOPPERING SOLUTIONS - FOR REFINERY PROCESSING

073 U OR Th CHLORIDE OR FLUORIDE SOLUTIONS, HIGH IMPURITY - SUCH AS PLANT 8 METAL DISSOLVER PRODUCT - NOT FOR REFINERY FEED

074 U OR Th SULPHATE SOLUTIONS

075 CLAD METAL FOR HNO_3 DISSOLVER

076 ZIRNLO ENDS - TO BE CLASSIFIED FOR RECOVERY

077 DRY CRUSHED SLAG FROM FURNACE POT BLOW-OUTS

078 OFF-SPEC Th OXALATE, FRENCH SOURCE

079 UNFIRED REDUCTION CHARGES PLUS MgF_2 FROM LINER CAVE-INS

080 PARTIALLY OXIDIZED METAL FOR SORTING CONTAINING METL-X

081 PARTIALLY OXIDIZED METAL FOR SORTING CONTAINING NO METL-X

082 OFF-SPEC UF_4 OR ThF_4

083 U OR Th CHLORIDE SALTS, REJECT

084 BAD REDUCTION (NO DERBY)

085 U_3O_8 - ROTEXED - OTHER THAN PLANT 8'S OWN PRODUCT

086 U308 ROTEXED - PLANT 8'S OWN PRODUCT NOT MEETING REFINERY SPECIFICATIONS FOR CONTINUOUS DIGESTION

087 ROASTED SUMP CAKE - HIGH FLUORIDE - FOR MILLING

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

LOW-GRADE RESIDUES (cont.)

088 UNROASTED BUT MILLED MgF_2 (BLENDED WITH OTHER MATERIALS)

089 U_3O_8 ROTEXED - FROM CONCRETED CHIPS - CALCIUM

090 THORIUM RESIDUES

091 MAGNESIUM URANATE

092 FILTERED SEWAGE

095 COLD METAL OXIDES - NON RADIUM-BEARING

096 AUSTRALIAN RADIUM CAKE

097 RADIUM-BEARING MATERIALS - SAMPLES, K-65, INCLUDING Q-11 CONTAMINATED MATERIALS

098 MATERIAL HELD FOR HISTORICAL PURPOSES

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FEMP
SITE DOCUMENT SYSTEM

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SDC No. SC93-018
Effective Date: 09-01-93
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SITE DOCUMENT CHANGE

1. **AFFECTED DOCUMENT NUMBER** RM-0005	2. **AFFECTED DOCUMENT PAGE NUMBER** 3.6

3. **TITLE OR SUBJECT:**
FEMP Lot Marking and Color Coding System

4. **ACTIVITY AND AREA AFFECTED:**
Lot Marking at Plants 5 and 7

5. **APPROVAL SIGNATURE:**

Leslie Fritch for Nell Fraser — 9/2/93

Nell W. Fraser — Department Mgr. — Date

6. **CHANGE:**

1) Add information to Page 3.6 as follows:

093 bird carcasses, droppings, and contaminated materials
099 chipped floor sealant and contaminated material

7. **DOCUMENTATION CONTROL REQUIRED DOCUMENT ACTION**

[ ] No Procedure Action

[X] Revise affected procedure/specification per this document.

FILING INSTRUCTIONS: File facing page 3.6 , Document No. RM-0005
(Effective Date: 08-23-93 , Revision No. 4)

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

HIGH-GRADE RESIDUES

100 SCRAP U_3O_8 OR ThO_2, LOW FLUORIDE

101 SCRAP U_3O_8 OR ThO_2, HIGH FLUORIDE

102 SCRAP UO_2

103 INGOT CROPS (TOP CROPS) FROM PRIMARY INGOTS

104 METAL SPILLS AND EXTRUSION ENDS; METAL HIGH IN IMPURITIES AND SPILLS

105 ThO_2 PRODUCED FROM UNPURIFIED HANFORD THORIUM NITRATE VIA THORIA GEL PROCESS

106 CHIPS EMBEDDED IN CONCRETE - HIGH CALCIUM

107 CHIPS AND TURNINGS CONTAMINATED WITH NON-U MATERIALS - FOR OXIDATION

108 WET PHOSPHATE CAKE

109 SAWDUST FOR OXIDATION

110 NON-BRIQUETTABLE CHIPS AND TURNINGS FOR OXIDATION

111 BRIQUETTALE CHIPS AND TURNINGS FROM STANDARD METAL

112 BRIQUETTABLE CHIPS AND TURNINGS, HIGH IMPURITIES, FOR BRIQUETTING AND DOUBLE MELTING

113 ZIRCONIUM CLAD METAL, FROM OFFSITE, TO BE DECLAD BY ZIRNLO SYSTEM

114 ZIRNLO FEED, CLASSIFIED AND SAWED

115 WET THORIUM OXALATE CAKE

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

HIGH-GRADE RESIDUES (cont.)

116 WET THORIUM HYDROXIDE

117 WET AMMONIUM DIURANATE CAKE

118 HOLLOW CORES WITH BROKEN DRILLS - ALL TYPES - BITS TO BE REMOVED AND CORES PICKLED PRIOR TO REMELT

119 SOLID METAL, OTHER THAN CORES, WITH EMBEDDED STEEL

120 CHEMICAL REJECT PRIMARY INGOTS

121 U_3O_8, +8 MESH - HIGH FLUORIDE

122 U_3O_8, +8 MESH - LOW FLUORIDE

123 CALCIUM URANATE

124 ZIRNLO; PARTIALLY DECLAD FUEL ELEMENTS

125 UNRECYCLED SLAG +20 MESH, BALL MILL PRODUCT

126 OXIDES MIXED WITH ZIRCONIUM BUT CLAD WITH OTHER ELEMENTS

128 CLAD URANIUM METAL; DECLAD BY MACHINING OR CHEMICAL TREATMENT

129 DIRTY PRILL, CODE 5 DERBIES, AND PLANT 1 TITAN MILL CLEAN-OUT, HIGH U CONTENT

130 PARTIALLY OXIDIZED METAL FOR DISSOLVER

131 PARTIALLY OXIDIZED METAL OXIDATION FEED

132 DUST COLLECTOR RESIDUES, LOW FLUORIDE

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

HIGH-GRADE RESIDUES (cont.)

133 OXIDES CLAD OR MIXED WITH ALUMINUM

134 U_3O_8 FOR REOXIDATION

135 DUST COLLECTOR RESIDUE. HIGH FLUORIDE, GREATER THAN 20% ASSAY

136 METAL TO BE OXIDIZED

137 MISCELLANEOUS MATERIAL - RECOVERY METHOD TO BE DETERMINED (NOT FOR USE BY INDIVIDUAL PLANTS)

138 OXIDES CLAD OR MIXED WITH ANY METALLIC ELEMENT OTHER THAN ALUMINUM, ZIRCONIUM OR STAINLESS STEEL

139 URANIUM ALLOYED OR CANNED WITH ELEMENTS OTHER THAN ALUMINUM, MOLYBDENUM OR ZIRCONIUM

140 OXIDES CLAD OR MIXED WITH ZIRCONIUM

141 CLAD METAL FOR ACID DISSOLUTION - NOT FOR ZIRNLO PROCESSING

142 OXIDES CLAD OR MIXED WITH STAINLESS STEEL

143 ROASTED CALCIUM-PRECIPITATED SUMP AND FILTER CAKES

144 OFF-SITE SUMP AND FILTER CAKES AFTER ROASTING AT FEMP

145 ROASTED AMMONIUM-PRECIPITATED SUMP AND FILTER CAKES

146 ROASTED MAGNESIUM-PRECIPITATED SUMP AND FILTER CAKES

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

REFINERY FEEDS

150 URANYL OR THORIUM NITRATE SOLUTION

151 OFF-SPEC ThO_2, FRENCH SOURCE

152 U_3O_8 ROTEXED PLANT 8 FURNACE PRODUCT

153 -8 MESH PRODUCT FROM OXIDIZING +8 METAL

154 U_3O_8 ROTEXED PLANT 8 FURNACE PRODUCT

155 U_3O_8 -8 MESH FROM ROTEXING OF OTHER THAN PLANT 8'S OWN PRODUCTS - LOW FLUORIDE

156 MILLED UO_2

157 REJECT UO_3

158 PHOSPHATE ASH

159 ROASTED, MILLED AND/OR SCREENED CALCIUM-PRECIPITATED SUMP AND FILTER CAKES

160 IMPURE URANYL OR THORIUM NITRATE - SOLID

161 URANIUM CARBIDE, UC

162 OFFSITE SUMP AND FILTER CAKES AFTER ROASTING, MILLING, AND/OR SCREENING AT FEMP

163 ROASTED, MILLED AND/OR SCREENED AMMONIUM-PRECIPITATED SUMP AND FILTER CAKES

164 ROASTED, MILLED AND/OR SCREENED MAGNESIUM-PRECIPITATED SUMP AND FILTER CAKES

165 U_3O_8 - NOT REQUIRING RE-OXIDATION

166 UO_2 (OR ThO_2) PELLETS - REFINERY FEED

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CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

REFINERY FEEDS (cont.)

167 UO_2 (OR ThO_2) POWDER - REFINERY FEED

168 CRUSHED FURNACE SALTS AND SLUDGES
NON-CHLORINE

169 ROASTED FURNACE SALTS AND SLUDGES
NON-CHLORINE

170 ORE CONCENTRATE - MISCELLANEOUS

190 U_3O_8 FOR RE-OXIDATION

191 RE-OXIDIZED ENRICHED CALCINER U_3O_8 FOR
SCREENING AND MILLING

192 OXIDE FOR SCREENING AND MILLING

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CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

INTERMEDIATE PRODUCTS

200 UO_3 PRODUCT

201 UO_3 REACTOR RECYCLE TAILS

202 UO_2 OR ThO_2 PRODUCT

203 UF_6, URANIUM HEXAFLUORIDE

204 PURIFIED URANYL OR THORIUM NITRATE SOLUTION

205 ThO_2 PRODUCED FROM SOL-GEL PROCESS

206 BLENDED UF_4 OR ThF_4 CHARGE

207 PURIFIED URANYL OR THORIUM NITRATE SOLID

209 URANIUM OR THORIUM TETRACHLORIDE

210 UF_4 OR ThF_4

211 UF_4 FROM PILOT PLANT UF_6

212 UF_4 FROM HANFORD UO_3

214 U_3O_8 FROM RECYCLE UO_3 (ROR PROCESS)

215 THORIUM HYDROXIDE, DRY

216 CHARGED UF_4 POTS, WIP

218 CLEAN PRILL FOR DOUBLE MELTING

219 METAL FROM SPILLS FOR DOUBLE MELTING

220 CODE 2 DERBIES FOR DOUBLE MELTING OR SHOT CLEANING

221 SOLID METAL FOR PICKLING PRIOR TO REMELT DOES NOT REQUIRE BLENDING (<12")

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

INTERMEDIATE PRODUCTS (cont.)

222 SOLID METAL - INCLUDES PHYSICAL BUT NOT CHEMICAL REJECT INGOTS; TO BE SAWED OR CRUSHED AND PICKLED PRIOR TO REMELT (≥12")

223 SOLID METAL TO BE SAWED, SHEARED, OR CRUSHED, BUT NOT PICKLED PRIOR TO REMELT

224 SOLID METAL, NOT PICKLED, OTHER THAN SPILLS AND TOP CROPS, FOR DOUBLE MELT

225 SR STANDARD METAL TO BE SAWED AND PICKLED PRIOR TO REMELT

227 METAL SAMPLES FOR DOUBLE MELTING

228 SOLID METAL TO BE PICKLED

229 FIRST GENERATION TOP CROPS FROM PRODUCT INGOTS - FOR PRIMARY INGOT REMELT CHARGES

230 SAWED SECTIONS, REQUIRING PICKLING, FROM PRIMARY INGOTS CONTAINING FIRST GENERATION TOP CROPS

231 SAWED SECTIONS, REQUIRING PICKLING, FROM PRIMARY INGOTS CONTAINING NO TOP CROP METAL

232 PICKLED METAL FOR DOUBLE MELTING - OTHER THAN FIRST GENERATION TOP CROPS

233 CLASSIFIED SHAPES FOR DOUBLE MELTING

234 PHYSICAL REJECT BILLETS TO BE SAWED PRIOR TO REMELT

235 TUBULAR ELEMENTS TO BE CRUSHED

236 EXTRUSION BUTTS TO BE PICKLED

237 PARTIALLY DECLAD METAL, OTHER THAN ZIRNLO, FOR DOUBLE MELTING

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

INTERMEDIATE PRODUCTS (cont.)

238 SOLID METAL FOR PICKLING AND DOUBLE MELTING, OTHER THAN FIRST GENERATION TOP CROPS

239 CHEMICAL REJECT SAWED REMELT METAL - TO BE CAUSTIC LEACHED AND PICKLED

240 DOUBLE MELT INGOTS TO BE SAWED AND PICKLED PRIOR TO REMELT

241 DOUBLE MELT INGOTS TO BE SAWED, BUT NOT PICKLED, PRIOR TO REMELT

242 CHEMICAL REJECT INGOTS (AND OTHER CHEMICAL REJECT MATERIAL) TO BE SAWED AND PICKLED, OR TO BE ROLLED, SHEARED AND PICKLED, PRIOR TO REMELT

243 CHEMICAL REJECT SOLID METAL TO BE SAWED, BUT NOT PICKLED PRIOR TO REMELT

244 CHEMICAL REJECT DOUBLE MELT INGOTS FROM DOUBLE MELTING TO BE SAWED AND PICKLED

245 CHEMICAL REJECT DOUBLE MELT SOLID METAL TO BE SAWED, BUT NOT PICKLED, PRIOR TO REMELT

246 INGOTS FROM OFF-SITE TO BE REWORKED

251 CHEMICAL REJECT SOLID METAL FOR PICKLING PRIOR TO REMELT

252 BRIQUETTES HIGH IN IMPURITIES FOR DOUBLE MELITNG

254 CODE 4 OR BOTTOM BURNOUT DERBIES FOR DOUBLE MELTING

260 TOP CROP FROM PRODUCT 4A FLAT BILLETS (SECOND GENERATION)

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

INTERMEDIATE PRODUCTS (cont.)

261 PHYSICAL SCRAP FROM RECYCLE 4A FLAT BILLETS
(SECOND GENERATION)

262 CHEMICAL SCRAP FROM RECYCLE 4A FLAT BILLETS
(SECOND GENERATION)

263 OFF-SITE 4A SCRAP RETURNS
(SECOND GENERATION)

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

REMELT FEEDS

300 DERBIES, CODE 1 AND CODE 3

302 BRIQUETTES

303 CHIPS-CLEANED NON-BRIQUETTABLE-SUITABLE FOR CASTING

304 SOLID REMELT METAL - LOW IMPURITIES - DOES NOT REQUIRE BLENDING OR PICKLING - NOT FROM DOUBLE MELTS

305 PICKLED ARF REMELT METAL

306 EXPERIMENTAL SHAPES - INCLUDING CLASSIFIED SHAPES NOT TO BE CRUSHED

307 ZIRNLO PRODUCT

308 INGOT CROPS AND DUDS

310 PICKLED CROPS FROM SR METAL

311 SR STANDARD SOLID METAL - FOR REMELT

313 PICKLED CROPS FROM HW METAL

314 PICKLED PRIMARY INGOT SECTIONS CONTAINING FIRST GENERATION TOP CROPS

315 PICKLED PRIMARY INGOT SECTIONS CONTAINING NO TOP CROP METAL

316 PICKLED Ti ALLOY REMELT SCRAP - DOES NOT REQUIRE BLENDING (NOT DERIVED FROM PRIMARY INGOTS)

322 CHEMICAL REJECT SOLID REMELT METAL - DOES NOT REQUIRE PICKLING

323 REJECT ELEMENTS - OUTER

324 REJECT ELEMENTS - INNER

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

REMELT FEEDS (cont.)

325 REJECT CORES

326 REJECT BILLETS, INCLUDING SAWED BILLET SECTIONS

327 PICKLED REJECT BILLETS OR BILLET SECTIONS

330 PRIMARY INGOT SECTIONS, NOT PICKLED, CONTAINING FIRST GENERATION TOP CROPS

331 PRIMARY INGOT SECTIONS, NOT PICKLED, CONTAINING NO TOP CROP METAL

333 PICKLED CHEMICAL REJECT CROPS

334 PICKLED CHEMICAL REJECT CROPS FROM DOUBLE MELT INGOTS

335 CRUSHED TUBULAR ELEMENTS

336 PICKLED EXTRUSION BUTTS

337 DECLAD METAL, OTHER THAN ZIRNLO

340 SECTIONS FROM CHEMICAL REJECT PRIMARY INGOTS, NOT PICKLED

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

CASTING PRODUCTS

401 SPECIAL SOLID INGOTS OR SLABS

402 SPECIAL HOLLOW INGOTS

403 SPECIAL CASTINGS, INCLUDING STATIC AND CENTRIFUGAL

404 N REACTOR INGOTS - RAW

405 N REACTOR INGOTS - DIRECT CASTINGS FOR FINISHED BILLET MACHINING

406 MARK 31 CASTINGS - RAW - INNER

407 MARK 31 CASTINGS - RAW - OUTER

408 MARK 31 CASTINGS - FINISHED - INNER

409 MARK 31 CASTINGS - FINISHED - OUTER

410 N REACTOR INGOTS - FINISHED

411 URANIUM SHOT

412 MARK 15 CASTINGS - RAW - INNER

413 MARK 15 CASTINGS - RAW - OUTER

414 MARK 15 CASTINGS - FINISHED - INNER

415 MARK 15 CASTINGS - FINISHED - OUTER

416 MARK 25 CASTINGS - RAW - INNER

417 MARK 25 CASTINGS - RAW - OUTER

418 MARK 25 CASTINGS - FINISHED - INNER

419 MARK 25 CASTINGS - FINISHED - OUTER

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

ROLLING AND EXTRUSION PRODUCTS

450 BILLETS, ROLLING MILL

451 MARK 15 EXTRUDED TUBES - INNER

452 MARK 15 EXTRUDED TUBES - OUTER

453 N REACTOR EXTRUDED TUBES

454 N REACTOR RAW BILLETS - SAWED EXTRUSIONS

455 MARK 31 EXTRUDED TUBES - INNER

456 MARK 31 EXTRUDED TUBES - OUTER

457 SPECIAL RODS AND/OR TUBES

459 N REACTOR RAW BILLETS - UPSET FORGED

461 MARK 25 EXTRUDED TUBES - INNER

462 MARK 25 EXTRUDED TUBES - OUTER

CHAPTER 3 MATERIAL DESCRIPTION CODES (cont.)

MACHINING PRODUCTS

500 MARK 31 ELEMENTS - INNER

501 MARK 31 ELEMENTS - OUTER

503 N REACTOR FINISHED BILLETS FROM EXTRUSIONS

505 N REACTOR FINISHED BILLETS FROM DIRECT CASTINGS

506 SPECIAL MACHINED SHAPES

507 MARK 15 ELEMENTS - INNER

508 MARK 15 ELEMENTS - OUTER

509 MARK 25 ELEMENTS - INNER

510 MARK 25 ELEMENTS - OUTER

CHAPTER 4 SOURCE OR ORIGIN CODES

PLANT 1 CODES

100 **PLANT 1 GENERAL**

101 PLANT 1 MAINTENANCE

102 MAINTENANCE SHOP (RCRA MATERIALS)

103 OIL STORAGE AREA (RCRA & TSCA)

105 PLANT 1 CONSTRUCTION WASTE

107 SOURCE UNKNOWN

110 **PLANT 1 MILLING**

111 DRUM DUMPER

112 TITAN MILL

113 DUST COLLECTOR NUMBER 64

114 DUST COLLECTOR NUMBER 76

115 THREE PHASE GALIGHER SAMPLER

116 HOPPER OR DRUM FILLING STATION

117 HOFFMAN VACUUM

119 FITZ MILL

120 **PLANT 1 STILL**

121 DRUM SIPHON

122 STILL TANK

123 WATER DRUMMING

124 RECLAIMED FLUID DRUMMING

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CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANT 1 CODES (cont.)

130 **PLANT 1 DRUM RECONDITIONING**

131 SHOT SCREEN

132 WHEELABRATOR SHOT BLAST UNIT

133 DRUM ROLLER

134 PANGBORN DUST COLLECTOR

135 DRUM PAINTING BOOTH

136 DRUM DRYER

137 DRUM BALER

140 **PLANT 1 SAMPLING**

141 SMALL SHEATHED AUGER

142 WHEELABRATOR DUST COLLECTOR

143 LARGE SHEATHED AUGER

144 PIPE SAMPLER

145 SLY DUST COLLECTOR

150 COPPER SHREDDER

151 COPPER PILE

175 PLANT 1 SOIL REMOVAL PROJECT

176 PLANT 1 SOIL TREATABILITY PROJECT

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CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANTS 2 AND 3 CODES

200 **PLANTS 2 AND 3 GENERAL**

201 PLANTS 2 AND 3 MAINTENANCE

202 MAINTENANCE SHOP (RCRA MATERIALS)

203 OIL STORAGE AREA (RCRA & TSCA)

210 **PLANT 2 DIGESTION**

211 SOUTH SIDE DIGESTORS

212 NORTH SIDE DIGESTORS

213 TURNER-HAWES DUST COLLECTOR

214 DAY-HOFFMAN DUST COLLECTOR

220 **METAL DISSOLVER**

221 OLIVER FILTER

222 METAL DISSOLVER GRATE

225 **EXTRACTION**

226 SOUTH SIDE EXTRACTION COLUMN LINE

227 NORTH SIDE EXTRACTION COLUMN LINE

228 MIXER-SETTLER

230 **SOLVENT TREATMENT**

235 **HOT RAFFINATE BUILDING**

236 FILTERS

240 TRASH BALER AND KELLY INCINERATOR (WEST AREA)

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANTS 2 AND 3 CODES (cont.)

245 **REFINERY SUMP SYSTEM**

246 DORR THICKENERS

247 FILTERS

250 **RAFFINATE EVAPORATORS**

255 **ABSORBERS**

256 PLANT COLUMN ABSORBERS

260 **DENITRATION SYSTEM**

261 SCRUBBER SYSTEM

262 SOUTH SIDE PACKAGING

263 NORTH SIDE PACKAGING

267 **SAFE GEOMETRY EVAPORATOR CALCINER**

268 **PULLMAN VACMOBILE**

270 **DRUM DIGESTION**

271 CARTRIDGE FILTER

272 PLATE AND FRAME FILTER

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PILOT PLANT CODES

300 **PILOT PLANT GENERAL**

301 PILOT PLANT MAINTENANCE

302 MAINTENANCE SHOP (RCRA MATERIALS)

303 OIL STORAGE AREA (RCRA & TSCA)

310 **GREEN SALT PRODUCTION**

311 REACTOR NUMBER 1

312 REACTOR NUMBER 2

313 DUST COLLECTORS

314 VACUUM - PORTABLE

315 AUTOCLAVE

316 COLD TRAP

320 METAL REDUCTION PILOT PLANT

321 SLY DUST COLLECTOR

322 HOFFMAN VACUUM

323 ROCKWELL FURNACES

324 BREAKOUT STATION

330 **DERBY SHOT BLASTING**

331 PANGBORN ROTO-BLAST UNIT

332 SPENCER VACUUM

333 EAST WHEELABRATOR DUST COLLECTOR

334 DUCLONE CYCLONE

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PILOT PLANT CODES (cont.)

335 **SHOT PRODUCTION UNIT**

336 SHOT TANK

340 **PILOT PLANT REMELT AND CASTING**

341 REMELT FURNACE

343 CRUCIBLE BURNOUT

345 SAWS

346 WEST WHEELABRATOR DUST COLLECTOR

347 HOFFMAN VACUUM

350 **PILOT PLANT HEAT TREATING**

351 SALT BATH

352 WATER QUENCH

353 OIL QUENCH

355 **PILOT PLANT METAL DISSOLVING**

356 HNO3 PICKLING OR DECOPPERING

357 HF OR HCl DISSOLVER

358 FILTER

359 NEUTRALIZER

360 **PILOT PLANT AUXILIARY EQUIPMENT**

361 PRECIPITATOR

362 FILTER

364 TRAY DRYER-THORIUM

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PILOT PLANT CODES (cont.)

365 **PILOT PLANT OXIDIZING**

366 SETTLING TABLE

367 OXIDATION FURNACE

368 AIR FILTER

369 **S&W GLO-BAR FURNACE**

370 **PILOT PLANT MILLING**

371 JAW CRUSHERS

372 BALL MILL-THORIUM

375 **PILOT PLANT SOLVENT EXTRACTION**

376 SIX-INCH EXTRACTION COLUMN

377 BOILDOWN TANKS

378 PRODUCT TANK

379 TWO-INCH EXTRACTION COLUMN

380 **PILOT PLANT SUMP**

381 SUMP CATCH BASIN

382 PRECIPITATOR

383 UNCONTAMINATED SUMP

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANT 4 CODES

400 **PLANT 4 GENERAL**

401 PLANT 4 MAINTENANCE

402 MAINTENANCE SHOP (RCRA MATERIALS)

403 OIL STORAGE AREA (RCRA & TSCA)

R 407 BANK 7

R 408 BANK 8

R 409 BANK 9

R 410 TANK FARM

R 411 PLANT 4 SAMPLING

420 **DUST COLLECTORS - GENERAL**

421 DUST COLLECTOR G4-1

422 DUST COLLECTOR G4-2

423 DUST COLLECTOR G4-15

424 DUST COLLECTOR G4-4

425 DUST COLLECTOR G4-5

426 DUST COLLECTOR G4-6

427 DUST COLLECTOR G4-7

429 DUST COLLECTOR G4-9

431 DUST COLLECTOR G4-11

R 432 DUST COLLECTOR G4-12

433 DUST COLLECTOR G4-13

434 DUST COLLECTOR G4-14

435 **PLANT 4 SUMP**

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CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANT 4 CODES (cont.)

440 **PACKAGING STATION - GENERAL**

441 EAST (NO. 1) PACKAGING STATION

442 WEST (NO. 2) PACKAGING STATION

443 SOUTHWEST (NO. 3) PACKAGING STATION

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CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANT 5 CODES

500 **PLANT 5 GENERAL**

501 PLANT 5 MAINTENANCE

502 MAINTENANCE SHOP (RCRA MATERIALS)

503 OIL STORAGE AREA (RCRA & TSCA)

509 DRUM STORAGE PAD

510 **METAL REDUCTION AREA**

511 BLENDERS

512 BLENDING FILLING CAP AND LID AREA
DUST COLLECTORS 251, 253

513 JOLTER AREA
DUST COLLECTORS 247, 248

514 BOMB FILLING STATION

515 CAP AND LID

516 ROCKWELL FURNACES

517 COOLING TANKS

518 BREAKOUT STATIONS

519 EAST BREAKOUT AREA
DUST COLLECTORS

520 WEST BREAKOUT AREA
DUST COLLECTORS

521 DERBY QUENCH

522 SLAG CONVEYOR PIT

523 POT REAMING STATION

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FEMP
SITE DOCUMENT SYSTEM

SDC No. SC93-019
Effective Date: 09-01-93
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SITE DOCUMENT CHANGE

1. **AFFECTED DOCUMENT NUMBER** RM-0005	2. **AFFECTED DOCUMENT PAGE NUMBER** 4.10

3. **TITLE OR SUBJECT:**
FEMP Lot Marking and Color Coding System

4. **ACTIVITY AND AREA AFFECTED:**
Lot Marking at Plants 5 and 7

5. **APPROVAL SIGNATURE:**
Nell W. Fraser — Department Mgr. — Date 9-1-93

6. **CHANGE:**

1) Add information to Page 4.10 as follows:

504 Plant 5 Sampling

7. **DOCUMENTATION CONTROL REQUIRED DOCUMENT ACTION**

[ ] No Procedure Action

[X] Revise affected procedure/specification per this document.

FILING INSTRUCTIONS: File facing page 4.10 , Document No. RM-0005
(Effective Date: 08-23-93 , Revision No. 4)

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANT 5 CODES (cont.)

530 **CASTING AREA**

531 REMELT FURNACES

532 SEPARATION BOOTH

533 REMELT
DUST COLLECTOR 260

534 CRUCIBLE BURNOUT

535 CRUCIBLE BURNOUT
DUST COLLECTOR 261

536 SLY DUST COLLECTOR 100

537 GRAPHITE LATHE

538 HILCO OIL FILTER

539 BURNOUT AND MOLD TANKS

540 GRAPHITE BREAKUP STATIONS

545 **SUMP TREATMENT AREA**

550 **SAW AREA**

551 HACK SAW

552 NORTH CIRCULAR SAW

553 EAST CIRCULAR SAW

554 WEST CIRCULAR SAW

560 **EAST SLAG PLANT**

561 CRUSHER

562 COARSE SEPARATOR

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CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANT 5 CODES (cont.)

564 BIN 4: -20 MESH MAGNESIUM FLUORIDE

565 BIN 3: +20 MESH MAGNESIUM FLUORIDE

566 BIN 5, 6, 7, 8: MAGNESIUM FLUORIDE

570 **WEST SLAG PLANT**

571 CRUSHER

572 COARSE SEPARATOR

573 FINE SEPARATOR

574 -20 MESH MAGNESIUM FLUORIDE

575 +20 MESH MAGNESIUM FLUORIDE

576 GOOD LINER SOURCE

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CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANT 6 CODES

600 **PLANT 6 GENERAL**

601 PLANT 6 MAINTENANCE

602 MAINTENANCE SHOP (RCRA MATERIALS)

603 OIL STORAGE AREA (RCRA & TSCA)

610 **ROLLING**

611 INGOT FURNACE

612 BLOOMING MILL

613 CROP SHEAR OR GAG SHEAR

614 EQUALIZER FURNACE

615 CONTINUOUS MILL

616 FLYING SHEAR

617 COOLING BEDS

618 STRAIGHTENER

619 INSPECTION - ROD AREA

620 **MACHINING**

621 BLANKING ACMES

622 CROSS TRANSFERMATIC

623 CENTERLESS GRINDERS

624 DRILLING ACMES

625 SUNDSTRAND LATHES

626 HEALD BOREMATICS

627 TURRET LATHES

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANT 6 CODES (cont.)

631 BARDONS AND OLIVER CUTOFF LATHE

632 CNC MACHINE

640 HEAT TREATING

642 SALT-OIL FURNACE

643 NU SAL FURNACE

645 BRIQUETTING

646 CHIP CRUSHER

647 CHIP PICKLING TANKS

648 CHIP BRIQUETTING PRESS

650 DUST COLLECTORS

652 TURNER HAWES

655 WATER TREATMENT AREA

656 COLLECTION TANKS

657 PRECIPITATORS

658 FILTERS

659 HOFFMAN CLARIFIES

660 DEGREASING AND PICKLING

661 DERBY PICKLING

662 CORE PICKLING

663 REMELT METAL PICKLING

665 INSPECTION

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FEMP
SITE DOCUMENT SYSTEM

SDC No. SC93-020	5690
Effective Date: 09-01-93	
Expiration Date: 03-01-94	

SITE DOCUMENT CHANGE

1. **AFFECTED DOCUMENT NUMBER** RM-0005	2. **AFFECTED DOCUMENT PAGE NUMBER** 4.15

3. **TITLE OR SUBJECT:**
FEMP Lot Marking and Color Coding System

4. **ACTIVITY AND AREA AFFECTED:**
Lot Marking at Plants 5 and 7

5. **APPROVAL SIGNATURE:**
Nell W. Fraser — Department Mgr. — Date 9/2/93

6. **CHANGE:**

1) Add information to Page 4.15 as follows:

704 Plant 7

7. **DOCUMENTATION CONTROL REQUIRED DOCUMENT ACTION**

[ ] No Procedure Action

[X] Revise affected procedure/specificati-- per this document.

FILING INSTRUCTIONS: File facing page 4.15 , Document No. RM-0005
(Effective Date: 08-23-93 , Revision No. 4)

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

MISCELLANEOUS FACILITIES CODES

700 WASTE MANAGEMENT

701 MULTIPLE SOURCES

702 MAINTENANCE SHOP (RCRA MATERIALS)

703 OIL STORAGE AREA (RCRA & TSCA)

705 CONSTRUCTION

706 PLANTWIDE EHSI - PHASE IV STORMWATER RUNOFF

707 BIODENITRIFICATION

710 K-65 GENERAL - AREA 34

711 SILO #1 K-65

712 SILO #2 K-65

713 SILO #3 COLD-METAL OXIDE

714 SILO #4

715 BUILDING 64

716 BUILDING 65

717 BUILDING 65 - WEST PAD

718 BUILDING 67

719 BUILDING 68

720

721 CHEMICAL PITS - GENERAL

722 CHEMICAL PIT NO. 1

723 CHEMICAL PIT NO. 2

724 CHEMICAL PIT NO. 3

725 CHEMICAL PIT NO. 4

726 CHEMICAL PIT NO. 5

727 CHEMICAL PIT NO. 6

728 SURGE LAGOONS

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

MISCELLANEOUS FACILITIES CODES (cont.)

729 ENVIRONMENTAL MONITORING

730 **LABORATORY GENERAL - BUILDING 15**

731 OPERATIONS & ENGINEERING SERVICES

732 ANALYTICAL LABORATORY

733 ANALYTICAL LABORATORY HAZARDOUS WASTE

734 BIO-CHEMISTRY LABORATORY

735 SERVICE - BUILDING 11

736 LAUNDRY

737 HUMAN RESOURCES AND GUARD HOUSE - BUILDING 28

738 GARAGE (RCRA)

739 GARAGE OIL (RCRA)

740 ADMINISTRATION - BUILDING 14

741 GARAGE - BUILDING 31

742 DECONTAMINATION - BUILDING 69

743 STORES-RECEIVING

744 TRUCK DOCK - PLANT 1

745 **MAINTENANCE SECTION**

746 MACHINE SHOP (RCRA)

747 MACHINE SHOP OIL STORAGE (RCRA & TSCA)

748 PAINT SHOP (RCRA)

749 INSTRUMENT SHOP (RCRA)

750 ELECTRIC SHOP

751 EXPANSION PLANT - BUILDING 51

755 SAFETY AND HEALTH - BUILDING 53

000568

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

MISCELLANEOUS FACILITIES CODES (cont.)

756 DOSIMETRY LABORATORY HAZARDOUS WASTE

759 BUILDING 3045 - LABORATORY MACHINE SHOP - RUST

760 DELETED

761 GENERAL SUMP

762 PLIBRICO INCINERATOR (NEAR SEWAGE PLANT)

763 OIL BURNER AT BOILER PLANT (OPERATED BY NLO PRODUCTION)

764 GRAPHITE BURNER

765 WATER TREATMENT

766 SEWAGE TREATMENT

767 BOILER PLANT

768 BOILER PLANT (RCRA)

769 BOILER PLANT OIL STORAGE (RCRA)

775 LAB MAINTENANCE SHOP (RCRA)

776 LAB OIL STORAGE AREA (RCRA & TSCA)

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANT 8 CODES

800 **PLANT 8 GENERAL**

801 PLANT 8 MAINTENANCE

802 MAINTENANCE SHOP (RCRA MATERIALS)

803 OIL STORAGE AREA (RCRA & TSCA)

805 DRUM WASHER

806 DRUM RECONDITIONING

810 **WET-CHEMICAL SYSTEM**

811 PRIMARY CALCINER

812 PLANT 8 MILLING

813 SUMP

814 DIGESTION

815 EIMCO FILTERS

816 PRECIPITATION

817 OLIVER FILTER

818 CALCINATION

819 LEACH TANK

820 **OXIDATION SYSTEM**

821 CRUSHER

822 ROTEX SCREENING

823 MUFFLE FURNACE

824 BOX FURNACE

825 OXIDATION FURNACE NUMBER 1

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CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANT 8 CODES (cont.)

R 826 ROTARY KILN - OLD UNIT

827 OXIDATION FURNACE NUMBER 2

R 828 PLANT 8 DUST COLLECTORS

R 830 ROTARY KILN FACILITY - NEW UNIT

836 THO2 PLANT 8

845. HYDRAULIC SEPARATOR

852 BLENDING AND SCREENING OPERATION

853 OIL DECANTATION

854 DUST COLLECTOR & FILTER BAG WASHING

855 AIR SEPARATOR

856 HAND SORTING

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANT 9 CODES

900 **PLANT 9 GENERAL**

901 PLANT 9 MAINTENANCE

902 MAINTENANCE SHOP (RCRA MATERIALS)

903 OIL STORAGE AREA (RCRA & TSCA)

910 **REDUCTION**

911 JOLTERS

912 F MACHINE AND CAPPING

913 ROCKWELL FURNACES - MOLTEN SALT CLEANING

914 BREAKOUT STATION

915 TURNER-HAWES, HOFFMAN VACUUM SYSTEM

916 COOLING TANK

917 SPENCER PORTABLE VACUUM

920 **CASTING**

921 NPR FURNACE

922 CINCINNATI MILLING MACHINE

924 NPR PRIMARY HOFFMAN VACUUM UNIT

925 NPR BAG HOFFMAN VACUUM UNIT

926 NPR AAF DUST COLLECTOR

927 NPR AAF DUST COLLECTOR PRIMARY SEPARATOR

933 G9-NI 1035 DUST COLLECTOR

935 **EXTRUSION SAWING**

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANT 9 CODES (cont.)

940 **MACHINING**

941 GISHOLT TURRET LATHE

942 J+L AUTOMATIC LATHE

945 L+S DUOMATIC LATHE

949 J+L TURRET LATHE

951 LEBLOND RAPID BORER

953 WARNER AND SWASEY LATHE

954 MONARCH ENGINE LATHE

955 **BRIQUETTING**

956 CRUSHER AND METSO WASH

957 CHIP PICKLING AND RINSING

958 CHIP CENTRIFUGING

959 MAGNETIC SEPARATOR & BRIQUETTE PRESS

960 **PICKLING**

961 REMELT PICKLING AND RINSING

962 CORE DEGREASING AND PICKLING

965 **SUMP LIQUOR PROCESSING**

966 COLLECTION TANKS

967 PRECIPITATORS

968 FILTERS

970 **HEAT TREATING**

CHAPTER 4 SOURCE OR ORIGIN CODES (cont.)

PLANT 9 CODES (cont.)

980 **ZIRNLO PROCESS - GENERAL**

981 HACKSAW

982 DEGREASER

983 DECOPPERING

984 DEZIRCING

985 ACID FILTRATION

986 NEUTRALIZATION

987 NITRIC ACID PICKLE

988 KOH PICKLE

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1.0 PURPOSE

The purpose of this document is to provide the procedure for storing radioactive material.

2.0 APPLICABILITY

This procedure shall apply to designated radioactive material storage areas in Plant 1.

3.0 RESPONSIBILITIES

3.1 **Supervisors** shall be responsible for the following:

3.1.1 Coordinating and notifying support organizations if assistance is required.

3.1.2 Specifying storage location for material in accordance with "Radiological Controls," RM-0009.

3.1.3 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.4 Distributing documentation as required per this SOP.

3.1.5 Performing required inspections of storage facilities.

3.1.6 Ensuring that AEDO is notified of any release to the environment.

3.1.7 Ensuring authorized storage configurations, aisle spacing, material segregation and other storage requirements are maintained per this SOP.

3.1.8 Contacting Industrial Hygiene or Radiological Control to determine the appropriate respiratory protection for the process being performed.

3.1.9 Issuing the required respiratory protection to operators.

3.1.10 Contacting Radiological Control to perform a survey prior to storing the radioactive material.

3.1.11 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

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3.0 **RESPONSIBILITIES** (cont.)

3.2 **Environmental Safety and Health (ES&H)** shall be responsible for the following:

3.2.1 Performing surveillances of radioactive material storage areas according to regulatory requirements.

3.2.2 Assuring proper characterization and classification of FEMP materials streams.

3.2.3 Ensuring applicable regulation requirements are incorporated into this procedure and are being followed at the FEMP.

3.2.4 Performing surveillances of radioactive material storage area records to ensure adequacy and completeness.

3.3 Operators shall be responsible for complying with this SOP.

3.4 **Materials Control & Accountability** shall be responsible for the following:

3.4.1 Maintaining current radioactive material inventory.

3.4.2 Preparing, maintaining and signing inventory and identification records per this SOP.

4.0 **DEFINITIONS**

4.1 Material Characterization - An evaluation which provides the physical and chemical characteristics and major radiological content and concentration of the material.

4.2 FEMP Lot Marking System - A 15 digit alpha numeric coding system used to identify nuclear material to ensure separation of depleted, normal, and enriched uranium or thorium materials.

4.3 Non-Characterized Material - Radioactive material that is suspected to have constituents on the Environmental Protection Agency Hazardous Waste List.

4.4 Resource Conservation & Recovery Act (RCRA) - The Congressional Act which established safe and environmentally acceptable "cradle to grave" management practices and control of all hazardous waste.

4.5 Short Term Material - Radioactive material stored only for a maximum of six months.

4.6 Radioactive Material - Material composed of radioactive or radioactively contaminated material in excess of safe limits for unconditional release.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

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

5.0 APPLICABLE DOCUMENTS (cont.)

5.1.2 "FEMP Conduct of Operations Manual"

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5.1.3 RM-0012, "Quality Assurance Program Description"

5.2 References

5.2.1 SOP 1-C-101, "Sampling Residue and Waste Material"

5.2.2 SOP 1-C-604, "Inspection and evaluation of Containerized Low Level Radioactive Waste (LLRW)"

5.2.3 SOP 20-C-600, "Overpacking Defective Containers"

5.2.4 SOP 20-C-902, "Liquid Propane Gas (LPG) Powered Handstackers and Tuggers"

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Respiratory protection provided by the supervisor shall be worn when required.

6.3 A HEPA type filter vacuum cleaner or a vacuum system approved by IH&S shall be used during spill cleanup with a current DOP test label properly affixed to vacuum.

6.4 Leather-palm gloves shall be worn when handling drums, operating equipment and when handling rough, sharp-edged or contaminated materials.

6.5 Any release of radioactive material outside of storage container shall be reported to the supervisor immediately.

6.6 Communications devices and emergency response equipment shall be available to personnel performing this procedure.

6.7 Operators shall have reviewed and be familiar with MSDSs for hazardous materials/chemicals that may be used or encountered.

6.8 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

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6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.9 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FMPC-IRS&T-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the Step or Item to which they apply.

7.2 Containers holding material shall be stored on the best available hard surface (with the exception of metal boxes which may be stored on gravel, if necessary).

7.3 Sea-land containers be stored above the ground on four inch by four inch support runners.

7.4 Containers that are not stored as required by Item 7.2 or 7.3 shall be inspected daily per the Proposed Amended Consent Decree (PACD) and the "Drum Management Plan."

8.0 PROCEDURE

8.1 Preparing Containers for Storage

NOTE: The supervisor shall notify an MC&A representative of requirement for inventory update.

8.1.1 Inform the supervisor of material for storage.

NOTE: An "NM Transfer Record/NM Receipt Record/Material Identification Record" (68/69 card) is not required for radioactive material received from offsite.

8.1.2 Upon delivery of radioactive material to the storage area, inspect container(s) and accompanying paperwork per the "Radioactive Material Pre-Storage Checklist", Form FMPC-REST-3183 (See Figure 1).

8.1.2.1 If an unacceptable item is noted, complete "Corrective Action" and "Date Corrected" section on the "Radioactive Material Pre-Storage Checklist".

8.1.3 Sign the "NM Transfer Record/NM Receipt Record/Material Identification Record" (68/69 card), Forms FS-F-1990, -2220, -2221 (See Figure 2).

8.1.4 Request the Supervisor and the Nuclear Materials Reporting Specialist to sign 68/69 card.

8.0 **PROCEDURE** (cont.)

8.1.5 If the container was received from offsite, complete the "Nuclear Material Receiving Report," Form FMPC-ADMS-613 (Figure 3) and "Offsite Nuclear Materials Receipt Verification and Disposition Report", Form FMPC-ADMS-PRO-1131-1 (Figure 4).

NOTE: Supervisor shall forward Form FMPC-ADMS-613 to MC&A.

8.1.6 Transmit the forms to the supervisor.

8.1.7 If the inspection detected bare metal, rust, or chipped paint, use a metal brush and remove loose material before painting.

WARNING

Respiratory protection shall be worn while removing rust and/or painting/chipping.

8.1.8 Paint bare metal, chipped paint areas, or rust areas using the same color of rust inhibiting paint.

8.1.9 Request Nuclear Materials Reporting Specialist to record data for LLRM Inventory database.

8.1.10 Check to ensure a hazardous material warning label (See Figure 5) coated with polyurethane is affixed on the container.

8.1.10.1 If there is no label, notify the supervisor.

8.1.10.2 If label(s) do not have coating, apply polyurethane coating.

8.1.11 Sign the completed "Radioactive Material Pre-Storage Checklist", Form FMPC-REST-3183.

8.1.12 Obtain the other required signatures.

8.1.13 Submit signed form to the supervisor.

NOTE: The supervisor shall notify MC&A of the move and new location.

8.1.14 Notify the supervisor when a container is moved form one location to another location.

8.2 Storage

NOTE: Handstackers shall be inspected and operated per SOP 20-C-902.

8.2.1 Check that the handstacker or forklift has been inspected.

8.2.1.1 If not, perform an inspection.

8.2.2 Using a forklift or handstacker, move radioactive material containers to storage per Table 1.

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8.0 **PROCEDURE** (cont.)

8.2.3 If additional action is required and the action is not listed in Table 1, notify the supervisor.

8.3 Inspection

NOTE: The Supervisor shall designate inspection periods per the "Drum Management Plan."

8.3.1 Inspect radioactive material containers per Table 2 at least once every seven calendar days as specified by the Supervisor."

8.3.2 Complete the "Radioactive Material Container/Storage Discrepancy Record", Form FMPC-REST- 3182 (See Figure 6) during inspection by recording only the container/storage area discrepancies.

8.3.2.1 If an unacceptable condition is noted on Form FMPC-REST-3182, refer to Tables 1 and 2 for corrective action.

NOTE: The supervisor shall specify corrective action.

8.3.2.2 If other items of concern are noted during inspection, notify the supervisor.

NOTE 1: The inspector and supervisor shall sign the completed form.

NOTE 2: The supervisor shall maintain records of completed remediation.

8.3.3 When inspection is completed, submit Form FMPC-REST-3182 to the supervisor.

9.0 **APPLICABLE FORMS**

9.1 Figure 1 - FMPC-REST-3183, "Radioactive Material Container Pre-Storage Checklist"

9.2 Figure 2 - FS-F-1990, -2220, -2221, "NM Transfer/Receipt/Identification Record"

9.3 Figure 3 - FMPC-ADMS-613, "Nuclear Material Receiving Report"

9.4 Figure 4 - FMPC-ADMS-PRO-1131-1, "Offsite Nuclear Materials Receipt Verification and Disposition Report"

9.5 Figure 5 - FMPC-REST-3182, "Radioactive Material Container/Storage Discrepancy Record"

TABLE 1
STORAGE REQUIREMENTS FOR RADIOACTIVE MATERIAL

STORAGE REQUIREMENT	APPLICABLE RADIOACTIVE MATERIAL			
	CONTAINERIZED		NON-CHARACTERIZED WASTE	NON-CONTAINERIZED FREE-RELEASE MATERIAL
	LONG TERM	SHORT TERM		
1 Stack maximum of four containers high	X	X	X	
2 Group containers per lot number	X	X	X	X
3 Maintain forklift accessibility to rows	X	X	X	X
4 Spacing must be facility dependent	X	X	X	X
5 Store drummed material on pallets	X	X	X	
6 Container markings and labels shall be visible in aisle	X	X	X	
7 Aisles shall be accessible for inspection	X	X	X	
8 May be stored on or off pad				X
9 Nuclear safety requirements apply per SOP 20-C-904	X	X	X	

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TABLE 2
RADIOACTIVE MATERIAL STORAGE INSPECTION

ITEM	INSPECTION ITEM	INSPECTION CRITERIA	CORRECTIVE ACTION REQUIRED
Container	Hole	An opening in the container including breach, gouge, puncture or leak.	Overpack per SOP 20-C-600.
Container	Dent	A crease, depression or hollow made by blow or pressure; a concave distortion which jeopardizes the integrity of the container. A dent in the top or bottom rim.	Overpack per SOP 20-C-600.
Container	Bulge	A swollen area, a convex distortion, an outward bend which jeopardizes the integrity of the container.	Overpack per SOP 20-C-600.
Container	Corrosion	A container exhibiting exterior rust which is flaking or discoloration and bulging from interior rust.	Overpack per SOP 20-C-600.
Configuration	Spacing	Aisle spacing (three feet between pallets and between rows of pallets for non-characterized material. All other material must be spaced per supervisor's direction).[1]	Move container(s).
allet	Boards	Per 20-C-607	Per 20-C-607.
ontainer	Labeling	A hazardous material label, FEMP lot marking code, and gross weight visible and legible on the container.[2]	Affix label or stencil with enamel paint the required markings in 2 inch letters.

[1]Excluding requirements for nuclear safe masses per SOP 20-C-904.

[2]Enriched material shall include labeling requirements of SOP 20-C-904.

RADIOACTIVE MATERIAL CONTAINER PRE-STORAGE CHECKLIST

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STORAGE AREA: _____ FMPC INVENTORY NO.: _____ DATE: ____

ITEM NO.	INSPECTION ITEM	ACCEPTABLE		CORRECTIVE ACTION	DATE CORRECTED
		YES	NO		
1	Form FS-F-1945-XX card complete			Complete form per 1-C-604[1].	
2	Forms FS-F-1990, -2220, -2221, (68/69 card) complete			Notify supervisor.	
3	Shipping manifest and waste characterization complete[2]			Notify supervisor.	
4	Container free of spilled/leaked material			Notify supervisor and contain spill/leak per SOP 20-C-606	
5	Container free of damage (such as bare metal, hole, dent, bulge, corrosion)			Overpack per SOP 20-C-600.	
6	Container bolt ring secure			Secure or replace bolt ring.	
7	Material sampled/factor assay performed for radionuclides and RCRA determination			Sample per SOP 1-C-101.	
8	FEMP Lot Number complete and stencilled on container			Obtain and stencil lot number per 1-C-604[1].	

[1]SOP 1-C-604 is applicable to containerized Low Level Radioactive Waste (LLRW).

[2]Applicable to material received from offsite.

RADIOACTIVE MATERIAL CONTAINER PRE-STORAGE CHECKLIST
FMPC-REST-3183
Figure 1 (Sheet 1 of 2)

9	Gross, net, and tare weight complete and stencilled on container			Stencil weights per or 1-C-604[1].	
10	"POOS" marking stencilled on container, if applicable			Stencil "POOS" marking on container per 1-C-604[1].	
11	Gross weight marking correct size (2")			Correct marking per or 1-C-604[1].	
12	Container markings and labels correctly located per Figure 7[3].				
13	"Hazardous Material Warning Label" affixed to container			Affix label to container.	
14	Other labels affixed to container as applicable (Flammable)			Affix applicable labels per 1-C-604 [1].	
15	Pallet free of damage			Replace or repair pallet. Per 20-C-607.	
16	Container plastic wrapping secure, if applicable			Secure, rewrap, or container size.	

[1]SOP 1-C-604 is applicable to containerized LLRW.

[3]Box markings and labels shall be located as shown in Figure 8.

COMMENTS: _____

_____

MC&A Signature Badge No. Date

Waste Storage & Disposition

Inspector's Signature Date

RADIOACTIVE MATERIAL PRE-STORAGE CHECKLIST
FMPC-REST-3183
Figure 1 (Sheet 2 of 2)

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NUCLEAR MATERIAL TRANSFER RECORD

CARD PL. NO. 68

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS. BY BADGE NO.

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

P.O. NO | SOURCE
MATERIAL CLASS | MATERIAL TYPE
LOT SEQUENCE NO.:
MATERIAL DESCRIPTION
SHAPE CODE

MBA (FROM) | PLANT
MBA (TO) | PLANT
STORAGE LOCATION

NO. OF CONTAINERS OR ITEMS: NUMBER | DESCRIPTION
GROSS WEIGHT
TARE WEIGHT:

SIGNATURES: (SHIPPER) (TRANSPORTATION) (RECEIVER)

FS-F-1990 (REV. 3/9/92)

NUCLEAR MATERIAL RECEIPT RECORD

CARD PL. NO. 69

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS. BY BADGE NO.

P.O. NO.: | SOURCE
MATERIAL CLASS | MATERIAL TYPE:
LOT SEQUENCE NO.:
MATERIAL DESCRIPTION
SHAPE CODE

MBA: (FROM) | PLANT:
MBA: (TO) | PLANT:
STORAGE LOCATION:

NO. OF CONTAINERS OR ITEMS: NUMBER | DESCRIPTION
GROSS WEIGHT.
TARE WEIGHT

SIGNATURES. (SHIPPER) (TRANSPORTATION) (RECEIVER)

FS-F-2220 (REV. 3/9/92)

MATERIAL IDENTIFICATION RECORD

CARD PL. NO. XX

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE	DATE TRANSFERRED MO.	DAY	YEAR	SHIFT	TRANS. BY BADGE NO.

P.O. NO.: | SOURCE
MATERIAL CLASS | MATERIAL TYPE:
LOT SEQUENCE NO.:
MATERIAL DESCRIPTION
SHAPE CODE:

MBA: (FROM) | PLANT:
MBA: (TO) | PLANT:
STORAGE LOCATION

NO. OF CONTAINERS OR ITEMS: NUMBER | DESCRIPTION
GROSS WEIGHT:
TARE WEIGHT

SIGNATURES. (SHIPPER) (TRANSPORTATION) (RECEIVER)

FS-F-2221 (REV. 3/9/92)

NM TRANSFER RECORD/NM RECEIPT RECORD/MATERIAL IDENTIFICATION RECORD
FS-F-1990, -2220, -2221
Figure 2

5690

Westinghouse Materials Company of Ohio
P. O. BOX 398704
CINCINNATI, OHIO 45239

NUCLEAR MATERIAL RECEIVING REPORT

NUCLEAR MATERIAL RECEIVING REPORT NO _____

DATE UNLOADED _____ 19 ____ DATE RECEIVED _____ 19 ____

RECEIVED FROM _____

CARRIER _____ CAR NUMBER _____ SEAL NUMBER _____

FREIGHT BILL NO _____ BILL LADING NO _____

NUMBER OF ITEMS RECEIVED _____ TYPE OF ITEMS RECEIVED _____ GROSS WEIGHT _____

MATERIAL DESCRIPTION AS PER BILLING _____ NLT NO. _____

CHECKED BY _____ RECEIVED BY _____

NOTE The following must be completed by the person verifying receipt

CONSIGNOR'S INFORMATION			DESCRIPTION OF MATERIAL	RECEIVING SECTION INFORMATION			
LOT NUMBER	QUANTITY	WEIGHT (LBS)		GROSS (LBS)	TARE (LBS)	NET (LBS)	ELEMENT WGT

REMARKS *(Related document numbers for additional material received)* _____

FMPC ADMS-613 (REV 5/72 BH)

RECEIVER TO MATERIALS CONTROL & ACCOUNTABILITY

NUCLEAR MATERIALS RECEIVING REPORT
FMPC-ADMS-613
Figure 3

5690

FMPC

Page ____ of ____ Pages

PRODUCTION OPERATIONS DEPARTMENT — RECEIVING GROUP (PLANT 1)

OFF-SITE NUCLEAR MATERIALS RECEIPT VERIFICATION AND DISPOSITION REPORT

Shipped From _____ Nuclear Mat'l. Rec. Report No. _____ Date Disposed _____

_____ Date Received _____ DOE 741 No. _____

Carrier _____ Shipper's Tally List Received with Shipment ☐ Yes

No. of containers on Nuclear Mat'l. Receiving Report _____ WMT. No. _____ ☐ No

LINE ITEM	PRODUCTION RECEIVING DATA						
	SHIPPER'S I.D. NO.	NO. OF CONTAINERS	MATERIAL DESCRIPTION	FMPC GROSS (LBS)	FMPC TARE (LBS)	FMPC NET (LBS)	SHIPPER'S NET WT. (LBS)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

DISPOSITION

LINE ITEMS INCLUDED	FMPC LOT NO. ASSIGNED	DELIVERED TO (CONSIGNEE)

Condition Received (Remarks & Recommendations):

Disposition by _____

Persons Consulted in Reference to Disposition

NO.	DISTRIBUTION OF COPIES
1	MC&A (RECORD COPY)
2	Receiving Group - Plant 1
3	Operations Scheduling & Planning
4	Production Records - Plant 1
5	Receiving Plant

FMPC-ADMS-PRO-1131-1 REV 06/93

OFFSITE NUCLEAR MATERIALS RECEIPT VERIFICATION AND DISPOSITION REPORT
FMPC-ADMS-PRO-1131-1
Figure 4

RADIOACTIVE MATERIAL CONTAINER/STORAGE DISCREPANCY RECORD

5690

'ECTOR'S NAME: _____ INSPECTOR'S BADGE NO.: _____

LOCATION: _____ DATE: _____ TIME: _____

FMPC LOT NUMBER	MC&A INVENTORY NUMBER	HOLE		SPACING		BROKEN PALLET BOARD		CORRECT LABELING		LOCATION NO.
		YES	NO	YES	NO	YES	NO	YES	NO	

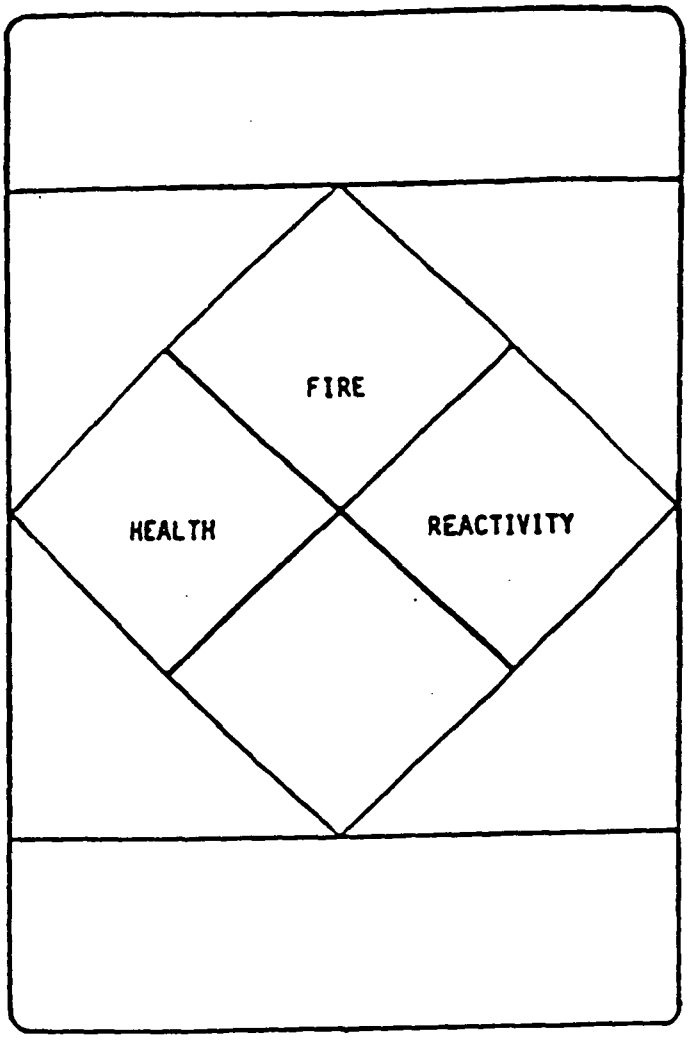
COMMENTS: _____

INSPECTOR'S SIGNATURE: _____ DATE: _____

SUPERVISOR'S SIGNATURE: _____ DATE: _____

RADIOACTIVE MATERIAL STORAGE INSPECTION
FMPC-REST-3182
Figure 5

5690



"HAZARDOUS MATERIAL WARNING LABEL"
Figure 6

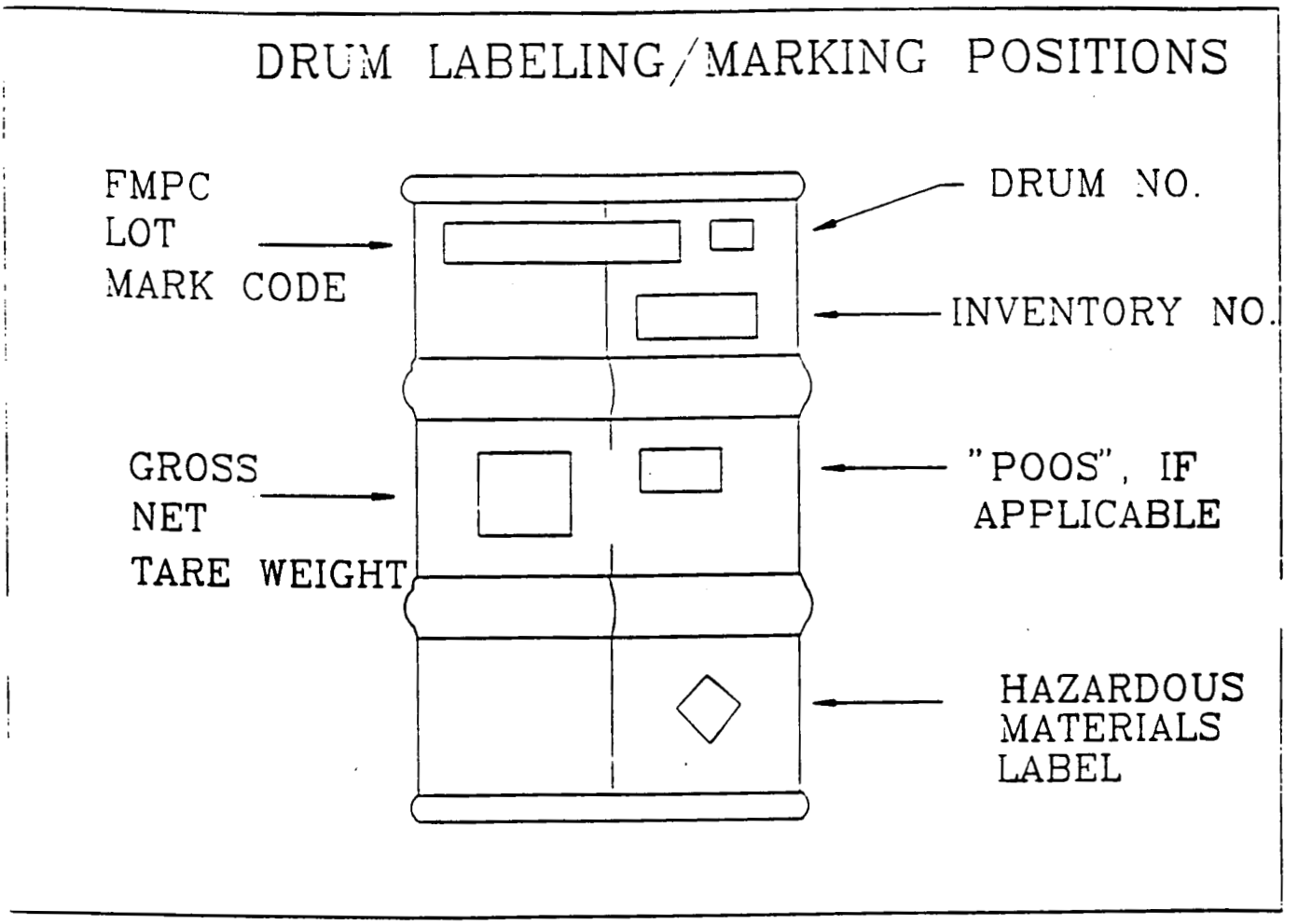


DIAGRAM OF RADIOACTIVE MATERIAL CONTAINER LABELING
Figure 7

5690

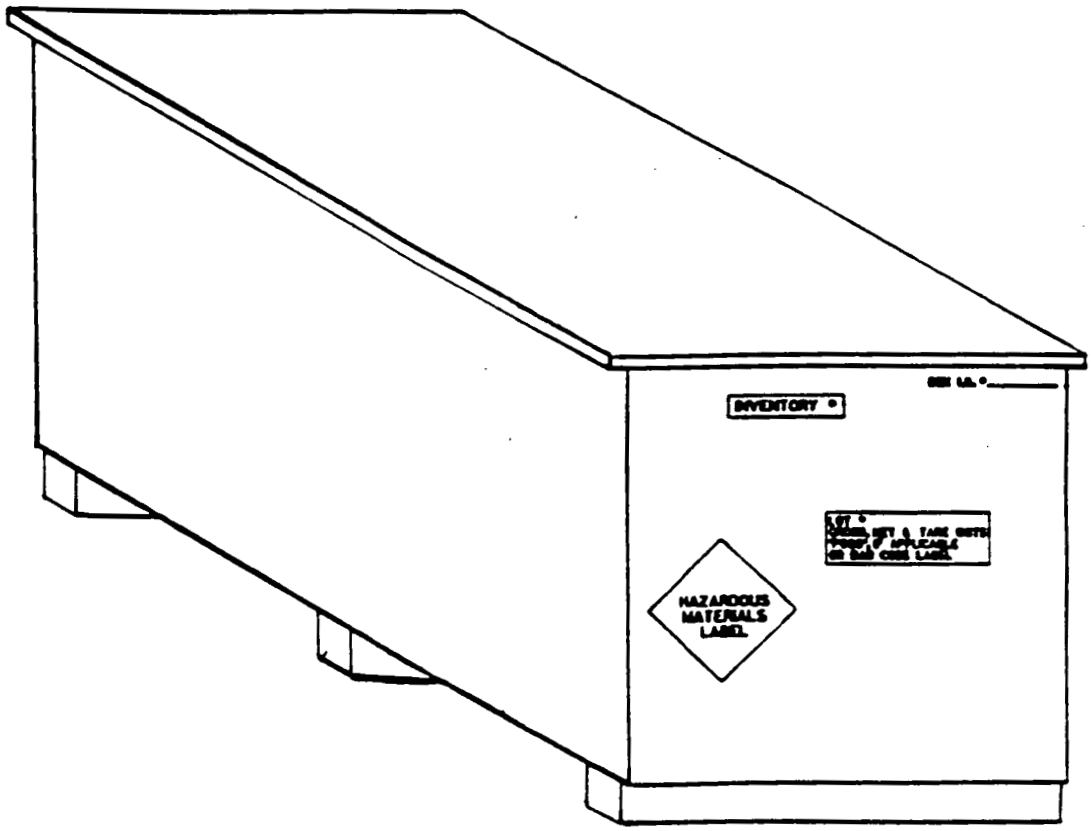


DIAGRAM OF LLRM BOX LABELING
Figure 8

RECORD OF ISSUE/REVISIONS

	REV. NO.	DESCRIPTION AND AUTHORITY
13-90	0	Procedure required for storing radioactive material per Request No. P89-448, initiated by K. Dunbar.
12-09-92	1	Revised to incorporate CIOs C92-013 (P92-277), C92-024 (P92-131), and update to current Procedure Program requirements.
03-12-93	2	Revised to correct the 12-09-92 entry under the DESCRIPTION AND AUTHORITY HEADING of the RECORD OF ISSUE/REVISION per Request No. P93-113.
07-22-93	0	Reissued per Request No. P92-437, initiated by C. Glassmeyer.

SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-0079
REVISION NO. 1

5690

PACKAGING LOW-LEVEL RADIOACTIVE WASTE (LLRW) IN METAL BOXES FOR OFFSITE SHIPMENT

SSOP-0079

Effective Date: Draft

AUTHORIZED BY: _____ _____
N. C. Kaufman, President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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

000593

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
12-14-92	0	Separate procedure written for packaging LLRW in boxes per Request No. S92-176, initiated by M. Hundley. SSOP-0079, SSOP-0075, and SSOP-0078 replace SSOP-0024.
Draft	1	Minor revision required to update tables, Figure 3, and organization names and add labeling requirement per Request S93-073, initiated by M. Hundley. This revision supersedes SSOP-0079, dated 12-14-92, Rev. 0.

1.0 PURPOSE

This procedure provides the instructions for packaging low-level radioactive waste (LLRW) in metal boxes for shipment offsite from the Fernald Environmental Management Project (FEMP).

2.0 SCOPE

The procedure outlines the steps for (1) inspecting the waste to be packaged, (2) inspecting and preparing empty boxes, (3) filling boxes with waste, (4) weighing filled boxes, (5) closing and labeling boxes, and (6) final inspection of boxes.

The packaging operation is applicable to FEMP personnel (including subcontractors) responsible for packaging noncontained LLRW in metal boxes. This activity originates upon approval by DOE for a specific waste stream. LLRW may be packaged at any designated packaging location at the FEMP.

3.0 DEFINITIONS

Free Liquid - Any free flowing liquid or liquid that readily separates from the solid portion of a waste under ambient temperature and pressure conditions. Ice is also considered a free liquid.

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 nanocuries per gram.

Packaging Location - Any area where waste is stored or generated.

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, documentation, and proper management of hazardous wastes.

4.0 RESPONSIBILITIES

Packager

- Inspects waste per this procedure.
- Packages waste per this procedure.
- Complies with any additional requirements specified by Environmental, Safety and Health (ES&H).

4.0 **RESPONSIBILITIES** (cont.)

Supervisor of the waste generation area or packager

- Specifies applicable scale procedures and standard tare weight of packages.
- Ensures packaging materials are available for packagers.
- Ensures that trained personnel package waste material.
- Determines disposition of waste material identified in this procedure.
- Ensures that personnel package waste for shipment to meet applicable Nevada Test Site (NTS), Department of Transportation (DOT), and Environmental Protection Agency (EPA) regulations.
- Contacts Environmental Safety and Health (ES&H) 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.
- Contacts Radiological Safety for a radiological work permit or other safety permits and ensures permits are obtained and signed prior to performing.
- Provides packagers with the required respiratory protection and other personal protective equipment.
- Ensures the lid on an unfilled waste container is secured when no packaging is occurring thereby preventing addition of unknown materials.
- Ensures waste packages are weather-protected.

Logistics Administration specifies the required waste container.

Motor Vehicle Operator (MVO) of Facilities and Warehousing

- Delivers empty boxes to designated packaging area.
- Supports packager as needed per this procedure.

Environmental Safety and Health (ES&H)

- Provides a Radiological Safety Technician, as requested.
- Determines appropriate respiratory equipment and any other employee protection.

4.0 **RESPONSIBILITIES** (cont.)

Quality Control (QC) overviews packaging operation to ensure compliance with this procedure.

Regulatory Programs provides documentation supporting characterization results as needed.

Materials Control and Accountability (MC&A) provides bar-code labels.

5.0 **GENERAL**

DOT label letters shall be 2 inches high by 1/4 inches wide.

6.0 **PREREQUISITES**

6.1 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

1. Safety glasses with side shields shall be worn unless other eye protection is specified.

2. Respiratory protection provided by the supervisor shall be worn when required.

3. Leather-palm gloves shall be worn when handling boxes, operating equipment, and handling rough, sharp-edged, or contaminated material.

4. Neoprene rubber gloves shall be worn when handling hazardous chemical substances where skin contact is possible.

5. A Radiation Work Permit must be approved and current.

6. Face shields shall be worn when removing lids of containers filled with liquids or during operations where the possibility exists that personnel could be splashed with liquids.

7. Containers with known material shall be labelled to identify the contents. Containers with unknown contents shall be labelled "UNKNOWN" with the current date. Empty containers shall be marked "EMPTY".

6.0 **PREREQUISITES** (cont.)

8. Any circumstance that could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall be immediately reported to a supervisor. The supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved employee(s) shall report to the Urine Sampling Station at the end of their respective shift to complete an Incident Investigation Report (IIR), form FMPC-ES&H-1458, and submit an incident urine sample. The involved employee(s) shall also report to the Urine Sampling Station at the start of their next shift to submit a follow-up urine sample. When the suspect isotope is other than uranium the involved employee(s) shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.2 TOOLS AND MATERIALS REQUIRED

Obtain the following materials and tools, as needed, before packaging:

- Appropriate safety protective equipment
- Foam-strip gasket (size appropriate for box)
- Diatomaceous earth
- Indelible marker
- Hammer and screw driver, as applicable
- Wrench and channel locks, as applicable
- Clear lab label tape and dispenser
- Clean rags
- Electric drill
- Ink/paint as required
- Impact wrench

6.3 POSTING REQUIREMENTS

Prohibited Materials and Packaging Guidelines (see Figure 1) shall be displayed in the packaging area or on the container.

6.4 WASTE CHARACTERIZATION

1. An FS-F-3252, "Material Evaluation Form (MEF)," shall be initiated to determine the waste as RCRA/Non-RCRA. The packaging operation may be started before the characterization results are received.

PACKAGING GUIDELINES FOR WASTE GENERATOR

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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 (listed below) have been excluded.

Packaging has not been damaged during loading.

Liner is in place and properly lapped and sealed.

PROHIBITED MATERIALS and Examples

Compressed Gases
- *unpuctured aerosol cans*
- *gas cylinders with valves or plugs in place*

Explosives

Free Liquids
- *water, ice, seepage, condensation,*
- *drinks, coffee, juices, pop, soaked rags,*
- *fuel, oil, fluids, solvents, etc.*

Hazardous Waste
- *solvents, petroleum products,*
- *lead, mercury, batteries,*
- *pesticides, etc.*

Corrosive Materials
- *acid or caustic material*
- *acidic*

Etiologic Agents
- *medical waste*

Figure 1 - Prohibited Materials List

PROHIBITED MATERIALS

Compressed Gases (including those in unpunctured aerosol cans)

Explosives

Free liquids

Fine particulates (respirable fines)

Hazardous Waste (including suspect RCRA materials)

Corrosive materials

Etiologic agents

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 (listed above) have been excluded.

Packaging has not been damaged during loading.

Liner is in place and properly lapped and sealed.

Figure 1 - Prohibited Materials and Packaging Guidelines

6.0 **PREREQUISITES** (cont.)

NOTE: A numbered MEF may be obtained from Waste Management Records and initiated per SSOP-0002.

2. For bulk waste streams, complete evaluation in accordance with SOP 20-C-625.

3. Additional documentation supporting the characterization results shall be provided by Facilities and Material Evaluation (F&ME)

4. A sample of the waste for Toxic Characteristic Leaching Process (TCLP) may be required as requested by F&ME.

5. A sample may be required for major radionuclides and other suspected nuclides as determined by supervision.

6.5 PERSONNEL REQUIREMENTS

1. A minimum of two personnel are required to package waste.

2. Packagers shall be certified in use of Personal Protective Equipment (PPE).

7.0 **PROCEDURE**

7.1 INSPECTING THE WASTE

NOTE: The determination to package a waste stream is based on approval by DOE and a completed MEF.

PACKAGER

1. Ensure the waste to be packaged is not on the "Prohibited Materials" list (see Figure 1).

   a. If the waste is on the Prohibited Materials List, do not package this waste. Notify supervisor for disposition.

   OR

   b. If the waste is not on the Prohibited Materials List, continue with procedure.

2. Ensure the waste has been characterized.

   a. If the waste has been characterized, package it per this procedure.

7.1 INSPECTING THE WASTE (cont.)

PACKAGER

OR

b. If the waste has not been characterized, package it per this procedure and transfer box to a controlled holding area per SSOP-0008.

QC

3. Perform periodic surveillance of waste per applicable department procedure.

PACKAGER

4. Visually check waste for free liquid.

   a. If free liquid is not present, continue with procedure.

   OR

   b. If free liquid is present or material is wet, notify supervisor for disposition.

SUPERVISOR

   c. Take appropriate action to absorb free liquid.

5. Fill out a Form FS-F-1945, "Item Production/Certification/Identification," XX Card (see Figure 2) for each box as follows:

   a. Record the FEMP Lot Marking Code per "FEMP Lot Marking and Color-Coding System", RM-0005, in the areas titled "P.O. No.", "Source", "Class", and "Material Type".

   b. Record a general description of the waste in the area titled "Waste Description and Comments" or attach a list of the items packaged for content documentation.

CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P.O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE		SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.
SEAL NUMBER		SEAL DATE		PACKAGE PHYSICAL CERTIFICATION			PLANT	PROD. DESC.	MEASURE	
	MONTH	DAY	YEAR	YES	NO					
				EMPTY CONTAINER AT START			SCAN	SURV. NO.	GROSS WEIGHT	
WASTE DESCRIPTION AND COMMENTS				JUST SOLID OR DENTS						
				MATERIAL IS AS CODED						
PACKAGE TYPE				PROHIBITED MATERIALS						
PACKAGE SIZE				LIQUIDS IN CONTAINER					TARE WEIGHT	
PROJECT				MINIMUM OF VOID SPACE						
				PACKAGE SECURED						
				DRAIN PLUG SECURED						
				OVERPACK					NET WEIGHT	
				REPACK						

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1945-1 (REV. 11/29/93)

Figure 2 - Item Production/Certification/Identification Form FS-F-1945

TABLE 1
CORROSION INSPECTION CATEGORIES TYPES

TYPE	CHARACTERISTIC	COULD CAUSE LOSS OF BOX INTEGRITY		CORRECTIVE ACTION
		YES	NO	
1	Severe corrosion with deep pitting and/or metal flaking	X		1. Notify supervisor. **NOTE**: The box requires disposition as directed by supervision within 24 hours.
2	Corrosion with shallow pitting and/or mild metal flaking		X	1. Notify supervisor. **NOTE**: Disposition shall be determined by the supervisor following review of completed inspection form.
3	Surface rust with no pitting and mild paint flaking which exposes bare metal		X	1. Notify supervisor. **NOTE**: Repainting shall be scheduled by supervisor.

TABLE 2
LEAKER INSPECTION CATEGORIES TYPES

TYPE	CHARACTERISTIC	CORRECTIVE ACTION
1	Material flowing from container and accumulation under or around container.	1. Notify supervisor. NOTE: Supervisor shall notify AEDO. 2. Stop or contain leak as directed by supervisor. 3. Record on inspection form that the container requires mitigation within 24 hours. 4. Complete additional cleanup as necessary. NOTE: Supervisor shall initiate an Occurrence Report.
2	Material on box exterior only; no leakage of material on, under, or around container.	1. Record leak on inspection form. 2. Notify supervisor. NOTE: Supervisor shall initiate an Occurrence Report. NOTE: Supervisor shall review the completed inspection forms to prioritize containers for transfer to overpack staging area and subsequent mitigation.
3	Container exterior discolored/visible contamination; no material release.	1. Record condition on inspection form. 2. Notify supervisor. NOTE: Supervisor shall schedule container for overpacking.

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TABLE 3
DENT/BULGE CRITERIA INSPECTION TYPES

TYPE	CHARACTERISTIC	CORRECTIVE ACTION
1	Dents and/or bulges affect container to degree of potential or actual release	Overpack or transfer to new container.
2	Dents and/or bulges not affecting container integrity	Continue to monitor.

7.2 PREPARING AN EMPTY BOX

SUPERVISOR

1. Notify Facilities and Waste Operations to deliver empty metal box to the designated packaging area.

   NOTE: The specific box type shall be determined by Logistics Administration and Inventory and Warehousing.

PACKAGER

2. Visually inspect the box for interior and exterior damage, such as corrosion/rust, (refer to Tables 1). If the box is damaged, notify supervisor for disposition.

3. Visually inspect interior to ensure the box is empty.

   a. If material is present in the box, notify supervisor.

   OR

   b. If material is not present, continue procedure.

4. If the bottom of the box has a drain plug, ensure plug is securely in place.

5. On the XX Card (Figure 2), record the type of container in the area titled "Type of Container", fill out the "Package Physical Certification" area excluding the last two items, and record box dimensions in area titled "Package Size".

SUPERVISOR

6. Specify the scale for weighing and method of transporting the box to the scale.

NON-CONTROLLED COPY

CONTROL NO. 5690

FEMP
SITE DOCUMENT SYSTEM

SDC No. SC94-025	
Effective Date:	03-07-94
Expiration Date:	09-07-94

SITE DOCUMENT CHANGE

(For Questions Contact SME B. Giessl 738-6100)

1. **AFFECTED DOCUMENT NUMBER** SSOP-0079	2. **AFFECTED DOCUMENT PAGE NUMBER** 14

3. **TITLE OR SUBJECT:**
Packaging LLRW in Metal Boxes for Off-Site Shipment

4. **ACTIVITY AND AREA AFFECTED:**
Preparing Empty Box

5. **APPROVAL SIGNATURE:**

J. J. McGuire — Department — Date 3/3/94

6. **CHANGE:**

1) Replace step 14 with the following:

14. If loading concrete or materials with sharp edges, use the method specified by supervisor for placing one layer of pallets in the bottom of the box.

NOTE: Pallets are not required when loading soil or wood.

2) Add step 15 as follows:

15. Complete a "Material Evaluation and Container Information – Wood" (FS-F-3465) form in accordance with SOP 20-C-625 to account for wood pallets.

7. **DOCUMENTATION CONTROL REQUIRED DOCUMENT ACTION**

[ ] No Procedure Action

[X] Revise affected procedure/specification per this document.

FILING INSTRUCTIONS: File facing page 14, Document No. SSOP-0079 (Effective Date: 12-14-92, Revision No. 0)

7.2 PREPARING EMPTY BOX (cont.)

SUPERVISOR

NOTE: The scale shall be a currently calibrated accountability scale.

PACKAGER

7. Inspect the scale to be used per the scale procedure applicable to the area.

MVO/PACKAGER

8. As directed by supervisor, move the box onto the scale.

PACKAGER

9. Tare weigh every twentieth box per the scale procedure applicable to the area.

10. Record the weight on the XX Card.

MVO/PACKAGER

11. Remove the box from the scale.

PACKAGER

12. Remove lid and place in a designated location to prevent damage.

13. If loading concrete or materials with sharp edges, use the method specified by supervisor to place one layer of pallets in the bottom of the box.

    NOTE: Pallets are not required when loading soil or wood.

14. Complete a "Material Evaluation and Container Information-Wood" form in accordance with SOP 20-C-625.

15. Manually pour 1/2 to 1 inch of diatomaceous earth evenly over the pallets.

7.3 FILLING BOX WITH WASTE MATERIAL

PACKAGER

1. Check with supervisor for weight limitation of box.

7.3 FILLING BOX WITH WASTE MATERIAL (cont.)

QC

2. Overview filling of boxes per applicable department procedure to ensure compliance with this procedure. If a nonconformance is identified, document and evaluate for corrective action per applicable procedure.

PACKAGER

> **WARNING**
>
> **A RESPIRATOR AND OTHER PERSONAL PROTECTIVE EQUIPMENT PROVIDED BY THE SUPERVISOR SHALL BE WORN PRIOR TO FILLING DRUMS.**

3. As specified by supervisor, load waste into box as tightly as possible ensuring the box weight is within the specified limitation and the load is balanced to prevent tipping.

4. When the box is full, place lid on box and secure as directed by supervisor.

5. Complete applicable "Materials Evaluation and Container Information" form per SOP 20-C-625.

6. Notify supervisor the box is ready to be weighed.

7.4 WEIGHING FILLED BOXES

SUPERVISOR

1. Specify the scale and the method of transporting the box to the scale.

PACKAGER

2. Inspect the scale to be used per the applicable scale procedure.

3. Move the box on to the scale, per orders of the supervisor.

4. Using the applicable scale procedure, weigh the box including box pins and other hardware to obtain gross weight.

   a. If the box is over the specified weight limit, notify supervisor.

7.4 WEIGHING FILLED BOXES (cont.)

PACKAGER

OR

b. If the box is within weight limit, continue procedure.

PACKAGER OR QC

5. For a box requiring temporary storage, apply a tamper-proof seal, lock, and other device to secure lid and prevent unauthorized additions.

PACKAGER

6. Using indelible ink, mark the gross weight and shipping number on the front side of box.

7. Complete XX Card (see Figure 2), including weights, and send card to supervisor.

SUPERVISOR

8. Sign XX Card for accuracy and completeness and send card to MC&A.

MC&A

9. Using XX Card data, print required bar-code labels and submit to supervisor.

10. Remove box from scale as directed by supervisor.

7.5 FINAL CLOSURE, LABELLING, AND INSPECTING BOXES

PACKAGER

1. Manually remove hardware and lid, as directed by supervisor, and place in designated area to prevent damage.

2. Using a clean rag, wipe top edge of box. Place rag in disposal container.

3. Peel protective paper from foam-strip gasket and carefully apply gasket to box edge and/or to channel of lid underside, as directed by supervisor.

4. Place lid on box as directed by supervisor.

7.5 FINAL CLOSURE, LABELLING, AND INSPECTION (cont.)

PACKAGER

5. Using appropriate hardware and tools, secure lid on the box in accordance with the manufacturer's recommendations.

6. Inspect exterior of box, excluding bottom, for damage such as rust/corrosion, holes/leaks, or dents/bulges and complete correction action, as applicable (refer to Tables 1 through 3).

7. Using the appropriate tools, tighten closure bolts.

8. Cover scratched areas on box using paint that is the color of the box.

SUPERVISOR

9. Contact QC for examination and certification of package.

QC

10. Perform an examination and certification per applicable department procedures.

SUPERVISOR

11. Determine if the box will fit on the inspection stand.

    a. If the box will not fit on the inspection stand, direct packager to drill holes through the lower edge of runners, if applicable.

    OR

    b. If the box will fit on the stand, notify MVO to move box to inspection stand, if applicable.

PACKAGER

12. Visually inspect bottom of box for damage, such as corrosion, dents, holes, or defects in accordance with Tables 1 and 2.

    a. If defects exist, contact supervisor for disposition.

    OR

    b. If defects do not exist, continue procedure.

13. Inspect bottom of box for drain plug.

7.5 FINAL CLOSURE, LABELLING, AND INSPECTION (cont.)

PACKAGER

a. If drain plug is present, tighten the plug and paint a red dot on opposite sides of box to indicate plug has been tightened.

OR

b. If drain plug is not present, paint a black dot on opposite sides of the box to indicate that box has been checked for drain plug.

14. Visually inspect runners.

    a. If drain holes are in runners, continue with procedure.

    OR

    b. If drain holes are not in runners, drill two holes (one each end) with electric drill through underside of each runner.

15. Using indelible ink, place a check mark next to red or black dot to indicate the runners have been checked, if applicable.

16. Affix bar-code labels to lid and both sides of box as shown in Figure 3.

17. Apply DOT Label to lid of box (e.g., RAD-LSA).

MVO

18. Remove box from stand per applicable department procedure.

PACKAGER

19. Affix the bar-code labels provided by supervisor to the sides and top of box as shown in Figure 3. If directed by supervisor, cover labels with clear label tape.

20. Using a "Backlog & Disposition Final Box Inspection " (see Figure 4), inspect box and record inspection results.

21. When inspection is complete, submit to supervisor.

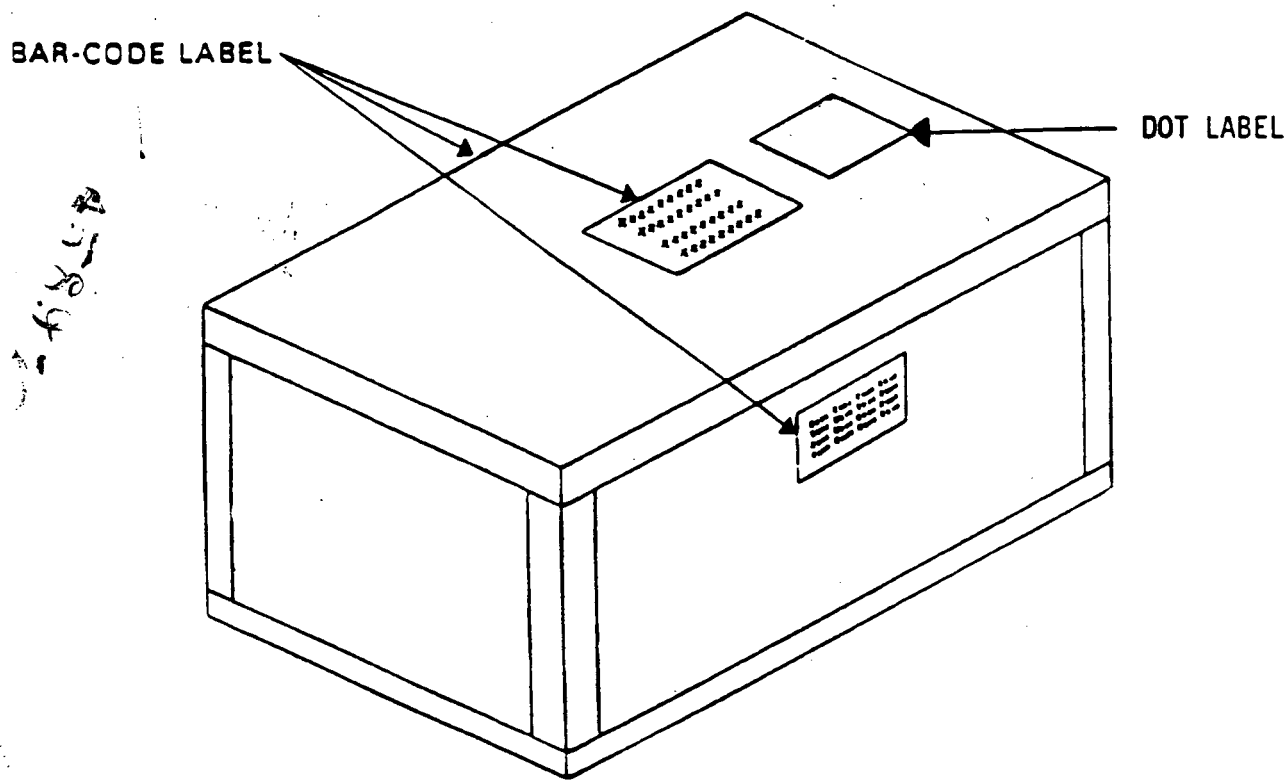


Figure 3 - LLRW Box Labeling

BACKLOG & DISPOSITION FINAL BOX INSPECTION

WHITE METAL BOX SHIPMENT NO._____

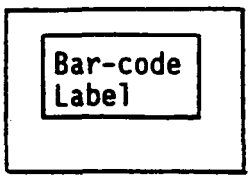
NUMBER OF CONTAINERS IN SHIPMENT_____

NAME: _____
BADGE NO: _____
DATE OF INSPECTION: _____

NAME: _____
BADGE NO: _____
DATE OF INSPECTION: _____

INSPECTION ITEM	*PLACE INITIALS BELOW, IF ACCEPTABLE*
1. Box in good condition (no holes or structure affecting dents or rust).	
2. Boxes clean (free of debris and loose dirt).	
3. Boxes touched up.	
4. Erroneous markings whited out.	
5. Red or black dot on box(es), if applicable.	
6. Pins locked in place & flush against box. Nuts & bolts tight. Banding tight.	
7. Lid free from caulking cracks.	
8. Bar-code label applied to both sides and top of box. Information on bar-code label correct (compared to attached paperwork).	
9. Vent plug present and on side of box.	
10. Proper sticker applied to lid of each box (e.g., RAD-LSA).	

BOTH SIDES



TOP

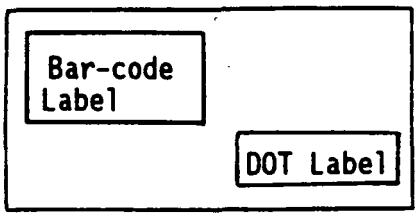


Figure 4 - Box Final Inspection

7.5 FINAL CLOSURE, LABELLING, AND INSPECTION (cont.)

SUPERVISOR

22. Review inspection.

    a. If the inspection results are acceptable, request MVO to transport box to designated staging area.

    OR

    b. If the inspection results are not acceptable, complete appropriate corrective action.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- NVO-325, "Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements"

8.2 REFERENCES

- SOP 20-C-625, "Evaluating Low Level Radioactive (LLRW) Bulk Waste Streams for Shipment"
- RM-0005, "FEMP Lot Marking and Color-Coding System"
- SSOP-0002, "Completing the Material Evaluation Form"
- SSOP-0008, "Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area"

CONTROL NO. _____
SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-1027
REVISION NO. 0

5690

MANAGING PCBs AND PCB ITEMS

SSOP-1027

Effective Date: 03-08-94

AUTHORIZED BY: _____ 2/25/94
J. W. Thiesing, Executive Vice President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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

000618

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
03-08-94	0	New document needed to describe the removal, management, marking, storage, labelling, and disposal of PCBs and PCB items, per Request S93-196, initiated by S. Kaster.

1.0 PURPOSE

This procedure provides instructions for managing Polychlorinated Biphenyls (PCBs) and PCB items at the Fernald Environmental Management Project (FEMP) pursuant to the Fernald Environmental Restoration Management Corporation (FERMCO) PCB policy (Attachment A).

2.0 SCOPE

This procedure applies to all personnel at the FEMP who are required to handle PCBs and PCB items as a result of pre-removal action activities, planned maintenance activities, construction and/or demolition projects, closures, and removal/response actions.

3.0 DEFINITIONS

Administrative Record - An organized collection of records open to public view, that documents FEMP compliance with the requirements set forth by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

Capacitor - A device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by a dielectric. Types of capacitors include:

- small capacitors that contain less than 1.36 kg (3 pounds) of dielectric fluid, or if fluid weight is unknown, it is a small capacitor if the volume is less than 100 cubic inches, or volume is between 1,639 and 3,278 cubic centimeters (100 to 200 cubic inches) and total capacitor weight is less than 4.08 kg (9 pounds).

- large capacitors that contain more than 3 pounds (1.36 kg) of dielectric fluid. If the capacitor operates at 2,000 volts or above, it is considered a high voltage large capacitor and if it operates at below 2,000 volts, it is a low voltage large capacitor.

Compatible Container - A container that meets Department of Transportation (DOT) specifications which is compatible with the characterized material.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - The Act that mandates the development of organizational structure and procedures to respond to releases, or threats of release, of hazardous substances or pollutants/contaminants.

Fixed Contamination - Radioactive contamination that is not readily removable.

3.0 **DEFINITIONS** (cont.)

Hazardous Waste - Waste that is specifically listed as a hazardous waste and/or exhibits one or more of the hazardous waste characteristics (i.e., ignitability, corrosivity, reactivity, or toxicity) as defined in Chapter 3745-51 of the Ohio Administrative Code (OAC) and CFR 261.

Leak - Any instance where PCBs are on the exterior surface of PCB Articles, PCB Containers, or PCB Equipment.

Mark - The descriptive name, instructions, cautions, or other information applied to:

- PCB containers
- PCB transformers
- PCB large high voltage capacitors
- Equipment containing a PCB transformer or a PCB capacitor
- Electric motors using PCB hydraulic fluid
- Heat transfer systems using PCBs
- PCB article containers containing articles or equipment
- Each storage area used to store PCBs and PCB items
- Each transport vehicle if loaded with PCB containers that contain more than 45 kg (99.4 lbs) of PCBs in the liquid phase or with one or more PCB transformers.

MEF - Material Evaluation Form.

Mixed Waste - Waste containing both radioactive and hazardous components as defined by the Atomic Energy Act and RCRA, respectively.

One-Year Storage Limit - Any PCB article or container stored for disposal after January 1, 1983 shall be disposed of within 1 year from the date when first removed from service and placed in storage (this includes 9 months for storage and 3 months for actual disposal).

PCB and PCBs - Polychlorinated Biphenyls. A chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees; and is regulated under TSCA (40 CFR 761).

PCB Article - Any manufactured article, other than a PCB container, that contains PCBs and whose surface(s) has been in direct contact with PCBs. PCB articles include, but are not limited to, capacitors, transformers, electric motors, pumps, pipes, and other manufactured items.

PCB Article Container - Any package, drum, or other device that contains PCB articles or PCB equipment and whose surface(s) has not been in direct contact with PCBs.

PCB Container - Any package, drum, tank or other device that contains PCBs or PCB articles and whose surface(s) has been in direct contact with PCBs.

3.0 **DEFINITIONS** (cont.)

PCB-Contaminated Electrical Equipment - Any electrical equipment including, but not limited to, transformers, capacitors, circuit breakers, reclosers, voltage regulators, switches, electromagnets, and cable that contain 50 ppm or greater, but less than 500 ppm PCB. Oil-filled electrical equipment other than circuit breakers, reclosers, and cable whose PCB concentration is unknown must be assumed to be PCB-contaminated electrical equipment.

PCB Equipment - Any manufactured item, other than a PCB container or PCB article container, that contains a PCB article or other PCB equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures.

PCB Item - Any PCB article, PCB article container, PCB container, or PCB equipment that deliberately or unintentionally contains or has a part made of any PCB or PCBs.

PCB Transformer - Any transformer that contains 500 ppm PCB or greater.

PCB Waste - Those PCBs and PCB items that are subject to the disposal requirements under TSCA regulations (40 CFR 761).

Project - For the purpose of this procedure, a project is defined as any

- CERCLA removal/response action
- RCRA closure
- Construction project
- Demolition project
- Maintenance activity

ppm - Parts per million.

3.0 **DEFINITIONS** (cont.)

Radioactive Contaminated Waste - Solid, liquid, or gaseous material that contains radionuclides regulated under the Atomic Energy Act of 1954, and of negligible value considering costs of recovery. Surface contaminated materials with radiation value above DOE Order 5400.5 limits are considered radioactive waste. Surface contaminated materials include metals and other non-porous matrices where the radioactive contamination is limited to the surface of the material and where all surfaces of the material that could have been contaminated can be monitored. Volume contaminated materials that have added radioactivity from DOE activities are also considered radioactive waste. Volume contaminated materials include materials with porous matrices and other materials for which the radioactive contamination is not necessarily limited to the surface, or materials where all surfaces that could have been contaminated can not be monitored.

Removable Contamination - Radiological surface contamination that is readily removed using the filter paper smear technique.

Resource Conservation and Recovery Act (RCRA) - The act 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.

Soil - All vegetation, soils and other ground media including, but not limited to, sand, grass and gravel. Does not include concrete and asphalt.

SPCC Plan - Spill Prevention, Control and Countermeasures Plan

Spill - Both intentional and unintentional spills, leaks and other uncontrolled discharges where the release results in any quantity of PCBs running off, or about to run off, the external surface of the equipment or the PCB source, as well as the contamination resulting from those releases. This policy applies to spills of 50 ppm or greater of PCBs. The concentration of PCBs spilled is determined by the PCB concentration in the material spilled as opposed to the concentration of PCBs in the material onto which the PCBs were spilled.

Storage - PCBs and PCB items being stored that have been designated for disposal are required to meet the requirements specified in 40 CFR 751.60. The following PCB items may be stored temporarily for up to 30 days in an area that doesn't comply with the facility requirements of 40 CFR 761.65 provided that a notation is attached to the item of PCB container (containing the item) indicating the date the item was removed from service; non-leaking PCB Articles and PCB equipment; leaking PCB Articles and PCB equipment if placed in non-leaking PCB containers containing sufficient sorbent materials to absorb any liquid PCBs remaining in the PCB item; PCB containers containing non-leaking PCBs; and PCB containers containing between 50 ppm and 500 ppm.

3.0 **DEFINITIONS** (cont.)

Toxic Substances Control Act (TSCA) - A 1976 Congressional Act that authorizes the EPA to gather information on chemical risks. This act includes the regulation of PCBs.

4.0 **RESPONSIBILITIES**

CERCLA/RCRA Unit 3 provides overall project management and coordination with all support groups involved in managing PCBs and PCB items.

Remediation Support Operations (RSO)

- Coordinates with members of other departments to plan the removal of PCBs and PCB items.
- Maintains and controls access to PCB storage facilities.
- Coordinates the movement of PCB containers.
- Ensures that only trained personnel handle PCBs and PCB items.
- Prepares work orders for projects in which PCBs and PCB items are to be removed.
- Removes PCB items from service.
- Signs the Nuclear Material Transfer Record/Nuclear Material Receipt/Material Identification Record, 68/69 Card, prior to moving the PCBs and PCB items to storage.
- Completes PCB and PCB item identification documentation.
- Notifies the Assistant Emergency Duty Officer (AEDO) in the event of a spill and coordinates spill response activities in accordance with the Spill Prevention, Control and Countermeasures Plan.
- Assists in implementing training requirements for operators handling PCBs and PCB items.
- Receives PCB samples and prepares them for shipment to an offsite laboratory.
- Receives and handles PCB samples and residues from offsite laboratories.

4.0 **RESPONSIBILITIES** (cont.)

- At least monthly, performs inspections of the PCB storage facility (Building 81) to ensure container integrity.
- Provides documentation to identify storage containers that may be used for PCBs and PCB items.
- Prepares Sampling and Analysis Plans.
- Conducts sampling of PCBs and PCB items when requested.
- Identifies and provides storage, characterization, and disposal of PCBs and PCB items.

Regulatory Programs (RP)

- Identifies applicable regulations, DOE Orders, and FERMCO policies.
- Provides CERCLA/RCRA/TSCA integration guidelines.
- Assists departments as needed in the designation of storage areas for PCBs and PCB items for compatibility and storage requirements.
- Provides all departments with a FERMCO PCB policy.

Quality Assurance (QA)

- Monitors to ensure that provisions of the Site-wide Quality Assurance (SQA) Program are implemented.
- Monitors FEMP employees and subcontractors to ensure that all applicable procedures including health and safety requirements are followed.
- Performs surveillance of the site to ensure adherence to this procedure and issues Deviation Reports (DR) and/or Corrective Action Reports (CAR) when applicable.

Quality Control (QC)

- Performs or ensures that surveillance of the project area for the removal of PCB items is performed and that generation records are completed.
- Performs surveillance for the site to ensure adherence to this procedure and issues Deviation Reports (DR) and/or Corrective Action Reports (CAR) when applicable.

4.0 **RESPONSIBILITIES** (cont.)

- Ensures that Department of Transportation (DOT) markings on drums are consistent with the FERMCO PCB policy.

Waste Characterization

- Completes waste determinations through the use of the MEF.
- Revises MEFs when necessary.

Environmental Safety and Health (ES&H)

- Prepares work permits for applicable safety and personal protective equipment (PPE) to be worn for the removal of PCBs and PCB items.
- Performs preliminary surveys to assist in identifying the level of radiological contamination.
- Surveys and prepares radiological data records for PCBs and PCB items generated during a project.
- Monitors and segregates PCBs and PCB items requiring radiological decontamination according to type.
- Assists in establishment of training requirements for operators handling PCBs and PCB items.

Training Department

- Trains employees on the handling of PCB and PCB items.
- Trains employees on the implementation of this procedure.

Materials Control and Accountability (MC&A)

- Maintains a current TSCA Waste Inventory of PCBs and PCB items.
- Co-signs with RSO the Nuclear Materials Transfer, Nuclear Material Receipt/Material Identification Records (Cards 68/69)
- Assigns inventory numbers.
- Records movement of all TSCA Containers.
- Generates TSCA reports.

5.0 GENERAL

Work permits, work plans, or other project documentation shall be reviewed prior to commencement of the project. A meeting (when applicable and feasible) may be scheduled to discuss the project and an area walkdown may be necessary to review the project scope for PCBs and PCB item removal, and sampling and waste characterization. If sampling will be required, a Sampling and Analysis Plan (SAP) shall be prepared.

6.0 PREREQUISITES

6.1 INDUSTRIAL SAFETY AND HEALTH REQUIREMENTS

Personal protective equipment (PPE), such as eye protection, goggles, face shields, respiratory protection, gloves and rubber aprons shall be worn as specified in the work permit issued by ES&H.

6.2 PERSONNEL REQUIREMENTS

Employees shall have reviewed and be familiar with the information contained in the Material Safety Data Sheets (MSDS) for PCB dielectric fluids or the chemical and/or hazardous material being used.

6.3 TOOLS AND MATERIALS REQUIRED

None

7.0 PROCEDURE

NOTE: Within this section, Warnings and Cautions precede the step to which they apply. Notes follow the steps to which they apply.

7.1 SAMPLING AND ANALYSIS PLAN(S)

RSO

When necessary, prepare Sampling and Analysis Plan(s) in accordance with EM-SM-006.

7.2 TRAINING

TRAINING DEPARTMENT

1. Develop with the assistance of various appropriate support groups, a training program that incorporates the Sampling and Analysis Plan(s) and the directions contained in this document.

7.2 TRAINING (cont.)

TRAINING DEPARTMENT

2. In accordance with the training program, conduct training of personnel who will be doing the work. The training will be based on the task(s) of the scope of work being performed.

7.3 PREPARING PCB AND PCB ITEM CONTAINERS

RSO

1. Weigh the empty container approved for use pursuant to the applicable scale operating procedure.

   NOTE: For PCB transformers, PCB capacitors, PCB contaminated electrical equipment and/or PCB equipment, a 55-gallon (specification 5, 5B, or 17C) container (containers complying with DOE specifications 49 CFR 178.80 will be used) shall be used to accumulate the PCBs or PCB items for transportation to a storage facility. If the item is too large to fit into a 55-gallon container, an alternative container, such as a white metal box shall be used. For liquid PCBs, a 55-gallon (specification 5, 5B without removable head, or specification 17E) closed-head, bung-type drum shall be used. Overpack drums may also be used.

2. Insert two plastic drum liners into the container. Place two layers of oil-absorbent pads between the two drum liners in the container.

3. Place the tared drum into the project area's secondary containment area, if a secondary containment area is required.

7.4 PREPARING THE PROJECT AREA

GENERATOR AND RSO

1. Determine project area requirements as contained in existing work plans, site procedures, and Removal Action 9.

MC&A

2. Assign the FEMP lot marking code.

7.4 PREPARING THE PROJECT AREA (cont.)

GENERATOR AND RSO

3. Obtain concurrence from the facility owner of the project area and the Radiological Control Technician for removal of the PCB or PCB item.

4. Review the work permit requirements for removing the PCB item. Obtain and don proper personal protective equipment (PPE) prior to entrance to the work area.

5. Check the project area to determine if adequate containers and packing materials are available.

   NOTE: PCBs and PCB items, i.e., transformers, capacitors, other PCB contaminated electrical equipment, PCB equipment, PCB liquids, and other PCB contaminated solids (wipes, rags, contaminated PPE, and miscellaneous solids) shall be separated and stored in compatible containers.

6. If sufficient containers and packing materials are not available, contact the supervisor of the project area to obtain the needed materials.

7. Inspect the containers for holes, dents, bulges, or other damage that could affect integrity. If unacceptable, inform the supervisor of the project area who should order replacement containers.

8. Proceed with planned work only when sufficient amounts of necessary materials are available.

9. Designate a staging area to be located in proximity to where the PCB or PCB items are to be removed, accumulated, decontaminated, marked, labelled, and properly packaged before transfer to a storage facility.

   NOTE: The staging area will be temporarily diked (if there is a potential for a spill or leak). Herculite or plastic sheeting and absorbent materials will be provided.

   NOTE: The secondary containment area shall consist of a plastic lined berm area capable of containing 100 percent of the volumetric contents of the disposal drum.

7.4 PREPARING THE PROJECT AREA (cont.)

GENERATOR AND RSO

10. When electrical equipment is involved in the project, contact Electrical Maintenance to conduct lock-out/tag-out procedure(s) to ensure that electrical service has been disconnected.

7.5 REMOVING PCBs AND PCB ITEMS

GENERATOR AND RSO

1. Contact ES&H to monitor the PCB or PCB item for possible radioactive contamination.

> **WARNING**
>
> **IF A PCB ITEM IS LEAKING, IMMEDIATELY GO TO SECTION 7.6.**
> **IF THERE IS NO LEAKAGE, GO TO STEP 2 OF THIS SECTION.**

2. Check for a serial number on the PCB item. If there is no serial number, assign an identification number.

3. Look for any label or mark that indicates whether the item contains PCBs.

   NOTE: If a label or mark is not found, confirming that the item does not contain PCBs, it shall be assumed to contain PCBs and shall be handled pursuant to this procedure until proven otherwise by sampling or by manufacturer information. (See Dielectric Fluid Trade Names and Manufacturers, Attachment B).

> **WARNING**
>
> **RADIOLOGICALLY CONTAMINATED PCBs OR PCB ITEMS MUST BE SEGREGATED FROM NON-RADIOLOGICALLY CONTAMINATED PCBs AND PCB ITEMS.**

4. Remove the PCB item and place it in the designated container.

5. If necessary, wipe the PCB or PCB item with a clean rag to remove any removable radioactive contamination present. If the PCB or PCB item is still radiologically contaminated, repeat the wiping process until the item is clean or it has been determined to have fixed contamination.

7.5 REMOVING PCBs AND PCB ITEMS (cont.)

GENERATOR AND RSO

6. Place any contaminated item(s) on a pallet for transport to Decontamination.

7. Place radiologically clean PCB and PCB items into the disposal container.

   NOTE: Containers of PCBs and PCB items must be placed in the storage facility within 30 days of the PCB items being loaded into the container(s).

7.6 REMOVING LEAKING PCB AND PCB ITEMS

RSO

1. Upon discovery of a leaking PCB or PCB item, report the leak to the AEDO and barricade the immediate work area with caution banners.

2. Request ES&H to survey the area for proper ventilation and safety hazards and to survey for possible radiological contamination.

3. If not previously done, notify Electrical Maintenance to conduct the appropriate lock and tag of electrical equipment to ensure that power has been disconnected from the leaking PCB item.

4. If not previously done, prepare a secondary containment area in the immediate vicinity of the leaking item using a plastic lined berm area into which the leaking PCB item may be taken.

5. Put on rubber gloves that will not absorb PCBs (neoprene, butyl, or nitrile) and wear cover goggles and a rubber apron (if necessary) to help guard against possible exposure to PCBs.

6. Remove the leaking PCB item from service and replace with a non-PCB item, if required.

7. Place a PCB mark on the PCB item.

8. Wrap the leaking PCB item in an absorbent pad.

9. Place the wrapped PCB item in a plastic bag.

7.6 REMOVING LEAKING PCB AND PCB ITEMS (cont.)

RSO

10. Contain the leaking PCB item in the secondary containment area.

11. Because of the physical limitations of surveying inside a PCB item, assume that the leaking PCB item is radiologically contaminated.

RADIOLOGICAL TECHNICIAN

12. Survey the area and the PCB item(s) for radiological contamination.

13. If the PCB item is not radiologically contaminated, mark NON-CONTAMINATED LEAKING on the PCB item inventory sheet and place the wrapped leaking PCB item into an accumulation container marked NON-CONTAMINATED LEAKING PCB ITEM.

14. If there is radiologically contamination, mark CONTAMINATED LEAKING on the PCB item inventory sheet and place the wrapped PCB item into an accumulation container marked CONTAMINATED LEAKING.

15. If the area is radiologically contaminated, take the required actions prior to removing any items or containers from the area.

GENERATOR AND RSO

16. Seal the container containing the leaking PCB item.

17. If the removal involves tagged or untagged electrical equipment, prepare a Property Disposal Request form, FS-F-563.

18. Place the container marked CONTAMINATED LEAKING on a pallet for transport to Storage.

7.7 LABELLING PCB DISPOSAL CONTAINERS

GENERATOR AND RSO

1. Mark or label the container with the required identification for the material to be contained and the tare weight (see Figures 1, 2, and 3).

2. Complete an Item Production/Certification/Identification form, FS-F-1945-4 (65 Card), and a Nuclear Material Transfer Record form, FS-F-1990 (68/69 Card).

3. Insert the 65 Card and 68/69 Card into the plastic envelope on the container lid.

4. Remove the Hazardous Waste Disposal Record form, FS-F-3064, from the plastic envelope on the container lid and record the waste added to the container as follows:

   a. Record material type.

   b. Record the operator's badge number.

GENERATOR AND RSO

5. Return the Hazardous Waste Disposal Record form to the plastic envelope on the drum lid.

6. Complete a PCB Article Tag form (Figure 4) for each PCB item to be removed from service and give to the supervisor to sign and file.

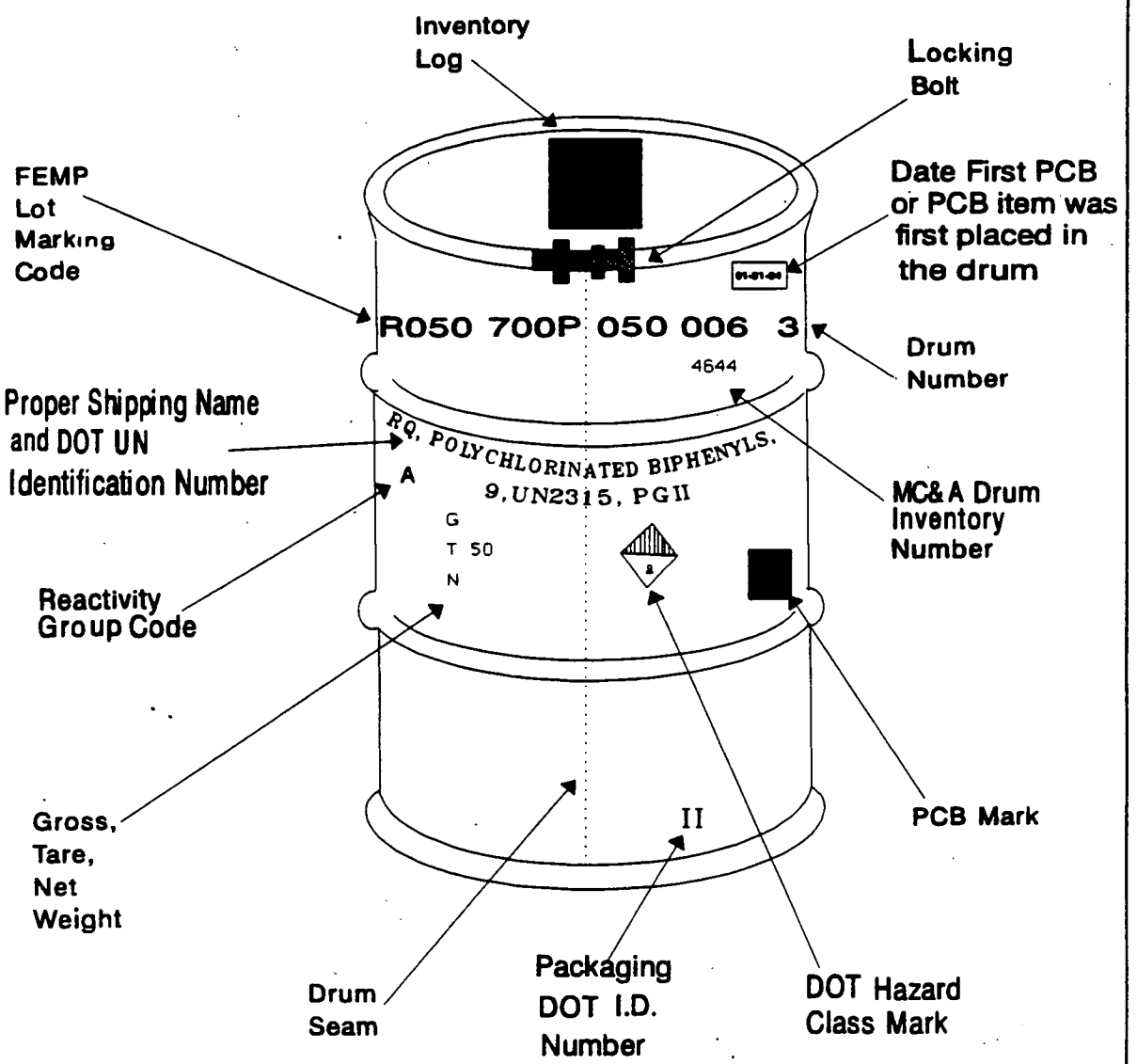
7. Secure the lid on the container.

7.8 TRANSPORTING PCB CONTAINERS AND PCB ARTICLE CONTAINERS TO STORAGE

NOTE: PCB containers and PCB article containers must be placed in the storage facility within 30 days of the PCB or PCB items being loaded into the container(s).

SUPERVISOR OF THE PROJECT AREA

1. Verify the arrival of the transported PCB container or PCB article container at the storage facility.



NOTE: If the amount of PBCs in the drum does not equal the Reportable Quantity (1 lb.), it is not necessary to place the DOT information and marks on the drum.

Figure 1 - Schematic of PCB Disposal Drum Labeling

CAUTION
CONTAINS
PCBs
(Polychlorinated Biphenyls)

A toxic environmental contaminant requiring special handling and disposal in accordance with U.S. Environmental Protection Agency Regulations 40 CFR 761-For Disposal Information contact the nearest U.S. E.P.A Office.

In case of accident or spill, call toll free the U.S. Coast Guard National Response Center:
800-424-8802

Also Contact DOE/FEMP - AEDO

Tel. No. (513) 738-6200

PCS Printed by LABELMASTER, Div. of AMERICAN LABELMARK CO., CHICAGO, IL. 60646

Figure 2 - "Caution Contains PCBs" Mark

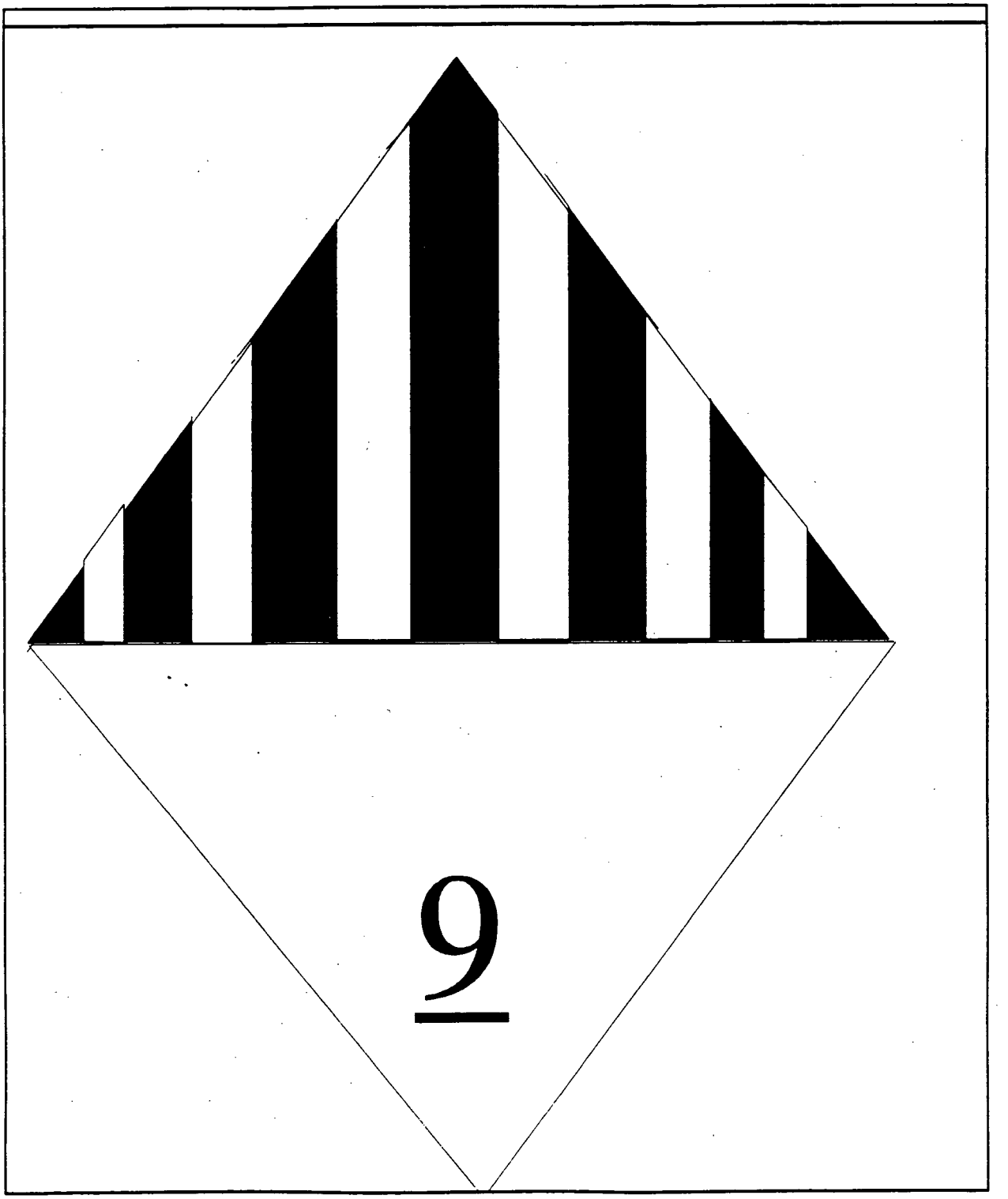


Figure 3 - DOT Shipping Label or Mark for PCB Containers

7.8 TRANSPORTING PCB CONTAINERS AND PCB ARTICLE CONTAINERS TO STORAGE (cont.)

SUPERVISOR OF THE PROJECT AREA

2. Install a lid and bolt-type lock ring on an open-head drum or threaded bung head drum and secure by checking gasket placement and condition of container lid.

   NOTE: Damaged gaskets shall be replaced.

3. Seat lid evenly on open head drum or screw bung plug tightly and evenly into the bung using a bung wrench.

4. Place locking bolt ring on lid of open head container ensuring the flanges point downward from the lock ring.

5. Install locking bolt shaft through the unthreaded flange, the locking nut, and threaded flange, in that order, so that the bolt head rests against the unthreaded flange.

6. Torque bolt to 45 lb-ft using breakaway torque wrench.

7. Manually tighten the locking nut against the thread flange.

8. Using a wrench, tighten the lock nut against the flange an additional one-quarter turn.

9. Move the sealed drum to the weighing station with a fork lift and record the final weight of drum.

   NOTE: Maximum weight per 55-gallon drum is 1,200 pounds gross.

10. Obtain the net weight of the container by subtracting the tare weight of the container from the weight indicated by the scale.

11. Remove the 65 Card from the envelope on the container and record the gross weight, net weight, lot sequence number, and badge number.

12. Return the card to the envelope on the container lid.

13. Stencil the gross weight, net weight, lot sequence number, and drum number on the container.

FEMP
ENVIRONMENTAL COMPLIANCE
PCB ARTICLE TAG - Remove-From-Service Information"

ARTICLE I.D. NO.	MODEL NO.:	SERIAL NO.:	CAPACITY (gal.):
VOLTAGE:	MANUFACTURER:	OTHER I.D. ITEMS:	
DESCRIPTION OF ITEM REMOVED: LEAKING? ☐ YES ☐ NO	ANY SPILLS DURING REMOVAL? ☐ YES ☐ NO	IF YES, DESCRIBE BELOW:	
REMOVED FROM SERVICE BY: Name: _____ Date: ___/___/___		**ADDITIONAL INFORMATION** (SKETCHES, ETC.):	
PLACED IN STORAGE BY: Name: _____ Date: ___/___/___			
SERVICE LOCATION: (PLANT, SPECIFIC AREA, ETC.):		SERVICE OPERATION: (FURNACE, JOLTER, ETC.)	
RADIATION SURVEY RESULTS:		ANALYTICAL RESULTS (IF APPLICABLE):	

NO.	DISTRIBUTION OF COPIES
1	Industrial Hygiene
2	Environmental Compliance
3	Solid Waste Compliance
4	Waste Management
5	Maintenance
6	Transportation

FS-F-2818 (REV. 10/15/92)

Figure 4 - PCB Article Tag - Removal from Service Information, FS-F-2818

7.9 SAMPLING RESIDUES

RSO

Return sample residues to the appropriate containers pursuant to site media sampling procedures.

7.10 MONTHLY INSPECTION OF THE PCB STORAGE FACILITY (BUILDING 81)

RSO

Perform inspection pursuant to SOP 20-C-616.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- 40 CFR 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce an[illegible]e Prohibitions
- 49 CFR 178.80, Department of Transportation

8.2 REFERENCES

- EM-SM-006, Sample Plan Development Procedure
- FERMCO PCB Policy
- PL-2194, FERMCO Spill Prevention Control and Countermeasure (SPCC) Plan
- Removal Action 9
- RM-0005, FEMP Lot Marking and Color Coding System
- SOP-20-C-616, Inspection of Hazardous Waste Management Units
- SOP-20-C-912, Checking Scale Operation
- SSOP-0035, Satellite Accumulation Areas and Interim Containers for Hazardous Wastes
- SSOP-0719, Energy Control Procedure (Lockout and Tagout)
- SSOP-0035, Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers

ATTACHMENT A
Sheet 1 of 11

U. S. Department of Energy
Fernald Environmental Management Project
Letter No. C:OP:93-1413

Mr. J. Phil Hamric, Manager
Department of Energy
Fernald Field Office
P. O. Box 398705
Cincinnati, Ohio 45239-8705

Dear Mr. Hamric:

CONTRACT DE-AC05-92OR21972, FERMCO'S PCB POLICY

This document introduces FERMCO's PCB Policy for managing polychlorinated biphenyls (PCBs), PCB items, and fluorescent light ballasts at the FEMP. This document supersedes and thereby nullifies the pre-existing WEMCO-originated PCB Policy.

Prior to introducing FERMCO's policy, the following background on the WEMCO PCB Policy at the FEMP is presented.

WEMCO PCB POLICY AT THE FEMP

Westinghouse Environmental Management Company of Ohio (WEMCO), as directed by Westinghouse Electric Corporation (Westinghouse), implemented a corporate PCB policy which addressed the issues of handling, storing, and disposition of PCBs and PCB items at all Westinghouse facilities. Westinghouse's corporate policy required any items that contained PCB concentrations of 2 parts per million (ppm) or greater to be managed in accordance with 40 CFR 761. Federal requirements stated in 40 CFR 761 are specifically applicable only to items with a PCB concentration of 50 ppm or greater. At the FEMP, the major category of PCBs impacted by the WEMCO policy are fluorescent light ballasts.

Following is a passage from the Westinghouse PCB Light Ballast Policy:

> "PCB ballasts fall into the small capacitor category as defined in 40 CFR 761.3. While the federal regulations do not have any requirements for disposal unless you manufacture PCB equipment [emphasis added], Westinghouse takes a more conservative approach. As specified in Chapter 9 of the Westinghouse Environmental Manual, Westinghouse facilities [e.g., the FEMP] are to follow the federal requirements for the accumulation of the infrequently generated unit, that is, no specific disposal requirements. However, if any quantity is accumulated during a given year, then it must be incinerated as a PCB waste. In addition, all of the accumulation, labeling, and storage requirements for PCB materials must also be satisfied.

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Potential liability, public opinion and changing regulations are the predominant reasons why Westinghouse's PCB disposal requirements are more stringent than the regulations. Disposal of small PCB capacitors in a sanitary landfill potentially exposes Westinghouse to longer term cleanup liabilities. Also, the public opinion and possible media exposure would not be very favorable if it was ascertained that Fernald was disposing of 'PCBs' into the local sanitary landfill."

FERMCO'S PCB POLICY

Non-radioactive PCBs and PCB items will be managed (including marking, labelling, handling, storing, disposition and reporting) in compliance with the federal requirements as stated at 40 CFR 761, *"Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions"*. Any item containing dielectric fluids at a PCB concentration of 50 ppm or greater will be considered and managed as a PCB item, consistent with 40 CFR 761.

Any nonleaking item or material containing a PCB concentration of 49 ppm or less will be considered and managed as non-PCB and categorized as "excluded PCB products" as defined at 40 CFR 761.3. Excluded PCB products are not subject to the marking, labelling, storing, and administrative requirements (e.g., PCB Document Log, PCB Annual Document Report) for PCBs and PCB items contained in 40 CFR 761. Therefore, administrative requirements such as the preparation and submittal of the PCB Annual Document Log will not be applicable to such excluded PCB products. Electronic and solid state equipment, such as computers, clocks, radios and microwave ovens, are presumed not to contain PCBs and will also be managed as non-PCB items. Small capacitors, such as those contained in fluorescent light ballasts, are not regulated by the federal requirements except when leaking. Any PCB item (e.g, fluorescent light ballast) found to be <u>leaking</u> will be regulated and managed in accordance to 40 CFR 761.

As a Best Management Practice (BMP), fluorescent light ballasts will be stored in a storage area conforming to 40 CFR 761.65 <u>once</u> the drum is full. Building 81 is currently utilized as the designated storage area of PCBs and is in compliance with 40 CFR 761.65 (i.e., adequate roof/walls, containment, etc.).

Any drum(s) containing non-radioactively-contaminated, nonleaking fluorescent light ballasts will be marked on two sides of the drum, "UNREGULATED LIGHT BALLASTS". Any drum(s) containing radioactively-contaminated, nonleaking fluorescent light ballasts will be marked on two sides of the drum,

"RADIOACTIVELY CONTAMINATED LIGHT BALLASTS". For both types of drums of light ballasts, the lettering of the marking on the drums will be at least two (2) inches in height.

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Partially full drums of PCBs and PCB items will be consolidated into full drums as long as the contents are segregated by corresponding type of item (e.g., PCB liquids, PCB transformers, unregulated light ballasts) and radioactive concentration (e.g, non-radioactive items, radioactive items) to ensure no mixing or commingling of waste types during consolidation. Such consolidation should decrease the inventory of PCB drums at the FEMP, reduce the potential for a release to employees and the environment, reduce space occupied by such drums in the designated PCB storage area currently within Building 81 , and allow more cost-effective transport and disposal of these drummed materials.

As a Best Management Practice (BMP), consistent with pollution prevention and waste minimization (PP/WM) principles, all non-radioactively-contaminated, nonleaking fluorescent light ballasts will be disposed of by a FERMCO-approved recycling vendor. FERMCO will initiate a procurement prior to the dismantlement of fluorescent light ballasts with the following technical approach/scope: FERMCO will initially package the fluorescent light ballasts into proper drums ensuring fluorescent light ballasts are not leaking and that they are not radioactive; the vendor will collect the drums of fluorescent light ballasts and transport the drums to the recycling facility; at the facility, the vendor will remove the small capacitors from the ballasts, pack the small capacitors in drums and transport the small capacitors to a TSCA-approved incinerator for disposal, and recycle the remaining materials for valuable metals. The capacitors will not be considered PCB waste since the capacitors are not regulated as PCBs according to 40 CFR 761. In the event that no such responsive/responsible vendor or subcontractor can be located as a result of such procurement action, an acceptable alternate approach is procurement action for disposal via a TSCA- approved incinerator without recycling/reclamation.

All spills of PCBs will be managed in compliance with the federal requirements as stated in 40 CFR 761.120 through 761.135. A spill refers to both intentional and unintentional releases, spills, leaks, and other uncontrolled discharges where the release results in "any quantity of PCBs running off or about to run off the external surface of the equipment or other PCB source, as well as the PCB contaminated material resulting from those releases." Such PCB contaminated material includes cleanup debris (e.g., absorbent), rags, soil, concrete, and rinsate generated from the clean-up affected by the release.

Where a spill of untested mineral oil occurs, the oil is presumed to contain greater than 50 ppm but less than 500 ppm and is subject to the EPA Cleanup Policy.

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ACQUISITION AND SALVAGE OF FLUORESCENT LIGHT BALLASTS

An intact, nonleaking, and structurally sound fluorescent light ballast bought for use before July 1979, may be sold for subsequent use as stated in 40 CFR 761.20(c)(1) for purposes other than resale and may be distributed in commerce only in a totally enclosed manner after that date. FERMCO will request a statement from its vendors prior to purchase of fluorescent light ballasts documenting that the items provided do not contain PCBs. In the event that FERMCO salvages any useable fluorescent light ballast for resale or use, such salvage will be limited to only those fluorescent light ballasts which do not contain PCBs.

CONTACTS

If you have any questions and/or comments concerning this letter, or the full policy document presented as Attachment 1, please contact Ken Alkema, of my staff, at (513) 738-9228. Revisions to existing SOPs and other procedures needed to implement this change from pre-existing policy are either in progress or will be initiated shortly.

Very truly yours,

N. C. Kaufman
President

NCK:MJS:jhc
Attachment

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FERMCO PCB POLICY

PCBs AND PCB ITEMS

PCBs and PCB items will be managed (including handling, marking, labelling, storing, disposition and reporting) in compliance with the federal requirements as stated at 40 CFR 761, *"Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions"*. Any item containing dielectric fluids at a PCB concentration of 50 ppm or greater will be considered and managed as a PCB item, consistent with 40 CFR 761. Radioactively contaminated PCBs and PCB items will be handled in the same manner regarding PCBs, but with the addition of radioactive waste management considerations and requirements.

EXCLUDED PCB PRODUCTS

Any item or material containing a PCB concentration of 49 ppm or less will be considered and managed as non-PCB and categorized as "excluded PCB products" as defined at 40 CFR 761.3. Excluded PCB products are not subject to the marking, labelling, storing, and administrative requirements (PCB Annual Document Log and Annual Report) for PCBs and PCB items contained in 40 CFR 761. Therefore, administrative requirements such as the preparation and submittal of the PCB Annual Document Log will not be applicable to such excluded PCB products. Electronic and solid state equipment such as computers, radios, clocks and microwave ovens are presumed not to contain PCBs and will be managed as non-PCB items.

FLUORESCENT LIGHT BALLASTS

Fluorescent light ballast, as defined at 40 CFR 761.3, means a device that electrically controls fluorescent light fixtures and that includes a capacitor containing 0.1 kilograms (about 1 to 1.5 ounces) or less of dielectric fluid.

Provided that they are (1) not leaking, and (2) not collected during the manufacture of capacitors or equipment containing capacitors, there are no federal requirements for storage of small capacitors, such as those contained in fluorescent light ballasts. The FEMP is not currently nor has it ever been engaged in the manufacture of either capacitors or equipment containing capacitors.

As a Best Management Practice (BMP), it is therefore FERMCO's policy that fluorescent light ballasts will be stored in a storage area conforming to 40 CFR 761.65 once the drum is full. Building 81 is currently utilized as the designated storage area of PCBs and is in compliance with 40 CFR 761.65.

It is FERMCO's policy that any drum(s) containing non-radioactively contaminated, nonleaking fluorescent light ballasts will be marked on two sides of the drum, "UNREGULATED LIGHT BALLASTS". It is also FERMCO policy that any drum(s) containing radioactively-contaminated, nonleaking fluorescent light ballasts will be marked on two sides of the drum, "RADIOACTIVELY CONTAMINATED LIGHT BALLASTS". The lettering of the marking on the drums will be at least two (2) inches in height for both types of drums of light ballasts.

In the event that other such excluded PCB products are identified, FERMCO will manage such items in a the same manner as light ballasts. FERMCO will assess whether the other such excluded PCB products should be segregated from fluorescent light ballasts.

SMALL PCB CAPACITORS

Non-leaking small PCB capacitors other than those found in light ballasts will also be managed as excluded PCB products. These may be found in electrical equipment or control panels such as circuit breakers, voltage regulators, reclosers and switches. As a BMP, these will be recycled for valuable metals and the PCBs will be incinerated at a TSCA-approved incinerator.

CONSOLIDATION OF PARTIALLY FULL DRUMS

It is FERMCO's policy that partially full drums of PCBs and PCB items will be consolidated into full drums as long as the contents are segregated by corresponding type of item (e.g., PCB liquids segregated from PCB transformers) and radioactive concentration (e.g, non-radioactive segregated from radioactive items) to ensure no mixing or commingling of waste types during consolidation. Such consolidation will decrease the inventory of PCB drums at the FEMP, reduce the potential for a release to employees and the environment, reduce space in Building 81 occupied by drums, and allow more cost-effective transport and disposal of these drummed materials.

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DISPOSITION OF EXCLUDED PCB PRODUCTS

The FEMP is not currently nor has it ever been engaged in the manufacture of capacitors or equipment containing capacitors. Provided that small capacitors, such as these contained in fluorescent light ballasts, are not leaking, the FEMP "may dispose of PCB small capacitors (including fluorescent light ballasts) as municipal solid waste ... " [40 CFR 761.60(a)(2)(ii)]. Leak or leaking means any instance in which a PCB Article, PCB Container, or PCB Equipment (e.g., small capacitor, fluorescent light ballast) has any PCBs on any portion of its external surface [40 CFR 761.3].

As a Best Management Practice (BMP) consistent with pollution prevention and waste minimization (PP/WM) principles, it is FERMCO's policy that all non-radioactively-contaminated, nonleaking fluorescent light ballasts will be disposed of by a FERMCO-approved recycling vendor. The vendor will collect the drums of fluorescent light ballasts and transport the drums to the recycling facility. At the facility, the vendor will remove the small capacitors from the ballasts, pack the small capacitors in drums and transport the small capacitors to a TSCA-approved incinerator for disposal, and recycle the remaining ballast materials for valuable metals. The capacitors will not be considered PCB waste since the capacitors are not regulated as PCBs according to 40 CFR 761. In the event that no such responsible and responsive vendor or subcontractor can be located via appropriate procurement solicitation, an acceptable alternative approach is disposal via a TSCA-approved incinerator without recycling/ reclamation.

ACQUISITION AND SALVAGE OF FLUORESCENT LIGHT BALLASTS

An intact, nonleaking, and structurally sound fluorescent light ballast, bought for use before July 1979, may be sold for subsequent use as stated in 40 CFR 761.20(c)(1) for purposes other than resale and may be distributed in commerce only in a totally enclosed manner after that date.

It is FERMCO's policy to request a statement from its vendors prior to purchase of fluorescent light ballasts documenting that the items provided do not contain PCBs. In the event that FERMCO salvages any useable fluorescent light ballast for resale or use, it is FERMCO's policy that salvage will be limited to only those fluorescent light ballasts which do not contain PCBs.

SUMMARY

PCB disposal requirements are presented in the following table.

CONTACTS

Questions and/or comments concerning this document should be referred to FERMCO's Regulatory Programs Division, Ken Alkema, at (513) 738-9228.

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FERMCO PCB POLICY
-PCB Disposal Requirements
(Non-radioactive)

Material/Item	Federal Regulations FERMCO Requirements
I. Liquids	
2-49 ppm	Prohibited for use as a dust Incinerate dielectric control agent. Burn in a boiler, fluids at TSCA-TSCA- or RCRA-approved facility. approved facility approved by FERMCO.
50-499 ppm	Incinerate in approved unit, or Same as federal burn in approved high efficiency except facility boiler or by alternative USEPA-requires approval approved method by FERMCO.
500 ppm or	Incinerate in TSCA-approved unit Same as federal greater or destroy with equivalent except facility approved method. requires approval by FERMCO.

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FERMCO PCB POLICY
PCB Disposal Requirements
(Non-radioactive)

Material/Item	Federal Regulations	FERMCO Requirements
II. Transformer Carcass Previously Contained		
2-49 ppm	Not regulated.	Drain all free-liquid and dispose as in Section I above. Landfill all parts in approved chemical landfill or salvage parts at facilities approved by FERMCO.
50-499 ppm	Drain all free-liquid and dispose as in Section I above, then carcass not regulated.	Same as above
500 ppm or greater	Drain liquid, fill with solvent and let stand 18 hours; drain again. Dispose of all liquids as specified in Section I above, landfill carcass in approved RCRA-permitted chemical waste landfill or decommission by other equivalent alternative means approved by USEPA or incinerate entire unit.	Same as federal except facility requires approval by FERMCO

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FERMCO PCB POLICY
PCB Disposal Requirements
(Non-radioactive)

Material/Item	Federal Regulations	FERMCO Requirements
III. Capacitors		
Small	Not regulated unless facility manufactured PCB equipment, then incinerate dielectric fluids must incinerate in TSCA-approved facility approved by FERMCO.	Recycle metal and <3 lbs. fluids at TSCA-unit approved fluids at TSCA-approved
Large	Shred and incinerate in TSCA-approved unit.	Same as federal except >3 lbs. facility must be approved by FERMCO.
2-49 ppm	Not regulated. Recycle metal and incinerate dielectric fluids at a TSCA-approved facility approved by FERMCO.	
50-499 ppm	Incinerate or landfill in TSCA-approved unit.	Shred and incinerate in TSCA-approved unit approved by FERMCO.

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FERMCO PCB POLICY
PCB Disposal Requirements
(Non-radioactive)

Material/Item	Federal Regulations	FERMCO Requirements
IV. Solids		
Rags, soil, debris, empty containers, etc. (no free liquid)		
	2-49 ppm	Not regulated Landfill in TSCA- ("excluded PCB product") approved or RCRA-permitted chemical waste landfill approved by FERMCO.
	50 ppm or greater	Landfill in TSCA-approved chemical waste landfill or incinerate; Incinerate at a TSCA-approved facility empty containers can be approved by FERMCO; decontaminated by triple rinsing.empty containers can decontaminated by triple rinsing -- dispose of all liquids as in Section I above.

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FERMCO PCB POLICY
PCB Disposal Requirements
(Non-radioactive)

Material/Item	Federal Regulations	FERMCO Requirements
V. Hydraulic Equipment		
	2-49 ppm	Not regulated ("excluded PCB Drain liquid and product), except liquids as dispose of liquids as in Section I above in Section I and equipment as in Section II above.
	50-999 ppm	Not regulated, except liquids Same as above as in Section I above.
	1000 ppm	Drain free liquid and flush Same as federal except or greater with a suitable solvent, dispose disposal facility must of all liquids as in Section I be approved by FERMCO above, then equipment not regulated (exterior surfaces may have to be cleaned to USEPA spill policy standards).
VI. Other		
		Any miscellaneous equipment contaminated with PCBs can be handled according to the appropriate categories above. Equipment which will be sold for re-use may have to be decontaminated according to the USEPA Spill Policy Standards (40 CFR 761, Subpart G). Check with FERMCO's Regulatory Programs Division for specific requirements.

ATTACHMENT B

Dielectric Fluid Trade Names and Manufacturers

1. U.S. Manufactured Dielectrics:

Name	Manufacturer
Aroclor	Monsanto
Aroclor B	Mallory
Askarel (Heavy Duty)	Heavy Duty Corp
Askarel*	Ferranti Packard, Ltd
Askarel	Universal Mfg Co
Chlorextol	Allis Chalmers
Chlorpen	Jard Company
Chlorinol	Sparagoe Electric
Diaclor	Sangamo Electric
Dykanol	Cornell Dubilier
Elemex	McGraw Edison
Eucarel	Electric Utilities Corp
Hyvol	Aerovox
Inerteen	Westinghouse Electric
No Flamol	Wagner Electric
Pyranol	General Electric
Saf-T-Kuhl	Kuhlman Electric

* Generic name used for insulating liquids in capacitors and transformers.

2. Foreign Manufactured Dielectrics:

Name	Manufacturer
Clophen	Bayer (Germany)
Fenclor	Caffaro (Italy)
DK	Caffaro (Italy)
Kennechlor	Mitsubishi (Japan)
Santotherm	Mitsubishi (Japan)
Solvol	USSR
Phenoclor	Prodelec (France)
Pyralene	Prodelec (France)

3. Items that list other dielectrics, or do not bear a manufacturer's identification/service plate, or if the item contains any of the dielectrics commonly referred to as ASKARELS, the item is to be certified as a PCB item and no laboratory analysis is necessary.

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1.0 PURPOSE

The purpose of this document is to provide the procedure for baling contaminated trash for off-site disposal.

2.0 APPLICABILITY

This procedure applies to the SELCON Trash Baler in the Incinerator Bldg.

3.0 RESPONSIBILITIES

3.1 **Administration/Training/Remediation Services Training/Site Support Training** shall be responsible for providing trash baler operators, motor vehicle operators (MVO) and their immediate supervisors with training or training material on the operation of the trash baler.

3.2 **RSO Operations Supervisors** shall be responsible for the following:

3.2.1 Ensuring that personnel are qualified per the established training requirements identified by the Department/Section Manager.

3.2.2 Maintain training records of personnel operating the trash baler.

3.2.3 Contacting Radiological Control to determine the appropriate respiratory protection for handling contaminated trash.

3.2.4 Providing operators with the required respiratory protection.

3.2.5 Securing (locking out) power to the baler per SSOP-0719 prior to repairs, making adjustments, or cleaning the baler.

3.2.6 Establishing a regular schedule for the delivery of contaminated trash dumpsters to the trash baler, and periodically revising that schedule to reflect changes in the sites operations.

3.2.7 Providing Waste Generation Control with the information needed to provide the proper feedback regarding prohibited items identified in Nevada Test Site Waste Stream ONLO-000000007, "Contaminated Trash".

3.2.8 Contacting Quality Control/Waste Verification when ready to load bales into ISO for shipment.

3.3 **Baler Operators** shall be responsible for following this SOP.

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3.0 **RESPONSIBILITIES** (cont.)

3.4 **Remediation Support Operation/RSO Operations/Waste Management/Waste Generation Control** shall be responsible for the following:

3.4.1 Periodically updating the prohibited items list to be posted on each contaminated trash dumpster and the trash baler with the appropriate action to take if prohibited items are found.

3.4.2 Communicating to the appropriate generator, facility owner and handler, on a monthly basis, the proper disposal alternative for any prohibited items.

3.5 **Remediation Support Operation/Quality Control/Waste Verification** shall be responsible for the following:

Package Certifiers

3.5.1 Performing inspections of 10% of trash prior to baling and documenting prohibited items segregated, according to EQP 12.03.

3.5.2 Communicating to violators the prohibited items found and documenting that communication on Form ECQ-910315-3, Rev. 3.

3.5.3 Completing Part III of the Trash Baler Operation Log.

Real Time Radioscopic (RTR) Operators

3.5.4 Perform RTR inspection on 10% of the baled trash and document any prohibited items found on the examination log per EQP 11.24.

3.5.5 Forward a copy of the examination log each week to Waste Generation Control.

3.6 **Quality Assurance** shall be responsible for the following:

3.6.1 Evaluating the Trash Baler Operation Log along with documentation from the Package Certifiers (pre-baled trash inspection) and the Dumpster Inspections.

3.6.2 Contacting the Facility/Dumpster Owners or Generators about prohibited items and issuing Deviation Reports whenever appropriate.

4.0 **DEFINITIONS**

4.1 Contaminated Material - A substance containing radioactive constituents that are above the limit for unrestricted release (1,000 dpm/cm^2).

4.2 Contaminated Trash Dumpster - Secured container for the collection of contaminated trash located throughout the controlled area. The dumpsters are gray in color with a rounded top and a locked door on each end (two doors).

CIO NO. C94-001

Effective Date: 01-11-94

Expiration Date: 07-11-94

CHANGE IN OPERATION
REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM

APR 1994

NON-CONTROLLED COPY

DOCUMENT NO.: 02-C-923	**AFFECTED DOCUMENT PAGE NO.:** 1	**AREA AFFECTED:** Plant 2/3
DIVISION: RSO	**DEPARTMENT:** RSO	**SECTION:** RSO

TITLE: Trash Baler Operation

AUTHORIZATION: (Signature on File)
O.F. Peters, RSO Operations Manager

CHANGE:

1) Step 3.3 is revised to read as follows:

   3.3 **Baler Operators** shall be responsible for operating the baler at least one shift per day, five days per week, and for following this SOP.

FILING INSTRUCTIONS: File facing page 1 of SOP 02-C-923 (Issue Date: 10-18-93 Rev. No. 0)

DOCUMENT PTR:
M. Frost 000655

4.C **DEFINITIONS** (cont.)

4.3 Contaminated Trash Generator - Any person that has a TLD and works within the controlled area, or will access the controlled area periodically to perform their duties.

4.4 Platen - Pressure plate of the baler.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

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

5.1.2 "FEMP Conduct of Operations Manual"

5.1.3 NVO-325, "Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements"

5.2 References

5.2.1 SOP 20-C-902, "Liquid Propane Gas (LPG) Powered Handstackers and Tuggers".

5.2.2 SSOP-0719, "Energy Control Procedure (Lockout and Tagout)".

5.2.3 EQP 12.03, "Certification of Waste Package Examination, and Sealing for Off-Site Shipments"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 A defined safety system is not involved.

6.2 Safety glasses with side shields shall be worn at all times unless other protection is specified by the supervisor, ES&H, or posted signs.

6.3 Leather-palm gloves shall be worn when loading or conveying trash.

6.4 When making adjustments or cleaning the baler, electrical power shall be shut off per the "Energy Control procedure (Lockout and Tagout)", SSOP-0719.

6.5 Respiratory protection provided by the supervisor shall be worn when specified by ES&H, the supervisor, or posted signs.

6.6 Personnel shall move away from the incinerator bin and conveyor while dumpsters are being emptied.

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6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS** (cont.)

6.7 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.8 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 **GENERAL**

7.1 Warnings, Cautions, and Notes precede the Item or Step to which they apply.

8.0 **PROCEDURE**

8.1 Trash Receiving

BALER OPERATOR

8.1.1 After a dumpster has been emptied, check inside to ensure that trash has been deposited in the bin.

8.1.1.1 If trash remains inside the dumpster, use a rake and pull the material from the dumpster and into the bin.

8.1.2 Complete Part I, "Trash Baler Operation Log", (See Figure 1).

8.1.3 Visually inspect the trash to determine if prohibited items or categories of waste (See Figure 2) are contained in the trash, then begin completing Part II of the Baler Operation Log.

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CIO NO. C93-754

Effective Date: 01-11-94

Expiration Date: 07-11-94

CHANGE IN OPERATION

REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM

DOCUMENT NO.: 02-C-923	AFFECTED DOCUMENT PAGE NO.: 5	AREA AFFECTED: Trash Baler
DIVISION: RSO	DEPARTMENT: RSO/OP	SECTION: RSO/OP

TITLE: Trash Baler Operation

AUTHORIZATION: (Signature on File) O.F. Peters, RSO Operations Manager

CHANGE:

1) New Steps 8.1.3.4.A thru 8.1.3.4.D are added immediately following 8.1.3.4 and preceding 8.1.3.5 (Responsibility of the **Baler Operator**) to read as follows:

FILING INSTRUCTIONS: File facing page 5 of SOP 02-C-923 (Issue Date: 10-18-93 Rev. No. 0)

DOCUMENT PTR: M. Frost 000658

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BALER OPERATOR

NOTE: The bags marked with a red "X" are bags that were dropped at a dumpster with no identification from where the trash was generated.

8.1.3.4.A Segregate bags that have been marked with a large red "X" and place them to the side for internal inspection. If an unmarked bag is discovered, mark the bag with a red "X", place the bag to the side for inspection, and contact Waste Generation Control.

8.1.3.4.B When a significant amount of bags marked with a red "X" have accumulated, contact Radiation Safety to be present during the opening of the bags for internal inspection.

8.1.3.4.C Inspect the contents of the unidentified bags and segregate prohibited items and manage as stated in Steps 8.1.3.1 through 8.1.3.4. Document on the Baler Operation Log any evidence which may indicate the point of generation. After the unidentified bags are inspected, document on the Baler Log and mark these bags as having been reworked at the baler.

8.1.3.4.D In the event the Trash Baler or its supporting facility or vehicles are inoperable, notify the supervisor.

2) A new Step 8.1.3.8 is added as follows:

8.1.3.8 In the event the Trash Baler or its supporting facility or vehicles, are inoperable, implement the Contingency Plan outlined in Figure 5.

3) Figure 5 is added as follows:

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ASSUMPTIONS: Baler operates 5 days a week 8 hours a day (1st shift).

This contingency plan will be used until the new compactor is on-line and baling operations are transitioned.

Generation rate of compactable unbaled trash on any given two week period can be contained in 3 ISO containers.

STRATEGY: STATEMENT This plan may take effect in the event the Trash Baler or its supporting facility or vehicles are inoperable. This plan will be implemented after an inoperable period of one or more of the above assumptions for 3 working days. However, should this period of inoperability last longer than 10 working days, additional contingencies will need to be made available.

COLLECTION: Dumpster Owners will notify RSO Waste Operations of their excess trash (i.e., trash that can not be put into the dumpster because it is already full). This trash will be collected daily by RSO Waste Operations and taken to the area containing the interim storage ISO containers.

HANDLING: RSO Waste Operations will load and unload excess compactable trash.

INSPECTION: QC will inspect the excess trash prior to loading into the interim storage ISO containers. If scheduling conflicts arise and QC can not inspect prior to loading, the ISO may be inspected during the unloading for compaction at the baler.

STORAGE: Storage of the excess compactable trash will be in 3 ISO containers numbered I, II, and III and located north of Storm Sewer Lift Station. These ISO containers are to be used only when this plan is activated and are to be unloaded and baled at the earliest possible date.

CONTINGENCY PLAN
Figure 5

8.0 PROCEDURE (cont.)

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WARNING

Protective clothing identified by the supervisor or by posted signs shall be worn while removing items.

8.1.3.1 If prohibited items are found, remove the items from the trash, label the items with their point of origin and place them in interim storage within the appropriate receptacle located adjacent to the baler.

NOTE: Prohibited waste types shall be separated into containers (such as paint cans in one, glass in another).

8.1.3.2 Segregate each item in a container or plastic bag designated for that type of waste and document from which area the prohibited item originated in Part II of the "Trash Baler Operation Log".

8.1.3.3 Label each bag/container with the waste description.

8.1.3.4 Notify the supervisor of prohibited items found.

SUPERVISOR

8.1.3.5 Notify the Dumpster/Facility Owner & Waste Generation Control of prohibited items found.

8.1.3.6 Notify Waste Generation Control (8444) of prohibited items found in the event of a serious violation, or if more than 10% of dumpster contents has prohibited items.

8.1.3.7 Forward a copy of the Trash Baler Operation Log to Quality Control Package Certifiers after Parts I & II are completed, so Part III can be completed.

BALER OPERATOR

NOTE: The Trash Baler operator shall sign the 1945-XX Card as "Generator".

8.1.4 Complete an "Item Production/Certification/Identification card", Form FS-F-1945-XX (See Figure 3).

8.1.5 Ensure that the bale removal chain at the rear of the baler is unhooked from the platen (See Figure 4).

NOTE: The Trash Baler will not operate in the automatic mode unless the door is positioned against limit switches and latched.

8.1.6 Ensure that the bale removal door is closed and securely latched.

8.1.7 Check the scaffold for loose items.

8.1.7.1 Remove items, if found, from the scaffold.

8.0 **PROCEDURE** (cont.)

8.1.8 Position the scaffold platform against the bale removal door.

8.1.9 Lock the scaffold wheels in place.

8.1.10 Latch scaffolding chain locks onto the baler frame.

8.1.11 Place moveable walkway between the scaffolding and the platform.

8.1.12 Position the south swinging gate between the angle iron and scaffolding.

8.1.13 Chain and lock the north swinging gate to the scaffolding.

8.2 Baler Operation (See Figure 4)

8.2.1 Raise the safety gate.

8.2.2 Cover the bale chamber floor with a large sheet of trash cardboard.

8.2.3 Place trash bags in the bale chamber.

NOTE: The baler will not operate in the automatic mode unless the safety gate is closed and latched.

8.2.4 Pull down the safety gate until the gate is latched.

NOTE: The baler will automatically compact the contents and return to the UP position.

8.2.5 At the control panel, press the DOWN button.

8.2.6 Repeat Steps 8.2.1 and 8.2.3 thru 8.2.5 until the bale is nearly complete.

8.2.7 Before compaction is complete, add a large cardboard sheet to the top of bale.

NOTE: When a bale is completed, the indicator at the control panel will light and the baler automatically shut off in the DOWN position.

8.2.8 Repeat Steps 8.2.1 and 8.2.3 thru 8.2.5 and complete the bale.

8.2.9 Record the bale number on the "Trash Baler Operation Log."

8.3 Bale Removal

8.3.1 Check the scaffold to ensure that loose items have been removed from the platform.

8.3.1.1 Remove remaining loose items, if found.

8.3.2 Unlock scaffold platform wheels.

8.0 **PROCEDURE** (cont.)

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8.3.3 Move the platform away from the bale removal door.

8.3.4 Using the gradual tension release latch, open the Bale Removal Door.

8.3.5 Insert a maximum of six wires through the slots in the floor of the baling chamber.

8.3.6 Wrap the wires around bale and then back through the slots in the ram of the baler.

8.3.7 Insert the end of each wire through the end loop.

8.3.8 Wrap each end of the wire at least four times above the end loop.

8.3.9 At the rear of the baler, hook the bale removal chains onto the platen.

8.3.10 Inspect the handstacker or tugger to be used per SOP 20-C-902.

8.3.11 Operate the handstacker or forklift to be used without a load to ensure safe conditions.

8.3.12 Using the handstacker or forklift, position a wood skid at bale removal door.

8.3.13 Ensure that the baler safety gate is in the closed position.

NOTE: Only one bale shall be placed on a skid.

8.3.14 On the control panel, press and hold the UP button until the bale rolls out onto the skid.

8.3.15 Using the handstacker or forklift, move the skid away from the baler.

NOTE: Use bale number "W050-240-P-027-XXXX." The last four numbers shall be in sequence, starting with 0001.

8.3.16 Mark the bale with the date and bale number.

8.3.17 Record the bale number on the Trash Baler Operation Log.

8.3.18 On the baler, close and latch the bale removal door.

8.3.19 At control panel, press and hold the DOWN button.

8.3.20 When the baler platen reaches the lowest position, ensure that bale removal chains automatically unhook from rear of platen.

8.3.21 If chains fail to unhook proceed as follows:

8.3.21.1 Release the DOWN button.

8.3.21.2 Press the EMERGENCY STOP button at the control panel.

8.0 **PROCEDURE** (cont.)

8.3.21.3 Manually unhook the chains.

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NOTE: The baler cycle shall complete with the baler ram in the UP position.

8.3.21.4 Turn the EMERGENCY STOP button head.

NOTE: The baler shall return to the UP position.

8.3.22 Release the DOWN button.

8.3.23 Complete the "Item Production/Certification Identification" card (See Figure 3).

8.3.24 Give the completed 1945-XX card and, when filled-out, the Trash Baler Operation Log to the supervisor.

8.3.25 Move completed bale to the designated storage area.

8.3.26 When bailing is complete, secure the area and switch electrical power "OFF".

8.4 Trouble Shooting

8.4.1 If the baler will not start or stops during operation, proceed per Table 1.

8.4.2 If the problem cannot be corrected or if other problems are encountered, notify the supervisor.

SUPERVISOR

8.4.3 Inform Maintenance that repair is required.

8.4.4 Report problems to the facility owner of the building where the dumpster is located.

9.0 **APPLICABLE FORMS**

9.1 NN, "Trash Baler Operation Log"

9.2 FS-F-1945-XX, "Item Production/Certification/Identification"

TABLE 1
BALER TROUBLE SHOOTING

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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.

FEMP
WEEKLY TRASH BALER OPERATION LOG
PLANTS 2/3

PART I							PART II	PART III	
DATE	SHIFT	OPERATOR INITIALS	DUMPSTER NUMBER/REWORK	NUMBER OF BAGS/LABELLED	BALE NUMBER	PROHIBITED ITEMS FOUND AND DESCRIPTION	WHERE WAS PROHIBITED ITEM DISPOSED?	NAME OF DUMPSTER OWNER OR GENERATOR CONTACTED	QUALITY CONTROL SIGNATURE/DATE

At the end of each week:

1. Operators complete PARTS I and/or II, forward a copy to QC at MS 67.
2. QC complete PARTS II and/or III and forward a copy to Operators at MS 62 and Waste Generation Control at MS 73.
3. QC keep a copy as part of Deviation Reporting System backup file.
4. Operators keep original and copy from QC on file at Baler work station.

WEEKLY TRASH BAILER OPERATION LOG
Figure 1

000666

5690

CIO NO. C93-755

5690

Effective Date: 01-11-94

Expiration Date: 07-11-94

CHANGE IN OPERATION

REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM

DOCUMENT NO.: 02-C-923	**AFFECTED DOCUMENT PAGE NO.:** 10	**AREA AFFECTED:** Trash Baler
DIVISION: RSO	**DEPARTMENT:** RSO/OP	**SECTION:** RSO/OP

TITLE: Trash Baler Operation

AUTHORIZATION: (Signature on File) O.F. Peters, RSO Operations Manager

CHANGE:

1) Figure 1 is revised as follows:

FILING INSTRUCTIONS: File facing page 10 of SOP 02-C-923 (Issue Date: 10-18-93 Rev. No. 0)

DOCUMENT PTR: M. Frost

FEMP
WEEKLY TRASH BALER OPERATION LOG
PLANTS 2/3

PART I							PART II	PART III	
DATE	SHIFT	OPERATOR INITIALS	DUMPSTER #, BLDG #, PROJ #, OR AREA	NUMBER OF BAGS/LABELLED *	BALE NUMBER	PROHIBITED ITEMS FOUND AND DESCRIPTION	WHERE WAS PROHIBITED ITEM DISPOSED?	NAME OF DUMPSTER OWNER OR GENERATOR CONTACTED	QUALITY CONTROL SIGNATURE/DATE

At the end of each week:

1. Operators complete PARTS I and/or II, forward a copy to QC at MS 67.
2. QC complete PARTS II and/or III and forward a copy to Operators at MS 62 and Waste Generation Control at MS 73.
3. QC keep a copy as part of Deviation Reporting System backup file.
4. Operators keep original and copy from QC on file at Baler work station.

* Any bag that has no markings (Building #, Plant, Area, Project, or a red "X") shall be marked with a red "X" and set aside for internal inspection.

WEEKLY BAILER OPERATION LOG
Figure 1

000658

Effective Date: 01-11-94 | Expiration Date: 07-11-94 | Document Affected: SOP 02-C-923 | CIO No. C93-755 | Page 2 of 2

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NTS Waste Stream -- ONLO-00000007

"Contaminated Trash"

Allowed Items	Restrictions
Certain Batteries	No Lead-Acid (vehicle) or Ni-Cad (rechargeable)
Empty Cans	No Prohibited Item Residue
Metal	Less than 2 ft. in length, Free from grease, oil, residues, lead-based paint
Paper/Cardboard	
Personal Protective Equipment (Anti-C's, Boots, Gloves, Tyvek)	Unless specifically restricted by Work Plan
Plastic	
Rope, Twine, String	
Styrofoam, Rubber	
Wood	Less than 2 ft. in length, Free from creosote, residue, stains, lead-based paint

Dumpster Usage Instructions:

1. All trash MUST be marked with the building or area of origin.
2. All trash MUST be placed inside the dumpster **(except green-bagged Office Trash)**.

Prohibited Items	Examples	Where to Go	Who to Contact
Asbestos Containing Material	Transite, Pipe Insulation, Floor Tile	---	Leigh Fisher, x8638
Batteries	Auto, Ni-Cad Rechargeable	Plant 6	Susan Hoskins, x6826
Compressed Gases and Aerosol Cans (unpunctured)	Spray Paint, Deodorant Cans, Spray Disinfectant Cleaner, WD-40, Propane	Plant 1	Sam Laupola, x6052
Glass	Bottles, Jars, Light bulbs	Plant 1	Sam Laupola, x6052
Lead-bearing Material	Lead metal, Pipe dope, Lead flashing, Oil filters	Satellite Accum. Areas	John Grace, x8924
Liquids	Water, Coffee, Ice, Pop	Sink	---
Mercury-bearing Material	Switches, Vaccuum Pumps	Satellite Accum. Areas	John Grace, x8924
Particulates (unbagged)	Ashes, Dust, Pad Sweepings	---	Chris Gilbert, x6428
Solvents and Soaked Rags	Kerosene, Toluene, Acetone	Satellite Accum. Areas	John Grace, x8924
UNCONTAMINATED TRASH	Office Trash, Paper, Non-radioactive trash	---	Chuck Menche, x6428
Wood	Pallets, 2x4's,Lumber	Plant 1	Lori Hurst, x8448

Any Questions...Call
Waste Generation Control - x8444

PROHIBITED WASTE
Figure 2

5690

CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA	MEF NO.
				EMPTY CONTAINER AT START					
				RUST HOLES OR DENTS					
				MATERIAL IS AS CODED			DCAR	SURV. NO.	GROSS WEIGHT
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS					
				LIQUIDS IN CONTAINER					
PACKAGE TYPE				MINIMUM OF VOID SPACE					TARE WEIGHT
PACKAGE SIZE				PACKAGE SECURED					
PROJECT				DRAIN PLUG SECURED					
				OVERPACK					
				REPACK					NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-1 (REV. 11/20/92)

CARD 65-2 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA	MEF NO.
				EMPTY CONTAINER AT START					
				RUST HOLES OR DENTS					
				MATERIAL IS AS CODED			DCAR	SURV. NO.	GROSS WEIGHT
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS					
				LIQUIDS IN CONTAINER					
PACKAGE TYPE				MINIMUM OF VOID SPACE					TARE WEIGHT
PACKAGE SIZE				PACKAGE SECURED					
PROJECT				DRAIN PLUG SECURED					
				OVERPACK					
				REPACK					NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-2 (REV. 11/20/92)

CARD 65-3 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA	MEF NO.
				EMPTY CONTAINER AT START					
				RUST HOLES OR DENTS					
				MATERIAL IS AS CODED			DCAR	SURV. NO.	GROSS WEIGHT
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS					
				LIQUIDS IN CONTAINER					
PACKAGE TYPE				MINIMUM OF VOID SPACE					TARE WEIGHT
PACKAGE SIZE				PACKAGE SECURED					
PROJECT				DRAIN PLUG SECURED					
				OVERPACK					
				REPACK					NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-3 (REV. 11/20/92)

CARD 65-4 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. MBA	MEF NO.
				EMPTY CONTAINER AT START					
				RUST HOLES OR DENTS					
				MATERIAL IS AS CODED			DCAR	SURV. NO.	GROSS WEIGHT
WASTE DESCRIPTION AND COMMENTS				PROHIBITED MATERIALS					
				LIQUIDS IN CONTAINER					
PACKAGE TYPE				MINIMUM OF VOID SPACE					TARE WEIGHT
PACKAGE SIZE				PACKAGE SECURED					
PROJECT				DRAIN PLUG SECURED					
				OVERPACK					
				REPACK					NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-F-1945-4 (REV. 11/20/92)

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION
FS-F-1945-1 thru 4
Figure 3

000670

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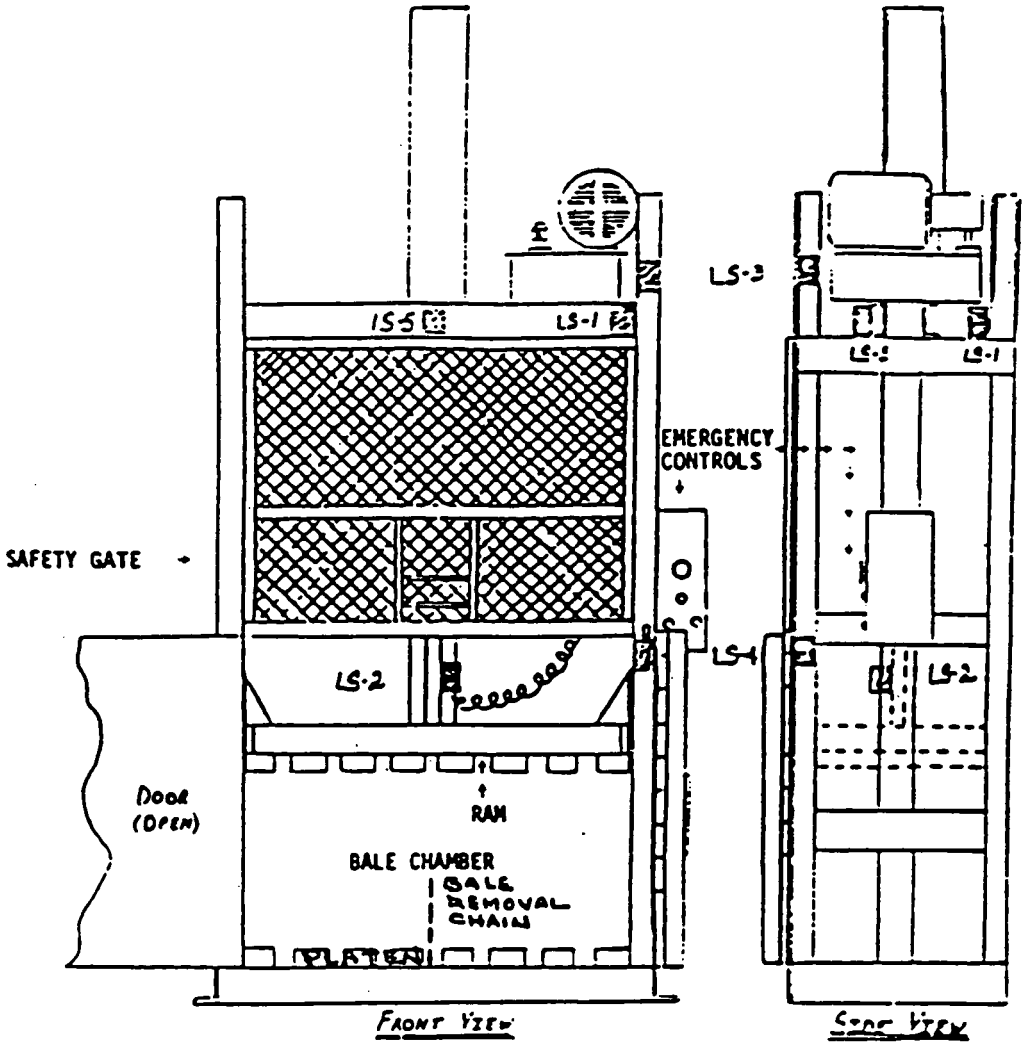

LIMIT SWITCH LOCATIONS

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 4

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
10-21-87	N/A	Preparation of procedure for Baling Trash per Request No. P86-168, initiated by B. Perkins.
06-19-89	N/A	Revised to incorporate C89-002 per Request No. P89-098.
09-01-89	1	Revised to incorporate CIO Nos. C89-065 (P89-352), C89-066 (P89-372), and C89-005 (P89-100). Revision program changed from "Page Revision Date" to "Revision No.".
10-14-91	0	Reissued to update technical content per Request P91-270, initiated by M. Jackson and to incorporate CIOs C90-058, (P91-095) and C90-062 (P91-112).
07-01-92	1	Revised to incorporate CIO C92-014 (P92-137) and update to current procedure program requirements, other than CIO incorporation, no changes were made to technical content.
10-18-93	0	Reissued to update procedure to current requirements, per Request No. P93-1004, initiated by R.W. Bischoff. Also CIO C93-716 (P93-1005) incorporated.

Fernald Environmental Management Project Fernald Environmental Restoration Management Corp. REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM		Page 1 of 10 Revision No. 0 Revision Date: N/A
REMEDIATION SUPPORT OPERATIONS PROCEDURE	**CONTROL AND UTILIZATION OF CONTAMINATED TRASH DUMPSTERS**	**SOP 20-C-604** Area: As Applicable
(Signature on File) Authorization: M.L. West, Manager, Env. Waste Management	Supersedes: 20-C-604 Dated: 05-24-88	Issue Date: 10-18-93

1.0 **PURPOSE**

The purpose of this document is to provide the procedure for moving, filling, securing, and inspecting the 28 contaminated trash dumpsters with contaminated trash on the controlled side to meet NVO-325 requirements.

NON-CONTROLLED COPY

2.0 **APPLICABILITY**

This procedure is applicable to anyone moving, collecting, and depositing trash into contaminated trash dumpsters.

3.0 **RESPONSIBILITIES**

3.1 **Administration/Training/Remediation Services Training/Site Support Training** shall be responsible for providing porters, laborers, Motor Vehicle Operators (MVO) and their immediate supervisors, plus any other waste handler associated with collecting or depositing trash into the contaminated trash dumpsters with training or training material on controlling contaminated trash dumpsters.

3.2 **Supervisors** shall be responsible for the following:

3.2.1 Ensuring that personnel are qualified per the established training requirements identified by the Department/Section Manager.

3.2.2 Maintain training records of personnel who are using the dumpsters.

3.2.3 Providing training records to Facilities & Waste Operations.

3.2.4 Contacting Radiological Control or Industrial Safety & Health to determine the appropriate respiratory protection for handling contaminated trash.

3.2.5 Providing Contaminated Trash Handlers with the required respiratory protection.

3.2.6 Reviewing applicable Material Safety Data Sheets with Contaminated Trash Handlers.

3.3 **Contaminated Trash Generators** shall be responsible for ensuring that prohibited items are not placed into trash receptacles. (See Figure 1)

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3.0 **RESPONSIBILITIES** (cont.)

3.4 **Facility/Dumpster Owners** shall be responsible for the following:

3.4.1 Ensuring that designated contaminated trash dumpster access doors remain locked when not in use.

3.4.2 Ensuring that contaminated trash does not accumulate around the dumpsters.

3.4.3 Maintaining ownership (or delegating ownership) of the key to open the "Master" lock on the contaminated trash dumpster.

3.4.4 Notifying Waste Management, specifically Waste Generation Control (738-8444), to whom ownership of the key has been delegated.

3.4.5 Notifying Waste Generation Control (738-8444) of any problems associated with contaminated trash dumpsters.

3.5 **Contaminated Trash Handlers** shall be responsible for complying with this SOP.

3.6 **Remedial Support Operation/Operations/Waste Management/Waste Generation Control (WGC)** shall be responsible for the following:

3.6.1 Periodically updating the prohibited items list to be posted on each contaminated trash dumpster and the appropriate action to take if prohibited items are found.

3.6.2 Maintaining a list of facility/dumpster owners and copies of the keys to the dumpster locks.

3.6.3 Routinely issuing "employee updates" to inform personnel of their responsibilities pertaining to the generation of contaminated trash.

3.6.4 Configuration of contaminated trash dumpsters to better serve the site needs.

3.7 **Quality Control (QC)** shall be responsible for the following:

3.7.1 Performing weekly inspections of 25% of the dumpsters and documenting that information in Figure 3.

3.7.2 Contacting dumpster Owners about deviations and forwarding copies to Quality Assurance (QC) & (WGC).

3.8 **Quality Assurance** shall be responsible for the following:

3.8.1 Evaluating the Contaminated Trash Dumpster QC Inspection Checklist along with documentation from the package certifiers (pre-baled trash inspection) and baler operators.

3.8.2 Contacting Facility/Dumpster Owners and issuing Deviation Reports whenever appropriate.

CIO NO. C93-757

5690

Effective Date: 01-11-94

Expiration Date: 07-11-94

CHANGE IN OPERATION
REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM

DOCUMENT NO.: 20-C-604	AFFECTED DOCUMENT PAGE NO.: 2	AREA AFFECTED: Dumpster & Trash Control
DIVISION: RSO	DEPARTMENT: ENV. WASTE MGT.	SECTION: WASTE GENERATION CONTROL

TITLE: Control and Utilization of Contaminated Trash Dumpsters

AUTHORIZATION: (Signature on File)
M.L. West, Environmental Waste Management Manger

CHANGE:

1) Section 3.4 (Steps 3.4 thru 3.4.5) is replaced with the following (Steps 3.4 thru 3.4.9):

FILING INSTRUCTIONS: File facing page 2 of SOP 20-C-604 (Issue Date: 10-18-93 Rev. No. 0)

DOCUMENT PTR: M. Frost

3.4 **Facility/Dumpster Owners** shall be responsible for the following:

3.4.1 Ensuring that designated contaminated trash dumpster access doors remain locked when not in use.

3.4.2 Ensuring that contaminated trash does not accumulate around the dumpster, unless the dumpster is full.

3.4.3 Ensuring that unidentified (un-labelled) bags that have been "dropped" at the dumpster are marked with a large red "X" and placed in the dumpster for segregation and internal inspection at the contaminated trash baler, per SOP 02-C-923.

3.4.4 Contacting the Motor Vehicle Operator (MVO) to empty/transport full dumpsters.

3.4.5 Maintaining ownership (or delegating ownership) of the key to open the "Master" lock on the contaminated trash dumpster.

3.4.6 Notifying Waste Management, specifically Waste Generation Control (738-8444), whenever key-control is delegated to someone other than the designated key-holder.

3.4.7 Notifying Waste Generation Control (738-8444), of any problems associated with contaminated trash dumpsters.

3.4.8 Working with the Contaminated Trash Handlers to ensure that visually (externally) inspected bags with prohibited items are addressed at the point of generation.

3.4.9 Responsible for depositing labeled, acceptable contaminated trash into their dumpsters or ensuring that only authorized contaminated trash handlers deposit trash into their dumpsters.

2) Step 3.5 is revised to read as follows:

3.5 **Contaminated Trash Handlers/MVO** shall be responsible for complying with this SOP.

3) A new Step 3.6.5 is added to read as follows:

3.6.5 Working with the Dumpster Owner to ensure that only authorized contaminated trash handlers deposit trash into their respective dumpsters.

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4.0 **DEFINITIONS**

4.1 Contaminated Material - A substance containing radioactive constituents that are above the limit for unrestricted release (1,000 dpm/cm^2).

4.2 Contaminated Trash Dumpster - Secured container for the collection of contaminated trash located throughout the controlled area. The dumpsters are gray in color with a rounded top and a locked door on each end (two doors).

4.3 Contaminated Trash Generator - Any person that has a TLD and works within the controlled area, or will access the controlled area periodically to perform their duties, and subsequently be disposing of trash.

4.4 Contaminated Trash Handler - Any person (porter, laborer, HAZWAT, chemical operator, sub-contractor, MVO, or radiation technician) that will collect contaminated trash for disposal.

4.5 Contaminated Trash - Any trash on the site suspected to have contaminated material which would prelude the trash from disposal at a sanitary landfill.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

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

5.1.2 "FEMP Conduct of Operations Manual"

5.1.3 RM-0012, "Quality Assurance Program Description"

5.1.4 NVO-325, "Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirement"

5.2 References or Related Documents

5.2.1 SOP 02-C-923, "Trash Baler Operation"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 A defined safety system is not involved.

6.2 Safety glasses with side shields shall be worn unless other eye protection is specified by ES&H or posted signs.

6.3 Respiratory protection provided by the supervisor shall be worn when required by ES&H.

6.4 Leather-palm gloves shall be worn when handling rough and/or contaminated material.

6.5 Contaminated trash shall not be allowed to accumulate around the dumpsters.

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.6 Contaminated Trash Handlers shall have reviewed and be familiar with MSDSs for hazardous materials/chemicals that may be used or handled.

6.7 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.8 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the Item or Step to which they apply.

8.0 PROCEDURE

CONTAMINATED TRASH HANDLER

8.1 Bag Inspection

8.1.1 Visually examine the trash for prohibited items or categories of waste (See Figure 1) as the clear plastic bags are filled, or where that is not possible, perform external visual inspection.

8.1.1.1 Remove prohibited items from the trash and dispose of in an approved manner (See Figure 1) as instructed by the supervisor or Waste Generation Control.

8.1.1.2 Contact the supervisor and dumpster owner and request disposition instructions. If the supervisor or dumpster owner are unable to determine disposition contact the Waste Generation Control at 738-8444.

8.1.1.3 Ensure the building, office area, or project from which the trash originated is clearly marked on the accumulation bags with a permanent marker or paint pen.

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8.0 **PROCEDURE** (cont.)

8.2 Filling Contaminated Trash Dumpsters

8.2.1 Dispose of small or loose items as follows:

8.2.1.1 Place the small/loose material in clear plastic bags.

8.2.1.2 Inspect the trash in the secured clear plastic bag to ensure there are no prohibited items.

8.2.1.3 Gather or twist the open end of the bag until the opening is closed.

8.2.1.4 Using tape, secure the bag.

8.2.1.5 Ensure that the building, office area, or project from which the trash originated is clearly marked on the accumulation bags with a permanent marker or paint pen.

8.2.2 Contact the Dumpster/Facility owner listed on the information sheet that is posted on the dumpster to obtain approval for disposal and the lock key (See Figure 2).

8.2.3 Unlock dumpster.

8.2.4 Place bulky items (such as oversize pieces of cardboard) directly into the dumpster.

8.2.6 Inspect the bags for damage.

8.2.6.1 Place damaged bags into undamaged bags.

CAUTION

Piping and pieces of wood over two feet in length shall not be placed in the dumpster.

NOTE: Do not place unsecured, unidentified bags or damaged bags into the dumpster. Do not place green-tinted "clean office trash bags" into the dumpsters. These bags are disposed of separately than the contaminated trash. A "clean office trash" program is established and green-tinted bags are accumulated next to the contaminated trash dumpsters. The bags are picked up by transportation twice per week.

8.2.7 Place identified contaminated trash, excluding items in Figure 1, into the dumpster.

8.2.8 Lock dumpster.

8.2.9 Return the lock key to the Dumpster/Facility owner.

8.2.10 Notify Dumpster/Facility owner when dumpster becomes full and requires emptying.

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8.0 **PROCEDURE** (cont.)

8.3 Transporting Contaminated Trash Dumpsters

MOTOR VEHICLE OPERATOR (MVO)

8.3.1 Transport the contaminated trash dumpsters according to the schedule listed in Figure 2.

8.3.2 Pick up any prohibited items that have been properly segregated and transport them for disposal at the appropriate locations.

8.3.3 Contact Facility/Dumpster Owner when transport schedule cannot be met.

8.4 Dumpster Inspection

QUALITY CONTROL

8.4.1 Each dumpster shall be inspected monthly and the inspection documented in Figure 3.

8.4.2 The Facility/Dumpster Owner shall be contacted/copied on the results of the inspection (Figure 3).

8.4.3 Copy Waste Generation Control on the inspection report (Figure 3).

9.0 **APPLICABLE FORMS**

9.1 NN, "Contaminated Trash Dumpsters"

9.2 NN, "Contaminated Trash Dumpsters - QC Inspection Checklist"

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NTS Waste Stream -- ONLO-00000007

"Contaminated Trash"

Allowed Items	Restrictions
Certain Batteries	No Lead-Acid (vehicle) or Ni-Cad (rechargeable)
Empty Cans	No Prohibited Item Residue
Metal	Less than 2 ft. in length, Free from grease, oil, residues, lead-based paint
Paper/Cardboard	
Personal Protective Equipment (Anti-C's, Boots, Gloves, Tyvek)	Unless specifically restricted by Work Plan
Plastic	
Rope, Twine, String	
Styrofoam, Rubber	
Wood	Less than 2 ft. in length, Free from creosote, residue, stains, lead-based paint

Dumpster Usage Instructions:

1. All trash MUST be marked with the building or area of origin.
2. All trash MUST be placed inside the dumpster **(except green-bagged Office Trash)**.

Prohibited Items	Examples	Where to Go	Who to Contact
Asbestos Containing Material	Transite, Pipe Insulation, Floor Tile	---	Leigh Fisher, x8638
Batteries	Auto, Ni-Cad Rechargeable	Plant 6	Susan Hoskins, x6826
Compressed Gases and Aerosol Cans (unpunctured)	Spray Paint, Deodorant Cans, Spray Disinfectant Cleaner, WD-40, Propane	Plant 1	Sam Laupola, x6052
Glass	Bottles, Jars, Light bulbs	Plant 1	Sam Laupola, x6052
Lead-bearing Material	Lead metal, Pipe dope, Lead flashing, Oil filters	Satellite Accum. Areas	John Grace, x8924
Liquids	Water, Coffee, Ice, Pop	Sink	---
Mercury-bearing Material	Switches, Vaccuum Pumps	Satellite Accum. Areas	John Grace, x8924
Particulates (unbagged)	Ashes, Dust, Pad Sweepings	---	Chris Gilbert, x6428
Solvents and Soaked Rags	Kerosene, Toluene, Acetone	Satellite Accum. Areas	John Grace, x8924
UNCONTAMINATED TRASH	Office Trash, Paper, Non-radioactive trash	---	Chuck Menche, x6428
Wood	Pallets, 2x4's,Lumber	Plant 1	Lori Hurst, x8448

Any Questions...Call
Waste Generation Control - x8444

PROHIBITED WASTE
Figure 1

Contaminated Trash Dumpsters

No.	Check-Off	New Lock	Pickup Schedule Mon	Tue	Wed	Thu	Fri	Location	Location Description	Facility Owner	Phone	Keyholder(s)	Phone
1		2459						Plt 4 E	E Entrance to Plant 4	Bob Bischoff	6256	Darrell Kirby	6410
2		2703						H&S	Outside (North) of Medical	Joe Legge	6975	Sam Wilhite	6477
3		2989						Plt 7 S	Gravel near T-84	Joe Legge	6975	Bob Gindling	8409
4		2759						Plt 5 NE	NE corner	Ken Peters	6451	Ken Peters	6451
5		2977						Plt 6 S	Across street from Garage	Dale Vizedom	6478	Dale Vizedom	6478
6		2870						Plt 6 Insp	E side of Plant 6	Ken Peters	6451	Alan Blundell	6611
7		2212						Plt 6 N	N side of Plant 6	Ken Peters	6451	Alan Blundell	6611
8		2589	x	x	x	x	x	Lab Pad 15B	Between Lab and Services Bldg	Doug Stamper	8984	Wanda Burk	6556
9		X2227						Garage	S side near fence	Tony Frye	6078	Roy Peterson	6078
10		X2232						Bldg 12 SE	SE end of bldg	Karl Schaefer	6866	Paul Raab	6441
11		X2698						Bldg 12 SW	SW end of bldg	Karl Schaefer	6866	Mark Collins	6673
12		X2362						Plt 1	Near Plant 1 Pad	Sam Laupola	6052	Sam Laupola	6052
13		2333						Decontamination	SE corner	Jerry Knight	6708	Roy Douglas	6274
14		2287						Plt 9 W	NW corner	Ken Peters	6451	Bill Gibson	6798
15		2323					x	Bldg 12 N	North side (Electrical Shop)	Bill Libbert	6855	Bill Libbert	6855
16		X2403						Plt 1	Near loading dock	Sam Laupola	6052	Sam Laupola	6052
17		2655	x	x	x	x	x	Pilot Plant	Between Lab and Pilot Plant	Bob Bischoff	6256	Jim Campbell	6798
18		2256						Plt 1	Near offices on west side	Sam Laupola	6052	Sam Laupola	6052
19		X2890						Lab W	Between Lab and Pilot Plant	Doug Stamper	8984	Wanda Burk	6556
20		X2386						Bldg 3045	NE corner	C.K. Smith	6953	C.K. Smith	6953
21		2728						Services Bldg	W side, near Laundry	Joe Legge	6975	Jean West	8476
22		X2445						Hot Raffinate Bldg	South side	Bob Bischoff	6256	Jim Campbell	6798
23		2382						Plt 6 E	In contamination area on south side	Ken Peters	6451	Phil Kraus	6696
24		2709						Plt 1	NE of Bldg 71	Sam Laupola	6052	Sam Laupola	6052
25		X2122						Plant 2/3 S	South Alley	Bob Bischoff	6256	Billy Bowling	9081
26		X2464						Water Treatment	Beneath "Electrostatic Precipitator" sign	Bill Naber	6434	Bill Naber	6434
27		2553						K-65	East of K-65 silos	Nick Glassey	648-6602	Ray Rosenberry	6433
28		2191						Lime Bldg	S. of Bulk Lime Handling Building	Ron Young	6437	Mike Olberding	6425
		Totals	2	2	2	2	3						

CONTAMINATED TRASH DUMPSTERS
Figure 2

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CIO NO. C94-002

Effective Date: 01-11-94

Expiration Date: 07-11-94

CHANGE IN OPERATION

REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM

DOCUMENT NO.: 20-C-604	AFFECTED DOCUMENT PAGE NO.: 8	AREA AFFECTED: Contaminated Trash Dumpsters
DIVISION: RSO	DEPARTMENT: WST. MGT	SECTION: WST. MGT.

TITLE: Control and Utilization of Contaminated Trash Dumpsters

AUTHORIZATION: (Signature on File)
M.L. West, Waste Management Manager

CHANGE:

1) Figure 2 is revised as follows:

FILING INSTRUCTIONS: File facing page 8 of SOP 20-C-604 (Issue Date: 10-18-93 Rev. No. 0)

DOCUMENT PTR: M. Frost

Contaminated Trash Dumpsters – Master

No.	Check-Off	New Lock	Pickup Schedule Mon	Tue	Wed	Thu	Fri	Location	Description	Facility/ Dumpster Owner	Phone	Keyholder(s)	Phone
1		X2584	x					Pit 4 E	E Entrance to Plant 4	Brenda Perkins	6001	Brenda Perkins	6001
2		2703		x				Lab S	South of Lab Bldg.	Ken Bail	6570	Ken Bail	6570
3		2989			x			South of Union Trailer	Gravel near T-84	Jim Hey	6118	Bob Gindling	6409
4		2759				x		Pit 5 NE	NE corner	Ken Peters	6451	Ken Peters	6451
5		2977					x	Pit 6 S	at Bldg 31	Dale Vizedom	6478	Dale Vizedom	6478
6		2870	x					Pit 6 Insp	E side of Plant 6	Ken Peters	6451	Alan Blundell	6611
7		2212		x				Pit 6 N	N side of Plant 6	Ken Peters	6451	Alan Blundell	6611
8		2589	x	x	x	x	x	Lab Pad W	West of Lab Dock	Doug Stamper	6984	Wanda Burk	6556
9		X2227				x		Garage	S side near fence	Steve Schonegg	6622	Tim Feltner	6045
10		X2232					x	Bldg 12 SE	SE end of bldg	Karl Schaefer	6866	Paul Raab	6441
11		X2698	x					Bldg 12 SW	SW end of bldg	Karl Schaefer	6866	Mark Collins	6673
12		X2362		x				Pit 1	Near Plant 1 Pad	Sam Laupola	6052	Sam Laupola	6052
13		2333			x			Decontamination	SE corner	Jerry Knight	6708	Roy Douglas	6776
14		2287				x		Pit 9 W	NW corner	Ken Peters	6451	Bill Gibson	6798
15		2323					x	Bldg 12 N	North side (Electrical Shop)	Bill Libbert	6855	Bill Libbert	6855
16		X2403	x					Pit 1	Near loading dock	Sam Laupola	6052	Sam Laupola	6052
17		2655	x	x	x	x	x	Pilot Plant	Between Lab and Pilot Plant	Brenda Perkins	6001	Brenda Perkins	6001
18		2256			x			Pit 1	Near offices on west side	Sam Laupola	6052	Sam Laupola	6052
19		X2690				x		Lab W	West of Lab Dock	Doug Stamper	6984	Wanda Burk	6556
20		X2366					x	Bldg 3045	NE corner	C.K. Smith	6953	C.K. Smith	6953
21		2728	x					Services Bldg	W side, near Laundry	Joe Legge	6975	Jean West	6478
22		X2445		x				Hot Raffinate Bldg	South side	Brenda Perkins	6001	Brenda Perkins	6001
23		2382			x			Pit 5 W	West side of Pit 5 near annex	Ken Peters	6451	Phil Kraus	6696
24		2709				x		Pit 1	NE of Bldg 71	Sam Laupola	6052	Sam Laupola	6052
25		X2122					x	Plant 2/3 S	South Alley	Brenda Perkins	6001	Brenda Perkins	6001
26		X2464	x					Boiler Plant	Beneath "Electrostatic Precipitator" sign	Bill Naber	6434	Bill Naber	6434
27		2553		x				K-65	East of K-65 silos	Nick Glassey	648-6602	Ray Roseberry	6433
28		2191			x			Lime Bldg	S. of Bulk Lime Handling Building	Ron Young	6437	James Ellis	9396
		Totals	8	7	7	7	7						

CONTAMINATED TRASH DUMPSTERS
Figure 2

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Contaminated Trash Dumpsters
QC Inspection Checklist

No.	Location	Description	Dumpster Condition OK?		Locks on both Doors?		Prohibited List Posted?		How full is the Dumpster?	ALL Bags Labeled?		Prohibited Items Found(1)?	Dumpster Owner Contacted(2)	# Bags Outside Dumpster(3)	
			Yes	No	3P1	Master	Yes	No	(Approx. %)	Yes	No			Green	Other
1	Plt 4 E	E Entrance to Plant 4													
2	H&S	Outside (North) of Medical													
3	Plt 7 S	Gravel near T-84													
4	Plt 5 NE	NE corner													
5	Plt 6 S	Across street from Garage													
6	Plt 6 Insp	E side of Plant 6													
7	Plt 6 N	N side of Plant 6													
8	Lab Pad 15B	Between Lab and Services Bldg													
9	Garage	S side near fence													
10	Bldg 12 SE	SE end of bldg													
11	Bldg 12 SW	SW end of bldg													
12	Plt 1	Near Plant 1 Pad													
13	Decontamination	SE corner													
14	Plt 9 W	NW corner													
15	Bldg 12 N	North side (Electrical Shop)													
16	Plt 1	Near loading dock													
17	Pilot Plant	Between Lab and Pilot Plant													
18	Plt 1	Near offices on west side													
19	Lab W	Between Lab and Pilot Plant													
20	Bldg 3045	NE corner													
21	Services Bldg	W side, near Laundry													
22	Hot Raffinate Bldg	South side													
23	Plt 6 E	In contamination area on south side													
24	Plt 1	NE of Bldg 71													
25	Plant 2/3 S	South Alley													
26	Water Treatment	Beneath "Electrostatic Precipitator" sign													
27	K-65	East of K-65 silos													
28	Lime Bldg	S. of Bulk Lime Handling Building													

Notes:

(1) Visually inspect 5 bags, or the entire dumpster contents, whichever is less.
(2) Refer to Prohibited Items Posting on each dumpster for Facility Owner name and number.
(3) Only if the dumpster is FULL, are bags (other than the segregated Office Trash "green bags") allowed outside the dumpster.

Inspector: _____

Date: _____

Instructions:

a) At a minimum, seven (7) dumpsters are to be inspected each week.
b) Sign and date the checklist at the bottom right.
c) Send one copy of this checklist to Waste Generation Control and file one copy for Deviation Report documentation.

CONTAMINATED TRASH DUMPSTERS
QC INSPECTION CHECKLIST
Figure 3

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RECORD OF ISSUE/REVISIONS

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DATE	REV. NO.	DESCRIPTION AND AUTHORITY
05-24-88	0	New procedure issued from CIO C88-014 per Request No. P88-056, initiated by J. E. Harmon.
12-27-90	1	Revised procedure to incorporate CIO C90-024 per Request No. P90-255.
01-28-91	2	Revised to incorporate CIO C91-061 per Request No. P92-015.
12-08-92	3	Revised to incorporate CIO C92-015 (P92-284) and update to current procedure program requirements.
10-18-93	0	Reissued to update to current requirements per Request No. P93-1006, initiated by C. Gilbert. Also CIO C93-717 (P93-1007) was incorporated.

CHANGE NOTICE

No. QP-12.07-00-01	Effective Date: 03/25/94	Page 1 of 2

(Manager, Quality Assurance) R. B. Abernathy

CHANGE NOTICE #1 to existing procedure QP-12.07, "Certification of Low Level Waste Shipments to NTS", Revision 0 dated 12/01/93.

1) Existing Section 2.3.3, Page 4 of QP-12.07:

2.3.3 Check the CARD 65-1 for accuracy and completeness. This card is most commonly called the W-65 CARD. Check the signatures on the CARD 65-1 to be sure the card has been signed by individuals trained in NVO-325 (Rev. 1). Only an original CARD 65-1, or a replacement card with verified documentation of changed information, is to be accepted for certification.

Changes to Section 2.3.3, Page 4 of QP-12.07:

2.3.3 Check the CARD 65-1 for accuracy and completeness. This card has been historically referred to as the W-65 CARD. Check the signatures on the CARD 65-1 to be sure the card has been signed by individuals who have received 65-1 Card training, NVO-325 (Rev. 1), and WCPP training. This requirement will be waived for cards completed prior to 1/1/92.

a. Supervisors who sign 65-1 Cards generated for currently generated construction rubble containers must complete NVO-325, WCPP, and 65-1 Card training. Training for the generator is optional. Quality Control signatures on cards for currently generated construction waste are no longer acceptable.

b. In the case of containers overpacked into another container, the original cards do not require modification. A new card will be issued for the entire overpack and will specify the new weights, list all material packaged in the overpack container, and lot number. The original cards provide a historical record of where the container was originally filled and should be included in the shipment paperwork.

c. In the case of material being added to the container, a notation identifying the material added and container identification from which it was taken must be made to the original 65-1 Card. It is not necessary for a new card to be issued provided the original card is comprehendible to the Quality WPC or WCO.

d. When the original card is unavailable, the following are acceptable:
- a duplicate card,
- a xerox copy of the card,
- documentation from MC&A, or a
- Quality Control surveillance report.

e. Legacy boxes MUST be accompanied by documentation and verification as specified in the Legacy box work plan.

f. Any correction made to the 65-1 Card will be made by drawing a single line through the original entry, the correction made, initialed and dated.

PLEASE INSERT THIS CHANGE NOTICE IN FRONT OF PAGE 1 OF QP-12.07.

CHANGE NOTICE #1 to existing procedure QP-12.07, "Certification of Low Level Waste Shipments to NTS", Revision 0 dated 12/01/93.

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2) Existing Section 2.3.2.c, Page 4 of QP-12.07:

c. Group III consists of computer entry sheets and any worksheets used to compile, verify, and certify the shipment.

1. Computer printout data entry sheets and
2. Any worksheets.

Changes to Section 2.3.2.c, Page 4 of QP-12.07:

c. Group III consists of any worksheet used to compile, verify, and certify the shipments.

==========

3) Existing Section 4.13, Page 17 of QP-12.07:

4.13 ATTACHMENT M, L-LRW Paperwork Checklist, QC-921229, Rev. 2 (05/07/93)

Changes to Section 4.13, Page 17 of QP-12.07:

4.13 ATTACHMENT M, L-LRW Paperwork Checklist, QC-921229, Rev. 3 (3-10-94)

==========

4) Changes to Attachment M, L-LRW Paperwork Checklist Item 3, Page 31 of QP-12.07, Form QC-921229, Rev. 2 (05/07/93):

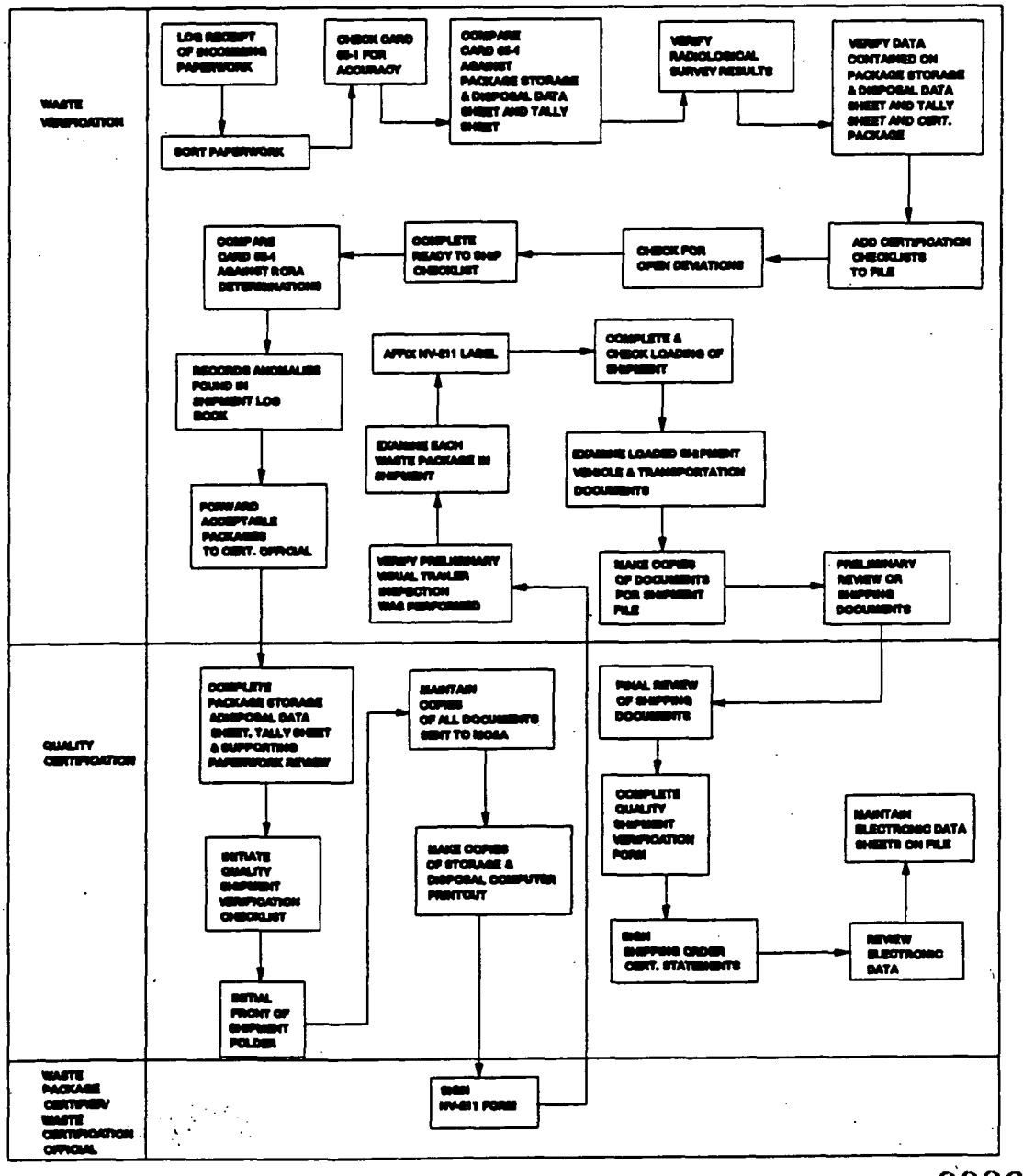
- Delete Data Entry Printout to Item 3 Form.
- Add Waste Summary Sheet to Item 3, Form.
- Form updated to QC-921229, Rev. 3 (3-10-94).

PLEASE INSERT THIS CHANGE NOTICE IN FRONT OF PAGE 1 OF QP-12.07.

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION		DOCUMENT NUMBER: QP-12.07
ENVIRONMENTAL QUALITY PROCEDURE	SUBJECT: CERTIFICATION OF LOW LEVEL WASTE SHIPMENTS TO NTS	REVISION: 0
		Page 1 of 46
	AUTHORIZED: (Manager, Quality Assurance)	Effective Date: 12/01/93

1.0 SCOPE

This procedure establishes a detailed method for the certification of Low-Level Radioactive Waste packages (L-LRW) for shipment to the Nevada Test Site (NTS).



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2.0 PROCEDURE

2.1 Event Notification and Reporting Requirements

All unplanned and unwanted events or incidents shall be immediately reported to supervision. In the supervisor's absence the Assistant Emergency Duty Officer (AEDO) shall be notified in accordance with topical manual, ED-0001, "Event Notification and Reporting."

2.2 Industrial Health and Safety Requirements

All posted safety requirements (such as safety glasses, gloves etc.) and radiological requirements (such as respirators, proper clothing, etc.) shall be complied with in accordance to Topical Manual FMPC-2128, "FMPC Industrial Hygiene and Safety Manual"; DOE/EH-0256T, "DOE Radiological Control Manual"; and ESH-1-1000, "Comprehensive Environmental, Occupational Safety, and Health Program".

2.3 Examination and Certification of Incoming Paperwork

WASTE VERIFICATION:

2.3.1 Upon receipt of the shipment paperwork package folder from the Waste Shipment Coordinator, the Waste Package Certifier logs the following minimum data in the "LLW Shipment Status Log" (ATTACHMENT L), which may be a computer data base:

a. shipment number;
b. container quantity;
c. container type;
d. material type; and
e. month, date, and time of receipt.

2.3.2 Sort paperwork into three groups:

a. Group I consists of documents forwarded to Material Control & Accounting (MC&A) which will become the original signed documentation traveling with the shipment to the NTS. Group I includes:

1. Package Storage & Disposal Data sheet (ATTACHMENT A);
2. Tally Sheet (ATTACHMENT B);

3. Storage and Disposal computer printout (List of the packages with weights and curies for each, grouped by DOT marking category), commonly called the "Curie Sheet" (ATTACHMENT C);
4. Storage and Disposal computer printout (List of packages with weights, and required DOT markings), commonly called the "Circle Copy" (ATTACHMENT D);
5. "Initial" Radiological Survey Report, form (ATTACHMENT E); and
6. "Shipping Order for Nuclear Material" form (ATTACHMENT F) initiated by the Waste Shipping Coordinator.

b. Group II consists of documents which provide verification of compliance with NVO-325 (Rev. 1), Title 40-CFR, Title 49-CFR, and the Ohio Administrative Code and are to be handled as Quality Assurance records which will become part of the Permanent Certification Record. These records shall be dated and signed by authorized and qualified individuals to be valid for use. Changes made to these documents shall show evidence of change control. Corrected information shall have been lined out, and new entries initialed (signed if other than the original signer) and dated. Except for inconsequential information that does not impact the quality of the document, all changes shall have been made by the original signer, or when unavailable, by a responsible, knowledgeable, and authorized individual. Determination of the qualification of individuals to sign documents shall be made to the extent possible on basis of training records, organizational responsibilities, and job experience. Group II documents include:

1. Card 65-1 Item Production/Certification/Identification (ATTACHMENT G);
2. Factor Assay data, either a letter or form from MC&A listing the correct Factor Assay for a particular shipment;
3. Waste Summary Report completed by the Waste Shipment Coordinator referencing RCRA letters, Material Evaluation Form (MEF), and the NTS Waste Acceptance Criteria (WAC) form which are on file and apply to the shipment;
4. Copies of RCRA letters, applicable MEFs, and WACs;

NOTE: Waste stream 002 (construction/removal action waste) requires as part of the package documentation a copy of the completed NTS Waste Acceptance Criteria Form for this waste stream.

5. Applicable Material Evaluation Form checklists for Waste Streams 001 and 002. These must be complete, with signatures showing the evaluated material to be acceptable; and the
6. Computer upload sheet.

c. Group III consists of computer entry sheets and any worksheets used to compile, verify, and certify the shipment.

1. Computer printout data entry sheets and
2. Any worksheets.

2.3.3 Check the CARD 65-1 for accuracy and completeness. This card is most commonly called the W-65 CARD. Check the signatures on the CARD 65-1 to be sure the card has been signed by individuals trained in NVO-325 (Rev. 1). Only an original CARD 65-1, or a replacement card with verified documentation of changed information, is to be accepted for certification.

2.3.4 Compare the CARD 65-1 against the "Package Storage & Disposal Data Sheet" and the "Tally Sheet" for:

a. lot/sequence number;
b. package serial/identification number;
c. material type;
d. material description;
e. number of packages;
f. package description; and
g. gross, tare and net weights;

2.3.5 Verify "Radiological Survey Report" (ATTACHMENT E) results for packages being shipped. Making sure they are on file, complete, within acceptable limits, and accurate to extent possible.

- Beta/Gamma radiation levels shall not exceed 200 millirem/hour measured externally at the surface.
- Values, either measured or calculated, at one meter from the surface shall be recorded.

NOTE: This limit may be increased to 1000 mrem/hr if conditions specified in Title 49 CFR 173.441 (1) (i-iii) are met for exclusive use closed transport.

2.3.6 Verify that data contained on the "Package Storage & Disposal Data sheet" (ATTACHMENT A) and the "Tally Sheet" (ATTACHMENT B) corresponds with all supporting documentation received in the shipment paperwork package.

2.3.7 Using the shipment number, match the Quality Certification - Preliminary Trailer checklist (ATTACHMENT H or I, depending on the type of trailer) from file (completed by a Package Certifier) and add to the shipment paperwork package folder. Verify that any deficiency reported on the checklist have been resolved and supporting documentation is included.

2.3.8 If a Deviation Report against the packaging and/or contents being shipped accompanies the Quality Certification - Preliminary Trailer checklist (ATTACHMENT H or I, depending on the type of trailer), make sure supporting documentation is included to close it out, per SSOP-0023, "Deviation and Corrective Action Reporting".

2.3.9 Compare material descriptions and source information on the CARD 65-1 against RCRA determination letters and/or Material Evaluation Form from Waste Characterization to ensure that only materials approved for release are approved for shipment.

2.3.10 Initiate a "Ready to Ship" checklist for any ISO container or oversize metal box container in the shipment, and add to the shipment paperwork package folder (ATTACHMENTs J or K, depending on the type of container).

2.3.11 Record anomalies in the "LLW Shipment Status Log" (ATTACHMENT L) and return deficient shipment paperwork package to the Waste Shipment Coordinator for resolution.

2.3.12 Complete the "L-LRW Paperwork Checklist" (ATTACHMENT M).

2.3.13 Forward acceptable shipment paperwork packages to a Waste Certification Official.

QUALITY CERTIFICATION:

2.3.14 Complete the "Package Storage & Disposal Sheet, Tally Sheet, and Supporting Paperwork Review Checklist for L-LRW" (ATTACHMENT N). If the shipment is unusually complex or nonroutine, a second Waste Certification Official may be asked to check the shipment paperwork, and will either fill out a new check list, or countersign the first Waste Certification Official's checklist. The second check need only include as many checks as deemed necessary to provide confidence that the shipment paperwork package is acceptable.

2.3.15 Sign and date the "Package Storage & Disposal Data Sheet" (ATTACHMENT A) signifying that the paperwork and respective waste is acceptable, and the paperwork can be forwarded to MC&A to initiate shipment.

2.3.16 Complete sections 1 and 2 of the "Quality Waste Shipment Verification Checklist" (ATTACHMENT O).

2.3.17 Log the date and time the shipment paperwork package was approved by initialing the front of the folder.

2.3.18 Distribute paperwork copies as follows:

1. File for Quality Certification at Logistics Administration (Traffic) office:

   a. incomplete "Quality Waste Shipment Verification Checklist";
   b. a blank copy of the Certification Statement (ATTACHMENT P);
   c. the original signed "Package Storage & Disposal Data sheet"; and
   d. any unique document originals requested to accompany shipment to the NTS.

2. Waste Verification:

   a. copy of the signed "Package Storage & Disposal Data sheet";
   b. copy of the "Tally Sheet";
   c. copy of the "Circle Copy"; and

d. incomplete "Ready to Ship" Checklist, when applicable. (see 2.3.10)

3. MC&A:

a. copy of the signed "Package Storage & Disposal Data sheets";
b. copy of the "Tally Sheet";
c. copy of the "Curie Sheet";
d. copy of the "Circle Copy";
e. copy of the initial "Radiological Survey Report" specific to the shipment; and
f. incomplete "Shipping Order for Nuclear Materials" form.

NOTE: Documents from the shipment paperwork package required by MC&A, are either faxed to MC&A, delivered to the recipient within the group, or delivered to a designated pick-up point. The time of transmittal is recorded on the shipment paperwork package folder and in the Shipment Log book.

4. Logistics Administration (Traffic):

Fax copies of documents sent to MC&A, with the exception of the "Shipping Order for Nuclear Material", to the Traffic office (#6790).

5. Permanent Certification Record:

a. copy of the signed "Package Storage & Disposal Data sheet";
b. copy of the "Tally Sheet";
c. copy of the "Curie Sheet";
d. copy of the "Circle Copy";
e. copy of the initial "Radiological Survey Report" specific to the shipment;
f. CARDs 65-1, including any MEF checklists attached;
g. Factor Assay data, either a letter or form from MC&A listing the correct Factor Assay for a particular shipment;
h. Waste Summary Report
i. copies of RCRA letters, the Material Evaluation Form, and NTS WAC form;

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j. completed "L-LRW Paperwork Checklist and completed Package Storage and Disposal Data Sheet", "Tally Sheet", and Supporting Paperwork Review Checklist for L-LRW;
k. computer printout data entry sheets; and
l. any worksheets which were included with folder.

NOTE: Permanent Certification Record is not complete at this time (see 2.9.3.2 and 2.9.7.2).

2.3.19 Check the computer upload sheet by comparing with the "Package Storage & Disposal Data Sheet" (ATTACHMENT A) for completeness and accuracy. This task may be delegated to another individual by the Waste Certification Official. Initial and date the upload sheet, then notify the Waste Shipment Coordinator that the upload is ready. (The Waste Shipment Coordinator is responsible for electronically transmitting the data to the NTS.)

2.4 Examination of Waste Containers Prior To Filling

WASTE VERIFICATION:

2.4.1 Examination of approved container types prior to filling is not a routine requirement, however inspections may be performed in accordance with QP-12.03, "Certification of Waste Package Examination and Sealing For Off-Site Shipment".

2.5 Verification of Container Loading of L-LRW

WASTE VERIFICATION:

2.5.1 Detailed instructions for certification of waste container loading to either a flat bed trailer or a van trailer can be found in QP-12.04, "Certification of Loading and Shipment of Low-Level Radioactive Waste".

2.5.2 All paperwork generated by container loading is filed for access by the Waste Package Certifier who will be making the final trailer/vehicle inspection prior to release of the shipment to the NTS.

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2.6 Certification of NV-211 Labels

QUALITY CERTIFICATION:

2.6.1 When the Waste Package Certifier has verified that all the criteria listed in QP-12.04 has been met for each container in the shipment and a signed NV-211 label has been affixed to each container, the Waste Certification Official will check all containers to assure each container has a properly signed and dated NV-211. Details on issuance of NV-211 labels are included in QP-12.04.

2.6.2 The Waste Certification Official will sign and date a "Statement of Compliance" (ATTACHMENT Q) only when certain the check is thorough and accurate.

NOTE: If the Waste Certification Official is interrupted while checking NV-211 labels a complete recheck is required prior to signing the "Statement of Compliance" (ATTACHMENT Q).

2.7 Final Shipping Paperwork Started

WASTE VERIFICATION:

2.7.1 The Waste Package Certifier receives the shipment paperwork package folder from the Logistics Administration (Traffic) Waste Shipping Planner/Coordinator at the time the shipment is scheduled to ship. Using a Quality Certification Traffic Shipment Document checklist (ATTACHMENT R), the "Bill of Lading" (ATTACHMENT S), and the "Shipping Order for Nuclear Material" (ATTACHMENT F) are compared to verify the following:

a. Shipment number;
b. Bill of Lading number;
c. Shipping Order number;
d. date prepared;
e. gross wt. and net wt.;
f. E.T.A.;
g. seal number; and
h. LSA/LQ, RQ.

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2.7.2 Check the "L-LRW Shipment Checklist & NTS Notification" form (ATTACHMENT T), completed by Transportation personnel when the trailer is loaded, to verify it is complete and all required signatures are present.

2.7.3 Verify that a Radiological Control Technician has surveyed the trailer, "empty before loading" as well as "outgoing," and recorded the results of both on the "Vehicle Radiation Monitoring Report" (ATTACHMENT U) and the "Radiological Survey Report" (ATTACHMENT E) assuring that all results are within specification.

2.7.4 Verify that a Radiological Control Technician has surveyed the containers, "initial" as well as "smears," and recorded the results on separate "Radiological Survey Report" forms (ATTACHMENT E) assuring that all results are within specification.

2.7.5 Verify the information on the "Off-Site Loading Tie-Down Inspection - Vehicle Inspection" form (ATTACHMENT V) is correct and consistent with the "Bill of Lading" (ATTACHMENT S) and the Shipping Order for Nuclear Material" (ATTACHMENT F).

2.7.6 Verify that the "Curie Sheet" (ATTACHMENT C) is correct for the specific shipment.

2.7.7 Verify that the "Circle Copy" (ATTACHMENT D) is correct for the specific shipment.

2.7.8 Verify that two envelopes are included in the package from Logistics Administration (Traffic):

a. The first envelope is the "trailer envelope" containing a copy of the "Package Storage & Disposal Data Sheet", "Tally Sheet", and "Circle Copy".
b. The second envelope is the "driver envelope" containing a copy of the "Package Storage & Disposal Data Sheet" and the "Circle Copy".

2.7.9 Verify that the weight ticket and a complete driver instruction package are included in the package from Logistics Administration (Traffic).

NOTE: When the Shipment is a ISO cargo container, two extra radioactive placards will be added to the drivers package by the Waste Package Certifier.

NOTE: When the shipping paperwork has been checked to this point, the Waste Package Certifier forwards the shipment paperwork package folder to a Waste Certification Official.

QUALITY CERTIFICATION:

2.7.10 The Waste Certification Official reviews the following documents in the shipment paperwork package folder for accuracy and completeness at the Logistics Administration (Traffic) office:

a. Shipping Order for Nuclear Material;
b. Bill of Lading;
c. Low-Level Waste Shipment Checklist and NTS Notification Form;
d. Vehicle Radiation Monitoring Reports;
e. Radiological Survey Report showing results of smear samples of packages;
f. weight ticket;
g. Off-Site Tie Down Inspection form;
h. LSA/RQ, LQ documentation; and
i. drivers instructions;

2.7.11 When the paperwork is determined to be complete to this point, the Waste Certification Official returns the DOT approved seal and trailer envelope to the Waste Package Certifier to begin the Final Trailer/Vehicle Examination.

2.8 <u>Final Trailer/Vehicle Examination</u>

WASTE VERIFICATION:

2.8.1 The Waste Package Certifier takes the "trailer envelope" (see 2.7.8.a above) to the trailer and watches while the Logistics Administration (Traffic) person fastens it to the rear container in a trailer load when possible, if not, it is stapled to the trailer wall inside the doors. If the shipment is not in a closed van, the envelope is given to the driver with all other paperwork.

2.8.2 Verify that the Logistics Administration (Traffic) person replaces the Radiation Control Technician's temporary seal with a DOT approved seal, and the trailer number and the seal number match the seal number recorded on the "Bill of Lading" (ATTACHMENT R), the L-LRW Shipment checklist, and the "Off-site Loading Tie-Down Inspection-Vehicle Inspection" form (ATTACHMENT V).

2.8.3 Verify the presence of "Radioactive" placards on both sides, as well as the front and rear of a van vehicle/trailer.

NOTE: For shipment of flatbed vehicle/trailers carrying ISO containers and/or large white metal boxes each container will have placards on both sides, as well as the front and rear.

NOTE: A shipment containing limited quantity packages exclusively does not require these placards.

2.8.4 When all visual inspection is complete the Waste Package Certifier will take three pictures of the trailer, one full rear view and a diagonal view from each of the front corners of the trailer to assure all trailer markings and placards are in place before the shipment leaves FERMCO.

2.8.5 The Waste Package Certifier with the assistance of the driver conduct a final examination of the trailer/vehicle after closure using a Quality Certification Final Trailer checklist (ATTACHMENT W) to check the following:

a. headlights;
b. turn signals;
c. brake lights;
d. horn;
e. windshield wipers; and
f. tires.

2.9 <u>Final Shipping Paperwork Completed</u>

WASTE VERIFICATION:

2.9.1 Once the final trailer/vehicle examination is complete the Waste Package Certifier returns to his office to complete the checklists and final shipping paperwork.

2.9.2 All deficiencies shall be reported on the appropriate checklist. Repetitive or uncorrected deficiencies are documented in accordance with SSOP-0023.

2.9.3 Distribute paperwork copies as follows:

1. Quality Certification:

   a. copy of the "Quality Certification Traffic Shipment Document checklist";
   b. copy of the "Quality Certification Final Trailer checklist"; and
   c. copy of the Quality Certification-Preliminary Trailer checklists for van or flatbed, whichever is applicable.

2. Permanent Certification Record:

   a. three pictures of trailer after closing;
   b. original Quality Certification Traffic Shipment Document checklist;
   c. original Quality Certification Final Trailer checklist;
   d. copy of the "Radiological Survey Report" form for outgoing;
   e. copy of the "Vehicle Radiation Monitoring Report" form for outgoing;
   f. signed copy of the "Bill of Lading";
   g. signed copy of the "Shipping Order for Nuclear Material".

NOTE: The following documents from QP-12.04 are also added to the Permanent Certification Record by the Package Certification personnel:

   h. two pictures of the inside of trailer at loading;
   i. completed original Quality Certification-Preliminary Trailer checklist (van or flatbed);
   j. copy of "Radiological Survey Report" form for "empty before loading";
   k. copy of "Vehicle Radiation Monitoring Report" form for "empty before loading";
   l. copy of Preliminary Visual Trailer Inspection form;
   m. completed original "Quality Certification L-LRW Pre-Loading Package Inspection for Standard Size Metal Boxes", when applicable;

n. field copy of "Circle Copy" complete with date and signature;
o. copy of "Package Storage & Disposal Data sheet";
p. copy of "Tally Sheet"; and
q. copy of "Radiological Survey Report" form for container smears;

NOTE: The Permanent Certification Record is not complete at this time (see 2.9.7.2).

QUALITY CERTIFICATION:

2.9.4 The Waste Certification Official completes the "Quality Waste Shipment Verification checklist" using the checklists from the Waste Package Certifier and lists any deficiencies.

2.9.5 Signs and dates the "Shipping Order for Nuclear Material", in the space provided for Quality Assurance, when all documents are complete and accurate.

2.9.6 Signs the Certification Statement.

2.9.7 Distribute paperwork as follows:

1. Shipment Paperwork Package Folder to the Waste Shipping Planner/Coordinator:

   a. original "Bill of Lading;
   b. original signed Shipping Order;
   c. original "L-LRW Shipment Checklist & NTS Notification";
   d. all "Vehicle Radiation Monitoring Reports";
   e. all "Radiological Survey Reports";
   f. weight ticket;
   g. "Off-site Loading Tie-down Inspection Vehicle Inspection" form;
   h. field check copy of the "Tally Sheet";
   i. driver envelope;
   j. two extra "Radioactive" placards; and
   k. the original and one copy of the "Statement of Compliance".

2. Permanent Certification Record:
   a. the original "Quality Waste Shipment Verification checklist";

b. copy of the "Tally Sheet";
c. copy of the "Shipping Order for Nuclear Material";
d. copy of the "initial" "Radiological Survey Report"; and
e. copy of the "Statement of Compliance".

NOTE: The Permanent Certification Record is complete at this time.

3. Fax to Area 5 at the NTS two days prior to the shipment's arrival:

   a. the Certification Statement;
   b. "Package Storage & Disposal Data sheet";
   c. copy of the "Statement of Compliance".

4. Fax to the DOE/NV two days prior to the shipment's arrival at the NTS:

   a. the Certification Statement;
   b. the "Package Storage & Disposal Data sheet";
   c. copy of the "Statement of Compliance".

NOTE: This is to be followed by a phone call to the NTS to verify the receipt of this information.

NOTE: The "Facsimile Service Form" (ATTACHMENT X) or a variation thereof is to be used for faxing. Instructions for faxing to DOE/NV may be found near the fax machine. If problems are encountered in faxing the above information, inform the Quality Certification Manager, or if unable to do so, contact DOE/NV by telephone (number on fax form) for instructions. Make a note on the "Facsimile Service Form" of failure to transmit, and log the date, time, and name of person contacted by telephone at DOE/NV.

3.0 REFERENCES

3.1 DOE/EH-0256T, DOE Radiological Control Manual

3.2 ED-0001, Event Notification and Reporting

3.3 QP-1.02, Abbreviations, Acronyms, and Definitions

3.4 QP-12.03, Certification of Waste Package Examination and Sealing for Off-Site Shipment

3.5 QP-12.04, Certification of Loading and Shipment of Low-Level Radioactive Waste

3.6 ESH-1-1000, Comprehensive Environmental, Occupational Safety, and Health Program

3.7 FMPC-2128, FMPC Industrial Hygiene and Safety Manual

3.8 NVO-325, Rev. 1, Nevada Test Site Defense Waste Acceptance Criteria, Certification and Transfer Requirements

3.9 SOP-TRF-46-C-110, Preparation and Shipment of Radioactive Material (Low-Level Radioactive Waste

3.10 SOP-1-C-602, Low Level Radioactive Waste (L-LRW) Shipment Preparations

3.11 SSOP-0023, Deviation and Corrective Action Reporting

3.12 SSOP-0067, Spill Incident Reporting and Clean-up

3.13 SSOP-0075, Packaging Low Level Radioactive Waste (LLRW) in Drums for Off-site Shipment

3.14 SSOP-0078, Packaging Low Level Radioactive Waste (LLRW) in ISO Containers for Off-site Shipment

3.15 SSOP-0079, Packaging Low Level Radioactive Waste (LLRW) in Metal Boxes for Off-site Shipment

4.0 ATTACHMENTS

4.1	ATTACHMENT A	Defense Waste Management - Package Storage & Disposal Data Sheet (EXHIBIT)
4.2	ATTACHMENT B	NEVADA TEST SITE SHIPMENT TALLY SHEET (EXHIBIT)
4.3	ATTACHMENT C	Radioactive Waste Management - Storage & Disposal "Curie Sheet" (EXHIBIT)
4.4	ATTACHMENT D	Radioactive Waste Management - Storage & Disposal "Circle Copy" (EXHIBIT)
4.5	ATTACHMENT E	Radiological Survey Report, FS-F-1993-1 (Rev. 2/19/93)
4.6	ATTACHMENT F	Shipping Order for Nuclear Material, FS-F-558-3 (Rev. 2/11/93)
4.7	ATTACHMENT G	Card 65-1 Item Production/Certification/Identification FS-F-1945 (Rev. 11/20/92)
4.8	ATTACHMENT H	Quality Certification - Preliminary Trailer Checklist for Flat Beds (ISO Cargo Container Shipments), ECQ-891010-1, Rev. 4 (01/27/93)
4.9	ATTACHMENT I	Waste Certification - Preliminary Trailer Checklist for Vans, ECQ-880801-1 Rev. 5 (10/06/93)
4.10	ATTACHMENT J	Quality Certification Checklist Oversize White Metal Box "Ready to Ship" ECQ-890815-1, Rev. 3 (09/10/93)
4.11	ATTACHMENT K	Quality Certification Checklist ISO Container "Ready To Ship" ECQ-880930-1, Rev. 4 (09/09/93)
4.12	ATTACHMENT L	Quality Certification L-LRW Shipment Status Log QAC-880617-2 Rev. 2 (9/25/92) (EXHIBIT)
4.13	ATTACHMENT M	L-LRW Paperwork Checklist QC-921229, Rev. 2 (05/07/93)
4.14	ATTACHMENT N	Package Storage & Disposal Sheet, Tally Sheet, and Supporting Paperwork Review Checklist for L-LRW ECQ-881115-2, Rev. 4 (07/02/93)
4.15	ATTACHMENT O	Quality Waste Shipment Verification checklist ECQ-890601-1, Rev. 2 (09/17/93)
4.16	ATTACHMENT P	Certification Statement Low-Level Waste Shipment From FEMP To Nevada Test Site ECQ-900914-1, Rev. 4 (11/23/92)
4.17	ATTACHMENT Q	Statement of Compliance QA/QC-930818-1 Rev. 0
4.18	ATTACHMENT R	Quality Certification Traffic Shipment Document Checklist EQC-880731-1, (Rev. 3 07/31/91)

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4.19	ATTACHMENT S	Straight Bill of Lading-Short Form-Original-Not Negotiable FS-F-452 Rev. (01/15/93)
4.20	ATTACHMENT T	L-LRW Shipment Checklist & NTS Notification FMPC-SAML-3065 Rev (4/5/89)
4.21	ATTACHMENT U	Vehicle Radiation Monitoring Report FS-F-1596-1 Rev. (2/19/93)
4.22	ATTACHMENT V	Off-Site Loading Tie-Down Inspection - Vehicle Inspection FMPC-SAML-2495 REV (4/5/89)
4.23	ATTACHMENT W	Quality Certification Final Trailer checklist ECQ-880801, REV. 3 (01/27/93)
4.24	ATTACHMENT X	Facsimile Service Form (EXHIBIT)

ATTACHMENT A
Page 1 of 1

DEFENSE WASTE MANAGEMENT - PACKAGE STORAGE & DISPOSAL DATA SHEET

(EXHIBIT)

TO: Reynolds Electrical & Engineering Co., Inc.
Defense Waste Management - Package Storage & Disposal Data

Prepared By: [signature] Date: 8-18-93

Approved By: [signature] Date: 8-20-93

08/18/93
10:43:13

Phone: 513-738-8648 or 513-738-8646

SHIPMENT NO. WRL93410

WASTE STREAM ID NUMBER(S)	NUCLIDE CATEGORY	WASTE MATERIAL DESCRIPTION	NO. OF PKGS.	CONTAINER CODE	PACKAGE DESCRIPTION
OWL0000000006	2	MAGNESIUM FLUORIDE	5	117	3-1/2 x 4-1/2 x 7-1/2 Box

PACKAGE IDENT. NUMBER	WASTE STREAM ID NO.	ASSAY DATE DDMMMYY	PACKAGED DATE DDMMMYY	CONT TYPE CODE	OPER CODE	WASTE CODE	EXTERNAL VOLUME CU. M.	INTERNAL VOLUME CU. M.	GROSS WEIGHT KGS.	NET WEIGHT KGS.	RADIATION AT SURF MR/HR	RADIATION 1 METER MR/HR	NUCLIDE QUANTITIES U-238 CURIES	U-235 CURIES	U-234 CURIES	TOTAL CURIES
738001	06	12AUG93	11AUG93	117	B	DS	3.010E+00	1.982E+00	3.463E+03	2.855E+03	.50	.50	2.515E-02	1.536E-03	3.125E-02	5.793E-02
738002	06	12AUG93	11AUG93	117	B	DS	3.010E+00	1.982E+00	3.516E+03	2.908E+03	.50	.50	2.564E-02	1.499E-03	3.070E-02	5.783E-02
738007	06	12AUG93	11AUG93	117	B	DS	3.010E+00	1.982E+00	3.466E+03	2.854E+03	.50	.50	2.506E-02	1.465E-03	3.000E-02	5.652E-02
738008	06	12AUG93	11AUG93	117	B	DS	3.010E+00	1.982E+00	3.491E+03	2.880E+03	.50	.50	2.518E-02	1.538E-03	3.128E-02	5.800E-02
738014	06	12AUG93	11AUG93	117	B	DS	3.010E+00	1.982E+00	3.566E+03	2.958E+03	.50	.50	2.597E-02	1.586E-03	3.227E-02	5.983E-02
TOTALS:							1.505E+01	9.909E+00	1.750E+04	1.445E+04			1.270E-01	7.624E-03	1.555E-01	2.901E-01

NEVADA TEST SITE SHIPMENT TALLY SHEET

(EXHIBIT)

WRL-93 410

08/18/93
10:43:08

TO: Reynolds Electrical and Engineering Co., Inc.
U.S. DOE, Nevada Test Site, Zone 2
Mercury, NV 89023
Attention: G. Kendall

FROM: Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, OH 45239

NEVADA TEST SITE SHIPMENT
TALLY SHEET

LOT NUMBER W090-518-V034-6533
LOT NUMBER W090-518-V034-6534
LOT NUMBER W094-518-V034-6530
LOT NUMBER W094-518-V034-6531
LOT NUMBER W094-518-V034-6532

LOT NUMBER	CONT. NO.	GROSS WT. (POUNDS)	TARE WT. (POUNDS)	NET WT. (POUNDS)	U ASSAY	PERCENT U-235	PERCENT U-238	PERCENT U-234	U POUNDS	ELEMENT WT(gms)	U-235 ISOTOPE WT(gms)	U-238 ISOTOPE WT(gms)	U-234 ISOTOPE WT(gms)	U-235 Ci	U-238 Ci	U-234 Ci	VOLUME CU FT
6531	738001	7634.0	1341.0	6293.0	2.670	.940	99.01	.008	168.0	76203	716.3	75449	38.1	1.536E-03	2.515E-02	3.125E-02	106.297
6533	738002	7752.0	1341.0	6411.0	2.670	.900	99.06	.007	171.2	77655	698.9	76925	31.1	1.499E-03	2.564E-02	3.070E-02	106.297
6534	738007	7642.0	1351.0	6291.0	2.660	.900	99.06	.007	167.3	75886	683.0	75172	30.4	1.465E-03	2.506E-02	3.000E-02	106.297
6530	738008	7696.0	1347.0	6349.0	2.650	.940	99.01	.008	168.2	76294	717.2	75539	38.1	1.538E-03	2.518E-02	3.128E-02	106.297
6532	738014	7862.0	1341.0	6521.0	2.660	.940	99.01	.008	173.5	78698	739.8	77919	39.3	1.586E-03	2.597E-02	3.227E-02	106.297
TOTALS		38586.0	6721.0	31865.0					848.2	384735	3555.1	381003	177.0	7.624E-03	1.270E-01	1.555E-01	531.486
--- LOT TOTALS ---																	
6533	1	7752.0	1341.0	6411.0					171.2	77655	698.9	76925	31.1	1.499E-03	2.564E-02	3.070E-02	106.297
6534	1	7642.0	1351.0	6291.0					167.3	75886	683.0	75172	30.4	1.465E-03	2.506E-02	3.000E-02	106.297
6530	1	7696.0	1347.0	6349.0					168.2	76294	717.2	75539	38.1	1.538E-03	2.518E-02	3.128E-02	106.297
6531	1	7634.0	1341.0	6293.0					168.0	76203	716.3	75449	38.1	1.536E-03	2.515E-02	3.125E-02	106.297
6532	1	7862.0	1341.0	6521.0					173.5	78698	739.8	77919	39.3	1.586E-03	2.597E-02	3.227E-02	106.297

RADIOACTIVE WASTE MANAGEMENT - STORAGE & DISPOSAL
"CURIE SHEET"

(EXHIBIT)

WML-93 410

Reynolds Electrical and Engineering Co., Inc.
Radioactive Waste Management-Storage & Disposal

	LSA Container Number	Net Weight	Gross Weight	Total Curies
	738001	6293.0	7634.0	.05792993
	738002	6411.0	7752.0	.05783357
	738007	6291.0	7642.0	.05651610
	738008	6349.0	7696.0	.05799889
	738014	6521.0	7862.0	.05982645
TOTAL LSA Containers	5	31865.0	38586.0	.29010497

	LQ Container Number	Net Weight	Gross Weight	Total Curies
TOTAL LQ Containers	0	.0	.0	.00000000

	RQ Container Number	Net Weight	Gross Weight	Total Curies
TOTAL RQ Containers	0	.0	.0	.00000000
TOTAL RQ/LSA Containers	0	.0	.0	.00000000
TOTAL RQ/LQ Containers	0	.0	.0	.00000000

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RADIOACTIVE WASTE MANAGEMENT - STORAGE & DISPOSAL
"CIRCLE COPY"

(EXHIBIT)

WML-93 410

Reynolds Electrical and Engineering Co., Inc.
Radioactive Waste Management-Storage & Disposal

PACKAGE NO.	NET WT	TARE WT	GROSS WT	LSA	LQ	RQ
738001	6293.00	1341.00	7634.00	X		
738002	6411.00	1341.00	7752.00	X		
738007	6291.00	1351.00	7642.00	X		
738008	6349.00	1347.00	7696.00	X		
738014	6521.00	1341.00	7862.00	X		

RADIOLOGICAL SURVEY REPORT

FEMP
RADIOLOGICAL SURVEY REPORT

DATE:	LOCATION:	RCT:	BADGE:	PAGE:
TIME:	LEVEL:	SIGNATURE:		1 of ___

REASON FOR SURVEY: _____

INSTRUMENTS

MODEL	SERIAL NUMBER	TYPE (α, β, γ)	CALIBRATION-DUE DATE	BKGD. (cpm)	EFF./CF	COUNT TIME (min)	MDA (dpm)	RESP./PERFORMANCE TEST SAT? YES	NO

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (ft.)	DPM/100cm² ALPHA		DPM/100cm² BETA-GAMMA		CORRECTED DOSE RATE (MREM/HR)			
			REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	γ CONTACT	β CONTACT	γ AT ___ FT.	β AT ___ FT.

NO.	DISTRIBUTION OF COPIES
1	RCT Supervisor
2	Facility Supervisor
3	CRU Manager

NOTIFICATION OF SURVEY RESULTS

SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE

FS-F-1980-1 (REV. 12/31/88)

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SHIPPING ORDER FOR NUCLEAR MATERIAL

ATTACHMENT F
Page 1 of 1

Fernald Environmental Restoration Management Corporation

SHIPPING ORDER FOR NUCLEAR MATERIAL

Date Prepared: _____

SHIP TO: REYNOLDS ELECTRICAL & ENGINEERING CO.	ROUTING:		SHIPPERS AUTHORIZATION NO.:	SHIPPING ORDER NO.:
STREET: c/o U.S. DEPARTMENT OF ENERGY	■ PREPAID ☐ COLLECT	CAR OR TRAILER NO.: / SEAL NO.:	SHIPPED FROM PLANT:	ORIGINATOR NO.:
CITY: MERCURY / STATE: NEVADA / ZIP CODE: 89023		BILL OF LADING NO.: / QUALITY CONTROL APPROVAL:		DATE SHIPPED:
SPECIAL INSTRUCTIONS:		COUNTRY CONTROL NO.: US US 00 00 / PROJECT NO.:		TIME SHIPPED:

Type of Material _____ FEMP Production Order No. N003 Originator's Signature _____

Station RIS VAB DOE 741 No. FVC-VAB- Shipment Authorized By _____ NUCLEAR MATERIALS REPRESENTATIVE

NMC DATA			ORIGINATOR'S DATA						MATERIAL CONTROL DATA					
FROM MBA	COST CODE	741 NO.	P.O. NO.	LOT NUMBER	QUANTITY	WEIGHT (LBS) GROSS	TARE	NET	ANAL. CODE	ELE. ANAL.	ELE. LBS.	ELE. GRAMS OR KGS	ISO. ANAL.	U^{235} GRAMS OR KGS

DISTRIBUTION OF COPIES

1	NMA (RECORD COPY)	4	Environmental Restoration
2	Traffic	5	Quality Certification
3	NMA (Cost)	6	Originator

I, _____ certify that this shipment was made on the above date after complying with all regulations.

Audited by _____ Date _____

FS-F 566-3 (REV. 2/11/93)

000712

ATTACHMENT G
Page 1 of 1

CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DATE DAY	DATE YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE MONTH	SEAL DATE DAY	SEAL DATE YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE	
PACKAGE SIZE	
PROJECT	

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		
OVERPACK		
REPACK		

PLANT	PROD. MBA	MEF NO.
DCAR	SURV. NO.	GROSS WEIGHT
		TARE WEIGHT =
		NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1946-1 (REV. 11/20/92)

☆U.S. GPO:1992-761-382

ATTACHMENT H
Page 1 of 1

QUALITY CERTIFICATION - PRELIMINARY TRAILER CHECKLIST FOR FLATBEDS (ISO CARGO CONTAINER SHIPMENTS)

QUALITY CERTIFICATION - PRELIMINARY TRAILER CHECKLIST FOR FLAT BEDS (ISO CARGO CONTAINER SHIPMENTS)

RADIATION SMEARS DATE: _____ LOCATION: _____

CARRIER: _____ TRAILER NO.: _____

CHECKLIST ITEM	VERIFIED BY
1. Verify the preliminary trailer inspection completed (on trailer only) prior to driver unhooking from the empty trailer: Accepted ____ Rejected ____	_____
2. Prior to loading verify the RS Technician has surveyed the empty trailer, recorded results on Form ES&H-1596-1, and that results meet acceptance requirements listed in 49 CFR 173.441. (Note: If over 48 hrs. since smears were made, the trailer must be resmeared.)	_____
3. Verify that the doors of the ISO cargo containers are banded closed and secured with a tamper proof DOT approved seal.	_____
4. Record shipping information in the blocks below:	_____

Shipment No. WML- _____ - _____

Container No. 1: Ser. No. _____ Seal No. _____

Container No. 2: Ser. No. _____ Seal No. _____

Signed: _____ Date: _____
(Quality Certification)

Distribution: 1. QA Certification 2. Traffic Manager

QA Certification Form
ECQ-891010-1, Rev. 4 (01/27/93)

ATTACHMENT I
Page 1 of 1

QUALITY CERTIFICATION - PRELIMINARY TRAILER CHECKLIST FOR VANS

QUALITY CERTIFICATION - PRELIMINARY TRAILER CHECKLIST FOR VANS

RADIATION SMEARS DATE: _____ LOCATION: _____

CARRIER: _____ TRAILER NO.: _____

CHECKLIST ITEM	VERIFIED BY
1. Verify preliminary trailer inspection completed (on the trailer only) prior to driver unhooking from the empty trailer: Accepted ____ Rejected ____	_____
2. Verify the RC Technician has surveyed the empty trailer, recorded results on Form ES&H-1596-1, and results meet acceptance requirements listed in 49 CFR 173.441.	_____
3. After the survey, verify the RS Technician has sealed the doors with a tamper proof seal. Seal No. _____	_____
4. Prior to loading, verify seal number is same as applied by RC Technician and shows no evidence of tampering.	_____
5. Verify all packages have signed and dated NV-211 labels affixed.	_____
6. Verify that packages have been properly tied-down as specified by SOP-TRF-46-C-110.	_____
7. Verify that the loaded trailer rear doors are secured with a tamper proof seal. Shipment No. WML-____-_____ Seal No. _____	_____

Signed: _____ Date: _____
(Quality Verification)

Distribution: 1. QA Certification 2. Traffic Manager

QA Certification Form
ECQ-880801-1, Rev. 5 (10/06/93)

ATTACHMENT J
Page 1 of 1

QUALITY CERTIFICATION CHECKLIST OVERSIZE WHITE METAL BOX "READY TO SHIP"

QUALITY CERTIFICATION CHECKLIST
OVERSIZE WHITE METAL BOX
"READY TO SHIP"

INFORMATION

DATE: _____ SHIPMENT NUMBER: _____

MTL. TYPE: _____ BOX ___ Serial No.: _____

MTL. TYPE: _____ ___ Serial No.: _____

LOCATION : _____ WEIGHTS: Gross _____ BOX 1 _____ BOX 2

_____ Tare _____ _____

_____ Net _____ _____

EXAMINATION CRITERIA (Quality Certification) Initials

Trailer No.: _____

1. Verify "Item Production/Certification/Identification" 65-1 Card is completed accurately. Form Number FS-F-1945-1 (11/20/92) _____
2. Container does not show evidence of leaking. _____
3. Radioactive placards present. (4 sides) _____
4. No holes, serious dents, or excessive rust. _____
5. Marking is complete as follows:
   - Proper shipping label(s) identified on three sides (LSA, RQ, LQ) _____
   - Gross weight identified _____
   - Shipment Number _____
   - Waste Stream Number _____
   - Container Number _____
   - FEMP Marking Code _____
6. Marked weight values match above values. _____
7. The lid is sealed with metal clips or bolts. _____
8. Seal number #1_____ affixed to container. _____

   #2_____
9. All unnecessary markings have been removed or covered. _____

PLACE A SIGNED and DATED NV-211 ON CONTAINER WHEN ABOVE CRITERIA IS SATISFACTORILY MET.

I hereby certify the above items have been examined and the above items are correct to the best of my knowledge.

Signed:_____ Date: _____
(Waste Certification)

ECQ-890815-1, Rev.3 (09/10/93)

ATTACHMENT K
Page 1 of 1

QUALITY CERTIFICATION CHECKLIST ISO CONTAINER "READY TO SHIP"

QUALITY CERTIFICATION CHECKLIST
ISO CONTAINER "READY TO SHIP"

INFORMATION

DATE: _____ SHIPMENT NUMBER: _____

MTL. TYPE: _____ BOX ___ Serial No.: _____

MTL. TYPE: _____ ___ Serial No.: _____

LOCATION : West Water Tower

WEIGHTS:	BOX 1	BOX 2
Gross	_____	_____
Tare	_____	_____
Net	_____	_____

EXAMINATION CRITERIA (Quality Certification)

Trailer No.: _____

	Initials
1. Verify "Item Production/Certification/Identification" W-65 card is completed accurately. (Form FS-F-1945-1, Rev. 11/20/92)	_____
2. Container does not show evidence of leaking.	_____
3. Radioactive placards present. (4 sides)	_____
4. No holes, serious dents, or excessive rust.	_____
5. Marking is complete as follows:	
Proper shipping label(s) identified on three sides (LSA, RQ, LQ)	_____
Gross weight identified	_____
Shipment Number	_____
Waste Stream Number	_____
Container Number	_____
FEMP Marking Code	_____
6. Marked weight values match above values.	_____
7. The doors are latched, sealed with caulking, and the two latch bars are banded together.	_____
8. Seal number Box #1_____ affixed to container. Box #2_____	_____
9. All unnecessary markings have been removed or covered.	_____

PLACE A SIGNED and DATED NV-211 ON DOOR OF CONTAINER WHEN ABOVE CRITERIA IS SATISFACTORILY MET.

I hereby certify the above items have been examined and the above items are correct to the best of my knowledge.

Signed:_____ Date: _____
(Quality Certification)

QUALITY CERTIFICATION L-LRW SHIPMENT STATUS LOG

(EXHIBIT)

ATTACHMENT L
Page 1 of 1

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QUALITY CERTIFICATION
LLW Shipment Status Log

Shipment No.	Container Quant. No.	Container Type	Type of Material	Received Mo.	Received Day	Received Hr.	To MC&A Mo.	To MC&A Day	To MC&A Hr.	Loaded Mo.	Loaded Day	Loaded Yr.	Shipped Mo.	Shipped Day	Shipped Yr.	Nonconformance
93395	1	S/L	Maint Rubble	7	27	9:50	7	29	10:15	8	4	93	8	4	93	1) Metal checklist and inventory sheet needed clarification (see logics)
93396	2	S/L	Maint Rubble	7	27	7:50	7	29	10:15	8	4	93	8	4	93	ok
93397	2	S/L	Maint Rubble	7	27	8:45	7	30	10:30	8	4	93	8	4	93	1) metal checklist & inventory sheet differences need clarification
93398	2	S/L	Maint Rubble	7	27	10:25	7	30	11:15	8	3	93	8	5	93	ok
93375	5	WMB	Mag Fluoride	7	27	1:25	7	27	3:15	7	29	93	7	30	93	ok
93376	5	WMB	Mag Fluoride	7	27	2:45	7	28	3:15	7	30	93	8	2	93	ok
93399	1	S/L	Maint Rubble	7	29	9:20	7	30	3:15							Tracking and loading ok
93400	1	S/L	Maint Rubble	7	29	9:20	7	30	3:15	8	5	93	8	5	93	ok
93377	5	WMB	Mag Fluoride	7	30	1:10	7	30	3:15	8	2	93	8	4	93	ok
93378	5	WMB	Mag Fluoride	7	30	1:37	8	2	9:40	8	3	93	8	4	93	ok
93379	5	WMB	Mag Fluoride	7	30	2:58	8	2	10:45	8	3	93	8	4	93	ok
93401	2	S/L	Maint Rubble	7	29	10:15	8	3	10:45	8	5	93	8	5	93 10:45	1) metal checklist & inventory sheet container discrepancy
93402	2	S/L	Maint Rubble	7	29	1:40	8	3	10:45	8	5	93	8	6	93 10:40	1) metal checklist & inventory sheet container discrepancy 2) Manifest & Bill of Lading discrepancy
93403	1	S/L	Maint Rubble	7	29	1:40	8	2	3:15	8	4	93	8	5	93	Manifest date & shipping date incorrect
93404	2	S/L	Maint Rubble	7	29	2:20	8	4	3:15	8	6	93	8	6	93	1) shipping date incorrect 2) Checklist & manifest not filled correctly
93332	69	Drums	Sump Cake	7	30	8:25	8	5	10:15	8	6	93	8	9	93	11:20 signature & Phone [illegible]
93333	69	Drums	Sump Cake	8	2	8:07	8	5	10:30	8	6	93	8	9	93	ok
93334	69	Drums	Sump Cake	8	2	1:45	8	5	3:30	8	9	93	8	10	93	1) wrong date incorrect, pkg. [illegible] 2) ok on WLS and not dated
93380	5	WMB	Mag Fluoride	8	2	2:30	8	5	10:30	8	6	93	8	6	93	1) [illegible] not [illegible] 2) [illegible] on [illegible] (Bad Running Sheet was corrected).

QAC-880617-2, Rev. 2 (9/25/92)

L-LRW PAPERWORK CHECKLIST

LLRW PAPERWORK CHECKLIST

1. Shipment package logged into Shipment log book. _____

2. Date and time package is received is marked on front of shipment folder. _____

3. Inspect package to determine that all documents are present: _____

   Storage & Disposal Sheet
   Tally Sheet
   Curie Sheet
   Circle Copy
   Initial Radiation Survey
   Worksheet
   Data Entry Printouts
   Assay Values or Laboratory Results
   W-65 Cards
   Weight Ticket
   Deviation Report Release
   RCRA Determination (letter or MEF)
   Appropriate materials checklists
   Shipping Order (it will be incomplete at this time)
   Computer upload sheet

4. Review all documents for completeness. _____

5. Check W-65 Cards for accuracy and authorized signatures. A card is required for each container in the shipment. _____

6. Check W-65 Cards against all entries on the Worksheet. _____

7. Check containers listed on the W-65 Cards against RCRA Release if containers are specified. _____

8. Check contents of container listed on W-65 Card against RCRA determination letter, MEF, or checklist. _____

9. Check W-65 Cards against the Deviation Report Release. _____

10. Check entries on Data Entry Printouts against Worksheet _____

11. Check assay values on Tally Sheet against values in Assay Letter from MC&A or laboratory analysis. _____

12. Check containers listed on the Storage & Disposal Sheet against those listed on the Initial Survey. _____

13. Check Radiation values on Storage & Disposal Sheet against Initial Surveys. _____

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L-LRW PAPERWORK CHECKLIST
(Continued)

14. Check Initial Radiation Survey to be sure it is signed, dated correctly, and is complete. _____

15. Check container code on Storage & Disposal Sheet against reference for volume and tare weight. _____

16. Check waste code listed on Storage & Disposal Sheet. _____

17. Check signature on Storage & Disposal Sheet to be sure it is an approved individual. _____

18. Pull appropriate checklist from SQA file and check entries against W-65 Card and checklist completed by generator. _____

19. Read MEF's or RCRA determination letter; compare it to the material listed on checklists or W-65 Card. All material in container MUST have a RCRA release. The materials listed must agree. _____

20. Total all weights and compare to the totals on the Tally Sheet. _____

21. Total all volumes and compare to the totals on the Tally Sheet. _____

22. Convert the total weight of the shipment from pounds to Kgs. _____

23. Mark time package evaluation is completed on the front of the folder. Note any deficiences or nonconformances on front of the folder. _____

I hereby certify the above criteria has been verified to be correct, to the best of my knowledge.

Signature:_____ Date: _____

ATTACHMENT N
Page 1 of 3

PACKAGE STORAGE & DISPOSAL SHEET, TALLY SHEET, AND SUPPORTING PAPERWORK REVIEW CHECKLIST FOR L-LRW

PACKAGE STORAGE & DISPOSAL SHEET, TALLY SHEET, AND SUPPORTING PAPERWORK REVIEW CHECKLIST FOR L-LRW

Shipment No. WML94_____

	Approval Check
Review the Card 65-1	
Lot Number(s) (P.O.NO., Source, Class, Material Type, Lot Sequence No.) agree(s) with Waste Description & Project on all cards.	_____
All weight information is complete & totals are correct on all cards.	_____
Package Physical Certification block is complete & acceptable on all cards.	_____
All Package Information is correct for Waste and Shipment Type on all cards.	_____
All cards are signed by Generators & their Supervisor.	_____
Review the Package Storage & Disposal Data (PS&DD) Sheet	
Appropriate preparer's signature.	_____
No unusual values or arrangement which indicates a computer program error.	_____
Shipment Number agrees with LLRW worksheet.	_____
Waste Stream ID Number present & agrees with Waste Material Description.	_____
Nuclide Category is correct. (Should be "2" for Uranium/Thorium.)	_____
Waste Material Description present & agrees with Card 65-1 Waste Description.	_____
No. of Packages agree with total Card 65-1s for shipment.	_____
Container Type Code listed & agrees with Package Description. (109 = S/L, 121 = TL WMB, 124 = 85D, 102 = 55D, 119, 117 = 7A WMB "common sizes", etc...)	_____

ECQ-881115-2, Rev. 4 (07/02/93)

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PACKAGE STORAGE & DISPOSAL SHEET, TALLY SHEET, AND SUPPORTING PAPERWORK REVIEW CHECKLIST FOR L-LRW (continued)

PAGE 2

Package Description is present & agrees with Card 65-1. _____

Package Ident. Numbers agree with Serial No. block on Card 65-1 & all Cards 65-1s are accounted for. _____

U Assay Date agrees with date on the MC&A Assay Letter located in shipment folder. _____

Proper Waste Code is entered. (BW = biological waste, CE = contaminated equip., DD = decontamination debris, DS =dry solid, SS = solidified sludge, NC = not classified) _____

<u>Review the Nevada Test Site Shipment Tally Sheet</u>

Shipment Number agrees with PS&DD Sheet. _____

Lot Number(s) agree with (P.O.No., Source, Class, Material Type, & Sequence No.) blocks on Card 65-1. _____

NOTE: MC&A documentation may be accepted in place of Card 65-1s if characterization was made on waste already packaged.

All line items (Lot Number, Cont. No., Gross Wt., Tare Wt., Net Wt.) agree with each Card 65-1 and all cards are accounted for. _____

Percent U-235 analysis agrees with lot enrichment code (P.O. No.) on Card 65-1. _____

U Assay and % U-235 concur with approved values from analytical or approved in writing by an MC&A Letter. _____

External Volume (Cu.Ft.) is correct for Container Code listed on PS&DD & Card 65-1.(109 = 1349.020, 121 = 1253.318, 124 = 14.126, 117 = 106.297, 119 = 109.016, etc...) _____

The Gross External Volume on the <u>total</u> line is correct. _____

Check the conversion from english to metric on totals against totals on PS&DD. (CONVERSION FACTORS LB/KG = .45359237, CU.FT/CU.MT. = .028316847) _____

Gross Weights do not exceed the maximum gross weight per container type. (WMB = 8,000#, ISO = 42,000#, 85D = 1280#, 55D = 1200#) _____

PACKAGE STORAGE & DISPOSAL SHEET, TALLY SHEET, AND SUPPORTING PAPERWORK REVIEW CHECKLIST FOR L-LRW (continued)

PAGE 3

Review the Remaining Sheets in Shipment Folder

REECo RWM-S&D sheet "Curie Sheet" is present & LQ, LSA, & RQ designations are correct. (if not, verify correct curie list is issued) _____

REECo RWM-S&D sheet "Circle Copy" is present & LQ, LSA, & RQ list for loading is correct and is in agreement with Curie Sheet. (Non-process contaminated materials are always LSA) _____

Initial Radiological Survey Report is present & complete with contact & 1-meter (3 ft.) readings. _____

Initial Radiological Survey readings at contact are not greater than 200 mR/hr. _____

Waste Summary report referencing applicable RCRA Letters, MEFs, and NTS Waste Acceptance Criteria (WAC) forms which are required to be on file is included in the folder.

Note: A copy of RCRA Letters, MEFs, and NTS WAC forms may be included in the folder. _____

Partially completed Shipping Order is included in shipment folder. _____

Copy of Property Disposal Request (563 form) present and complete when shipment is from waste stream 001 and contains used equipment or sensitive items. _____

I hereby certify the above criteria has been verified to be correct, to the best of my knowledge.

Signature: _____/_____

Date: _____/ /_____

ATTACHMENT O
Page 1 of 2

QUALITY WASTE SHIPMENT VERIFICATION CHECKLIST

QUALITY WASTE SHIPMENT VERIFICATION

Page 1 of 2

Date_____ Time _____

Shipment No. WML-94-_____ Trailer No._____ No./Type Container_____

1. **Storage & Disposal Data Sheet**
   A. Material Description_____
   B. Signed _____ Shipment No. WML-94-_____
   C. Total Curies _____
   D. Total Gross Weight (kgs.)_____
   E. Total Volume (Cu Meters) _____
   F. Type Container _____
   G. Date _____Time _____
   H. Check of "G" for all copies _____

2. **Tally Sheet**
   Shipment No. WML-94-_____ Date _____ Time _____
   Check of Date & Time of all copies in Pkg. _____
   A. Lot Number | Gross Weight | Net Weight
   _____ | _____ | _____
   _____ | _____ | _____
   _____ | _____ | _____
   _____ | _____ | _____
   Totals | _____ | _____
   B. Total volume _____
   C. Total containers _____ Totals agree with "1" above _____
   D. Field copy of Tally Sheet is included in shipment folder _____

3. **Bill of Lading (FS-F-452 Rev 1/15/93)**
   B/L No._____ Trailer No._____ Seal No.FA/WMCO_____
   741 No.FVC-VAB- _____SS-SO No. _____ _____
   ETA : _____
   Number of containers:

		Type Container	Gross Wt.	Net Wt.
LSA _____	RQ _____	_____	_____	_____
	NON-RQ _____	_____	_____	_____
LQ _____	RQ _____	_____	_____	_____
	NON-RQ _____	_____	_____	_____
Totals	_____		_____	_____

   _____ Above information agrees with Shipping Order & Tally Sheet.
   _____ Remainder of information of Bill of Lading checked.

4. **Shipping Order for Nuclear Material (FS-F-558-3 REV. 2/11/93)**
   A. Shipping Order No. _____ Trailer No. _____
   B. Bill of Lading No. _____ Seal No. FA-WMCO_____
   C. 741 No. FVC-VAB _____ MC & A Signed_____ _____
   D. Material Type _____
   E. Lot Nos. agrees with Tally Sheet _____ Total Quantity _____
   F. Gross Weight _____* Element Lbs. _____*
   G. Tare Weight _____* Element Grams or Kgs _____*
   H. Net Weight _____* Iso. Analysis _____*
   I. Element Analysis _____* U235 Grams or Kgs _____*
   J. Est. Time of Arrival _____
   K. *Totals (listed) & Individual Lot values (not listed) agree with Tally Sheet. _____

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QUALITY WASTE SHIPMENT VERIFICATION CHECKLIST
(continued)

QUALITY WASTE SHIPMENT VERIFICATION Page 2 of 2

5. **Low Level Waste Shipment Checklist and NTS Notification Form**
   A. Shipment No. WML-94-_____ B/L No. _____
   SS-SO No. _____
   B. Data on line 5A agrees with B/L and Shipping Order _____
   Completed except for Departure Time and Traffic Manager review _____

6. **Radiation Monitoring Sheet (FS-F-1596-1 Rev. 2/19/93) For:**
   A. Trailer Empty _____ Trailer ID _____
   B. Trailer Loaded _____ Trailer ID _____
   C. Cab Only _____ Trailer ID_____ License No._____
   D. Loaded Vehicle Radiological Survey _____ Trailer ID _____
   E. Temporary Seal Numbers _____
   F. Garage inspection attached _____

7. **Container Radiological Data**
   Initial Dose Rate Data _____ Smears: Date_____Time_____
   Equal to or less than hours specified prior to Load Time _____

8. **Weight Ticket**
   Load Weight _____ Rear Axle Wt._____ Drive Wt._____

9. **Off-Site Tie-Down Inspection Form (FMPC SAML 2495 REV 4/5/89)**
   Shipment No. WML-94-_____Trailer No._____Seal No. FA/WMCO_____
   A. Checked and signed in two places _____ _____

10. **LSA/RQ, LQ documentation**
    One copy in Traffic File package _____
    One copy in envelope for Driver _____
    A. Wt. checks with Tally Sheet _____
    B. Curies checks with Disposal Sheet or Tally Sheet _____
    C. Tally Sheet also in envelope _____
    D. Weight ticket in/with envelope (2 copies) _____

11. **Driver Instructions Complete (2 sets)** _____
    All Written identity & information checks _____

12. **Waste Certification Checklist present, signed and in agreement with other documentation.**
    A._____ Waste Certification Preliminary Trailer Checklist

    B._____ Waste Certification Traffic Shipment Documentation Checklist

    C._____ Waste Certification Final Trailer/Vehicle Checklist

Shipping Order signed by Certification Official _____

Shipment released on _____ at _____AM/PM

Signed _____

List Nonconformances found:

_____

_____

ATTACHMENT P
Page 1 of 1

CERTIFICATION STATEMENT LOW-LEVEL WASTE SHIPMENT FROM FEMP TO NEVADA TEST SITE

CERTIFICATION STATEMENT

LOW-LEVEL WASTE SHIPMENT FROM FEMP TO NEVADA TEST SITE

Bill of Lading No. _____	Seal Number(s) _____
Trailer No. _____	_____

I certify that the containers in Shipment No. WML _____ as listed on the attached Package Storage & Disposal Data report do not contain hazardous waste as defined in Title 40 CFR 261 or OAC 3745-54 hazardous waste regulations:

(1) according to the results of tests performed in accordance with the requirements as specified in Subpart C of Title 40 CFR 261; and/or

(2) according to the supporting documentation provided to me about the materials and processes that produced the waste.

To the best of my knowledge, I believe the information I have submitted is true, accurate, and complete.

_____
FEMP Waste Certification Official

Date: _____

Quality Certification Form
ECO-900914-1, Rev. 4 (11/23/92)

ATTACHMENT Q
Page 1 of 1

STATEMENT OF COMPLIANCE

STATEMENT OF COMPLIANCE

I have checked all packages in Shipment No. _____ to certify that each has an NV-211 label dated with a current date, and signed by either a Package Certifier or a Waste Certification Official. I fully understand the importance of the NV-211 label, and have performed this check with the utmost care to preclude any error on my part.

Caution: Sign this statement only when certain that you have performed the verification check thoroughly and accurately. If you were interuppted while checking NV-211 labels in this shipment, you are required to recheck the entire shipment prior to signing this statement.

Certified By: _____ Date _____
Waste Certification Official

ATTACHMENT R
Page 1 of 1

QUALITY CERTIFICATION TRAFFIC SHIPMENT DOCUMENT CHECKLIST

Quality Certification Traffic Shipment Document Checklist

	Bill/Lading(B/L)	Shipping Order(S.O.)
Ship #	_____	_____
B/L#	_____	_____
S.O.#	_____	_____
Trailer#	_____	_____
Date Prep	_____	_____
Mat.Type	_____	_____
Gross Wt.	_____	_____
Tare Wt.	_____	_____
Net Wt.	_____	_____
E.T.A.	_____	_____
Seal #	_____	_____
MCA sign	_____	_____
# of cont.	_____	_____
LSA/LQ/RQ	_____	_____

	Low Level Checklist		Packaging Information	
Ship #	_____		Hazard Class	_____
B/L #	_____		Material Form	_____
S.O.#	_____		Chemical Form	_____
All Checks	_____		Labels Required	_____
3 sign	_____		Packaging Type	_____

Radiation Monitoring Sheets

	Empty	Outgoing	Survey	Cab
Trailer#	_____	_____	_____	_____
Date/Time	_____	_____	_____	_____
Survey com.	_____	_____	_____	_____

*Complete liscense # _____
*Temporary Seal # _____

Container Radiological Sheets

	Date	Time	Data Complete	Ship #
Initials	_____	_____	_____	_____
Resmears	_____	_____	_____	_____

Off Site Tie Down Contaminated Articles Sheet

Ship #	_____	Curies	_____
Trailer #	_____	Signature	_____
Seal #	_____	Data Complete	_____
Sup.Sign	_____		

*3 Tally Sheets & 1 Storage/Disposal Sheet present _____
*Driver Inst. Pack complete and numbered _____
*Weight Ticket *Ft. Axle_____* Rear Axle_____* GR. Wt._____
(Maxium weight on front or rear axle 34,000 lbs.)
*Two stick-on Radioactive Placards included for Sea/Land shipments _____

ECQ-880731-1, Rev.3 (07/31/91)

ATTACHMENT S
Page 1 of 1

STRAIGHT BILL OF LADING - SHORT FORM - ORIGINAL - NOT NEGOTIABLE

STRAIGHT BILL OF LADING — SHORT FORM — ORIGINAL — NOT NEGOTIABLE

CARRIER	DATE	CARRIER'S NO.	SHIPPER'S NO.

RECEIVED, subject to the classifications and tariffs in effect on the date of the receipt by the carrier of the property described in the Original Bill of Lading.

AT FERNALD, OHIO

FROM USDOE, c/o Fernald Environmental Restoration Management Corporation
ACTING UNDER DOE CONTRACT DE-AC05-92OR21972

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western and Illinois Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back hereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee — For purpose of notification only.)

Consigned to: _____

Destination: _____ State of: _____ County of: _____

Route: _____

Delivering Carrier: _____ Vehicle No.: Tra. #

Car Initial: _____ Car No.: _____ Seal No.: FA-WMCO-

NUMBER PACKAGES	HM	DESCRIPTION OF ARTICLES, SPECIAL MARKS, AND EXCEPTIONS	* WEIGHT (Subject to Correction)	CLASS OR RATE	CHECK COLUMN

IN THE EVENT OF AN ACCIDENT OR EMERGENCY, NOTIFY THE DOE EMERGENCY OPERATIONS CENTER, OAK RIDGE, TN — 615-576-1005, COLLECT, DAY OR NIGHT.

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement.
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

FERMCO
(Signature of consignor)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

Received $ _____ to apply in prepayment of the charges on the property described hereon

Agent or Cashier

Per _____
(The signature here acknowledges only the amount prepaid.) _____

Charges Advanced:

$ _____

* If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."
NOTE - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

_____ Per _____

+ THIS SHIPMENT IS CORRECTLY DESCRIBED.
CORRECT WEIGHT IS
_____ LBS
SUBJECT TO VERIFICATION BY THE E. W. & I. BUREAU NATIONAL WT. AGREEMENT

- Shipper's imprint in lieu of stamp, not a part of bill of lading approved by the Interstate Commerce Commission

741 NO.: _____

SS - SO NO.: _____

MSO NO.: _____

EQUAL EMPLOYMENT OPPORTUNITY — The nondiscrimination clauses contained in section 202 of Executive Order 11246 relative to equal employment opportunity for all persons without regard to race, creed, color, or national origin, and the implementing rules and regulations of the President's Committee on Equal Employment Opportunity which, to the extent not inconsistent with Executive Order 11246, remain in full force and effect as those of the Secretary of Labor, are incorporated herein.

THIS SHIPMENT is subject to the terms and conditions set forth in the standard form of the U. S. Government bill of lading and to any available special rates or charges.

- This shipment is the property of and the freight charges are assumed by the U. S. Government, Subject to the provisions of Section 10721 Quotation No. (Tender No. _____ Effective _____).
- IT IS UNDERSTOOD AND AGREED THAT THIS SHIPMENT IS MADE BY THE CONSIGNOR FOR AND ON BEHALF OF THE U. S. GOVERNMENT. THAT THE CONSIGNOR IS AUTHORIZED TO AND WILL MAKE ANY PAYMENT DUE HEREUNDER AS CONSIGNOR OR SHIPPER FROM GOVERNMENT FUNDS ADVANCED AND AGREED TO BE ADVANCED TO IT BY THE U. S. DEPARTMENT OF ENERGY AND NOT FROM ITS OWN ASSETS, AND THAT NOTHING HEREIN SHALL PRECLUDE LIABILITY OF THE GOVERNMENT FOR ANY PAYMENT PROPERLY DUE HEREUNDER IF FOR ANY REASON SUCH PAYMENT IS NOT MADE BY THE CONSIGNOR FROM SUCH GOVERNMENT FUNDS.
- THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED AND LABELED, AND ARE IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION.

USDOE, c/o Fernald Environmental Restoration Management Corporation, shipper

Per _____

Permanent post office address of shipper,

P. O. BOX 398704 CINCINNATI, OHIO 45239-8704
AREA CODE 513 738-6300

_____ Agent

Per _____

FS-F-462 (REV. 1/15/93)

5690

L-LRW SHIPMENT CHECKLIST & NTS NOTIFICATION

FMPC
SECURITY, ACQUISITION & MATERIALS LOGISTICS - TRANSPORTATION SECTION
LLW SHIPMENT CHECKLIST & NTS NOTIFICATION

DATE:	SHIPMENT NO.:	B/L NO.:	SS SO NO.:	CARRIER:	TRAILER NO.:

	LSA	DEPARTURE TIME:	ETA:	NOTIFICATION TO ☐ (FTS: 575-63
	RQ	FROM:		
	LTD. QTY.	TO:		
	DRUMS	DATE:		
	WASTE CERTIFICATION CONTAINER TOTALS, WEIGHTS & CURIES OF LSA/LTD QTY - RQ SHEETS	BY WHOM:		
	BOXES	TO WHOM:		
	SIMEAR SHEETS	☐ FACSIMILE SENT	☐ DRIVER GIVEN DOSIMETER BAC	
	WASTE MANAGEMENT STORAGE & DISPOSAL SHEETS DELIVERED — PER NTS	MONITORING REPORTS:		
	TALLY SHEETS			
	CARRIER/DRIVER INSTRUCTION PACK (2)			
	NEVADA PERMIT			
	INCOMING/EMPTY BEFORE LOADING			
	OUTGOING/LOADED			
	TRACTOR CAB			
	OFFSITE LOADING-TIE DOWN-VEHICLE INSPECTION REPORT			
	WEIGHT TICKET			
	CHECKED TALLY SHEET (BY CHECKER)			

DOCUMENTS RECEIVED:
COPY OF B/L, TALLY SHEET, INSTRUCTION PACK, NEVADA PERMIT, & ENVELOPE FOR CONSIGNEE WITH TALLY SHEET & MEMO B/L

SPECIALIST AVTRAPRO:	TRANSPORTATION SUPERVISOR REVIEW:	TRAFFIC MANAGER REVIEW:

	CONDITION OF CONTAINERS	LOADERS:
	CONTAINER PROPERLY LABELED	
	RADIOACTIVE PLACARDS (FOR LSA ONLY)	
	ENVELOPE WITH STORAGE & DISPOSAL SHEETS AND TALLY SHEETS IN TRAILER	
	TRAILER LINED WITH PLASTIC & CARDBOARD ON FLOOR— SCRAP WOODEN PALLETS AND/OR BOXES ENCLOSED WITH PLASTIC AS ONE PACKAGE	

Transportation Supervisor: _____

ATTACHMENT U
Page 1 of 1

VEHICLE RADIATION MONITORING REPORT

FEMP
ES&H - RADIOLOGICAL CONTROL
VEHICLE RADIATION MONITORING REPORT Page _____ of _____

DATE MONITORED:	TIME:	TECHNICIAN (PRINT):	TECHNICIAN (SIGNATURE):

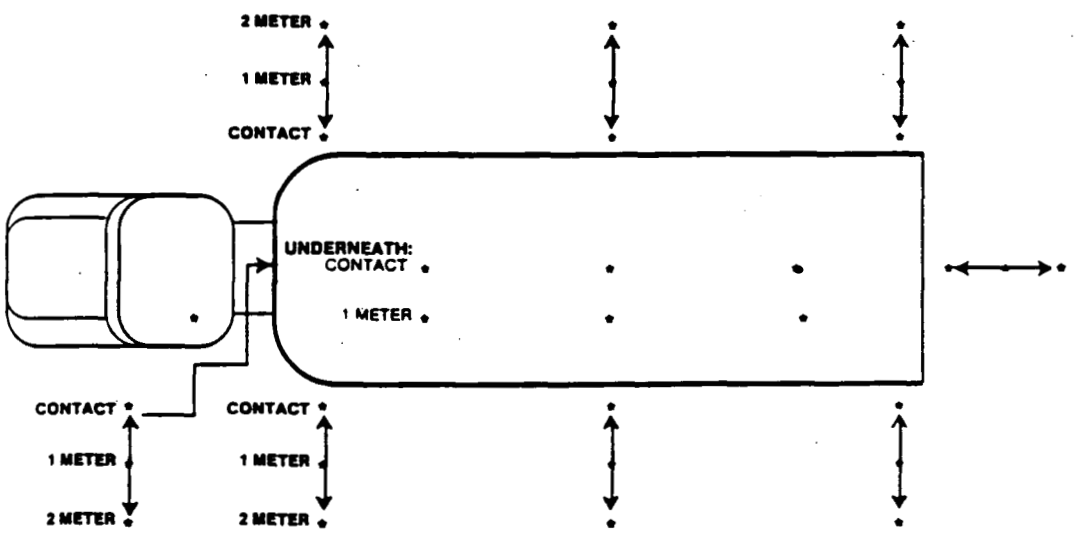
CARRIER NAME:

VEHICLE TYPE: ☐ TRACTOR ☐ TRAILER ☐ OTHER MOTOR VEHICLE ☐ RAILCAR ☐ OPEN FLATBED ☐ COVERED
☐ OTHER (EXPLAIN): _____

LICENSE NO. (IF MOTOR VEHICLE):	STATE:	TRAILER OR RAILCAR IDENTIFICATION:	SEAL NUMBER:

VEHICLE STATUS:
☐ (a) OUTGOING
☐ (b) INCOMING
☐ (c) OUTGOING EMPTY
☐ (d) EMPTY, BEFORE LOADING
☐ (e) OTHER: _____

Dose rate shown by asterisks in mr/hr.
Swipe Locations circled.



(1) Same locations apply to van-type trucks. For railcars, disregard cab section but show dose rates found at each end.
(2) Measurements at 1 or 2 meters not required if all readings at vehicle surface are not greater than 2 mrem/hr.

SURVEY INSTRUMENTS USED	TYPE:	MODEL NO:	SERIAL NO	CALIBRATION DUE
	TYPE	MODEL NO	SERIAL NO	CALIBRATION DUE

NO.	DISTRIBUTION OF COPIES
1	RADIOLOGICAL SAFETY (RECORD COPY)
2	TRAFFIC SUPERVISOR
3	QUALITY ASSURANCE

REVIEWED BY:	DATE

FS-F-1596-1 (REV. 2/19/93)

ATTACHMENT V
Page 1 of 1

OFF-SITE LOADING TIE-DOWN INSPECTION - VEHICLE INSPECTION

SECURITY, ACQUISITION & MATERIALS LOGISTICS DEPARTMENT - TRANSPORTATION SECTION

OFFSITE LOADING — TIE DOWN INSPECTION — VEHICLE INSPECTION

Date: _____

CONSIGNEE	CARRIER	TRAILER NO.	SEAL NO.
			FA-WMCO

CRATE/BOX/DRUM/SEA LAND CONTAINER NUMBER:

LSA _____
LSA-RQ _____
LQ _____
LQ-RQ _____
TOTAL _____

DISCREPANCIES DETECTED	CORRECTED YES	CORRECTED NO	SHIPMENT REJECTED YES	SHIPMENT REJECTED NO

Checked By _____ SIGNATURE - CHECKER

TIE-DOWN INSPECTION AND CHECK-OFF SHEET

INSPECTION ITEM	YES	NO
Wood shoring installed to prevent longitudinal or lateral movement		
Steel strapping around the cargo securing as a stable structure		
When weight exceeds, commodore divided into two units, one front and one rear of trailer not exceeding approximately 20,000 pounds each		
"U" steel strapping utilized (5400 lbs. minimum tensile strength)		
each anchor plates or "U" bolts fastened to underframe (each side of unit) placed and secured for transverse bands over unit)		
Four each anchor plates or "U" bolts fastened to underframe (two for each band) placed under each unit and secured for two longitudinal bands, securing the passenger side and one right unit, anchoring to the floor of the trailer		
Two Signode seals No. 107 crimped whenever two bands are used on one over one top layer		
Anchor and anchor plates secured with eight each 2" nails		
Sea Land Containers ..... 4 each nylon straps		
..... Chains		
..... 2 X 4s		

VEHICLE INSPECTION REPORT

CONDITION	PASS	FAIL	CONDITION	PASS	FAIL	CONDITION	YES	NO
Condition of Floor			Condition of Sides			Detected Sabotage Devices		
Condition of Interior			Condition of Exterior					
Condition of Roof			Condition of Rear Doors			Detected Evidence of Sabotage		

Overall Appearance: _____ General Comments: _____

Accepted: _____ Rejected: _____

Checked By: _____ SIGNATURE - TRANSPORTATION SUPERVISOR

NO. | DISTRIBUTION OF COPIES
1 | Transportation Section RECORD COPY
2 | Land-Use Adm. Office

ATTACHMENT W
Page 1 of 1

QUALITY CERTIFICATION FINAL TRAILER CHECKLIST

Quality Certification Final Trailer Checklist

Trailer Number:_____

1. Verify the driver has performed a safety inspection of vehicle prior to departure from the site .

   Headlights (low & high beams) _____
   Turn signals (front & rear) _____
   Brake Lights _____
   Horn _____
   Windshield Wipers _____
   Tires (minimum 2/32" on trailer) _____
   Tires (minimum 4/32" on tractor) _____

Comments:_____
_____

2. Verify the envelope containing the Storage & Disposal Sheet and Tally Sheet having the correct Seal #, Shipment #, and trailer #, is in trailer .

   Seal Number _____
   Shipment Number _____
   Trailer Number _____

3. Verify that a DOT approved seal has been placed on the trailer doors when replacing the temporary seal that the ERMT has applied after monitoring the vehicle .

   Temporary Seal Number _____
   DOT Seal Number _____

4. Verify the proper placards are in place,as required
   Material Type (LSA or LQ) _____
   PlacardType (Radioactive or Drive Safely) _____

5. Verify that packages are properly tied-down as specified by SOP-TRF-46-C-110. Sea/Land containers shall be secured with four straps on each container, and shall be both chained and blocked with a 2X4 on front and back of load. _____

Date Shipped:_____ Time Shipped:_____

I hereby certify that the above checklist has been completed and witness that all the above items are correct to the best of my knowledge.

Signed:_____ Date:_____
Quality Certification Specialist

ECQ-880801, Rev.3 (01/27/93)

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ATTACHMENT X
Page 1 of 1

FACSIMILE SERVICE FORM

(EXHIBIT)

FERMCO
Environmental Management Corporation

P. O. BOX 398704
CINCINNATI, OHIO 45239-8704

FACSIMILE SERVICE

Date: _____
To: Bruce Becker
Organization & Location: REECO/Nevada
Facsimile No. Calling: (702) 295-6852
From: Sheryl Tomes Phone: (513) 738-8653

This message consists of _____ pages (excluding cover sheets).

c: File Record Storage Copy 106.4.4

REMEDIATION SUPPORT OPERATIONS PROCEDURE	Low Level Radioactive Waste (LLRW) Shipment Preparation 5690	SOP 01-C-602 Area: Plants 1 & 6
(Signature on File) Authorization: H. Bailey, Material Management Manager	Supersedes: 01-C-602 Dated: 08-21-90	Issue Date: 11-12-91

1.0 **PURPOSE**

This document provides the procedure for preparing LLRW for shipment offsite.

NON-CONTROLLED COPY

2.0 **APPLICABILITY**

This procedure is applicable to LLRW shipped from Plants 1 and 6.

3.0 **RESPONSIBILITIES**

3.1 Supervisors shall be responsible for the following:

3.1.1 Coordinating with support organizations if assistance is required.

3.1.2 Determining disposition of items.

3.1.3 Ensuring packaging materials are available for operators.

3.1.4 Designating area for rejected containers.

3.1.5 Notifying shipment coordinator of rejected container(s).

3.1.6 Contacting Industrial Hygiene or Radiological Control to determine the appropriate respiratory protection for the task being performed.

3.1.7 Obtaining approval for the use of paints, sealants, caulking, or absorbents to be used.

3.1.8 Providing operators with the required respiratory protection.

3.1.9 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.1.10 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.11 Authorizing waste shipments.

3.2 **Radiation Control Technicians (RCT)** shall be responsible for surveying containers classified as low level radioactive waste.

3.3 **Waste Shipment Coordinators** shall be responsible for preparing and coordinating documentation required for a waste shipment.

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3.0 RESPONSIBILITIES (cont.)

3.4 **Operators** shall be responsible for complying with this SOP.

3.5 **Quality Assurance (QA)** shall be responsible for the following:

3.5.1 Certifying containers for shipment.

3.5.2 Issuing a deviation report for damaged containers.

3.6 **Materials Control and Accountability (MC&A)** shall be responsible for providing shipping documentation.

4.0 DEFINITIONS

4.1 Waste Generator - Organization (point of generation) at which waste is originated.

4.2 Transport Index - A dimensionless (rounded up to the first decimal place) number placed on the label of a package to designate the degree of criticality control to be exercised by those handling the package.

5.0 APPLICABLE DOCUMENTS

5.1 Drivers

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

5.1.2 "FEMP Conduct of Operations Manual"

5.1.3 RM-0012, "Quality Assurance Program Description"

5.2 References

5.2.1 SOP 20-C-912, "Checking Scale Operation"

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 Safety glasses with side shields shall be worn unless other eye protection is specified by ES&H.

6.2 Respiratory protection provided by the supervisor shall be worn when required by ES&H.

6.3 Leather-palmed gloves shall be worn to protect the hands from rough material and contamination.

6.4 HEPA type filter vacuum cleaners or an ES&H approved vacuum system with a current DOP test sticker affixed to vacuum shall be used for cleaning.

6.5 Operators shall have reviewed and be familiar with MSDSs for the chemicals/hazardous materials that may be used or encountered.

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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 ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IRR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.7 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IRR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 General

7.1 Warnings, Cautions, and Notes precede the Step or Item to which they apply.

8.0 PROCEDURE

8.1 Drum Preparation

8.1.1 Move drum for shipment to the staging area.

8.1.2 Check the drum for damage (such as dents, rust, holes, cracks, water leaks, and defects).

8.1.2.1 If drum is damaged, mark damaged container with a red "X" on the lid.

8.1.2.2 Contact supervisor for area of disposition.

8.1.2.3 Move damaged drums to area designated by supervisor.

8.1.3 Check outside of drums for moisture.

8.1.3.1 If moisture is found, wipe the drum with a rag.

8.1.3.2 Dispose of rag in a designated container.

8.1.4 Using a certified break-away torque wrench, tighten the lock ring bolt to 45 (±5) ft-lbs.

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8.0 **PROCEDURE** (cont.)

8.1.5 Manually tighten the locking nut against the right (threaded) flange (See Figure 1).

8.1.6 Using a wrench, tighten the locking nut ¼ turn.

8.1.7 Dab the bolt with red paint as a visual code designating that tightening has been completed.

8.1.8 Thread safety wire through hole in either the bolt head or threaded portion of bolt and around threaded portion of bolt ring (See Figure 1).

8.1.9 Secure the wire.

8.1.10 Notify supervisor to request the Waste Shipment Coordinator to assign shipment log number, container identification number and waste stream identification number.

NOTE 1: The drum number shall be used as the container identification number.

NOTE 2: Waste packages shall be marked with a 13 digit alphanumeric waste stream identification number, log number, and a six digit numeric container identification number unique to each shipment. Container identification numbers less than six digits shall be preceded by zeros (such as changing container #25432 to #025432 or container #5 to #000005).

NOTE 3: The shipment log number, container identification number, and waste stream identification number shall be marked in 1½-inch (minimum) letters on drums and wooden boxes and 1-inch on metal boxes using black waterproof ink or paint.

8.1.11 Stencil or mark assigned shipment log number, container identification number, and waste stream identification number on the top center of container (See Figure 2 for drums, Figure 4 for wooden boxes, and Figure 5 for metal boxes).

8.1.12 Using paint, touch-up scratches on the container.

8.1.13 Notify MC&A that a "LLRW Shipment Preparation Worksheet", Form FS-F-3470 is required.

8.1.14 Notify supervisor that an RCT is required to survey container.

8.1.15 Place a plastic cover over the drum after the survey is complete.

8.1.16 Move the drum to the holding area.

8.1.17 Notify MC&A of drum relocation.

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8.0 **PROCEDURE** (cont.)

Wooden Box Preparation

NOTE: MC&A shall complete documentation to release box from to storage.

8.2.1 Notify MC&A of boxes requiring transfer to staging area for shipment.

8.2.2 After MC&A has completed release documentation, move the box to the applicable staging area.

8.2.3 Check the box for damage (such as holes, cracks, water leaks, and defects).

8.2.3.1 Mark damaged boxes with a red "X" on the side.

8.2.3.2 Contact supervisor for area of disposition.

8.2.3.3 Move damaged boxes to area designated by supervisor.

8.2.3.4 Notify MC&A of damaged box requiring transfer to storage.

8.2.4 Check inside and outside of box for moisture.

8.2.4.1 Using a rag, remove moisture from the outside of the container.

8.2.4.2 Dispose of rag in designated container.

.2.4.3 If moisture is inside container, add uncalcined diatomaceous earth or wet-strength, polypropylene-pulp, super-absorbent fabric.

8.2.5 Obtain the applicable "Item Production/Certification/Identification" (65 Card), Form FS-F-1945-XX from the Waste Shipment Coordinator.

8.2.6 Ensure that information on the form corresponds with box identification and contents.

8.2.6.1 Notify supervisor if card is not complete.

8.2.6.2 Return the card to Waste Shipment Coordinator.

NOTE: Supervisor shall specify the scale to be used.

8.2.7 Using a forklift, move box to scale for weighing.

8.2.8 If not previously done, inspect the scale per SOP 20-C-912.

8.2.9 Using the forklift, move the box onto the scale.

8.2.10 Weigh the box.

8.2.11 Stamp the weight on 65 card.

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8.0 **PROCEDURE** (cont.)

8.2.12 Apply GE-RTV Silicone adhesive (or equivalent) in a continuous bead (¼-inch minimum to ½-inch maximum) on top edges of the vertical ¾-inch panel lid.

8.2.13 Place lid on box.

8.2.14 Secure lid using 10 penny nails on three-inch centers and two 16-penny galvanized nails on side panel into each 2-inch x 4-inch on top panel (eight places).

8.2.15 Band the box vertically with three 1¼-inch metal bands by placing one band on each end of the box and one in the middle (See Figure 3).

8.2.16 Perform Steps 8.1.10, 8.1.11, and 8.1.13 thru 8.1.17.

8.3 Metal Box/Type A-7A Metal Box Preparation

8.3.1 Notify MC&A of boxes requiring transfer to staging area for shipment.

8.3.2 After MC&A completes documentation to release box for shipment preparation, move the box to the Waste Operations Staging Area.

8.3.3 Break the temporary seal and remove lid.

8.3.4 Check inside and outside of box for moisture.

8.3.4.1 Using a rag, remove moisture from outside the container.

8.3.4.2 Dispose of rag in designated container.

8.3.4.3 If moisture is inside the container, add uncalcined diatomaceous earth or wet-strength, polypropylene-pulp super-absorbent fabric.

8.3.5 Check the container for damage (such as dents, rust, holes, cracks, water leaks, and defects).

8.3.5.1 Mark the side of damaged containers on the side with a red "X".

8.3.5.2 Contact supervisor for area of disposition.

8.3.5.3 Move damaged containers to area designated by supervisor.

8.3.6 Using a forklift, place box on the stand.

8.3.7 Remove the forks.

8.3.8 Check bottom of the box for dents, holes, or stress cracks.

8.3.8.1 If a dent is deep or metal is protruding more than one inch from the box surface, reject the box.

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8.0 **PROCEDURE** (cont).

.9 Check the bottom of the box for a drain hole/plug.

..3.9.1 If there is a drain hole but no plug, contact supervisor.

8.3.9.2 If a drain hole/plug is present, tighten the drain plug.

8.3.9.3 Paint red dot on opposite sides of box to indicate plug has been tightened.

8.3.9.4 If drain hole/plug is not present, paint a black dot on the opposite sides of box to indicate that the box has been checked for drain holes.

8.3.10 Check each runner on box for two drain holes.

8.3.10.1 If drain holes are not present, drill holes in runner.

8.3.11 Place a check mark next to red or black dot to indicate that runners have been checked.

8.3.12 Obtain the "Item Production/Certification/Identification" (65 Card), Form FS-F-1945-XX from Waste Shipment Coordinator.

8.3.13 Check that information on the card corresponds with box identification and contents.

8.3.13.1 Notify supervisor if card is not complete.

.3.13.2 Return card to Waste Shipment Coordinator.

8.3.14 Check that the lid gasket is in place and undamaged.

8.3.14.1 If gasket is missing or damaged, install a new gasket or apply a bead of GE-RTV silicone adhesive (or equivalent) (¼-inch to ½-inch) around the top edges of the vertical ¾-inch panel lid.

8.3.15 Using a forklift, position the lid on box.

NOTE: The supervisor shall specify the scale to be used.

8.3.16 Using forklift, move box to scale for weighing.

8.3.17 If not previously completed, inspect the scale to be used in accordance with SOP 20-C-912.

8.3.18 Using the forklift, move the box onto the scale.

8.3.19 Weigh the box.

8.3.20 Stamp the weight on 65 card.

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8.0 **PROCEDURE** (cont.)

.3.21 Perform Steps 8.1.10, 8.1.11, and 8.1.13.

8.3.22 Close metal box in accordance with box type per Item 8.10.

8.3.23 Notify supervisor that an RCT is required to survey box.

8.3.24 Move box(s) to holding area.

8.3.25 Notify MC&A of box relocation.

8.4 Sea/Land Container Preparation

8.4.1 Notify MC&A of containers requiring shipment preparation.

8.4.2 After MC&A releases containers for shipment preparation, check for damage (such as dents, rust, holes, cracks, leaks, and defects).

NOTE: MC&A shall complete documentation to release box to storage.

8.4.2.1 Mark a red "X" on the door of damaged containers.

8.4.2.2 Contact the supervisor for disposition.

8.4.2.3 Notify MC&A of damaged containers requiring transfer to storage.

9.4.3 Inspect contaminated doors and caulking for water.

8.4.3.1 If water is found, notify the supervisor.

8.4.4 Obtain the "Item Production/Certification/Identification" (65 Card), Form FS-F-1945-XX from the Waste Shipment Coordinator.

8.4.5 Ensure information on the card corresponds with container identification.

8.4.5.1 Notify supervisor if card is not complete.

8.4.5.2 Return card to the Waste Shipment Coordinator.

NOTE: Waste packages shall be marked with the a 13 digit alphanumeric waste stream identification number and a six digit container identification number unique to each shipment.

8.4.6 Notify supervisor to request the Waste Shipment Coordinator and MC&A to assign a shipment log number, container identification number, and waste stream identification number.

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8.0 PROCEDURE (cont.)

Stencil or mark assigned shipment log number, container identification number and waste stream identification number in one inch (minimum) black or legible letters with waterproof ink or paint on the sides of container (Refer to Figure 6).

8.4.7.1 For containers with seven digit numbers, change the number to six digits by deleting the suffix (such as changing 178936-1 to 178936).

8.4.8 Notify supervisor that a Radiological Control Technician is required to survey container.

8.4.9 Write the shipping document using a "LLRW Shipment Preparation Worksheet."

8.5 Container Verification

8.5.1 Notify supervisor that the shipment documentation requires completion by the Waste Shipment Coordinator.

8.5.2 After documentation verification is complete, move the shipment to staging area for final preparation.

8.5.3 Notify supervisor that a smear test of the container is required within the time period specified by ES&H.

8.6 Drum Shipment Inspection

..1 Check drum for damage (such as dents, rust, holes, cracks, water leaks, and defects).

8.6.1.1 Mark the lid of damaged drums with a red "X".

8.6.1.2 Stop the shipment.

8.6.1.3 Notify the supervisor.

8.6.1.4 Move the damaged drum to the area designated by supervisor.

8.6.1.5 Notify MC&A of drum relocation.

NOTE: The shipment log number, container identification number, and waste stream identification number shall be marked in one-inch block (minimum) letters using black waterproof ink or paint.

8.6.2 Check that the shipment log number, container identification number, and waste stream identification number are present and legible.

8.6.2.1 If not, notify the supervisor.

8.0 **PROCEDURE** (cont.)

.6.3 Check that the gross weight is marked in two-inch (minimum) letters on each drum.

8.6.3.1 If not, notify the supervisor.

8.6.4 Ensure that the jam nut is locked to opposite side of bolt head with flat side against ring harness.

8.6.5 Ensure safety wire is installed on bolt.

8.6.6 Check bolt ring/drum seal to ensure proper seating of locking ring.

8.6.7 Using paint, touch-up scratches.

8.6.8 Check for moisture on outside of drum.

8.6.8.1 Using a rag, remove moisture.

8.6.8.2 Dispose of rag in designated container.

8.6.9 Stencil the LSA (Low Specific Activity), LQ (Limited Quantity) or RQ (Reportable Quantity) on drum or affix appropriate label.

8.7 Wooden Box Shipment Inspection

8.7.1 Check box for damage (such as holes, cracks, water leaks, or defects).

8.7.1.1 If a box is damaged, stop shipment.

8.7.1.2 Mark the side of box with a red "X".

8.7.1.3 Notify supervisor.

8.7.1.4 Move the damaged box to area designated by supervisor.

8.7.1.5 Notify MC&A of box relocation.

NOTE: The shipment log number, container identification number, and waste stream identification number shall be marked in one inch (minimum) letters using black waterproof ink or paint.

8.7.2 Check that the shipment log number, container identification number, and waste stream identification number are present and legible.

8.7.2.1 If data is missing or illegible, notify the supervisor.

8.7.3 Ensure gross weight is marked in two-inch (minimum) letters on each box.

8.7.3.1 If not, notify the supervisor.

8.7.4 Ensure that three metal bands are secure.

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8.0 PROCEDURE (cont.)

8.7.5 Check that the bands are located vertically with one in the center and the remaining two equidistant from the center.

8.7.6 Check for moisture on the outside of the box.

8.7.6.1 Using a rag, remove moisture.

8.7.6.2 Dispose of rag in designated container.

8.7.7 Stencil LSA, LQ or RQ on box or affix appropriate label.

8.8 Metal Box Shipment Inspection

8.8.1 Check for damage (such as dents, rust, holes, cracks, water leaks, and defects).

8.8.1.1 Mark side of a damaged box with a red "X".

8.8.1.2 Contact the supervisor for area of disposition.

8.8.1.3 Using forklift, move damaged box to area designated by supervisor.

8.8.1.4 Notify MC&A of box relocation.

8.8.2 Check the side of the box for a red dot that indicates that the drain plug is secure or a black dot indicating that there is no plug or drain hole.

8.8.2.1 If there is no red or black dot, perform Step 8.3.9.

8.8.3 Ensure wedge type pins (if used) are secure.

8.8.3.1 If the locking notch of the pin is ¼-inch or below the box strips, replace the pin.

8.8.3.2 If pin angle is less than or greater than 90 degrees, replace the pin.

8.8.4 Ensure bolt type locking devices (if used) are secure.

8.8.5 Check that the shipment log number, container identification number, and waste stream identification number are present and legible.

8.8.5.1 If not, notify the supervisor.

8.8.6 Ensure the shipment log number, container identification number, and waste stream identification number is marked in 1-inch (minimum) letters with black waterproof ink or paint.

8.8.7 Visually verify that gross weight is marked in two inch (minimum) letters on box.

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8.0 **PROCEDURE** (cont.)

8.8 Ensure two bands (if used) are located vertically on box, secure, and equidistant from center.

8.8.9 Using paint, touch-up scratches (if any).

8.8.10 Check for moisture on box.

8.8.10.1 Using a rag, wipe moisture from the box.

8.8.10.2 Dispose of rag in designated area.

8.8.11 Stencil LSA, LQ, or RQ on box or affix appropriate label.

8.9 Sea/Land Container Shipment Inspection

8.9.1 Check the sea/land container for structural damage (such as structurally affecting dents. severe rust, holes, stress cracks, flaking paint, or water leaks).

8.9.1.1 Mark the door of damaged containers with a red "X".

8.9.1.2 Contact supervisor for area of disposition.

8.9.1.3 Move damaged container to area designated by supervisor.

8.9.2 Check for markings not pertaining to load.

8.9.2.1 Using paint, obliterate markings.

8.9.3 Check that the shipment log number, waste stream identification number, lot number, gross, tare, and net weights, and container identification number are present and legible.

8.9.3.1 If not, notify the supervisor.

8.9.4 Ensure the shipment log number, container identification number, and waste stream identification number are marked in one inch (minimum) letters with black waterproof ink or paint.

8.9.5 Ensure that gross weight is marked in two inch letters (minimum) on side of container.

8.9.6 Check around doors and sealing surfaces for caulking.

8.9.6.1 Notify the supervisor if doors/surfaces are not caulked.

8.9.7 Ensure doors are closed.

8.9.8 Check that doors are secured by two bands.

8.9.8.1 If not, notify the supervisor.

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8.0 **PROCEDURE** (cont.)

.9 Ensure that bottom edge and forklift indentations of container are clean.

8.9.10 Stencil LSA (Low Specific Activity), LQ (Limited Quantity) or RQ (Reportable Quantity) on box or affix appropriate label.

8.10 Final Documentation Prior to Loading

NOTE 1: The Materials Management Supervisor shall authorize the release of each shipment by signing the "Waste Shipment Authorization Checklist," Form No. QA:WC:06.

NOTE 2: QA shall affix certification sticker NV-211 to each container and authorize container.

NOTE 3: MC&A shall prepare a shipping order (Form FMPC-CONT-558) for nuclear material.

8.10.1 Notify supervisor that shipment is ready for loading.

8.11 Closing Metal Boxes

8.11.1 7A Type Box with Clip Style Retainer (See Figure 7)

8.11.1.1 Remove the lid edge protector from the container.

11.1.2 Position the container lid on edge at an angle with the bottom facing out and leaning against the container.

8.11.1.3 Install a neoprene sponge rubber gasket on the lid sealing surface.

8.11.1.4 Place the lid into position on top of the container.

NOTE 1: Four clips shall be in place on each side of the container, three clips in front and three in back for a total of 14 clips.

NOTE 2: The clips are the primary container closing/locking devices.

8.11.1.5 Using the tool provided, install "L" clips in sequence on corners, sides, front, and back of the container.

8.11.1.6 Using a wide edged blunt chisel, bend the bottom edge of the clip locking strap inward until the strap is secured.

8.11.1.7 Install the Lid Edge Protector on the container.

8.11.1.8 Using ⅜-inch x 16-inch hex bolts, washers, and hex head elastic stop nuts, secure the edge protector on the container.

8.11.1.9 Finger tighten each hex nut.

8.0 **PROCEDURE** (cont.)

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8.11.1.10 Tighten the hex bolts until a minimum of two threads are visible beyond the nut.

8.11.2 Metal Box with Wedge Type Pins (See Figure 8)

> **CAUTION**
>
> Do not use pins if the notches are ¼-inch or more below the box straps or if the angle of pin is less than or greater than 90 degrees.

8.11.2.1 Insert pins through the straps located on the upper perimeter of the box so that the locking notches are below the straps.

NOTE: Metal band shall be 1-¼-inch wide X .044-inch thick, mangus P/W (paint/waxed), tensile strength of 7,610 lbs, 5.3 ft-lb, 100 lbs/coil, located equidistance from center.

8.11.2.2 Band box with two metal bands.

8.11.3 7A Type A Box with Positive Closer Bolt (See Figure 9)

8.11.3.1 Using forklift, remove lid from the container.

8.11.3.2 Install a neoprene sponge rubber gasket on the lid sealing surface.

8.11.3.3 Place the lid into position on container.

8.11.3.4 Put washers in place and insert bolt through holes in lid and lip on container per Figure 9.

8.11.3.5 Tighten bolts with impact wrench.

9.0 **APPLICABLE FORMS**

None

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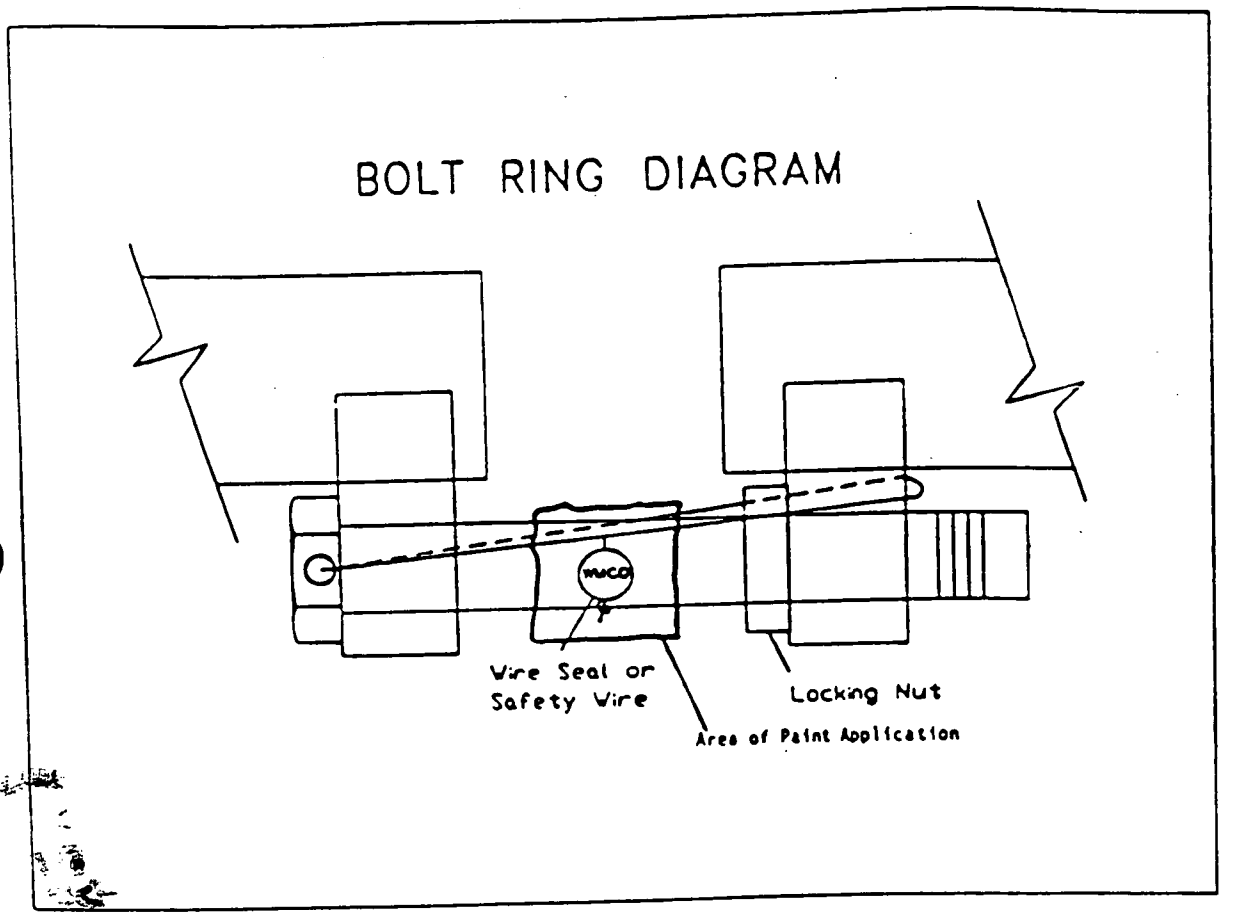

LOCK RING PAINT AND BOLT AND SAFETY WIRE INSTALLATION
Figure 1

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TYPICAL CONTAINER MARKINGS & LABELS FOR OFFSITE SHIPMENT

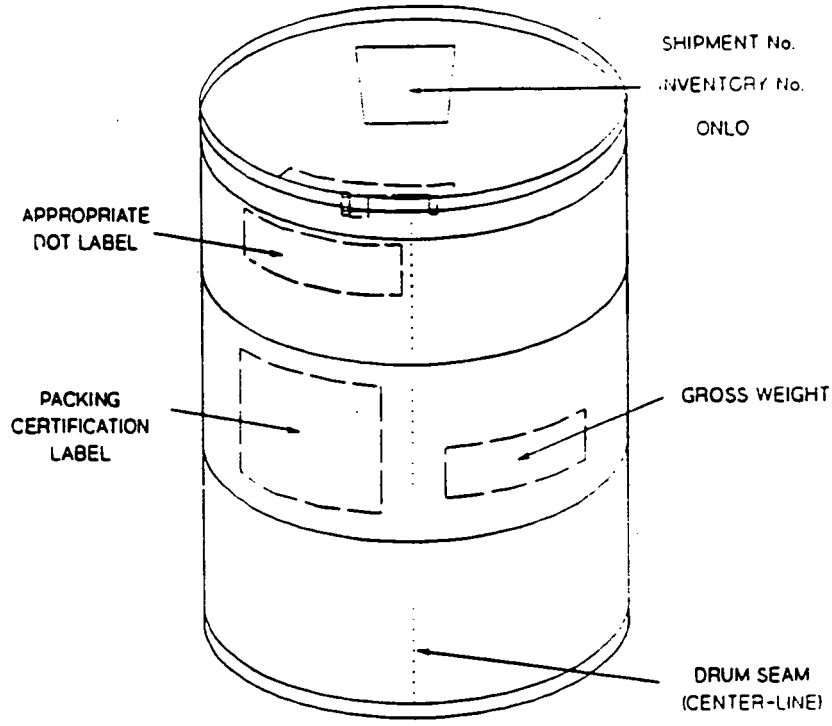
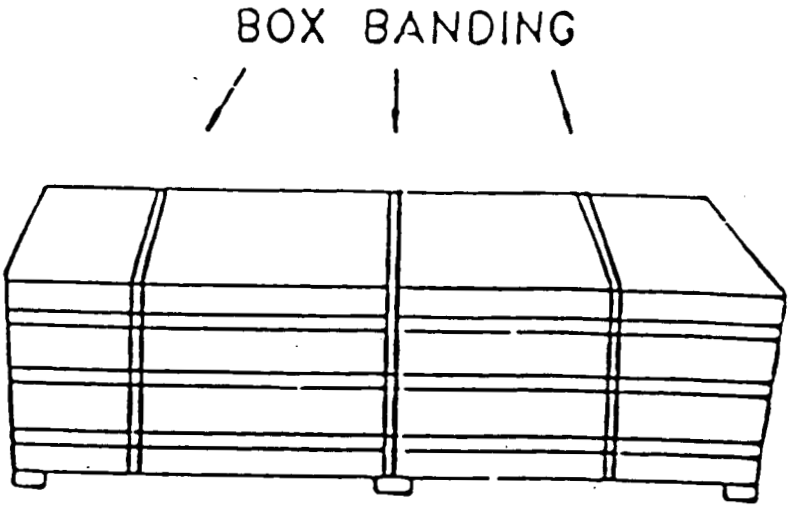


DIAGRAM OF DRUM IDENTIFICATION
Figure 2

0 4 0 6 : 5690



WOODEN BOX BANDING
Figure 3

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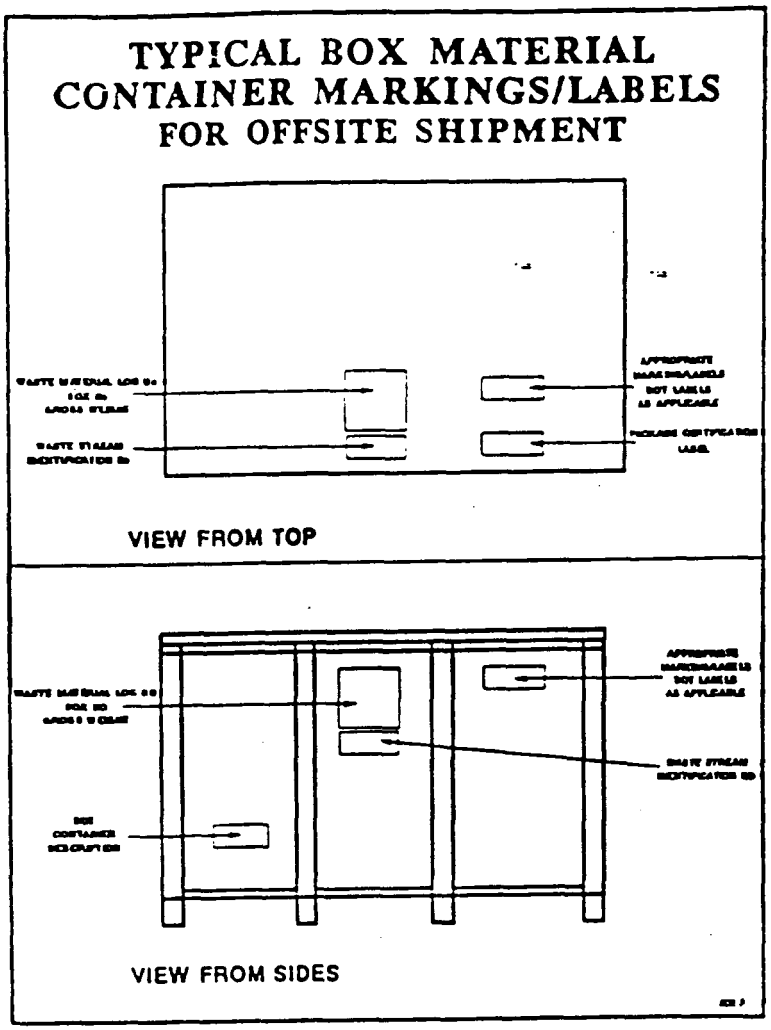

DIAGRAM OF WOODEN BOX IDENTIFICATION
Figure 4

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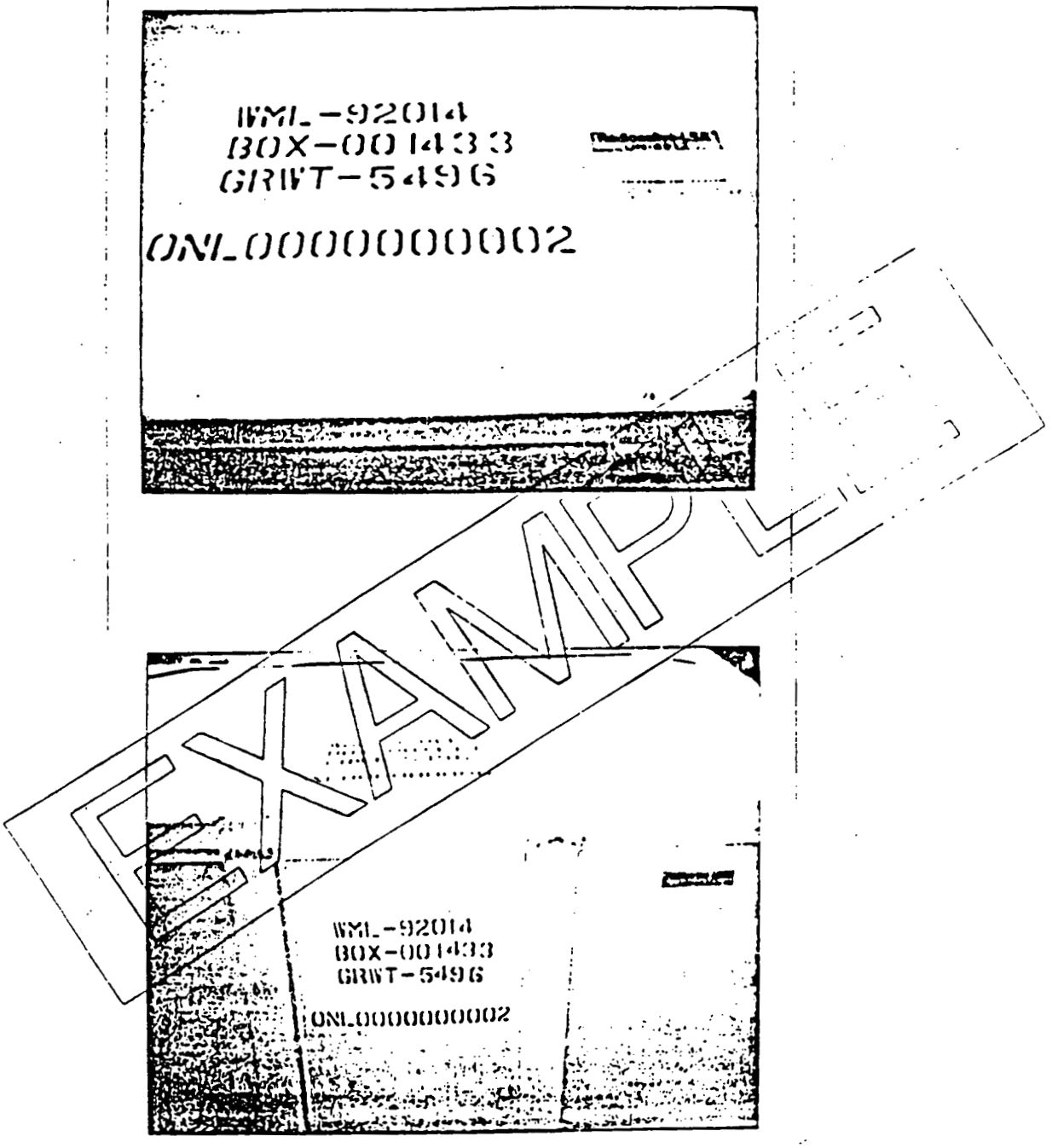

DIAGRAM OF METAL BOX IDENTIFICATION
Figure 5

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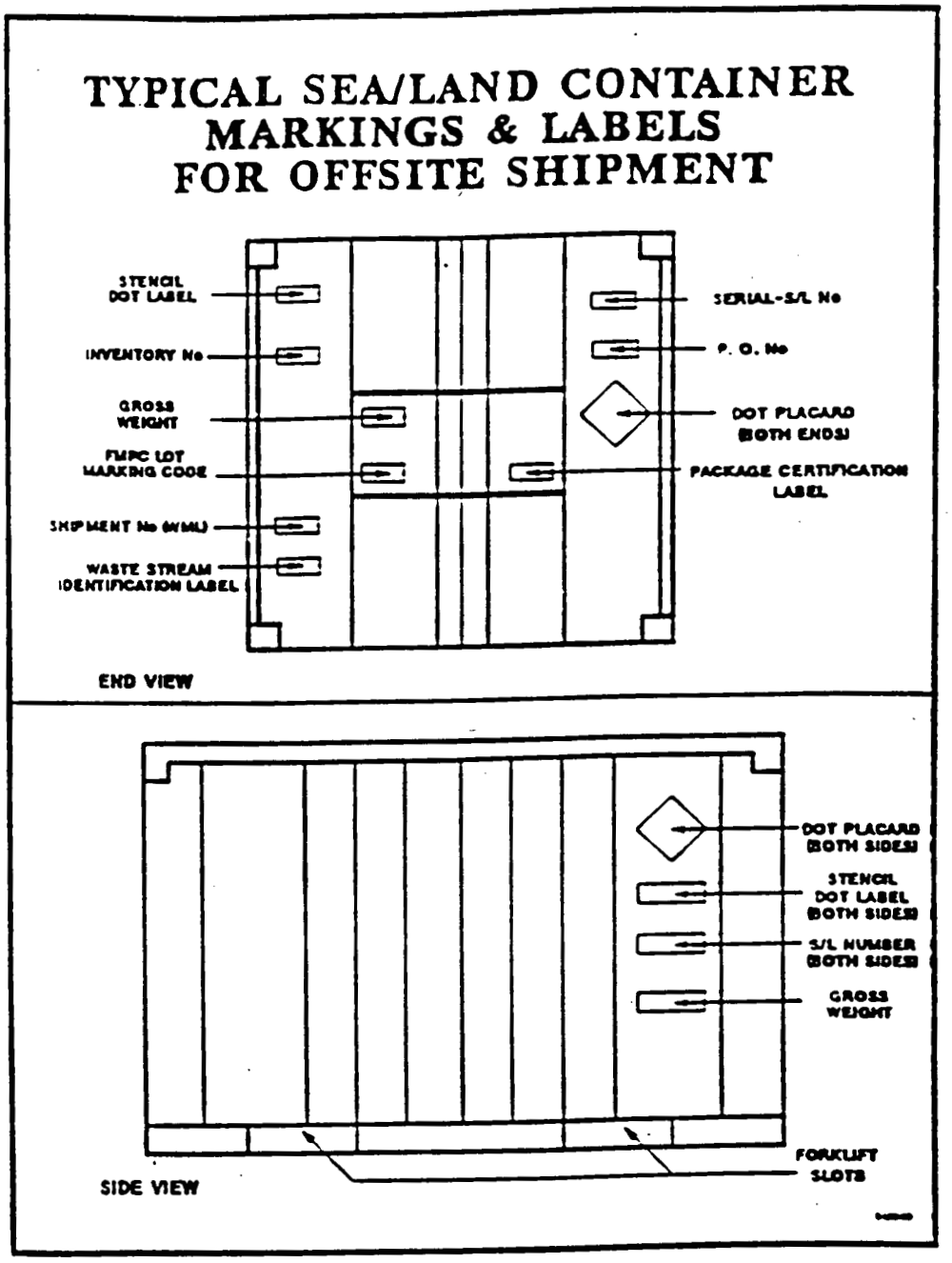

DIAGRAM OF SEA/LAND IDENTIFICATION
Figure 6

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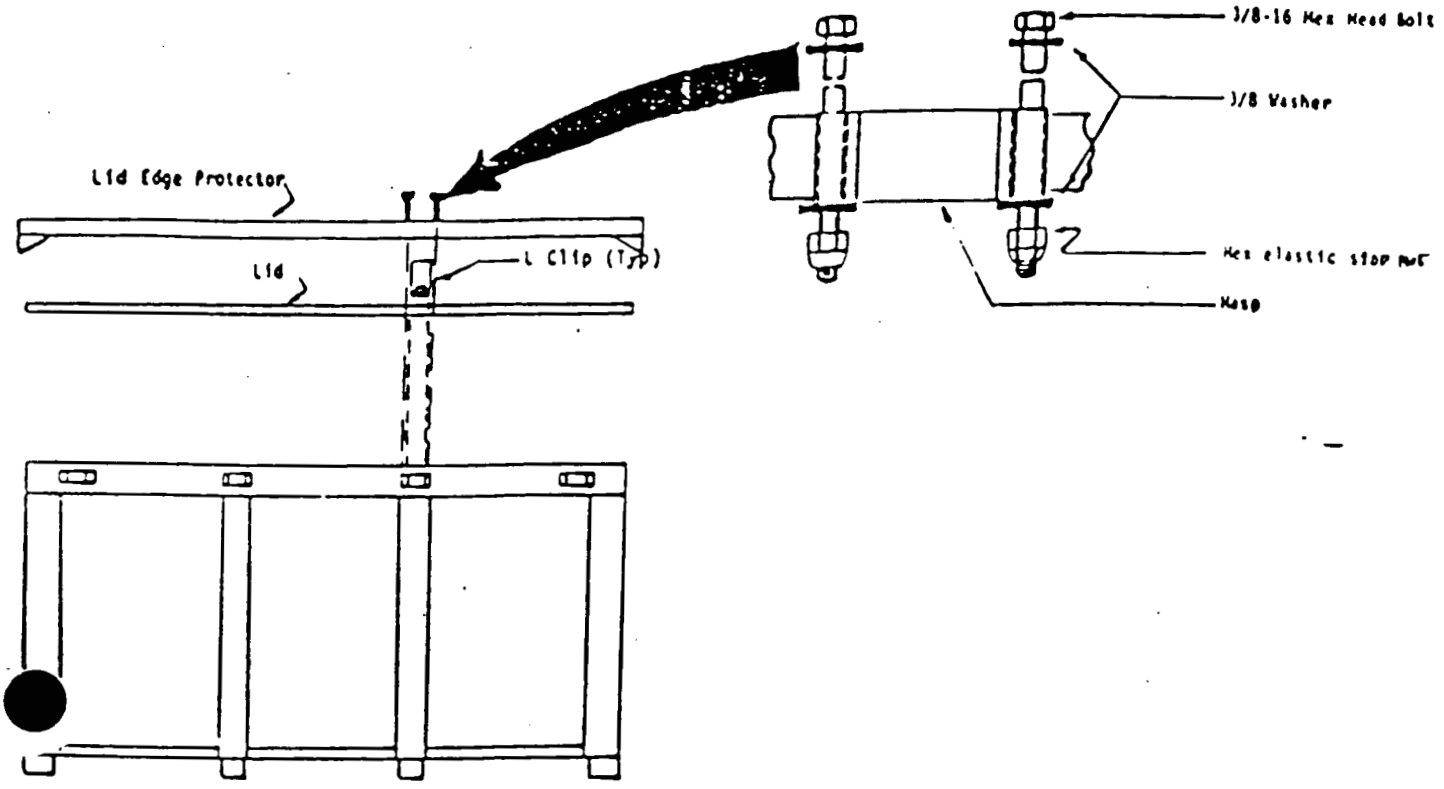

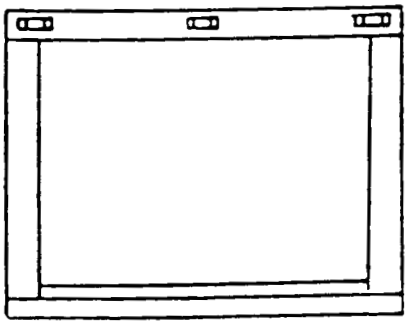

LID INSTALLATION FOR 7A TYPE A BOX WITH CLIP STYLE RETAINER
Figure 7

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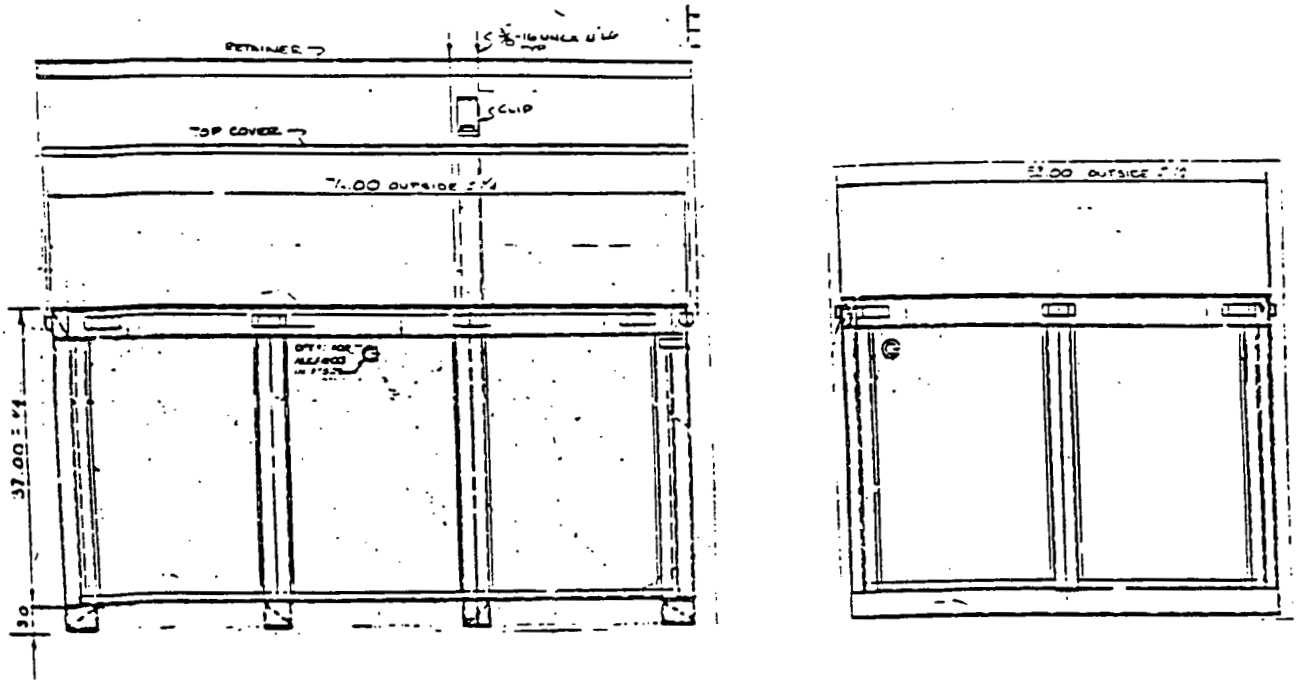

LID INSTALLATION FOR METAL BOX WITH WEDGE PINS
Figure 8

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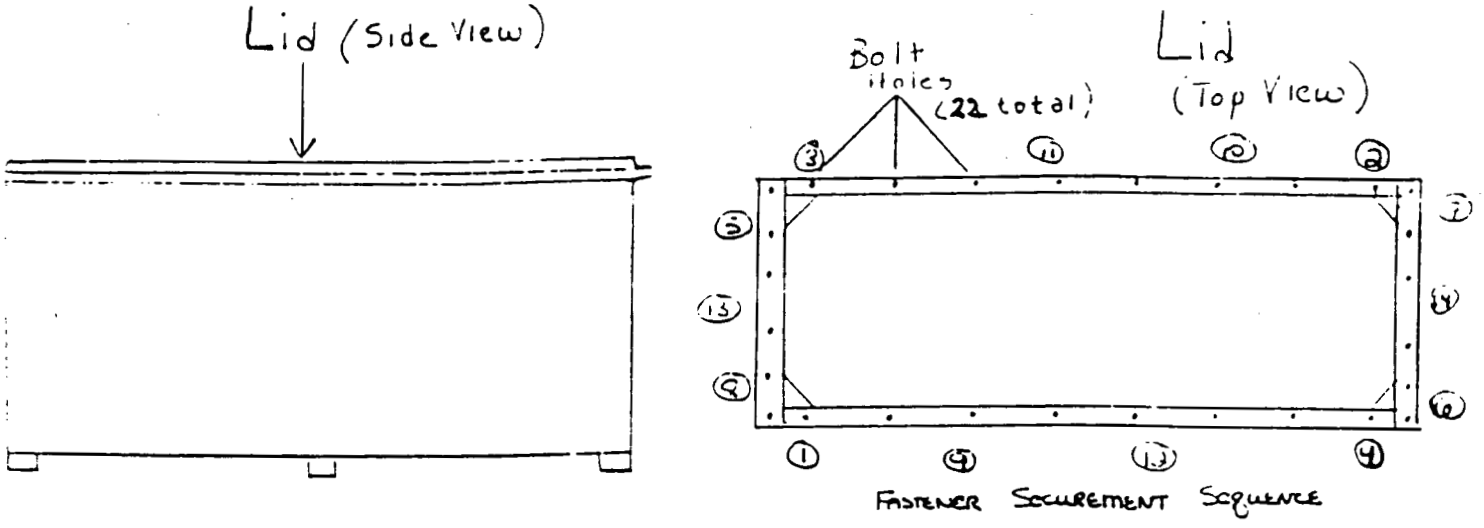

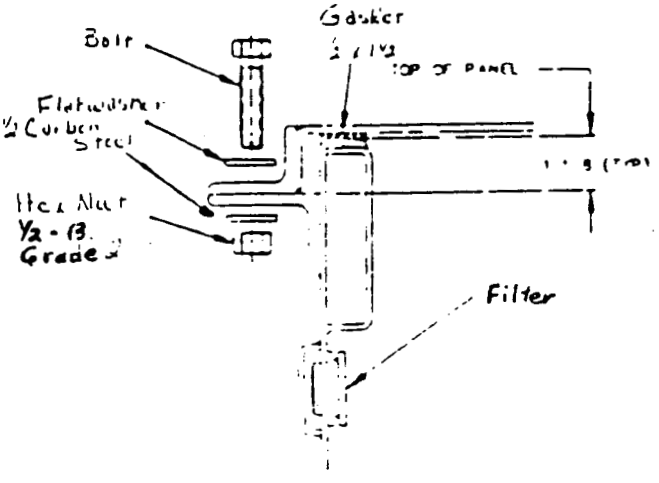

LID INSTALLATION FOR 7A TYPE A BOX WITH POSITIVE CLOSER BOLT
Figure 9

RECORD OF ISSUE/REVISIONS

5690

DATE	REV. NO	DESCRIPTION AND AUTHORIZATION
07-07-87	N/A	Procedure requirement for low level (LLRW) shipment preparation per Request No. P87-150, initiated by K. J. Dunbar.
01-05-88	N/A	Revised to incorporate recommendations from QA/internal audit per Request No. P87-230, initiated by J. E. Harmon.
04-03-89	N/A	Reissued to include final sea/land container preparation and baled trash, and also general update of procedure per Request P88-257, initiated by K. J. Dunbar.
08-21-90	0	Reissued to reflect current operations per Request No. P89-396, initiated by K. A. Lawson. Revision program changed from "Page Revision Date" to "Revision No.".
09-17-90	1	Revised to incorporate CIO Nos. C90-054, C90-055, per Request Nos. P90-339 and P90-341.
06-11-91	2	Revised to include addition of waste stream identification number, clarify container identification, and update 6.5 per Request No. P91-226, initiated by S. Brown.
11-12-91	0	Reissued to update to current operation per Request No. P91-197, initiated by S. Brown and incorporated CIO C91-066 per Request No. P91-472.
01-27-92	1	Revised to incorporate C91-081 per Request No. P92-027.
07-30-92	2	Revised to incorporate C92-005 per Request No. P92-113.
08-09-93	3	Revised to incorporate CIOs C93-023 per Request P93-889, and C93-489 per requires P93-888 and update to conform with current Procedure Program requirements.

FERMCO Restoration Management Corporation	ENVIRONMENTAL SAFETY AND HEALTH DIVISION RADIOLOGICAL CONTROL RADIOLOGICAL ASSESSMENT	PROC NO: RA-RIA-016 UNCONTROLLED EFFECTIVE DATE: 10/14/93 REVISION NO: 0
TITLE: Radiological Survey Requirements for Radioactive Material Shipping and Receiving		PAGE 1 OF 16 AUTHOR: C. D. Nelson
APPROVAL: Michael C. Tester, Manager, Radiological Control		DATE: 10/11/93

Supersedes SP-P-35-009, Rev. 4

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SUMMARY LOG

Revision Number	Description of Revision	Pages Affected
0	Initial Implementation	All

1.0 PURPOSE

1.1 This procedure establishes the methods for radiologically surveying incoming and outgoing radioactive material packages and conveyances at the Fernald Environmental Management Project (FEMP).

2.0 SCOPE

2.1 This procedure applies to the methods used to perform radiological surveys for incoming and outgoing shipments of radioactive material.

2.2 This procedure does not apply to materials being transported exclusively within FEMP.

2.3 This procedure applies to Radiological Control Technicians (RCTs).

3.0 REFERENCES

3.1 Source Documents

3.1.1 DOE Order 5480.11, Radiation Protection for Occupational Workers

3.1.2 49CFR 170 through 180, Title 49 of the Code of Federal Regulations

3.1.3 DOE/EH-0255T, DOE Radiological Control Manual

3.2 Interface Documents

3.2.1 SP-P-35-023, Routine Radiological Contamination Surveys

3.2.2 SP-P-35-048, Routine Radiation Surveys

3.2.3 SP-P-35-046, Counting Smears with Field Survey Instruments

3.2.4 SP-P-35-031, Event Notification and Reporting of Radiological Safety Occurrences

3.2.5 SP-P-35-020, Radiological Survey of Vehicles Entering and Exiting the Controlled Areas of the FEMP

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4.0 DEFINITIONS

4.1 **Box Car** - A railroad car with an enclosed top and sliding doors on the sides.

4.2 **Conveyance** - Means for transport by public highway or rail: any transport vehicle or large freight container.

4.3 **Exclusive Use** - The sole use of an conveyance by a single consignor with all loading/unloading carried out under the direction of the consignor/consignee.

4.4 **Flatcar** - A railroad car without permanent raised sides, ends, or covering.

4.5 **Gondola** - A railroad car with a flat bottom, fixed sides and no top used chiefly for hauling heavy bulk material.

4.6 **Package** - The packaging, together with its radioactive contents, as received or presented for transport.

4.7 **Radioactive Material** - Any material/equipment determined to be contaminated, or potentially contaminated, is considered radioactive material. Radioactive material includes activated material, sealed/unsealed sources, and material emitting radiation.

4.8 **Verification Contamination Survey** - A survey for loose contamination performed within 8 hours of the loading process. Verification surveys are much less detailed than the initial shipping survey. A large-area swipe on accessible surfaces of a portion of the shipping packages will provide sufficient data to ensure the shipment has not been contaminated during shipment preparations and the staging process.

5.0 RESPONSIBILITIES

5.1 Radiological Control Technician (RCT)

5.1.1 Perform contamination and dose rate surveys on packages and vehicles.

5.1.2 Completes required reports.

5.1.3 Distributes reports.

6.0 PROCEDURE

6.1 General

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Radiological Control Technician (RCT)

6.1.1 Equipment list:

A. Beta-Gamma (Geiger-Mueller pancake probe) survey meter
B. Alpha (scintillation probe) survey meter
C. Portable scaler
D. G-M Side Window portable survey meter or teletector/telescan (G-M tube)
E. Low background Alpha/Beta-Gamma proportional counting system
F. Dry paper or cloth swipes
G. Wipes used for large areas loose contamination surveying such as masslin
H. Radiological security seals
I. Gloves

6.1.2 The following forms are used to record survey results:

A. Form FS-F-1993-1, Radiological Survey Report (see Attachment A, Radiological Survey Report).

B. Form FS-F-1993-2, Radiological Survey Report Continuation Sheet (see Attachment B, Radiological Survey Report Continuation Sheet) - If more space is required.

C. Form FS-IRS&T-1596-1, Vehicle Radiation Monitoring Report (see Attachment C, Vehicle Radiation Monitoring Report) - Survey report for incoming and outgoing van trailers or flat beds.

6.1.3 Shipments require radiological surveys at these stages:

A. Incoming and outgoing radioactive material package, see Section 6.2.

B. Incoming empty conveyance, see Section 6.3.

C. Incoming loaded conveyance, see Section 6.4.

D. Outgoing loaded conveyance, see Section 6.5.

E. Outgoing empty conveyance, consult SP-P-35-020, Radiological Survey of Vehicles Entering and Exiting the Controlled Areas of the FEMP.

6.1.4 Remove radiological security seals from all van trailers prior to loading.

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6.2 Survey Radioactive Material Packages

6.2.1 On *incoming* radioactive material packages, observe these restrictions:

A. Survey incoming radioactive material packages within 3 hours of receipt.

B. **IF** a radioactive material package is received after normal working hours, **THEN** survey no later than 3 hours from the beginning of the next working day.

C. **IF** an incoming material is a radiation producing source, **THEN** contact the Site Source Controller.

6.2.2 On *outgoing* radioactive material packages:

A. Perform a verification contamination swipe survey of the packages within 8 hours of loading the packages into a conveyance.

B. **IF** the original contamination survey was completed within 8 hours of loading the packages into a conveyance, **THEN** the verification contamination swipe survey need not be performed.

6.2.3 Swipe incoming and outgoing radioactive material packages according to SP-P-35-023, Routine Radiological Contamination Surveys.

A. Swipe in the most appropriate locations to yield a representative assessment of the removable contamination levels.

B. Swipe all sides including the bottoms of each package.

C. Swipe at least 300 cm^2 of each package.

D. **IF** a package is less than 300 cm^2, **THEN** swipe the entire surface of the package.

E. Analyze the swipes for both alpha and beta/gamma contamination according to SP-P-35-023 and SP-P-35-046, Counting Smears with Field Survey Instruments.

6.2.4 Record contamination survey results on Radiological Survey Report (see Attachment A AND B, Radiological Survey Report and Continuation Sheet, FS-F-1993-1 and FS-F-1993-2).

6.2.5 Using a G-M Side Side Window survey meter or Teletector/Telescan perform a contact radiation dose rate survey on all sides of each package. The instrument must be equipped with an audible response feature and must be used when performing dose rate surveys.

6.2.6 Record the highest dose rate observed on Attachment A **AND** (Attachment B when applicable).

A. **IF** contact radiation dose rates are less than (<) 0.5 mR/hr, **THEN** record "<0.5 mR/hr" for one-meter (3.3 feet) package readings.

B. **IF** contact radiation dose rates are greater than (>) 0.5 mR/hr, **THEN** perform a radiation dose rate survey on each package at one meter (3.3 feet).

6.2.7 **IF** survey results exceed limits as specified in Attachments D **OR** E, **THEN** contact Radiological Compliance for further guidance.

6.2.8 Go to Section 6.7.

6.3 **Survey Incoming Empty Conveyances**

6.3.1 Observe these restrictions on *incoming empty* conveyances:

A. Survey incoming empty conveyances within 3 hours of receipt.

B. **IF** an incoming empty conveyance is received after normal working hours, **THEN** survey no later than 3 hours from the beginning of the next working day.

6.3.2 Prior to entering Controlled Area, survey incoming empty conveyances.

6.3.3 Using a beta-gamma pancake probe, perform a direct survey according to SP-P-35-023, Routine Contamination Surveys for contamination on the conveyance. **IF** Beta-Gamma fixed plus removable contamination survey results are greater than or equal to (≥) 5000 dpm/100cm^2, **THEN** go to Step 6.3.4.D.

6.3.4 Swipe areas of the conveyance according to SP-P-35-023 where radioactive material packages may have come into contact with the surface of the conveyance.

A. Analyze the swipes for both alpha and beta/gamma contamination according to SP-P-35-023 Radiological Contamination Surveys and/or SP-P-35-046, Counting Smears with Field Survey Instruments.

B. **IF** Alpha removable contamination survey results are ≥ 200 dpm/100cm^2, **THEN** go to Step 6.3.4.D.

C. **IF** Beta-Gamma removable contamination survey results are ≥1000 dpm/100cm^2, **THEN** go to Step 6.3.4.D.

D. Step to follow if contamination is detected:

1. Perform a contact radiation dose rate survey according to SP-P-35-048, Routine Radiation Surveys, on the contaminated surface.

2. Perform a radiation dose rate survey at one meter (3.3 feet) from the contaminated surface.

3. Contact Radiological Compliance for further guidance.

6.3.5 Go to Section 6.6.

6.4 <u>Survey Incoming Loaded Conveyances</u>

6.4.1 Observe these restrictions on *incoming loaded* conveyances:

A. Survey incoming loaded conveyances within 3 hours of receipt.

B. **IF** an incoming loaded conveyance is received after normal working hours, **THEN** survey no later than 3 hours from the beginning of the next working day.

C. **IF** the loading configuration of incoming loaded conveyance prohibits individual package surveys upon receipt, **THEN**

1. The visual receipt inspection, conducted by the receiving checker, allows the package surveys to be waived until shipment is unloaded.

2. While unloading, survey the package(s) according to Step 6.2.3 through step 6.2.8.

3. After unloading, perform a contamination swipe survey of the area on which the load was stacked.

6.4.2 Move the conveyance away from other sources of ionizing radiation to minimize error.

NOTE: Railroad cars may be coupled together when performing radiation surveys.

6.4.3 Using a G-M Side Window survey meter perform a contact radiation dose rate survey according to SP-P-35-048, Routine Radiation Surveys as follows:

A. On the exterior surface of enclosed conveyance.

B. For flatbed trailer, measure any points on the vertical plane projected from the outer edges of flatbed trailer.

6.4.4 **IF** contact radiation dose rates are <2 mR/hr, **THEN** go to Step 6.4.6.

6.4.5 **IF** contact radiation dose rates are ≥2 mR/hr, **THEN:**

A. Perform a radiation dose rate as follows:

1. At 2 meters (6.6 feet) from the exterior surface of enclosed conveyance.

2. For flatbed trailer, measure any points 2 meters (6.6 feet) on the vertical plane projected from the outer edges of the vehicle (excluding the top and underside of the vehicle).

B. Perform a contact radiation dose rate survey of the cab interior for tractor-trailer conveyance.

C. **IF** contact radiation dose rates exceed the maximum allowable levels given in Attachment D, **THEN:**

1. Do NOT allow conveyance to be moved.

2. Establish radiological controls to keep personnel exposure as low as reasonably achievable.

3. Immediately contact Radiological Compliance for further guidance.

6.4.6 Perform a contamination swipe survey according to SP-P-35-023, Routine Contamination Surveys, in these locations:

A. Closed Van Trailers - Swipe the floor and shoring of the trailer behind the last packages and the apron (metal floor area under and exterior to the rear door) of the trailer.

B. Open Top Trailer - Swipe any surfaces which may have been contaminated. This should include, as a minimum, accessible areas in front of and behind the load.

C. Flatbed Trailers - Swipe accessible bed areas.

D. Box Cars - Swipe accessible areas of floor, shoring and apron(s) before door(s) are closed.

E. Gondolas - Swipe accessible areas which may have become contaminated. (Container surfaces may be smeared at surveyor's option.)

F. Flatcars - Swipe accessible areas of flatcar floor.

6.4.7 Analyze the swipes for both alpha and beta/gamma contamination according to SP-P-35-023 and SP-P-35-046, Counting Smears with Field Survey Instruments.

6.4.8 Go to Section 6.6.

6.5 Surveys of Outgoing Loaded Conveyances

6.5.1 After loading, perform radiation dose rate surveys according to Step 6.4.2 through Step 6.4.5.

6.5.2 After loading, perform a contamination swipe survey on the conveyance according to Step 6.4.6 and Step 6.4.7.

6.5.3 **IF** contact radiation dose rates of a tractor-trailer conveyance are <2 mR/hr, **THEN** survey of the cab interior is **NOT** required.

6.5.4 **IF** any contact radiation dose rates of a tractor-trailer conveyance are ≥2 mR/hr, **THEN** wait until the trailer has been hooked to the tractor **AND** perform a dose rate survey as follows:

A. **IF** cab has a sleeper, **THEN** survey at the back wall of the sleeper.

B. **IF** cab **DOES NOT** have a sleeper, **THEN** survey at the top back of the driver's and passenger's seats.

C. Record cab survey results on Vehicle Radiation Monitoring Report, (see Attachment C, Vehicle Radiation Monitoring Report FS-IRS&T-1596-1).

D. **IF** radiation dose rate survey results are ≥2 mR/hr inside the cab of the transport, **THEN** contact Radiological Compliance for guidance.

6.5.5 **IF** any contact radiation dose rate survey results of a rail car are ≥2 mR/hr, **THEN** perform a dose rate survey of any adjacent rail car that can be occupied by people.

6.5.6 Document results as described in Section 6.6.

6.6 Documentation

6.6.1 Record all survey results on a Radiological Survey Report (see Attachment A and B, Radiological Survey Report and Continuation Sheet, FS-F-1993-1 and FS-F-1993-2) as outlined in SP-P-35-023 Routine Contamination Surveys and SP-P-35-048 Routine Radiation Surveys.

6.6.2 For incoming van trailers and flat beds:

A. Record results on a Vehicle Radiation Monitoring Report, (see Attachment C, Vehicle Radiation Monitoring Report FS-IRS&T-1596-1).

B. Attach a radiological security seal to the door lock of van trailers.

C. Record radiological security seal number on Attachment C.

6.7 Records Distribution

6.7.1 Using FAX or Hand Delivery, distribute copies of all survey records to:

A. Traffic Control
B. Quality Assurance

6.7.2 Send the original copy of all survey records to Records Management.

7.0 RECORDS

7.1 FS-F-1993-1, Radiological Survey Report

7.2 FS-F-1993-2, Radiological Survey Report (Continuation Sheet)

7.3 FS-IRS&T-1596-1, Vehicle Radiation Monitoring Report

8.0 ATTACHMENTS

8.1 Attachment A, Radiological Survey Report

8.2 Attachment B, Radiological Survey Report (Continuation sheet)

8.3 Attachment C, Vehicle Radiation Monitoring Report

8.4 Attachment D, Maximum Allowable Contamination and Radiation Levels for Uranium

8.5 Attachment E, Contamination Limits for Specific Nuclides (DOE 5480.11)

ATTACHMENT A

RADIOLOGICAL SURVEY REPORT
(FS-F-1993-1)

FEMP
RADIOLOGICAL SURVEY REPORT

DATE	LOCATION	RCT:	BADGE	PAGE
TIME	LEVEL	SIGNATURE:		1 of ___
REASON FOR SURVEY				

INSTRUMENTS

MODEL	SERIAL NUMBER	TYPE (α, β, γ)	CALIBRATION-DUE DATE	BKGD. (cpm)	EFF./CF	COUNT TIME (min)	MDA (dpm)	INSP./PERFORMANCE TEST SAT? YES	NO

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (ft.)	DPM/100cm² ALPHA		DPM/100cm² BETA-GAMMA		CORRECTED DOSE RATE (MREM/HR)			
			REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	γ CONTACT	β CONTACT	γ AT ___ FT.	β AT ___ FT.

NO.	DISTRIBUTION OF COPIES
1	RCT Supervisor
2	Facility Supervisor
3	CRU Manager

NOTIFICATION OF SURVEY RESULTS

SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE

5690

Radiological Survey Requirements for Radioactive Material Shipping and Receiving	PROC NO: RC-RDA-006
	REVISION NO: 0
	PAGE 13 OF 16

ATTACHMENT B

RADIOLOGICAL SURVEY REPORT (CONTINUATION SHEET) (FS-F-1993-2)

FEMP
RADIOLOGICAL SURVEY REPORT - CONTINUATION SHEET Page ____ of ____

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (ft.)	DPM/100cm² ALPHA		DPM/100cm² BETA-GAMMA		CORRECTED DOSE RATE (mrem/hr)			
			REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	γ CONTACT	β CONTACT	γ AT ___ FT.	β AT ___ FT.

000771

ATTACHMENT C

VEHICLE RADIATION MONITORING REPORT (FS-IRS&T-1596-1)

FEMP
ES&H - RADIOLOGICAL CONTROL
VEHICLE RADIATION MONITORING REPORT Page _____ of _____

DATE MONITORED:	TIME:	TECHNICIAN (PRINT):	TECHNICIAN (SIGNATURE):

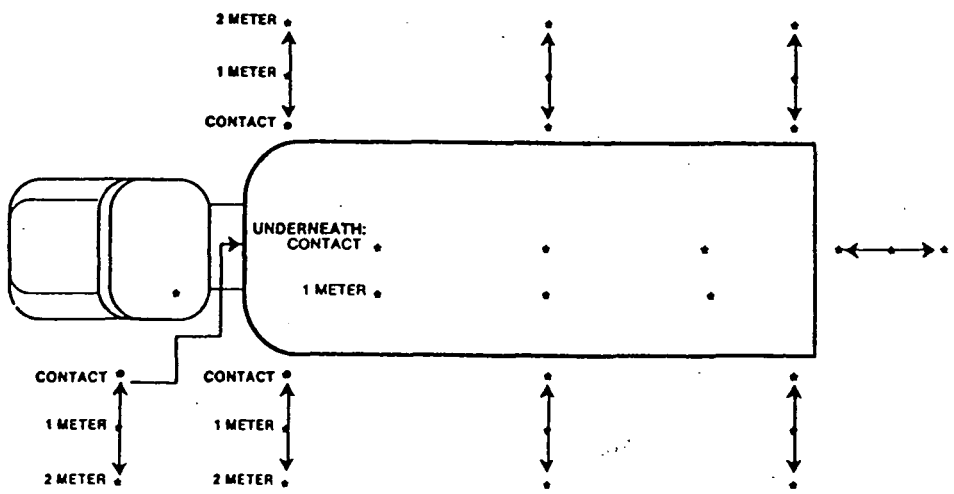
CARRIER NAME:

VEHICLE TYPE ☐ TRACTOR ☐ TRAILER ☐ OTHER MOTOR VEHICLE ☐ RAILCAR ☐ OPEN FLATBED ☐ COVERED
☐ OTHER (EXPLAIN): _____

LICENSE NO. (IF MOTOR VEHICLE):	STATE:	TRAILER OR RAILCAR IDENTIFICATION:	SEAL NUMBER:

VEHICLE STATUS
☐ (a) OUTGOING
☐ (b) INCOMING
☐ (c) OUTGOING EMPTY
☐ (d) EMPTY, BEFORE LOADING
☐ (e) OTHER: _____

Dose rate shown by asterisks in mr/hr.
Swipe Locations circled.



(1) Same locations apply to van-type trucks. For railcars, disregard cab section but show dose rates found at each end.
(2) Measurements at 1 or 2 meters not required if all readings at vehicle surface are not greater than 2 mrem/hr.

SURVEY INSTRUMENTS USED	TYPE	MODEL NO.	SERIAL NO	CALIBRATION DUE
	TYPE	MODEL NO	SERIAL NO	CALIBRATION DUE

NO.	DISTRIBUTION OF COPIES
1	RADIOLOGICAL SAFETY (RECORD COPY)
2	TRAFFIC SUPERVISOR
3	QUALITY ASSURANCE

REVIEWED BY	DATE

ATTACHMENT D

MAXIMUM ALLOWABLE CONTAMINATION AND RADIATION LEVELS FOR URANIUM

SHIPPING CONTROLS	REMOVABLE CONTAMINATION LEVELS ($dpm/100cm^2$)	RADIATION LEVELS (mR/hr)
EXCLUSIVE USE - Empty CONVEYANCE	ALL SURFACES <1,000 alpha, <1,000 beta, Empty - Not stenciled "Radioactive Materials Use Only" <5000 alpha or beta direct survey inside)	Loaded: (Surface-200), (Two meter-10), (Cab-2). Empty - Stenciled "Radioactive Materials Use Only": (Interior Surface-10), (Interior One meter-2). Empty - Not stenciled "Radioactive Materials Use Only":- (Interior Surface-0.5).
EXCLUSIVE USE - Loaded CONVEYANCE Closed Transport Vehicle	All Surfaces: <1,000 alpha, <1,000 beta	Fixed position package: (Surface-1000), (Outer Surface of Transport-200), (Two meters-10), (any normally occupied space-2)
EXCLUSIVE USE - Loaded CONVEYANCE Open Transport Vehicle: Flatbed trailers, Packages, and Sea/lands containers	All Surfaces: <1,000 alpha, <1,000 beta	Flatbed-Vertical plane from edge of bed: (Surface-200), (Two meter-10), (Cab - 2). Packages, Sea/land containers: (Surface-200)
Non-Exclusive Use - Conveyance	All Surfaces: <1,000 alpha, <1,000 beta, <5,000 alpha or beta direct survey	Empty: (Not detectable above background).
Non-Exclusive Use - Package	All Surfaces: <1,000 alpha, <1,000 beta	(Surface-200*), (One meter-10*).

Note :These contamination limits apply to uranium contamination only. For nuclides other than uranium, apply the limits of Attachment E for the specific nuclide.

* Limited Quantity class package limit is 0.5 mR/hr (Surface).

ATTACHMENT E

CONTAMINATION LIMITS FOR SPECIFIC NUCLIDES

(From DOE Order 5480.11)

NUCLIDE (See Note 1)	REMOVABLE (dpm/100 cm^2) (See Note 2)
U-natural, U-235, U-238 and associated decay products	1,000 alpha
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	20
Th-natural, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	200
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above. Includes mixed fission products containing Sr-90.	1,000 beta-gamma
Tritium organic compounds, surfaces contaminated by HT, HTO and metal tritide aerosols	10,000

Notes:

1. The values in this attachment apply to radioactive contamination deposited on, but not incorporated into, the interior of the contaminated item. Where contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for the alpha- and beta-gamma-emitting nuclides apply independently.

2. The amount of removable radioactive material per 100 cm^2 of surface area should be determined by swiping the area with dry filter or soft absorbent paper while applying moderate pressure and then assessing the amount of radioactive material on the swipe with an appropriate instrument of known efficiency. For objects with a surface area less than 100 cm^2, the entire surface should be swiped, and the activity per unit area should be based on the actual surface area. Except for transuranics, Ra-228, Ac-227, Th-228, Th-230, Pa-231 and alpha emitters, it is not necessary to use swiping techniques to measure removable contamination levels if direct scan surveys indicate that the total residual contamination levels are below the values for removable contamination.

CHANGE NOTICE

No. QP-12.04-00-01	Effective Date: 02/11/94	Page 1 of 1

AUTHORIZED: (Manager, Quality Assurance) for LGA

CHANGE NOTICE #1 to existing procedure QP-12.04, "Certification of Loading and Shipment of Low-Level Radioactive Waste", Revision 0 dated 12/01/93.

CHANGE NOTICE #1

1) Add to 2.4.1.11:

NOTE: A new form will be required for package(s) added to the shipment after this inspection is made. They may not be added to original inspection form.

2) Add to 2.4.2.9:

NOTE: A new form will be required for package(s) added to the shipment after this inspection is made. They may not be added to original inspection form.

PLEASE INSERT THIS CHANGE NOTICE IN FRONT OF PAGE 1 OF QP-12.04.

1.0 SCOPE

This procedure establishes a detailed method for the certification of Low-Level Radioactive Waste packages (L-LRW), the loading of L-LRW materials, and the examination of highway transport vehicles for exclusive use shipments only at the Feed Materials Production Center (FEMP) to ensure compliance with applicable federal regulations. This process is illustrated in the accompanying flowchart (Figure 1).

2.0 PROCEDURE

2.1 Event Notification and Reporting Requirements

2.1.1 All unplanned and unwanted events or incidents shall be immediately reported to supervision. In the supervisor's absence the Assistant Emergency Duty Officer (AEDO) shall be notified in accordance with Topical Manual, ED-0001, "Event Notification and Reporting."

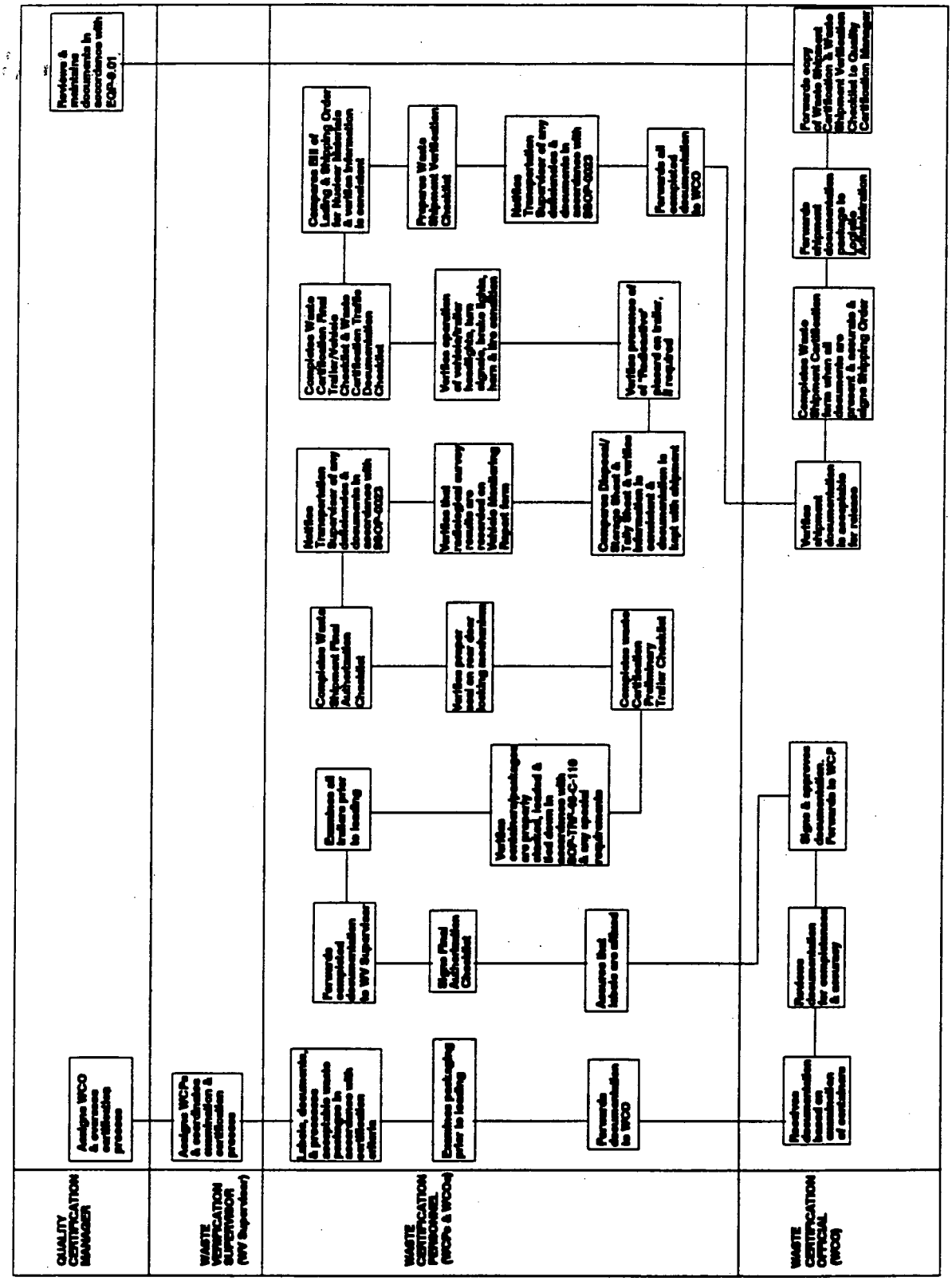
2.1.2 Any circumstance of event which could have resulted in an intake of radioactive materials by inhalation, ingestion or absorption shall immediately be reported to supervision. The supervisor shall immediately report the circumstance of possible radioactive materials intake to Radiological Control for evaluation.

2.2 Industrial Health and Safety Requirements

2.2.1 Leather palm gloves shall be worn when handling sharp-edged or abrasive materials, containers, lids and banding materials.

2.2.2 Safety glasses shall be worn by all personnel at all times posted areas, except when another type of eye protection equipment is specified.

FIGURE 1 - FLOWCHART



2.2.3 Supervisors shall be responsible for contacting Industrial Hygiene for chemical air contaminants, or Radiological Control for radioactive contaminants, to determine appropriate respiratory protection. Determination of requirements shall be made in accordance with Topical Manual, FMPC-2128, "FMPC Industrial Hygiene and Safety Manual" and DOE/EH-0256T, "DOE Radiological Control Manual".

2.2.4 Respirators, as determined to be required per 2.2.3, shall be available by supervision for each person working with waste material and shall be used in accordance with ESH-1-1000, "Comprehensive Environmental, Occupational Safety and Health Program".

2.2.5 Any personnel involved with circumstances of an event which could have resulted in an intake of radioactive materials by inhalation, ingestion or absorption shall report to Medical Services to submit a urine sample at the end of their shift, or, as directed by their supervision, and again at the start of their next shift.

2.3 General Requirements For Transporting Low Level Waste (LLW) and Low Specific Activity (LSA) Waste

NOTE: QP-12.03 MUST BE COMPLETED PRIOR TO IMPLEMENTATION OF THIS PROCEDURE.

2.3.1 All Waste Package Certifiers and Waste Certification Officials verifying packaging and shipment of L-LRW to the Nevada Test Site shall be trained and qualified on this procedure and per the following:

- QP-12.03, "Certification of Waste Package Examination and Sealing for Off-Site Shipment";
- QP-12.07, "Certification of Low Level Shipments to NTS";
- NVO-325, Rev. 1, "Nevada Test Site Defense Waste Acceptance Criteria, Certification and Transfer Requirements"; and the
- Waste Certification Program Plan in accordance with Quality Assurance Procedure QP-6.04, "Qualification of Waste Package Certifiers" or on Quality Assurance Procedure QP-6.05, "Qualification of Waste Certification Officials."

2.3.2 Materials prohibited by NVO-325 and/or listed on the "Prohibited Materials List" (ATTACHMENT A) shall not be packaged for shipment.

2.3.3 Ensure only materials approved by the Nevada Test Site (NTS), Waste Characterization, and Waste Management shall be shipped. The Quality Certification Manager is responsible for making this information available to all personnel performing verification and certification work.

2.3.4 Only container designs approved for shipment by the Nevada Test Site that meet the requirements of NVO-325 and Title CFR 49 shall be used. For the purpose of this procedure only those container types verified as acceptable by the Quality Certification Manager, or another Waste Certification Official, are to be used.

2.3.5 All packaging shall be in strong, tight containers that do not leak under normal transport and handling conditions, and which meet the criteria of Title 49 CFR 173.421 and 173.425.

2.3.6 The nominal 4x4x7 Metal box containers may not exceed 8000 lbs. maximum gross weight. Unless design limits permit, non DOT 7A Type A boxes may not exceed 6000 lbs. maximum weight for strong, tight type box. The 48 or 55-gallon drums may not exceed 1200 lbs. maximum gross weight, 85-gallon drums may not exceed 1000 lbs. maximum gross weight, and 85-gallon overpacks may not exceed 1280 lbs. maximum gross weight.

2.3.7 Marking and labeling shall be in accordance with Title 49 CFR 172, Subparts D & E, as follows:

- On the Bar Code Label affixed on the container:
  a. Shipment Number;
  b. Container Number;
  c. Waste Stream number; and the
  d. Gross Weight in pounds and kilograms; and

- On the container or other labels affixed to the container:
  e. radioactive markings; and
  f. other marking and labeling as required for the packaged material.

2.3.8 Packages certified and held for shipment must be secure and protected from weather and other adverse conditions having the potential to create an unacceptable condition. Covered or enclosed storage, which includes covering with plastic or tarpaulin are appropriate protective measures. If appropriate measures have not been taken, all packages concerned shall be reexamined by Certification personnel and recertified on the basis of the reexamination results.

2.3.9 Beta/Gamma radiation levels shall not exceed 200 millirem/hour measured externally at the surface. Second reading shall be measured externally at one (1) meter or calculated at one meter from the surface in accordance with 49 CFR 173.441 and Safety Procedure SP-P-35-009.

NOTE: The 200 millirem/per hour limit may be increased to 1000 mrem/hr if conditions specified in Title 49 CFR 173.441 (1) (i-iii) are met for exclusive use closed transport.

2.3.10 No container leakage is permitted under normal transport and handling conditions in accordance with Title 49 CFR 173.425.

2.4 Examination of Packages in Staging Area

This examination will be performed at the loading area by Waste Package Certifier or a Waste Certification Officials. Results of the examination shall be documented on ATTACHMENT B, "Quality Certification LLW Pre-Loading Package Inspection for Metal Boxes and Drums" or on ATTACHMENT J, "Quality Certification LLW Pre-Loading Package Inspection For Standard Size Metal Boxes".

2.4.1 Examination of Drums prior to loading

Examine sealed drums prior to loading on trailers for shipment to the NTS. These drums are to be examined 100% by a Waste Package Certifier or a Waste Certification Official.

2.4.1.1 The lid shall be properly seated on the drum and held in place by a bolt ring closure. If bolt and flanges are not lower than rest of ring, then the ring is positioned upside down.

2.4.1.2 Check for red paint on ring bolt to indicate it has been tightened to 45(± 5) ft-lbs by the use of a torque wrench.

2.4.1.3 Check for safety wire or twisted wire seal threaded through hole in the bolt head or threaded portion of bolt and around threaded portion of bolt ring and fastened as shown in the "Bolt Diagram" (ATTACHMENT C). Check that jam nut is locked to opposite side of bolt head or threaded with flat side against ring harness.

2.4.1.4 Examine all surfaces of the drum and lid and reject for any of the following conditions:

NOTE: Questions regarding the severity of any deformation should be addressed by a qualified Engineer.

a. a breach (a hole, crack, gash, etc.);
b. a dent, puncture, or bulge which has creased, gouged, or may have otherwise significantly weakened the metal;
c. a dent or concave depression which jeopardizes the integrity of the container;
d. a significant dent in the bottom rim. A significant dent is one that compromises the integrity of the container;
e. rust causing exfoliation (scale), severe pitting, or other conditions having a detrimental effect on the serviceability of the waste container. (Small areas of exposed base metal, minor to moderate scratches, and slightly rusted spots are acceptable); or
f. any deformation or out-of-round condition affecting the integrity of the sealing surface.

2.4.1.5 Check exterior of container for exposed bare metal requiring touch-up painting.

2.4.1.6 Check exterior of drums for moisture.

2.4.1.7 Check that the gross weight does not exceed 1200 lbs. for a 55 gal. drum or 1280 lbs. for an overpack drum and that "Bar Code Labels" (ATTACHMENT D-1) are affixed to each drum, one on the lid and one on the side as near the top as practicable.

2.4.1.8 Check labels and markings against the "Storage & Disposal Data Sheet" (ATTACHMENT E), the "Tally Sheet" (ATTACHMENT F), and the computer printout (ATTACHMENT G) "Circle Copy" for the particular shipment for accuracy.

2.4.1.9 Notify the Waste Storage and Disposition Supervisor of any deficiencies found and ensure that they are corrected prior to loading.

2.4.1.10 Check the "Radiological Survey Report" (ATTACHMENT M-1) to ensure containers meet radiological requirements.

2.4.1.11 Complete the "Quality Certification LLW Pre-Loading Package Inspection for Drums" (ATTACHMENT B).

2.4.1.12 Apply a signed and dated "NV-211 Packaging Certification Label" to each package upon satisfactory examination (ATTACHMENT H).

NOTE: NV-211 labels are to be legibly signed with a black ball pen or permanent marker. Labels must be weather resistant.

2.4.1.13 Affix an initialed, stamped or numbered tamper indicating device(s) to each container.

2.4.1.14 The Waste Certification Official performs an overview of packages being loaded, shall verify signed and dated NV-211 labels are on each container, and completes the "Statement of Compliance" (ATTACHMENT I).

2.4.2 Examination of Metal Boxes prior to loading.

Examines metal boxes at the loading area prior to loading on trailers for shipment to the NTS. These boxes are to be examined 100% by a Waste Package Certifier or Waste Certification Official. Results shall be documented on ATTACHMENT J, "Quality Certification LLW Pre-Loading Package Inspection For Standard Size Metal Boxes".

NOTE: Questions regarding the severity of any deformation should be addressed by a qualified Engineer.

2.4.2.1 Containers must be clean.

2.4.2.2 Each container shall be well constructed of steel with all seams welded.

2.4.2.3 The containers shall be free of holes, severe gouges, and significant deformations causing structural weakness or improper sealing.

2.4.2.4 The containers shall be free of rust causing exfoliation (scale), severe pitting, or other conditions having a detrimental effect on the serviceability of the waste container.

2.4.2.5 For all box designs having drain plugs, verify that the box has been checked for a drain plug, and the drain plug has been tightened.

a. A red dot on the lower left hand front of the box shall indicate that the plug has been tightened.

b. A black dot on the lower left hand front of the box shall indicate that there is no drain plug.

c. All metal boxes shall have either a red or black dot marked.

2.4.2.6 Examine container for proper closure as follows:

a. Verify that the Radioactive material markings appear on top of the box and that a "Bar Code Label" is affixed to opposite sides of each box and may include one on the top. (ATTACHMENT D-2).

b. Verify that any additional required markings and or labels are affixed per 49 CFR 172, subparts D and E requirements.

c. Verify that all inaccurate, misleading, or unsightly markings have been removed or obliterated.

d. Verify that gross weight does not exceed either 8,000 pounds or the design weight limit of the box.

e. Verify that a foam rubber or similar type gasket is on the sealing surface of the lid, or the lid is sealed with a durable sealant.

f. Verify that lid is properly placed on the box.

g. For the boxes with locking pin closure verify locking pins required for the container are in place with the locking notches below the straps and fully engaged to full thickness of strap over entire locked surface edge of notch.

h. Verify that all bolts are in place and tightened for the bolt type closures.

i. Verify holes are drilled in the closed type runners as indicated by the black check mark on the lower right hand corner of the box.

j. Check exterior of container for exposed bare metal requiring touch-up painting.

2.4.2.7 Check labels and markings against the "Storage & Disposal Data Sheet" (ATTACHMENT E), "Tally Sheet" (ATTACHMENT F), and computer printout (ATTACHMENT G) "Circle Copy" for the particular shipment for weight and labels accuracy.

2.4.2.8 Notify the Backlog & Disposition Supervisor of any deficiencies found and ensure that they are corrected prior to loading.

2.4.2.9 Complete the "Quality Certification LLW Pre-Loading Package Inspection for Standard Size Metal Boxes", (ATTACHMENT J).

2.4.2.10 Apply signed and dated "NV-211 Packaging Certification Label" to each package upon satisfactory examination. (ATTACHMENT H)

NOTE: NV-211 labels are to be legibly signed with a black ball pen or permanent marker. Labels must be weather resistant.

2.4.2.11 Affix an initialed, stamped or numbered tamper indicating device(s) to each container.

2.4.1.12 The Waste Certification Official performs an overview of packages being loaded, shall verify signed and dated NV-211 labels are on each container, and completes the "Statement of Compliance" (ATTACHMENT I).

2.4.3 <u>Examination of ISO Cargo Containers Prior to Loading</u>

Examine ISO containers at the loading area prior to loading on trailers for shipment to the NTS. These containers are to be examined 100% by a Waste Package Certifier or a Waste Certification Official. Results shall be documented on the "Quality Certification Checklist ISO Container 'Ready to Ship'" checklist (ATTACHMENT K).

NOTE: Questions regarding the severity of any deformation should be addressed by a qualified Engineer.

2.4.3.1 The containers shall be free of holes, severe gouges, and significant deformations causing structural weakness or improper sealing.

2.4.3.2 The containers shall be free of rust causing exfoliation (scale), severe pitting, or other conditions having a detrimental effect on the serviceability of the waste container.

2.4.3.3 Verify that the exterior of the ISO cargo container is in good condition.

a. Verify that all inaccurate, misleading, or unsightly markings have been removed or obliterated.

b. Verify that the ISO cargo container has had the paint touched up if necessary.

c. Verify that caulking is around all doors and around all sealing surfaces, and that the metal doors are securely closed, and two 1 1/4" metal bands secure the two center locking bars together.

d. Verify gross weight of the ISO cargo container and that it appears on the "Bar Code Label" affixed to the container (ATTACHMENT D-3).

e. Verify that a "Radioactive" material placard is on each side (4 sides) of the ISO cargo container.

NOTE: LSA markings usually required shall appear as Radioactive LSA on the two long sides of the ISO container in 1 7/8" high or greater lettering.

2.4.3.4 Check labels and markings against the "Storage & Disposal Data Sheet" (ATTACHMENT E), "Tally Sheet" (ATTACHMENT F), and computer printout (ATTACHMENT G) "Circle Copy" for the particular shipment for weight and labels accuracy.

2.4.3.5 Notify the Backlog & Disposition Supervisor of any deficiencies found and ensure that they are corrected prior to loading.

2.4.3.6 Apply a signed and dated "NV-211 Package Certification Label" to each package upon satisfactory examination. (ATTACHMENT H)

NOTE: NV-211 labels are to be signed with a black ball pen. Labels must be weather resistant.

2.4.3.7 Affix an initialed, stamped, or numbered tamper indicating device(s) to each container.

2.4.3.8 The Waste Certification Official performs an overview of packages being loaded, shall verify signed and dated NV-211 labels are on each container, and completes the "Statement of Compliance" (ATTACHMENT I).

2.4.4 Examination of Large White Metal Box

Examine large, top loading containers at the loading area prior to loading on trailers for shipment to the NTS. These containers are to be examined 100% by a Waste Package Certifier or Waste Certification Official. Results shall be documented on the "Quality Certification Checklist Oversize White Metal Box 'Ready to Ship'" Checklist (ATTACHMENT K-1).

NOTE: Questions regarding the severity of any deformation should be addressed by a qualified Engineer.

2.4.4.1 Each container shall be well constructed of steel with all seams welded.

2.4.4.2 The containers shall be free of holes, severe gouges, and significant deformations causing structural weakness or improper sealing.

2.4.4.3 The containers shall be free of rust causing exfoliation (scale), severe pitting, or other conditions having a detrimental effect on the serviceability of the waste container.

2.4.4.5 Verify that all unnecessary markings have been removed or covered.

2.4.4.6 Verify that the container has had the paint touched up if necessary.

2.4.4.7 Verify that a foam rubber or similar type gasket is on the sealing surface of the lid, or the lid is sealed with a durable sealant.

2.4.4.8 Verify that all bolts are in place and secure.

2.4.4.9 Verify the gross weight of the container and that it appears on the "Bar Code Label" affixed to the container (ATTACHMENT D-3).

2.4.4.10 Verify that a "Radioactive" material placard is affixed to each side (4 sides) of the container.

2.4.4.11 Check labels and markings against the "Storage & Disposal Data Sheet" (ATTACHMENT E), "Tally Sheet" (ATTACHMENT F), and computer printout (ATTACHMENT G) "Circle Copy" for the particular shipment for weight and labels accuracy.

2.4.4.12 Notify the Backlog & Disposition Supervisor of any deficiencies found and ensure that they are corrected prior to loading.

2.4.4.13 Apply a signed and dated "NV-211 Packaging Certification Label" to each package upon satisfactory examination (ATTACHMENT H).

NOTE: NV-211 labels are to be signed with a black ball pen. Labels must be weather resistant.

2.4.3.14 Affix an initialed, stamped, or numbered tamper indicating device(s) to each container.

2.4.4.15 The Waste Certification Official performs an overview of packages being loaded, shall verify signed and dated NV-211 labels are on each container, and completes the Statement of Compliance (ATTACHMENT I).

2.5. Examination of Package Markings and Labels

Immediately prior to transport loading, the Waste Package Certifier or Waste Certification Official shall verify that the required markings and labels are applied to containers and grouped together. Marking and labeling in accordance with Title 49 CFR 172 Subparts D & E is required as follows:

a. Each acceptable package shall have a "Radioactive - LSA" label as required, if the surface dose rate exceeds 0.5 Mr/hr. or the U-235 content exceeds 15 grams. This is contained on the "Bar Code Label" which is attached to each package (ATTACHMENT D).

b. Each acceptable package shall have a "RADIOACTIVE MATERIAL LIMITED QUANTITY" label, (ATTACHMENT L) if the surface does rate is equal to or less than 0.5 Mr/hr. and the U-235 content is less than or equal to 15 grams.

c. Each package which contains 0.1 Curies or greater of Uranium must be marked "RQ" (ATTACHMENT L) per the requirements of Section 172.101 Appendix, 49 CFR. Each package which contains 0.001 Curies or greater of Thorium must be marked "RQ" in conjunction with these same requirements.

d. Each acceptable package will have the shipment number on the package exterior (e.g. WML 94012). This information is contained on the "Bar Code Label" (ATTACHMENT D).

e. Each acceptable package shall have a six numerical digit package number on the exterior (e.g. 123456). For boxes and ISO cargo containers, this is the container serial number. If the serial number is less than six digits, zeros shall be placed in front of the sequence numbers (e.g. 001234). This information is contained on the "Bar Code Label" (ATTACHMENT D).

f. Each acceptable package shall have the thirteen digit (4 alpha followed by 9 numeric) waste steam number marked on the exterior (e. g. ONL0000000012). This information is contained on the "Bar Code Label" (ATTACHMENT D).

g. Each acceptable package shall have the gross weight marked in 1/2" or larger numbers on the exterior in both pounds and kilograms. This information is contained on the "Bar Code Label" (ATTACHMENT D).

i. Each package certified as acceptable for Nevada Test Site disposal shall have the required "Packaging Certification" label, NV-211 (ATTACHMENT H) signed with black ball point pen or permanent marker, dated, affixed after examination of the package and shortly before or during loading. The label shall be displayed on the side of ISO containers and large metal boxes, and on the top of drums and the nominal 4'X 4'X 7' metal boxes. The labels hall be affixed in a group pattern with other labels and markings.

j. Shipments must be "exclusive use".

2.6. Documentation of Examinations and Deficiencies

Immediately prior to transport loading, the Waste Package Certifier or Waste Certification Official assures that all examinations are properly documented on the applicable checklist, as required and also ensures that deficiencies are documented and processed as follows:

2.6.1 Any deficiency observed should be documented on the appropriate checklist or inspection plan. If the deficiency is not promptly corrected, the item of concern (e.g. package) shall be rejected.

2.6.2 Any waste package rejected due to non-acceptable or non-authorized contents, physical damage to the container, or other uncorrected conditions shall have a "Hold Tag" attached to it and a Deviation Report prepared in accordance with SSOP-0023 . Deficiencies shall be corrected and the Deviation Report closed prior to affixing NV-211 label. Uncorrectable deficiencies or lack of prompt or appropriate action, or chronic and/or systematic errors must be documented on a Corrective Action Report in accordance with SSOP-0023. Rejected package(s) shall be separated from other packages or containers ready for shipment.

2.6.3 Forward appropriate forms and documentation to the Waste Certification Official for review, approval, and use in certification.

NOTE: Disposal of any rejected containers, lids, bolt rings, or lever rings shall be the responsibility of Backlog & Disposition or the generator of the package.

2.7 Preliminary Certification

The Waste Package Certifier or Waste Certification Official examines the transport trailer prior to loading and completes the appropriate checklist.

2.7.1 Examines the transport trailer/vehicle as follows:

2.7.1.1 Verify that the Radiological Control (RC) technician has surveyed each trailer/vehicle prior to loading and has recorded results on the "Vehicle Radiation Monitoring Report" (ATTACHMENT M) and the "Radiological Survey Report" (ATTACHMENT M-1) to ensure that radiation and contamination levels do not exceed the requirements listed in Title 49 CFR 173.441.

2.7.1.2. Determine the condition of the trailer/vehicle by examining the trailer/vehicle floor, interior, roof, roof interior, rear door, rear door gasket, and tires. Any of the following conditions shall be brought to the attention of the Logistic Administrative Manager:

a. Holes in the containment structure or soft areas in the floor, which could allow possible leakage and/or jeopardize the structural integrity of the trailer/vehicle;
b. Liquid or oily substances on interior surfaces;
c. Non-securing or poor sealing rear doors; or
d. Tires;
   1. Insufficient tread (2/32" min. trailer, 4/32" min. tractor);
   2. Separation of tread;
   3. Punctures;
   4. Bulges;
   5. Underinflated (use manufacturer's recommended pressure, cold); or
   6. Flats.

2.7.1.3 Examine the preparation layout of trailer/vehicle per TRF 46-C-110.

2.7.1.4 Complete the "Waste Certification Preliminary Trailer Checklist (Vans)" (ATTACHMENT N) or the "Quality Certification Preliminary for Flat Beds (ISO Shipments)" (ATTACHMENT O).

2.8 Examination of Drums

The Waste Package Certifier or Waste Certification Official examines drums at loading and shall verify that the drums have been properly stacked, loaded and tied down in accordance with SOP-TRF-46-C-110 and that the following requirements have been met:

2.8.1 Drummed materials requiring proper weight distribution have been placed into the vehicle split into two groups:

a. the front unit is encircled with 1-1/4" steel strapping, connected with two clips, double-crimped, and two-by-four wood shoring nailed to the floor behind the unit.

b. the rear unit is placed so as the proper weight distribution is maintained and a wood picket brace is constructed at the front of the group. Drums behind the picket brace are encircled with 1-1/4" steel strapping connected with two clips, double-crimped, and providing that no metal plate is directly behind the group then two-by-four wood shoring is nailed to the floor behind the group.

NOTE: Drums may not be double stacked.

2.9 Examination of Metal Boxes

The Waste Package Certifier or Waste Certification Official examines metal boxes at trailer loading and shall verify they are not damaged, that metal boxes have been loaded and tied down in accordance with SOP-TRF-46-C-110 and that the following requirements have been met:

2.9.1 Metal Boxes have been placed into the vehicle correctly for proper weight distribution. Normally, these shipments contain either seven (7) to ten (10) containers. With seven (7) containers a split of three (3) in the front unit and four (4) in

the rear unit is required. Ten (10) containers are to be loaded straight down the center of the vehicle floor. When the number of containers making up the shipment are not seven (7) or ten (10), they are to be loaded then in the same manner as for seven (7).

2.9.2 Front Unit (2-5 boxes) has been shored using two sets of brakeman plates nailed to the floor of the vehicle (prior to loading) with 1-1/4" steel strapping threaded through each plate. Two of these units are used to encircle each load unit (2 bands) and shall be tightened and fastened with two clips, double-crimped. The bands have plastic protectors on the edges of the first and last container to keep the bands from breaking.

2.9.3 Rear Unit (2-5 boxes) has been shored using 2" X 4" brace in front of the containers. Use same method of steel banding as on the front unit.

2.9.4 The shoring of ten (10) metal boxes has been accomplished using the same steel banding method as used for seven (7). The first five (5) have been banded as one unit, and the last five (5) as one unit.

2.10 Examination of ISO Cargo Containers

The Waste Package Certifier or Waste Certification Official examines the ISO cargo container at loading, checks the maximum gross weight on the container with actual gross weight, shall verify that container has been loaded and tied down in accordance with SOP-TRF-C-110, and that the following requirements have been met:

2.10.1 ISO cargo containers have been placed onto a flat bed truck for proper axle-weight distribution.

- For a shipment consisting of one container, the doors of the container shall be facing the rear of the truck.

- For a shipment consisting of two containers the doors of the front unit shall be facing to the rear and those of the rear unit shall be facing the front of the truck.

2.10.2 If the container or shipment exceeds 42,000 gross pounds, a waiver must be approved by the Manager of Transportation Regulatory Compliance and a Waste Certification Official as to whether or not it may be shipped. A copy of the appropriate letter will be attached to the "Ready to Ship" form when it is prepared during the check of incoming paperwork.

2.10.3 Containers have been secured to the flatbed truck with four (4) nylon straps over each unit secured to the frame of the trailer, chains have been placed and secured in front of and behind the bottom of each container fastened to the trailer bed, and a 2x4 has been nailed to the trailer floor at the rear of each unit. All lower corners of the intermodal containers must be secured by chains, hooks, cables, or other devices. The entire container must be resting on the trailer. All securing devices, i.e. chains, straps, binders, shall have a rated capacity of no less than 10,000 pounds. These devices shall be clearly marked of the rated capacity. If the rails or pockets are to be used as a hook point, such devices shall be free of broken welds, cracks or serious deformation.

2.11 General Examination Activities After Loading

The Waste Package Certifier or Waste Certification Official shall conduct the following activities after the trailer has been loaded:

NOTE: Two (2) photographs of the packages shall be taken (1/2 load and full load) prior to closing the doors of the trailer. Photos are also required of flat bed loads showing labels, placards, and DOT seals. Include trailer information on shots taken.

2.11.1 Verify that the trailer is locked or a numbered, initialed, or stamped tamper-indicating seal is applied to the rear door locking mechanism whenever the trailer is unattended overnight or for any other extended period. If a seal or lock is not used prior to resumption of loading or closure of the van, an examination shall be made to verify that the packages previously loaded were not disturbed and no unauthorized packages or materials were placed in the shipment.

2.11.2 Complete the examination of the loaded trailers for the Nevada Test Site (NTS) shipments and complete ATTACHMENT B, "Quality Certification LLW Pre-Loading Package Inspection for Drums" or

ATTACHMENT J, "Quality Certification LLW Pre-Loading Package Inspection For Standard Size Metal Boxes".

2.11.3 Report, by copy of the appropriate checklist, any deficiencies to the East Area Operations Supervisor for correction. Checklists which include deficiencies are recorded and tracked on a deficiency log. Document any repetitive or uncorrected deficiencies on the Deviation Report (DR) and/or Corrective Action Report (CAR) Form in accordance with SSOP-0023.

2.11.4 Forwards all completed documentation to the Waste Package Certifier or Waste Certification Official making the final inspection at Traffic prior to release of the trailer.

2.12 Final Trailer/Vehicle Examination

The Waste Package Certifier or Waste Certification Official conducts a final examination of the vehicle/trailer after closure. The shipment: paperwork and transport vehicle is verified as acceptable for release as follows:

2.12.1 Verify that RC Technician has surveyed the trailer/vehicle and recorded the results on the "Vehicle Monitoring Report" (ATTACHMENT M) and on the "Radiological Survey Report" (ATTACHMENT M-1) and that these results are within specification.

2.12.2 Compare the "Storage Data and Disposal Sheet" (ATTACHMENT E) with the "Bill of Lading" (ATTACHMENT P) to verify that the following information is correct:

a. number and type of containers;
b. total curie content;
c. shipment gross and net weight; and the
d. shipment number.

2.12.3 Verify that an envelope containing copies of the "Tally Sheet", the "Storage Data and Disposal Sheet", and the LSA/RQ, LQ documentation (Curie Sheet) of the shipment is fastened to the rear container when possible or stapled to the trailer wall inside of the trailer doors for the NTS use upon opening the trailer at the destination. If the shipment is not in a closed van, verify that the "Tally Sheet" and

"Disposal/Storage Sheet", and Curie Sheet are in the envelope which is to be delivered by the driver to the NTS.

2.12.4 Verify the presence of a "Radioactive" material placard on both sides, front and rear, of the vehicle/trailer and "Radioactive - LSA" labels are on at least the two long sides of ISO container.

NOTE: A shipment containing limited quantity packages exclusively does not require these placards.

2.12.5 Verify that the following are operational on the vehicle/trailer:

a. headlights;
b. turn signals;
c. brake lights;
d. horn; and the
e. tire condition, per section 2.7.1.2 of this procedure.

2.12.6 Compare the "Bill of Lading" (ATTACHMENT P) and the "Shipping Order for Nuclear Materials" form (ATTACHMENT R) to verify the following:

a. Trailer #;
b. Shipment #;
c. Gross Wt. and Net Wt.;
d. Bill of Lading #;
e. Shipping Order #;
f. Seal #;
g. ETA;
h. Container # (for ISO cargo containers and large white metal boxes);
i. Curies;
j. Enrichment; and
k. Required signatures.

2.12.7 Verify that a seal has been placed on the trailer and that the trailer number and the seal number match the seal number recorded on the "Bill of Lading" (ATTACHMENT P), and review the "L-LRW Shipment Checklist" (ATTACHMENT S) and the "Off-Site Loading Tie-Down Inspection Vehicle Inspection" checklist (ATTACHMENT T) for completeness.

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2.12.8 Complete the "Quality Certification Final Trailer/Vehicle Checklist" (ATTACHMENT Q), and "Quality Certification Traffic Shipment Documentation Checklist" (ATTACHMENT U).

2.12.9 Report all deficiencies on the appropriate checklist. Repetitive or uncorrected deficiencies are documented on the DR or CAR form in accordance with SSOP-0023.

NOTE: Uncorrected deviations on a Deviation Report must be resolved before Quality Assurance/Quality Certification can provide a release of the shipment.

2.12.10 Notify the Waste Certification Official that the shipment paperwork is complete and available for final review. The Waste Certification Official reviews the following documents and completes the Quality Waste Shipment Verification Checklist (ATTACHMENT V).

a. Radiation Monitoring Sheets;
b. Off-Site Tie Down Inspection/Vehicle Inspection Form;
c. Weight Ticket;
d. Shipping Order for Nuclear Materials
e. Bill of Lading;
f. Package Storage & Disposal Data Sheet;
g. Tally Sheet;
h. Radiological Survey Report;
i. L-LRW Shipment Checklist & Notification form;
j. ISO Cargo Container "Ready to Ship" (If applicable);
k. Waste Certification Preliminary Trailer Checklist;
l. Waste Certification Traffic Shipment Documentation Checklist;
m. Waste Certification Final Trailer/Vehicle Checklist;

2.12.11 Forward completed documentation to the Waste Certification Manager who reviews and maintains documents in accordance with QP-9.01.

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3.0 REFERENCES

3.1 DOE/EH-0256T, DOE Radiological Control Manual

3.2 ED-0001, Event Notification and Reporting

3.3 QP-1.02, Abbreviations, Acronyms, and Definitions

3.4 QP-6.04, Qualification of Waste Package Certifiers

3.5 QP-6.05, Qualification of Waste Certification Officials

3.6 QP-9.01, Identification, Preparation, Storage and Maintenance of Quality Documents

3.7 QP-12.03, Certification of Waste Package Examination and Sealing for Off-Site Shipment

3.8 QP-12.07, Certification of Low Level Shipments to NTS

3.9 ESH-1-1000, Comprehensive Environmental, Occupational Safety and Health Program

3.10 FMPC-2128, FMPC Industrial Hygiene and Safety Manual

3.11 NVO-325, Rev. 1, Nevada Test Site Defense Waste Acceptance Criteria, Certification and Transfer Requirements

3.12 PO-D-035, Shipment of LLRW Requirements

3.13 PP-0314, Packaging, On-site Movement and Off-site Shipment of Material

3.14 SOP-1-C-602, Low Level Radioactive Waste (L-LRW) Shipment Preparations

3.15 SOP-20-C-600, Overpacking Defective Containers

3.16 SOP-20-C-601, Packaging Low Level Radioactive Waste (L-LRW) for Off-site Disposal

3.17 SOP-TRF-46-C-110, Preparation and Shipment of Radioactive Material Low Level Waste)

3.18 SP-P-35-009, Radioactive Material Shipping and Receiving

3.19 SSOP-0023, Deviation and Corrective Action Reporting

3.20 SSOP-0067, FEMP Spill Incident Reporting and Cleanup

3.21 SSOP-0075, Packaging Low Level Radioactive Waste (LLRW) in Drums for Off-site Shipment

3.22 SSOP-0078, Packaging Low Level Radioactive Waste (LLRW) in ISO Containers for Off-site Shipment

3.23 SSOP-0079, Packaging Low Level Radioactive Waste (LLRW) in Metal Boxes for Off-site Shipment

3.24 SSOP-4006, Occurrence Reports

3.25 Title 49 CFR 172

3.26 Title 49 CFR 173

4.0 ATTACHMENTS

4.1 Figure 1 - Flowchart

4.2 ATTACHMENT A, Prohibited Materials List

4.3 ATTACHMENT B, Quality Certification LLW Pre-Loading Package Inspection for Drums, ECQ-920529-1 REV 3

4.4 ATTACHMENT C, Bolt Diagram

4.5 ATTACHMENT D, Bar Code Labels

4.6 ATTACHMENT E, Storage and Disposal Data Sheet

4.7 ATTACHMENT F, Tally Sheet

4.8 ATTACHMENT G, Computer Printout "Circle Copy"

4.9 ATTACHMENT H, NV-211 Certification Labels, FS-F-234 (REV 8/3/93)

4.10 ATTACHMENT I, Statement of Compliance, QA/QC-930818-1 REV 0

4.11 ATTACHMENT J, Quality Certification LLW Pre-Loading Package Inspection For Standard Size Metal Boxes, ECQ-881115-1 REV 9 (10/1/93)

4.12 ATTACHMENT K, Quality Certification Checklist ISO Container"Ready to Ship", ECQ-880930-1 REV 4 (09/09/93)

4.13 ATTACHMENT K-1, Quality Certification Checklist Oversize White Metal Box "Ready to Ship", ECQ-890815-1 REV 3 (09/10/93)

4.14 ATTACHMENT L, Limited Quantity and RQ Labels

4.15 ATTACHMENT M, Vehicle Radiation Monitoring Sheet, FS-F-1596-1 (REV 2/19/93)

4.16 ATTACHMENT M-1, Radiological Survey Report, FS-F-1993-1 (Rev. 12/31/92)

4.17 ATTACHMENT N, Waste Certification Preliminary Trailer Checklist--Vans, ECQ-880801-1 REV 5 (10/6/93)

4.18 ATTACHMENT O, Quality Certification Preliminary Trailer Checklist for Flat Beds (ISO Cargo Container Shipments), ECQ-891010-1 REV 5 (10/06/93)

4.19 ATTACHMENT P, Bill of Lading, FS-F-452 (REV 1/15/93)

4.20 ATTACHMENT Q, Quality Certification Final Trailer/Vehicle Checklist, ECQ-880801 REV 3 (01/27/93)

4.21 ATTACHMENT R, Shipping Order for Nuclear Materials, FS-F-558-3 (REV 2/11/93)

4.22 ATTACHMENT S, L-LLW Shipment & NTS Notification Checklist, FMPC-SAML-3065 (4/5/89)

4.23 ATTACHMENT T, Off-Site Loading Tie-Down Inspection Vehicle Inspection Form, FMPC-SAML-2495 (REV 4/5/89)

4.24 ATTACHMENT U, Quality Certification Traffic Shipment Documentation Checklist, ECQ-890731-1 REV 3 (07/31/91)

4.25 ATTACHMENT V, Quality Waste Shipment Verification" Form, ECQ-890601-1 REV 2 (09/17/93)

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PROHIBITED MATERIALS LIST

MATERIAL	LIMIT/EXPLANATION
Transuranics	Limit: <100 nanocuries/gram. Acceptability of waste stream determined during characterization.
Hazardous Waste	Limit: Per Title 40 CFR 261 and Ohio Administrative Code 3745-54. No corrosives (acids with Ph ≤2 and caustic materials with Ph ≥12). No ignitables (e.g. metal powders). No reactive materials (metal fines, explosives). No toxic materials (e.g. pesticides, poisons, certain metals. No leachable listed metals (e.g. arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, and cyanide). **NOTES: Lead can be found in hammer heads, scale weights, flashing materials, and counter weights. Watch for barium as barium chloride salts or barium chloride contaminated materials. Only "Rayovac" dry cell batteries are acceptable (other batteries contain unacceptable quantities of metals such as cadmium, lead, & mercury). Mercury is frequently found in instruments, electrical switches (including thermostats), and fluorescent lamp tubes. Silver can be found in photographic developer fluids, solder, and electrical contacts.** No solvents. Some examples include WD-40, adhesives, liquid paints, paint thinners, paint removers, or materials contaminated with solvents (e.g. rags saturated with solvents). **NOTE: If a strong smell of solvents is present, call Health & Safety for verification.**

PROHIBITED MATERIALS LIST
(Continued)

MATERIAL	LIMIT/EXPLANATION
Free Liquids	Limit: Except for entrapped or residual liquids in well drained containers (0.5% of total volume maximum), no liquids including any that might separate from the waste under ambient temperature and pressure conditions (e.g. ice, excessive evaporation and condensation). Condensation in plastic bags and waste packages shall be considered entrapped liquids. Individual trash bales which are wet shall be excluded from shipment. Slightly soggy bales that occasionally drip should be limited to 30% to prevent excessive condensation within the container.
Particulates	Limit: Wastes packaged in unlined metal drums or ISO containers must contain no more than 1% weight of <10-micrometer particles or 15% weight of <200-micrometer particles. Some examples of fine particulates are black oxide, orange oxide, green salt, sump cakes, milled magnesium fluoride, dust collector residues, floor and pad sweepings, and soils.
Compressed gases	Limit: Defined by Title 49, CFR 173.300. However, all containers designed for compression, shall be assumed to exceed limit unless valve mechanism is removed, or in the case of aerosol cans, the can has an obvious puncture. Some examples of compressed gas containers include LP gas containers, oxygen containers, and aerosol cans. Typical aerosol cans may have containing paint, adhesives, cleaning and deodorizing agents, and personal care items.
Stabilization	Limit: Waste minimization shall be attained to the extent practicable by size reduction and efficient packaging.
Etiologic Agents	Limit: None allowed. Pathogens, infectious wastes or other etiologic agents. Potential source of this prohibited waste would be from Medical. Example include band aids, tongue blades, syringes, cotton balls or other materials stained with blood or other body materials, and outdated pharmaceuticals.

PROHIBITED MATERIALS LIST
(Continued)

MATERIAL	LIMIT/EXPLANATION
Chelating Agents:	Limit: No greater than 1% by weight. Chelating or complexing agents. Chelating agents form coordination compounds by offering two or more chemical bonds (through ligands) to a central metal ion. The most common chelating agent is EDTA. Other common chelating agents are aminopolyacteic acids. Excess chemicals from the on-site laboratory are the primary potential source. Wastes are to be evaluated for containment of chelating agents by Waste Characterization. Any exceeding the limit are identified on the MEF or RD/RC letter for exclusion from NTS shipments.
Polychlorinated Biphenyls	Limit: None allowed unless the concentration meets the municipal solid waste disposal limits. Reference 40 CFR 761.60. Commonly called PCB's. Frequently found in capacitors and transformers. Light ballasts that are PCB free will be marked as such. Materials contaminated with PCBs may show signs of an oily residue. If PCB's are suspected, contact Waste Characterization.
Explosives and pyrophorics	Limit: None allowed. Other than the commonly known explosives, laboratory hoods, bottles, and containers may contain small quantities of picric acid crystals which are highly explosive. Check labels on containers and RCRA evaluation results. Pyrophoric (self igniting) materials are commonly found in porous (spongy) uranium metals, and uranium fines such as fines from turnings and residue from grinding. Also prohibited are most all metal powders.

NOTE: This list was developed as an aid in identifying and recognizing prohibited materials. It is not to be used in lieu of NVO-325 waste acceptance criteria, or 40 CFR and 49 CFR requirements. Examples given are typical and are not intended to be all inclusive.

QUALIFICATION CERTIFICATION LLW PRE-LOADING PACKAGE INSPECTION FOR DRUMS

QUALITY CERTIFICATION
LLW PRE-LOADING PACKAGE INSPECTION
FOR DRUMS

INSPECTION PLAN NO. OCIP-002, Rev. 3 **SEQUENCE NUMBER** _____

EFFECTIVE DATE 10/12/93

LIMITATION: This inspection plan provides inspection requirements for LLW packages utilizing bolt closure type metal drums.

PURPOSE: The completion of this inspection plan with satisfactory resolution of all deficiencies provides authorization to affix the NV-211 "Packaging Certification" label.

APPROVAL: Name _____ Date 10/11/93
Manager, Quality Certification

INSTRUCTION: Verify inspections performed with initials or official identification stamp. Record deficiencies found under comments for each respective package in the Inspection Results Summary starting on this page (#1). If more than one deficiency and/or status cross reference each status.

SHIPMENT NUMBER: WML- _____ NUMBER OF PACKAGES _____

NTS APPROVED PACKAGE TYPE _____

WASTE DESCRIPTION: _____

INSPECTION RESULTS SUMMARY:

PACKAGE NUMBER	ACCEPTED	REJECTED	REWORK ACCEPTED	D.R. NO.	COMMENTS
000001					
000002					
000003					
000004					
000005					
000006					
000007					
000008					
000009					
000010					

QUALIFICATION CERTIFICATION LLW PRE-LOADING PACKAGE INSPECTION FOR DRUMS (Continued)

QUALITY CERTIFICATION
LLW PRE-LOADING PACKAGE INSPECTION
FOR METAL BOXES AND DRUMS

INSPECTION PLAN NO. OCIP-002, Rev. 3 **SEQUENCE NO.** _____

INSPECTION RESULTS SUMMARY (CONTINUED):

PACKAGE NUMBER	ACCEPTED	REJECTED	REWORK ACCEPTED	D.R. NO.	COMMENTS
000011					
000012					
000013					
000014					
000015					
000016					
000017					
000018					
000019					
000020					
000021					
000022					
000023					
000024					
000025					
000026					
000027					
000028					
000029					
000030					
000031					
000032					

QUALIFICATION CERTIFICATION LLW PRE-LOADING PACKAGE INSPECTION FOR DRUMS (Continued)

QUALITY CERTIFICATION
LLW PRE-LOADING PACKAGE INSPECTION
FOR METAL BOXES AND DRUMS

INSPECTION PLAN NO. OCIP-002, Rev. 3 **SEQUENCE NO.** _____

INSPECTION RESULTS SUMMARY (CONTINUED):

PACKAGE NUMBER	ACCEPTED	REJECTED	REWORK ACCEPTED	D.R. NO.	COMMENTS
000033					
000034					
000035					
000036					
000037					
000038					
000039					
000040					
000041					
000042					
000043					
000044					
000045					
000046					
000047					
000048					
000049					
000050					
000051					
000052					
000053					
000054					

QUALIFICATION CERTIFICATION LLW PRE-LOADING PACKAGE INSPECTION FOR DRUMS (Continued)

QUALITY CERTIFICATION
LLW PRE-LOADING PACKAGE INSPECTION
FOR METAL BOXES AND DRUMS

INSPECTION PLAN NO. OCIP-002, Rev. 3 **SEQUENCE NO.** _____

INSPECTION RESULTS SUMMARY (CONTINUED):

PACKAGE NUMBER	ACCEPTED	REJECTED	REWORK ACCEPTED	D.R. NO.	COMMENTS
000055					
000056					
000057					
000058					
000059					
000060					
000061					
000062					
000063					
000064					
000065					
000066					
000067					
000068					
000069					
000070					
000071					
000072					
000073					
000074					
000075					
000076					

QUALIFICATION CERTIFICATION LLW PRE-LOADING PACKAGE INSPECTION FOR DRUMS (Continued)

QUALITY CERTIFICATION
LLW PRE-LOADING PACKAGE INSPECTION
FOR METAL BOXES AND DRUMS

INSPECTION PLAN NO. OCIP-002, Rev. 3 **SEQUENCE NO.** _____

VERIFICATION CRITERIA PER ECQ 12.04

Verify the following:	Stamp or Initials
1. Verify that the paperwork used to check the shipment includes the "Defense Waste Management - Package Storage & Disposal Report," the "Tally Sheet" and the "Circle Copy" for the shipment to be checked, and the Shipment Number agrees on each with the shipment being checked.	_____
2. Verify that the date and time of generation on the "Defense Waste Management - Package Storage & Disposal Report" and the Tally Sheet agree within 30 seconds.	_____
3. Verify the approval section on the "Defense Waste Management - Package Storage & Disposal Report" is signed by a Waste Certification Official. (Note: This signature verifies there is documentation that the contents of the packages listed meet the requirements of certification, and the paperwork has also been checked against NVO-325 requirements.)	_____
4. Verify radiological survey results for each drum meets specifications (Reference RM-0009, Rev. 0, Section 11.3.	_____
5. Drums are DOT 7A Type A, or "strong tight."	_____
6. All drum lids are fully seated and secured to drum with bolt type rings. (The lip of the drum ring must be well down over the chime of the drum and fully contained by the bolt ring.)	_____
7. A dot of red paint is on the bolt indicating the bolt was torqued to specification.	_____
8. The tamper indicating device is placed around both flanges of the bolt closure mechanism and securely tightened. (The TID must be behind the bolt.)	_____

QUALIFICATION CERTIFICATION LLW PRE-LOADING PACKAGE INSPECTION FOR DRUMS (Continued)

QUALITY CERTIFICATION
LLW PRE-LOADING PACKAGE INSPECTION
FOR METAL BOXES AND DRUMS

INSPECTION PLAN NO. OCIP-002, Rev. 1 **SEQUENCE NO.** _____

VERIFICATION CRITERIA PER ECQ 12.04 (CONT.)

Verify the following (cont.):	Stamp or Initials
9. No free liquids on or emitting from packages.	_____
10. No significant package defects such as dents, rust, holes, cracks. (Due to ALARA concerns some rust is acceptable)	_____
11. Packages free of adhering or entrapped soil, debris, etc.	_____
12. Verify the that two bar code label identification are securely affixed, one on top and the other on the side near the top, and print size is 1/2 inch minimum.	_____
13. Verify that **Shipment Number**, **Package ID Number**, and the **Waste Stream ID Number** on the top and side of each drum matches with the "Defense Waste Management - Package Storage & Disposal Data Sheet signed by a Waste Certification Official.	_____
14. Verify the **Lot Number and Gross Weight** on the top and side of each drum agrees with the Tally Sheet.	_____
15. All drums listed as LSA on "Circle Copy" are stenciled, or labeled, with "Radioactive - LSA" with 1/2" minimum size lettering.	_____
16. All drums listed as RQ on "Circle Copy" are stenciled, or labeled, "RQ" with 1/2" minimum size lettering.	_____
17. Any drums listed as Limited Quantity on "Circle Copy" are stenciled, or labeled, "Limited Quantity" with 1/2" minimum size lettering.	_____

QUALIFICATION CERTIFICATION LLW PRE-LOADING PACKAGE INSPECTION
FOR DRUMS
(Continued)

QUALITY CERTIFICATION
LLW PRE-LOADING PACKAGE INSPECTION
FOR METAL BOXES AND DRUMS

INSPECTION PLAN NO. OCIP-002, Rev. 3 **SEQUENCE NO.** _____

VERIFICATION CRITERIA PER ECQ 12.04 (CONT.)

Verify the following (cont.):

Package Certification

18. All packages are acceptable per the above criteria, and NV-211 labels were signed by the undersigned, dated, and affixed to the top of each drum listed on the attached Shipment WML-_____ "Defense Waste Management - Package Storage & Disposal Data," "Tally Sheet," and "Circle Copy," paperwork.

Signed:_____ Date:_____
[ ] Waste Package Certifier
[ ] Waste Certification Official

Comments:_____

Copies: Certification Files (Original Copy)

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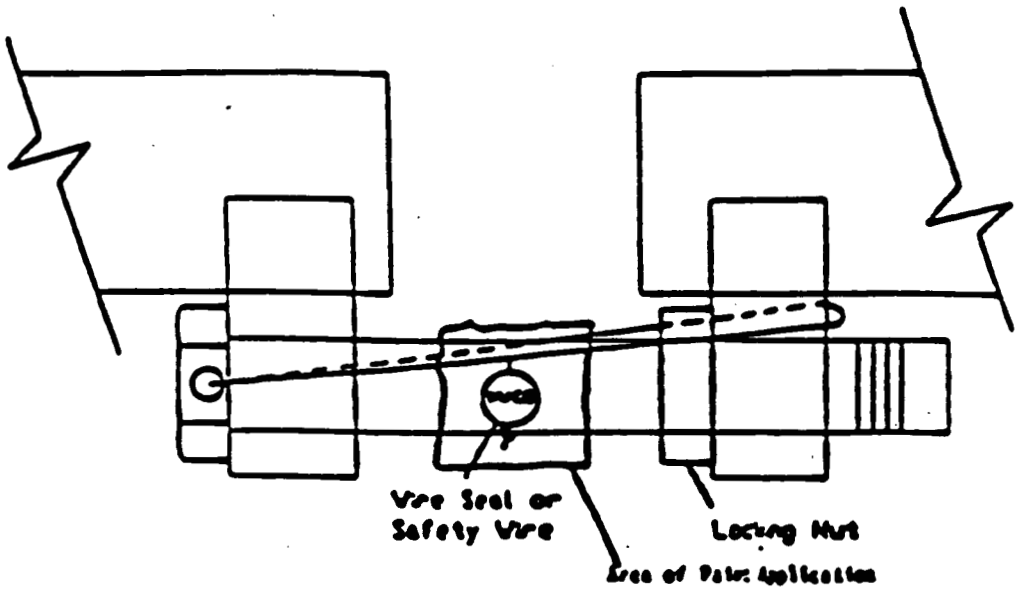
ATTACHMENT C
Page 1 of 1

BOLT DIAGRAM



BAR CODE LABELS

WML93415

PKG. # 000055

ONLO000000006

RADIOACTIVE - LSA

GROSS WGT. 234 KG (G-516 LBS)

FEMP INV. NO. W125616

5690

BAR CODE LABELS

WML94016

PKG. # 738555

ONLO000000006

GROSS WGT. 2689 KG

FEMP (G- 5930 LBS)

INV. NO. W127930

0 086

5690

BAR CODE LABELS

WML94016

PKG. # 738545

ONLO000000001

GR. WGT. 25000 LBS.(11340 KG.)

TARE WGT. 5618 LBS.(2548 KG.)

FEMP INV. NO. W126555

5690

ATTACHMENT E
Page 1 of 1

STORAGE & DISPOSAL DATA SHEET

10 Reynolds Electrical & Engineering Co., Inc.
Defense Waste Management - Package Storage & Disposal Data

Prepared By: [signature] Date: 8-18-93

Approved By: [signature] Date: 8-20-93

08/18/93
10:43:13

Phone: 513-738-8648 or 513-738-8646

SHIPMENT NO. WRL93410

WASTE STREAM ID NUMBER(S)	NUCLIDE CATEGORY	WASTE MATERIAL DESCRIPTION	NO. OF PKGS.	CONTAINER CODE	PACKAGE DESCRIPTION
ONL0000000006	2	MAGNESIUM FLUORIDE	5	117	3-1/2 x 4-1/2 x 7-1/2 Box

PACKAGE IDENT. NUMBER	WASTE STREAM ID NO.	ASSAY DATE DDMMMYY	PACKAGED DATE DDMMMYY	CONT TYPE CODE	OPER CODE	WASTE CODE	EXTERNAL VOLUME CU. M.	INTERNAL VOLUME CU. M.	GROSS WEIGHT KGS.	NET WEIGHT KGS.	RADIATION AT SURF MR/HR	RADIATION 1 METER MR/HR	NUCLIDE QUANTITIES U-238 CURIES	U-235 CURIES	U-234 CURIES	TOTAL CURIES
738001	06	12AUG93	11AUG93	117	B	DS	3.010E+00	1.982E+00	3.463E+03	2.855E+03	.50	.50	2.515E-02	1.536E-03	3.125E-02	5.793E-02
738002	06	12AUG93	11AUG93	117	B	DS	3.010E+00	1.982E+00	3.516E+03	2.908E+03	.50	.50	2.564E-02	1.499E-03	3.070E-02	5.783E-02
738007	06	12AUG93	11AUG93	117	B	DS	3.010E+00	1.982E+00	3.466E+03	2.854E+03	.50	.50	2.506E-02	1.465E-03	3.000E-02	5.652E-02
738008	06	12AUG93	11AUG93	117	B	DS	3.010E+00	1.982E+00	3.491E+03	2.880E+03	.50	.50	2.518E-02	1.538E-03	3.128E-02	5.800E-02
738014	06	12AUG93	11AUG93	117	B	DS	3.010E+00	1.982E+00	3.566E+03	2.958E+03	.50	.50	2.597E-02	1.586E-03	3.227E-02	5.983E-02
TOTALS:							1.505E+01	9.909E+00	1.758E+04	1.445E+04			1.270E-01	7.624E-03	1.555E-01	2.901E-01

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ATTACHMENT F
Page 1 of 1

TALLY SHEET

WAL-93 410

08/18/93
10:43:08

TO: Reynolds Electrical and Engineering Co., Inc.
U.S. DOE, Nevada Test Site, Zone 2
Mercury, NV 89023
Attention: G. Kendall

FROM: Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, OH 45239

NEVADA TEST SITE SHIPMENT
TALLY SHEET

LOT NUMBER W090-518-V034-6533
LOT NUMBER W090-518-V034-6534
LOT NUMBER W094-518-V034-6530
LOT NUMBER W094-518-V034-6531
LOT NUMBER W094-518-V034-6532

LOT NUMBER	CONT. NO.	GROSS WT. (POUNDS)	TARE WT. (POUNDS)	NET WT. (POUNDS)	U ASSAY	PERCENT U-235	PERCENT U-238	PERCENT U-234	U POUNDS	ELEMENT WT(gms)	U-235 ISOTOPE WT(gms)	U-238 ISOTOPE WT(gms)	U-234 ISOTOPE WT(gms)	U-235 Ci	U-238 Ci	U-234 Ci	VOLUME CU FT
6531	738001	7634.0	1341.0	6293.0	2.670	.940	99.01	.008	168.0	76203	716.3	75449	38.1	1.536E-03	2.515E-02	3.125E-02	106.297
6533	738002	7752.0	1341.0	6411.0	2.670	.900	99.06	.007	171.2	77655	698.9	76925	31.1	1.499E-03	2.564E-02	3.070E-02	106.297
6534	738007	7642.0	1351.0	6291.0	2.660	.900	99.06	.007	167.3	75886	683.0	75172	30.4	1.465E-03	2.506E-02	3.000E-02	106.297
6530	738008	7696.0	1347.0	6349.0	2.650	.940	99.01	.008	168.2	76294	717.2	75539	38.1	1.538E-03	2.518E-02	3.128E-02	106.297
532	738014	7862.0	1341.0	6521.0	2.660	.940	99.01	.008	173.5	78698	739.8	77919	39.3	1.586E-03	2.597E-02	3.227E-02	106.297
OTALS		38586.0	6721.0	31865.0					848.2	384735	3555.1	381003	177.0	7.624E-03	1.270E-01	1.555E-01	531.486
						--- LOT TOTALS ---											
6533	1	7752.0	1341.0	6411.0					171.2	77655	698.9	76925	31.1	1.499E-03	2.564E-02	3.070E-02	106.297
6534	1	7642.0	1351.0	6291.0					167.3	75886	683.0	75172	30.4	1.465E-03	2.506E-02	3.000E-02	106.297
6530	1	7696.0	1347.0	6349.0					168.2	76294	717.2	75539	38.1	1.538E-03	2.518E-02	3.128E-02	106.297
6531	1	7634.0	1341.0	6293.0					168.0	76203	716.3	75449	38.1	1.536E-03	2.515E-02	3.125E-02	106.297
6532	1	7862.0	1341.0	6521.0					173.5	78698	739.8	77919	39.3	1.586E-03	2.597E-02	3.227E-02	106.297

ATTACHMENT G
Page 1 of 1

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COMPUTER PRINTOUT - "CIRCLE COPY"

WML-93 410

Reynolds Electrical and Engineering Co., Inc.
Radioactive Waste Management-Storage & Disposal

PACKAGE NO.	NET WT	TARE WT	GROSS WT	LSA	LQ	RQ
738001	6293.00	1341.00	7634.00	X		
738002	6411.00	1341.00	7752.00	X		
738007	6291.00	1351.00	7642.00	X		
738008	6349.00	1347.00	7696.00	X		
738014	6521.00	1341.00	7862.00	X		

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ATTACHMENT H
Page 1 of 1

NV-211 PACKAGING CERTIFICATION LABELS

NV-211
1/27/89

PACKAGING CERTIFICATION

U.S.
DOE

This certifies that this container and its contents are in acceptable condition for transportation and waste disposal according to DOT (49 CFR), EPA (40 CFR), and DOE/NV (NVO-325) requirements.

DATE: _____

CERTIFIED BY: _____

TITLE: CERTIFICATION OFFICIAL

ORGANIZATION: FEMP

FS-F-234 (REV. 8/3/93)

NV-211
1/27/89

PACKAGING CERTIFICATION

U.S.
DOE

This certifies that this container and its contents are in acceptable condition for transportation and waste disposal according to DOT (49 CFR), EPA (40 CFR), and DOE/NV (NVO-325) requirements.

DATE: _____

CERTIFIED BY: _____

TITLE: PACKAGE CERTIFIER

ORGANIZATION: FEMP

FC-F-234-1 (REV. 8/3/93)

ATTACHMENT I
Page 1 of 1

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STATEMENT OF COMPLIANCE

STATEMENT OF COMPLIANCE

I have checked all packages in Shipment No. _____ to certify that each has an NV-211 label dated with a current date, and signed by either a Package Certifier or a Waste Certification Official. I fully understand the importance of the NV-211 label, and have performed this check with the utmost care to preclude any error on my part.

Caution: Sign this statement only when certain that you have performed the verification check thoroughly and accurately. If you were interuppted while checking NV-211 labels in this shipment, you are required to recheck the entire shipment prior to signing this statement.

Certified By: _____ Date _____

Waste Certification Official

QA/QC-930818-1, Rev. 0

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ATTACHMENT J
Page 1 of 4

QUALIFICATION CERTIFICATION LLW PRE-LOADING PACKAGE INSPECTION FOR STANDARD METAL BOXES

QUALITY CERTIFICATION
LLW PRE-LOADING PACKAGE INSPECTION
FOR STANDARD SIZE METAL BOXES

INSPECTION PLAN NO. OCIP-001, Rev. 4 **SEQUENCE NUMBER** 94-

EFFECTIVE DATE 10/01/93

LIMITATION: This inspection plan provides inspection requirements for LLW packages utilizing metal boxes of the nominal 4-ft x 4-ft x 7-ft size.

PURPOSE: The completion of this inspection plan with satisfactory resolution of all deficiencies provides authorization to affix the NV-211 "Packaging Certification" label.

APPROVAL: Name _____ Date 10/04/93
Manager, Quality Certification

INSTRUCTION: Verify inspection performed with initials or official identification stamp. Record any deficiencies found under item of concern and summarize results on this page (Page 1).

SHIPMENT NUMBER: WML _____ NUMBER OF PACKAGES _____

NTS APPROVED PACKAGE TYPE _____

WASTE DESCRIPTION: _____

INSPECTION RESULTS SUMMARY:

PACKAGE NUMBER	ACCEPTED	REJECTED	REWORK ACCEPTED	D.R. NO.	COMMENTS

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QUALIFICATION CERTIFICATION LLW PRE-LOADING PACKAGE INSPECTION FOR STANDARD METAL BOXES (Continued)

QUALITY CERTIFICATION
LLW PRE-LOADING PACKAGE INSPECTION
FOR STANDARD SIZE METAL BOXES

INSPECTION PLAN NO. OCIP-001, REV. 4 **SEQUENCE NO.** 94-

VERIFICATION CRITERIA PER ECQ 12.04

Verify the following:	Stamp or Initials
1. Verify that **Shipment Number**, **Package ID Number**, and the **Waste Stream ID Number** on the box matches with the REECO Radioactive Waste Management - Package Storage & Disposal Data Sheet (Circle Copy) signed by Quality Certification, and the **Gross Weight** on the Box agrees with the accompanying Tally Sheet.	_____
2. Information verified in Item 1 above appears on two sides and top of each box.	_____
3. No inappropriate information present on packages. (e.g., no inaccurate, misleading, or derogatory information.)	_____
4. No free liquids on or emitting from packages.	_____
5. No significant package defects such as dents, rust, holes, cracks.	_____
6. Packages free of adhering or entrapped soil, debris, etc.	_____
7. DOT required Radioactive LSA, LQ, and RQ markings applied.	_____
8. DOT required labeling applied.	_____

Note: Package containing asbestos requires asbestos label, ORM-C. RQ should be stenciled next to ORM-C only when quantity of asbestos meets EPA and 49 CFR reportable quantity limits.

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QUALIFICATION CERTIFICATION LLW PRE-LOADING PACKAGE INSPECTION
FOR STANDARD METAL BOXES
(Continued)

QUALITY CERTIFICATION
LLW PRE-LOADING PACKAGE INSPECTION
FOR STANDARD SIZE METAL BOXES

INSPECTION PLAN NO. OCIP-001, REV. 4 **SEQUENCE NO.** 94-

VERIFICATION CRITERIA PER ECQ 12.04 (CONT.)

Verify the following where applicable (cont.):

Stamp or Initials

Metal Box - Bolt type closure:

Designs: Galbreath, Inc. Dwg. IS1503 (no protruding flanges)
Strong Tight Container
Exterior dimension 41.8" x 55" x 80

No. of Boxes _____

or
Carolina Container Services (protruding flanges)
Strong Tight Container
Exterior dimension 42" x 55" x 80"

No. of Boxes _____

9. Required number of bolts (26), washers and nuts are in place and tightened. _____

10. Identify vent plug is in place and secure. _____

Metal Box - Bolt type closure, protruding flanges:

Design: Container Products Dwg. 1C-01-542-2-01, Rev 0.
Assembly SSB-82.3-5-7A-BRF
DOT 7A Type A, protruding flange bolted closure.
Exterior dimension 81.25" x 57.25" x 40.5"

Number of Boxes _____

11. Required number of bolts (26), washers and nuts are in place and tightened. _____

12. Identify vent plug is in place and secure. _____

13. Open holes are in runners (required when welds on runners are inside, or not continuous tight welded). _____

14. Red dot (drain plug tightened) or black dot (no drain plug) painted on box. _____

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QUALIFICATION CERTIFICATION LLW PRE-LOADING PACKAGE INSPECTION FOR STANDARD METAL BOXES (Continued)

QUALITY CERTIFICATION
LLW PRE-LOADING PACKAGE INSPECTION
FOR STANDARD SIZE METAL BOXES

INSPECTION PLAN NO. OCIP-001, REV. 4 **SEQUENCE NO.** 94-

VERIFICATION CRITERIA PER ECQ 12.04 (CONT.)

	Stamp or Initials
Old Style Metal Boxes (cont.):	
Design: Electro-Panel Dwg. D-89DW000800 SBA 7 6-Drum Overpack, DOT 7A Type A Clip and bolted collar closure.	
Number of Boxes _____	
15. Required number (14) wedge type locking pins are fully engaged catching lower edge of locking strap, and notch is at least flush with outer edge of strap.	_____
16. Separate collar attached to box and properly secured (all bolts in place and tightened).	_____
17. Open holes are in runners.	_____
18. Red dot (drain plug tightened) or black dot (no drain plug) painted on box.	_____

Comments: _____

_____

_____

CERTIFICATION:

I hereby certify that the above inspection checklist has been completed, and witness that all above items are correct to the best of my knowledge. Based on the results of this inspection, and the receipt of a copy of the Package Storage & Disposal Data Report signed by a Waste Certification Official, I have signed and affixed an NV-211 label to each waste container. I have also applied a tamper indicating device(s) to each of the containers that was identified with my personal inspection stamp, or was initialed with a permanent marker, to provide unique identification.

Signed: _____ Date: _____

[ ] Waste Package Certifier
or
[ ] Waste Certification Official

Copies: Shipment Certification File (Original Copy)
Backlog & Disposition

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ATTACHMENT K
Page 1 of 1

QUALITY CERTIFICATION CHECKLIST ISO CONTAINER" READY TO SHIP"

QUALITY CERTIFICATION CHECKLIST
ISO CONTAINER "READY TO SHIP"

INFORMATION

DATE: _____ SHIPMENT NUMBER: _____

MTL. TYPE: _____ BOX ___ Serial No.: _____

MTL. TYPE: _____ ___ Serial No.: _____

LOCATION : West Water Tower

WEIGHTS:	BOX 1	BOX 2
Gross	_____	_____
Tare	_____	_____
Net	_____	_____

EXAMINATION CRITERIA (Quality Certification)

Trailer No.: _____

	Initials
1. Verify "Item Production/Certification/Identification" W-65 card is completed accurately. (Form FS-F-1945-1, Rev. 11/20/92)	_____
2. Container does not show evidence of leaking.	_____
3. Radioactive placards present. (4 sides)	_____
4. No holes, serious dents, or excessive rust.	_____
5. Marking is complete as follows:	
Proper shipping label(s) identified on three sides (LSA, RQ, LQ)	_____
Gross weight identified	_____
Shipment Number	_____
Waste Stream Number	_____
Container Number	_____
FEMP Marking Code	_____
6. Marked weight values match above values.	_____
7. The doors are latched, sealed with caulking, and the two latch bars are banded together.	_____
8. Seal number Box #1_____ affixed to container. Box #2_____	_____
9. All unnecessary markings have been removed or covered.	_____

PLACE A SIGNED and DATED NV-211 ON DOOR OF CONTAINER WHEN ABOVE CRITERIA IS SATISFACTORILY MET.

I hereby certify the above items have been examined and the above items are correct to the best of my knowledge.

Signed:_____ Date: _____
(Quality Certification)

ECQ-880930-1, Rev. 4 (09/09/93)

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ATTACHMENT K-1
Page 1 of 1

QUALITY CERTIFICATION CHECKLIST OVERSIZE WHITE METAL BOX "READY TO SHIP"

QUALITY CERTIFICATION CHECKLIST
OVERSIZE WHITE METAL BOX
"READY TO SHIP"

INFORMATION

DATE: _____ SHIPMENT NUMBER: _____

MTL. TYPE: _____ BOX ____ Serial No.: _____

MTL. TYPE: _____ ____ Serial No.: _____

LOCATION : _____ WEIGHTS: Gross _____ BOX 1 _____ BOX 2

_____ Tare _____ _____

_____ Net _____ _____

EXAMINATION CRITERIA (Quality Certification) Initials

Trailer No.: _____

1. Verify "Item Production/Certification/Identification" 65-1 Card is completed accurately. Form Number FS-F-1945-1 (11/20/92) _____
2. Container does not show evidence of leaking. _____
3. Radioactive placards present. (4 sides) _____
4. No holes, serious dents, or excessive rust. _____
5. Marking is complete as follows:
   - Proper shipping label(s) identified on three sides (LSA. RQ, LQ) _____
   - Gross weight identified _____
   - Shipment Number _____
   - Waste Stream Number _____
   - Container Number _____
   - FEMP Marking Code _____
6. Marked weight values match above values. _____
7. The lid is sealed with metal clips or bolts. _____
8. Seal number #1_____ affixed to container. _____

   #2_____
9. All unnecessary markings have been removed or covered. _____

PLACE A SIGNED and DATED NV-211 ON CONTAINER WHEN ABOVE CRITERIA IS SATISFACTORILY MET.

I hereby certify the above items have been examined and the above items are correct to the best of my knowledge.

Signed: _____ Date: _____
(Waste Certification)

ECQ-890815-1, Rev.3 (09/10/93)

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ATTACHMENT L
Page 1 of 1

LIMITED QUANTITY AND "RQ" LABELS

Radioactive-LSA

RADIOACTIVE-LIMITED QUANTITY

UN-2910

FROM: FMPC

This package conforms to the conditions and limitations specified in 49 CFR 173.421 for excepted radioactive material, limited quantity, n.o.s., UN-2910.

FMPC-RSST-1[illegible]-1 (REV. 10/2[illegible])

RQ

5690

ATTACHMENT M
Page 1 of 1

VEHICLE RADIATION MONITORING SHEET

FEMP
ES&H - RADIOLOGICAL CONTROL
VEHICLE RADIATION MONITORING REPORT Page _____ of _____

DATE MONITORED:	TIME:	TECHNICIAN (PRINT):	TECHNICIAN (SIGNATURE):

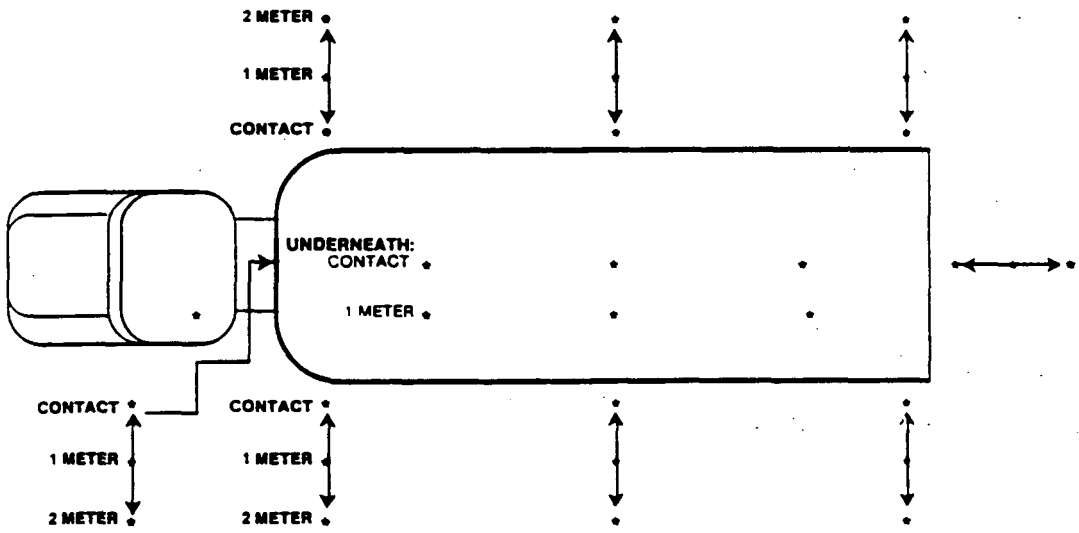
CARRIER NAME:

VEHICLE TYPE: ☐ TRACTOR ☐ TRAILER ☐ OTHER MOTOR VEHICLE ☐ RAILCAR ☐ OPEN FLATBED ☐ COVERED
☐ OTHER (EXPLAIN): _____

LICENSE NO. (IF MOTOR VEHICLE):	STATE:	TRAILER OR RAILCAR IDENTIFICATION:	SEAL NUMBER:

VEHICLE STATUS:
☐ (a) OUTGOING
☐ (b) INCOMING
☐ (c) OUTGOING EMPTY
☐ (d) EMPTY, BEFORE LOADING
☐ (e) OTHER: _____

Dose rate shown by asterisks in mr/hr.
Swipe Locations circled.



(1) Same locations apply to van-type trucks. For railcars, disregard cab section but show dose rates found at each end.
(2) Measurements at 1 or 2 meters not required if all readings at vehicle surface are not greater than 2 mrem/hr.

SURVEY INSTRUMENTS USED	TYPE:	MODEL NO	SERIAL NO	CALIBRATION DUE
	TYPE	MODEL NO	SERIAL NO	CALIBRATION DUE

NO.	DISTRIBUTION OF COPIES
1	RADIOLOGICAL SAFETY (RECORD COPY)
2	TRAFFIC SUPERVISOR
3	QUALITY ASSURANCE

REVIEWED BY:	DATE:

FS-F-1596-1 (REV 2/19/93)

000827

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ATTACHMENT M-1
Page 1 of 2

RADIOLOGICAL SURVEY REPORT

FEMP
RADIOLOGICAL SURVEY REPORT

DATE:	LOCATION:	RCT:	BADGE:	PAGE:
TIME:	LEVEL:	SIGNATURE:		1 of ___

REASON FOR SURVEY: _____

INSTRUMENTS

MODEL	SERIAL NUMBER	TYPE (α, β, γ)	CALIBRATION-DUE DATE	BKGD. (cpm)	EFF./CF	COUNT TIME (min)	MDA (dpm)	RESP./PERFORMANCE TEST SAT? YES	NO

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (ft.)	DPM/100cm² ALPHA		DPM/100cm² BETA-GAMMA		CORRECTED DOSE RATE (MREM/HR)			
			REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	γ CONTACT	β CONTACT	γ AT ___ FT.	β AT ___ FT.

NO.	DISTRIBUTION OF COPIES
1	RCT Supervisor
2	Facility Supervisor
3	CRU Manager

NOTIFICATION OF SURVEY RESULTS

SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE

FS-F-1983-1 (REV 12/31/92)

000828

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RADIOLOGICAL SURVEY REPORT
(Continued)

Fernald Site
IRS&T - RADIOLOGICAL SAFETY

RADIOLOGICAL SURVEY REPORT - CONTINUATION SHEET

Page _____ of _____

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	DPM/100cm² ALPHA		DPM/100cm² BETA-GAMMA		CORRECTED DOSE RATE (MREM/HR)			
						γ	β/γ	γ	β/γ
		REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	CONTACT	CONTACT	AT ____ FT.	AT ____ FT.

5690

ATTACHMENT N
Page 1 of 1

WASTE CERTIFICATION PRELIMINARY TRAILER CHECKLIST--VANS

QUALITY CERTIFICATION - PRELIMINARY TRAILER CHECKLIST FOR VANS

RADIATION SMEARS DATE: _____ LOCATION: _____

CARRIER: _____ TRAILER NO.: _____

CHECKLIST ITEM	VERIFIED BY
1. Verify preliminary trailer inspection completed (on the trailer only) prior to driver unhooking from the empty trailer: Accepted ____ Rejected ____	_____
2. Verify the RC Technician has surveyed the empty trailer, recorded results on Form ES&H-1596-1, and results meet acceptance requirements listed in 49 CFR 173.441.	_____
3. After the survey, verify the RS Technician has sealed the doors with a tamper proof seal. Seal No. _____	_____
4. Prior to loading, verify seal number is same as applied by RC Technician and shows no evidence of tampering.	_____
5. Verify all packages have signed and dated NV-211 labels affixed.	_____
6. Verify that packages have been properly tied-down as specified by SOP-TRF-46-C-110.	_____
7. Verify that the loaded trailer rear doors are secured with a tamper proof seal. Shipment No. WML- - _____ Seal No. _____	_____

Signed: _____ Date: _____
(Quality Verification)

Distribution: 1. QA Certification 2. Traffic Manager

QA Certification Form
ECQ-880801-1, Rev. 5 (10/06/93)

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ATTACHMENT O
Page 1 of 1

QUALITY CERTIFICATION - PRELIMINARY TRAILER CHECKLIST FOR FLATBEDS (ISO CARGO CONTAINER SHIPMENTS)

QUALITY CERTIFICATION - PRELIMINARY TRAILER CHECKLIST FOR FLAT BEDS (ISO CARGO CONTAINER SHIPMENTS)

RADIATION SMEARS DATE: _____ LOCATION: _____

CARRIER: _____ TRAILER NO.: _____

CHECKLIST ITEM			VERIFIED BY
1. Verify the preliminary trailer inspection completed (on trailer only) prior to driver unhooking from the empty trailer:	Accepted	Rejected	
	_____	_____	_____
2. Prior to loading verify the RC Technician has surveyed the empty trailer, recorded results on Form ES&H-1596-1, and that results meet acceptance requirements listed in 49 CFR 173.441. (Note: If over 48 hrs. since smears were made, the trailer must be resmeared.)			_____
3. Verify that the doors of the ISO cargo containers are banded closed and secured with a tamper proof DOT approved seal.			_____
4. Verify all packages have signed and dated NV-211 labels affixed.			_____
4. Record shipping information in the blocks below:			_____

Shipment No. WML- _____ - _____

Container No. 1: Ser. No. _____ Seal No. _____

Container No. 2: Ser. No. _____ Seal No. _____

Signed: _____ Date: _____
(Quality Verification)

Distribution: 1. QA Certification 2. Traffic Manager

QA Certification Form
ECQ-891010-1, Rev. 5 (10/06/93)

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ATTACHMENT P
Page 1 of 1

BILL OF LADING

BILL OF LADING

STRAIGHT BILL OF LADING — SHORT FORM — ORIGINAL — NOT NEGOTIABLE

CARRIER	DATE	CARRIER'S NO.	SHIPPER'S NO.

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue by the carrier of the property described in the Original Bill of Lading.

AT FERNALD, OHIO

FROM USDOE, c/o Fernald Environmental Restoration Management Corporation
ACTING UNDER DOE CONTRACT DE-AC05-92OR21972

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western and Illinois Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which govern the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee — For purposes of notification only.)

Consigned to: _____

Destination: _____ State of: _____ County of: _____

Route: _____

Delivering Carrier: _____ Vehicle No.: Trg. #

Car Initial: _____ Car No.: _____ Seal No.: FA-WMCO-

NUMBER PACKAGES	HM	DESCRIPTION OF ARTICLES, SPECIAL MARKS, AND EXCEPTIONS	* WEIGHT (Subject to Correction)	CLASS OR RATE	CHECK COLUMN
		IN THE EVENT OF AN ACCIDENT OR EMERGENCY, NOTIFY THE DOE EMERGENCY OPERATIONS CENTER, OAK RIDGE, TN — 615-576-1005, COLLECT, DAY OR NIGHT.			

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement.
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

FERMCO
(Signature of consignor)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

Received $ _____ to apply in prepayment of the charges on the property described hereon.

Agent or Cashier

Per _____
(The signature here acknowledges only the amount prepaid.)

Charges Advanced:

$ _____

* If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether "carrier's or shipper's weight."

NOTE - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

** THIS SHIPMENT IS CORRECTLY DESCRIBED
CORRECT WEIGHT IS

L: _____

SUBJECT TO VERIFICATION BY THE E. W. & I. BUREAU NATIONAL WT AGREEMENT

- Shipper's signature in box at right is not a part of bill of lading approved by the Interstate Commerce Commission.

741 NO.: _____

SS - SO NO.: _____

MSO NO.: _____

EQUAL EMPLOYMENT OPPORTUNITY — The nondiscrimination clauses contained in section 202 of Executive Order 11246 relative to equal employment opportunity for all persons without regard to race, creed, color, or national origin, and the implementing rules and regulations of the President's Committee on Equal Employment Opportunity which, to the extent not inconsistent with Executive Order 11246, remain in full force and effect as those of the Secretary of Labor, are incorporated herein.

THIS SHIPMENT is subject to the terms and conditions set forth in the standard form of the U. S. Government bill of lading and to any available special rates or charges.

- This shipment is the property of and the freight charges are assumed by the U. S. Government. Subject to the provisions of

Section 16721 Quotation No. (Tender No. _____ Effective _____).

- IT IS UNDERSTOOD AND AGREED THAT THIS SHIPMENT IS MADE BY THE CONSIGNOR FOR AND ON BEHALF OF THE U. S. GOVERNMENT; THAT THE CONSIGNOR IS AUTHORIZED TO AND WILL MAKE ANY PAYMENT DUE HEREUNDER AS CONSIGNOR OR SHIPPER FROM GOVERNMENT FUNDS ADVANCED AND AGREED TO BE ADVANCED TO IT BY THE U. S. DEPARTMENT OF ENERGY AND NOT FROM ITS OWN ASSETS, AND THAT NOTHING HEREIN SHALL PRECLUDE LIABILITY OF THE GOVERNMENT FOR ANY PAYMENT PROPERLY DUE HEREUNDER IF FOR ANY REASON SUCH PAYMENT IS NOT MADE BY THE CONSIGNOR FROM SUCH GOVERNMENT FUNDS.

- THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED AND LABELED, AND ARE IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION.

USDOE, c/o Fernald Environmental Restoration Management Corporation, shipper

Per _____

Permanent post office address of shipper,

P. O. BOX 398704 CINCINNATI, OHIO 45239-8704
AREA CODE 513 738-6200

_____ Agt.

Per _____

FS-F-462 (REV 1/15/93)

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ATTACHMENT Q
Page 1 of 1

QUALITY CERTIFICATION FINAL TRAILER/VEHICLE CHECKLIST

Quality Certification Final Trailer Checklist

Trailer Number:_____

1. Verify the driver has performed a safety inspection of vehicle prior to departure from the site .

   Headlights (low & high beams) _____
   Turn signals (front & rear) _____
   Brake Lights _____
   Horn _____
   Windshield Wipers _____
   Tires (minimum 2/32" on trailer) _____
   Tires (minimum 4/32" on tractor) _____

Comments:_____
_____

2. Verify the envelope containing the Storage & Disposal Sheet and Tally Sheet having the correct Seal #, Shipment #, and trailer #, is in trailer .

   Seal Number _____
   Shipment Number _____
   Trailer Number _____

3. Verify that a DOT approved seal has been placed on the trailer doors when replacing the temporary seal that the ERMT has applied after monitoring the vehicle .

   Temporary Seal Number _____
   DOT Seal Number _____

4. Verify the proper placards are in place,as required
   Material Type (LSA or LQ) _____
   PlacardType (Radioactive or Drive Safely) _____

5. Verify that packages are properly tied-down as specified by SOP-TRF-46-C-110. Sea/Land containers shall be secured with four straps on each container, and shall be both chained and blocked with a 2X4 on front and back of load. _____

Date Shipped:_____ Time Shipped:_____

I hereby certify that the above checklist has been completed and witness that all the above items are correct to the best of my knowledge.

Signed:_____ Date:_____
Quality Certification Specialist

ECQ-880801, Rev.3 (01/27/93)

SHIPPING ORDER FOR NUCLEAR MATERIAL

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ATTACHMENT R
Page 1 of 1

Fernald Environmental Restoration Management Corporation

SHIPPING ORDER FOR NUCLEAR MATERIAL

Date Prepared: _____

SHIP TO: REYNOLDS ELECTRICAL & ENGINEERING CO.	ROUTING:		SHIPPERS AUTHORIZATION NO.:	SHIPPING ORDER NO.:
STREET: c/o U.S. DEPARTMENT OF ENERGY	■ PREPAID ☐ COLLECT	CAR OR TRAILER NO.: / SEAL NO.:	SHIPPED FROM PLANT:	ORIGINATOR NO.:
CITY: MERCURY STATE: NEVADA ZIP CODE: 89023		BILL OF LADING NO.: / QUALITY CONTROL APPROVAL:		DATE SHIPPED:
SPECIAL INSTRUCTIONS:		COUNTRY CONTROL NO.: US US 00 00 / PROJECT NO.:		TIME SHIPPED:

Type of Material _____ FEMP Production Order No. N003 Originator's Signature _____

Station RIS VAB DOE 741 No. FVC-VAB- Shipment Authorized By _____ NUCLEAR MATERIALS REPRESENTATIVE

NMC DATA			ORIGINATOR'S DATA						MATERIAL CONTROL DATA					
FROM MBA	COST CODE	741 NO.	P.O. NO.	LOT NUMBER	QUANTITY	WEIGHT (LBS) GROSS	TARE	NET	ANAL. CODE	ELE ANAL.	ELE. LBS.	ELE. GRAMS OR KGS	ISO. ANAL.	U^{235} GRAMS OR KGS

DISTRIBUTION OF COPIES			
1	NMA (RECORD COPY)	4	Environmental Restoration
2	Traffic	5	Quality Certification
3	NMA (Cost)	6	Originator

I, _____ certify that this shipment was made on the above date after complying with all regulations.

Audited by _____ Date _____

FS F 558 3 (REV. 2/11/90)

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ATTACHMENT S
Page 1 of 1

L-LLW SHIPMENT CHECKLIST

FMPC

SECURITY, ACQUISITION & MATERIALS LOGISTICS - TRANSPORTATION SECTION

LLW SHIPMENT CHECKLIST & NTS NOTIFICATION

DATE:	SHIPMENT NO.:	B/L NO.:	SS SO NO.:	CARRIER:	TRAILER NO.:

	LSA	DEPARTURE TIME:	ETA:	NOTIFICATION TO ☐ (FTS: 575-63
	RQ	FROM:		
	LTD. QTY.	TO:		
	DRUMS	DATE:		
	WASTE CERTIFICATION CONTAINER TOTALS, WEIGHTS & CURIES OF LSA/LTD QTY - RQ SHEETS	BY WHOM:		
	BOXES	TO WHOM:		
	SMEAR SHEETS	☐ FACSIMILE SENT	☐ DRIVER GIVEN DOSIMETER BAC	
	WASTE MANAGEMENT STORAGE & DISPOSAL SHEETS DELIVERED — PER NTS	MONITORING REPORTS:		
	TALLY SHEETS			
	CARRIER/DRIVER INSTRUCTION PACK (2)			
	NEVADA PERMIT			
	INCOMING/EMPTY BEFORE LOADING			
	OUTGOING/LOADED			
	TRACTOR CAB			
	OFFSITE LOADING-TIE DOWN-VEHICLE INSPECTION REPORT			
	WEIGHT TICKET			
	CHECKED TALLY SHEET (BY CHECKER)			

DRIVER RECEIVES:
COPY OF B/L, TALLY SHEET, INSTRUCTION PACK, NEVADA PERMIT, & ENVELOPE FOR CONSIGNEE WITH TALLY SHEET & MEMO B/L

SPECIALIST A/TRAFFIC	TRANSPORTATION SUPERVISOR (REVIEW)	TRAFFIC MANAGER (REVIEW)

	CONDITION OF CONTAINERS	LOADERS:
	CONTAINER PROPERLY LABELED	
	RADIOACTIVE PLACARDS (FOR LSA ONLY)	
	ENVELOPE WITH STORAGE & DISPOSAL SHEETS AND TALLY SHEETS IN TRAILER	
	TRAILER LINED WITH PLASTIC & CARDBOARD ON FLOOR— SCRAP WOODEN PALLETS AND/OR BOXES ENCLOSED WITH PLASTIC AS ONE PACKAGE	

Transportation Supervisor: _____

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ATTACHMENT T
Page 1 of 1

OFF-SITE LOADING TIE-DOWN INSPECTION - VEHICLE INSPECTION FORM

SECURITY, ACQUISITION & MATERIALS LOGISTICS DEPARTMENT - TRANSPORTATION SECTION

OFFSITE LOADING — TIE DOWN INSPECTION — VEHICLE INSPECTION

Date: _____

COMMODITY:	CARRIER:	TRAILER NO.:	SEAL NO.:
			FA-WMCO

BALE/BOX/DRUM/SEA LAND CONTAINER NUMBERS:

LSA _____
LSA-RO _____
LQ _____
LQ-RO _____
TOTAL _____

DISCREPANCIES DETECTED	CORRECTED YES	CORRECTED NO	SHIPMENT REJECTED YES	SHIPMENT REJECTED NO

Checked By _____ SIGNATURE - CHECKER

TIE-DOWN INSPECTION AND CHECK-OFF SHEET

INSPECTION ITEM	YES	NO
Wood shoring installed to prevent longitudinal or lateral movement		
Steel strapping around the cargo securing as a stable shipment		
When weight dictates, containers divided into two units, one front and one rear of trailer not exceeding approximately 20,000 pounds each		
½" steel strapping utilized (5450 lbs. minimum tensile strength)		
___ each anchor plates or "U" bolts fastened to underframe (___ each side of unit) placed and secured for ___ transverse bands over unit		
Four each brazeman plates or "U" bolts fastened to underframe (two for each band) placed under each unit and secured for two longitudinal bands, securing the boxes/skids into one tight unit, anchored to the floor of the trailer		
Two Signode seals No. 107 crimped whenever two bands are used on an end over end lap joint		
Anchor and brazeman plates secured with eight each 2" nails		
Sea Land Containers ..... 4 each nylon straps		
..... Chains		
..... 2 X 4s		

VEHICLE INSPECTION REPORT

CONDITION	PASS	FAIL	CONDITION	PASS	FAIL	CONDITION	YES	NO
Condition of Floor			Condition of Sides			Detected Sabotage Devices		
Condition of Interior			Condition of Exterior					
Condition of Roof			Condition of Rear Doors			Detected Evidence of Sabotage		

Overall appearance: _____

General Comments: _____

Accepted: _____ Rejected: _____

Checked By: _____ SIGNATURE - TRANSPORTATION SUPERVISOR

NO.	DISTRIBUTION OF COPIES
	Transportation Section (RECORD COPY)

TS-SAML-1450 (REV. 4/93)

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QUALITY CERTIFICATION TRAFFIC SHIPMENT DOCUMENTATION CHECKLIST

Quality Certification Traffic Shipment Document Checklist

	Bill/Lading(B/L)	Shipping Order(S.O.)
Ship #	_____	_____
B/L#	_____	_____
S.O.#	_____	_____
Trailer#	_____	_____
Date Prep	_____	_____
Mat.Type	_____	_____
Gross Wt.	_____	_____
Tare Wt.	_____	_____
Net Wt.	_____	_____
E.T.A.	_____	_____
Seal #	_____	_____
MCA sign	_____	_____
# of cont.	_____	_____
LSA/LQ/RQ	_____	_____

	Low Level Checklist		Packaging Information	
Ship #	_____		Hazard Class	_____
B/L #	_____		Material Form	_____
S.O.#	_____		Chemical Form	_____
All Checks	_____		Labels Required	_____
3 sign	_____		Packaging Type	_____

Radiation Monitoring Sheets

	Empty	Outgoing	Survey	Cab
Trailer#	_____	_____	_____	_____
Date/Time	_____	_____	_____	_____
Survey com.	_____	_____	_____	_____

*Complete liscense # _____
*Temporary Seal # _____

Container Radiological Sheets

	Date	Time	Data Complete	Ship #
Initials	_____	_____	_____	_____
Resmears	_____	_____	_____	_____

Off Site Tie Down Contaminated Articles Sheet

Ship #	_____	Curies	_____
Trailer #	_____	Signature	_____
Seal #	_____	Data Complete	_____
Sup.Sign	_____		

*3 Tally Sheets & 1 Storage/Disposal Sheet present _____
*Driver Inst. Pack complete and numbered _____
*Weight Ticket *Ft. Axle_____* Rear Axle_____* GR. Wt._____
(Maxium weight on front or rear axle 34,000 lbs.)
*Two stick-on Radioactive Placards included for Sea/Land shipments ____

ECQ-880731-1, Rev.3 (07/31/91)

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ATTACHMENT V
Page 1 of 2

QUALITY WASTE SHIPMENT VERIFICATION CHECKLIST

QUALITY WASTE SHIPMENT VERIFICATION

Page 1 of 2

Date_____ Time _____

Shipment No. WML-94-_____ Trailer No._____ No./Type Container_____

1. **Storage & Disposal Data Sheet**
   A. Material Description_____
   B. Signed _____ Shipment No. WML-94-_____
   C. Total Curies _____
   D. Total Gross Weight (kgs.)_____
   E. Total Volume (Cu Meters) _____
   F. Type Container _____
   G. Date _____Time _____
   H. Check of "G" for all copies _____

2. **Tally Sheet**
   Shipment No. WML-94-_____ Date _____ Time _____
   Check of Date & Time of all copies in Pkg. _____
   A. Lot Number | Gross Weight | Net Weight
   _____ _____ _____
   _____ _____ _____
   _____ _____ _____
   _____ _____ _____
   Totals _____ _____
   B. Total volume _____
   C. Total containers _____ Totals agree with "1" above _____
   D. Field copy of Tally Sheet is included in shipment folder _____

3. **Bill of Lading (FS-F-452 Rev 1/15/93)**
   B/L No._____ Trailer No._____ Seal No.FA/WMCO_____
   741 No.FVC-VAB- _____SS-SO No. _____ _____
   ETA : _____
   Number of containers:

		Type Container	Gross Wt.	Net Wt.
LSA _____	RQ _____	_____	_____	_____
	NON-RQ _____	_____	_____	_____
LQ _____	RQ _____	_____	_____	_____
	NON-RQ _____	_____	_____	_____
Totals	_____	_____	_____	_____

   _____ Above information agrees with Shipping Order & Tally Sheet.
   _____ Remainder of information of Bill of Lading checked.

4. **Shipping Order for Nuclear Material (FS-F-558-3 REV. 2/11/93)**
   A. Shipping Order No. _____ Trailer No. _____
   B. Bill of Lading No. _____ Seal No. FA-WMCO_____
   C. 741 No. FVC-VAB _____ MC & A Signed_____ _____
   D. Material Type _____
   E. Lot Nos. agrees with Tally Sheet _____ Total Quantity _____
   F. Gross Weight _____* Element Lbs. _____*
   G. Tare Weight _____* Element Grams or Kgs _____*
   H. Net Weight _____* Iso. Analysis _____*
   I. Element Analysis _____* U235 Grams or Kgs _____*
   J. Est. Time of Arrival _____
   K. *Totals (listed) & Individual Lot values (not listed) agree with Tally Sheet. _____

ECQ-890601-1, Rev.2, (09/17/93)

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ATTACHMENT V
Page 2 of 2

QUALITY WASTE SHIPMENT VERIFICATION CHECKLIST
(Continued)

QUALITY WASTE SHIPMENT VERIFICATION Page 2 of 2

5. **Low Level Waste Shipment Checklist and NTS Notification Form**
   A. Shipment No. WML-94-_____ B/L No. _____
   SS-SO No. _____
   B. Data on line 5A agrees with B/L and Shipping Order _____
   Completed except for Departure Time and Traffic Manager review _____

6. **Radiation Monitoring Sheet (FS-F-1596-1 Rev. 2/19/93) For:**
   A. Trailer Empty _____ Trailer ID _____
   B. Trailer Loaded _____ Trailer ID _____
   C. Cab Only _____ Trailer ID_____ License No._____
   D. Loaded Vehicle Radiological Survey _____ Trailer ID _____
   E. Temporary Seal Numbers _____
   F. Garage inspection attached _____

7. **Container Radiological Data**
   Initial Dose Rate Data _____ Smears: Date_____Time_____
   Equal to or less than hours specified prior to Load Time _____

8. **Weight Ticket**
   Load Weight _____ Rear Axle Wt._____ Drive Wt._____

9. **Off-Site Tie-Down Inspection Form (FMPC SAML 2495 REV 4/5/89)**
   Shipment No. WML-94-_____Trailer No._____Seal No. FA/WMCO_____
   A. Checked and signed in two places _____ _____

10. **LSA/RQ, LQ documentation**
   One copy in Traffic File package _____
   One copy in envelope for Driver _____
   A. Wt. checks with Tally Sheet _____
   B. Curies checks with Disposal Sheet or Tally Sheet _____
   C. Tally Sheet also in envelope _____
   D. Weight ticket in/with envelope (2 copies) _____

11. **Driver Instructions Complete (2 sets)** _____
   All Written identity & information checks _____

12. **Waste Certification Checklist present, signed and in agreement with other documentation.**
   A._____ Waste Certification Preliminary Trailer Checklist

   B._____ Waste Certification Traffic Shipment Documentation Checklist

   C._____ Waste Certification Final Trailer/Vehicle Checklist

Shipping Order signed by Certification Official _____

Shipment released on _____ at _____AM/PM

Signed _____

List Nonconformances found:

_____

_____

ECQ-890601-1, Rev 2, (09/17/93)

MAY 1994

1.0 **PURPOSE**

The purpose of this document is to establish the procedure for initiating the documentation required to ship containers of low level radioactive waste (LLRW) to the Nevada Test Site (NTS)/Department of Energy, Nevada (DOE/NV).

2.0 **APPLICABILITY**

NON-CONTROLLED COPY

This procedure is applicable to LLRW generated at the Fernald Environmental Management Project (FEMP) that has been prepared for shipment to NTS.

3.0 **RESPONSIBILITIES**

3.1 **Supervisors** - responsible for ensuring that personnel are qualified per established training requirements identified by the Division Manager.

3.2 **Shipping Coordinators** - responsible for the following:

3.2.1 Coordinating with Radiological Control to obtain radiological surveys of containers being shipped.

3.2.2 Completing documentation.

3.2.3 Assembling the shipping package folder.

3.2.4 Generating required documents.

3.2.5 Ensuring that QC inspects the shipping documentation.

3.2.6 Ensuring that the shipping package is complete.

3.3 **Materials Control & Accountability (MC&A)** - responsible for the following:

3.3.1 Forwarding required documents to the Shipping Coordinator.

3.3.2 Preparing a shipping order and shipping file.

3.3.3 Preparing a copy of the manifest and radiological survey results.

3.4 **Radiological Control** - responsible for the following:

3.4.1 Performing surveys of containers to be shipped.

3.4.2 Documenting survey results.

3.0 **RESPONSIBILITIES** (cont.)

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3.5 **Quality Control (QC)** - responsible for the following:

3.5.1 Ensuring that the Shipping Package contains the required documents.

3.5.2 Ensuring that documents are completed accurately.

3.6 **Quality Assurance (QA)** - responsible for the following:

3.6.1 Verifying that the Shipping Package is complete and accurate.

3.6.2 Forwarding the approved package to MC&A.

3.6.3 Keeping a file of the required documents - Permanent Certification Record (PCR).

3.7 **Shipping Data Entry Clerk** - responsible for the following:

3.7.1 Entering the correct data into the appropriate computer program.

3.7.2 Generating the specified documents for the Shipping Coordinator.

4.0 **DEFINITIONS**

4.1 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 US Postal Service.

4.2 Consignee - The person or organization designated in the shipping papers to receive a shipment.

4.3 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 transport. The commonly used ISO containers at the FEMP are Sea/land containers.

4.4 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) by product 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.

4.5 Limited Quantities (LQ) - Materials that the radiation level at any point on the external surface of the package does not exceed 0.5 m/R per hour, and the package does not contain more than 15 grams of uranium-235 and materials which quantities do not exceed those delineated in 49 CFR Section 173.423.

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4.0 **DEFINITIONS** (cont.)

4.6 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); or uranium, thorium, and tritium oxide as listed in 49 CFR Section 173.403 (n); or objects externally contaminated.

4.7 Off-Site - All of the areas outside the main perimeter security fence that are not controlled at all times by guards and security fences.

4.8 Package - Pertaining to radioactive materials, the packaging together with its radioactive contents as presented for transport.

4.9 Packaging - Pertaining to radioactive materials, the assembly of components necessary to ensure compliance with the packaging requirements of 49 CFR Subpart I.

4.10 Radioactive Material - Any material having a specific activity greater than 0.002 microcuries per gram.

4.11 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.

4.12 White Metal Box - Intermediate bulk container with a net capacity greater than 452 liters and less than 3,000 liters that meets HM-181 test standards.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

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

5.1.2 RM-0012, "Quality Assurance Program Description"

5.1.3 "FEMP Application to Ship Waste to the Nevada Test Site"

5.2 References

5.2.1 QP 12.07, "Certification of LLW Shipments to NTS"

5.3 Information Sources

5.3.1 01-C-602, "Low Level Radioactive Waste (LLRW) Shipment Preparation"

5.3.2 PO-0307, "Control and Accountability of Nuclear Material"

5.3.3 MCA-1-004 "Authorization and Approval of Non-Routine Shipments of Nuclear Material from the FEMP"

5.3.4 RC-RDA-006, "Radioactive Material Shipping and Receiving"

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6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.2 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Notes, Cautions, and Warnings precede the Step or Item to which they apply.

7.2 Sheet 1 of the Figures is a sample of the specific document (See Item 9.0). Sheet 2 of the Figures is a flow diagram of the specific document routing.

NOTE: The number in parenthesis indicates the procedure - page that specifies the activity associated with the document.

12.07 = QP 12.07 "Certification of LLW Shipments to NTS" (12/93)
12.04 = QP 12.04 "Certification of Loading and Shipment of LLRW" (12/93)
50C111 = SOP 50-C-111 "Traffic Documentation for Off-site Shipment of (LLRW)" (4/94)
50C112 = SOP 50-C-112 "Preparation of Documentation for Off-Site Shipment of (LLRW) (4/94)
RCRDA006 = RC-RDA-006 "Radiological Survey Requirements for Radioactive Material Shipping and Receiving" (10/94)
FMPC2083 = FMPC-2083 "Materials Control & Accountability Manual" (2/90)

7.3 If unable to complete any Step of this procedure, contact supervisor.

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8.0 **PROCEDURE**

8.1 Initiation of Documentation by Waste Stream

8.1.1 Waste Stream ONL0000000001

8.1.1.1 White Metal Boxes

SHIPPING COORDINATOR

8.1.1.1.1 After receiving the "Item Production/Certification/Identification" (65-1 card) Form FS-F-1945-1 (See Figure 1) and applicable "Material Evaluation and Container Information" sheets, (See Figures 2a thru 2e) check for accuracy and completeness and contact Radiological Control and request an initial survey and smear test of containers to be shipped.

8.1.1.1.2 When the initial "Radiological Survey Report" (See Figure 3) is received from Radiological Control, prepare the following documents:
(A) "Write-Up Sheet" (See Figure 4)
(B) "Data Entry Form" (See Figure 5)
(C) "Waste Summary" (See Figure 6)

8.1.1.1.3 Using the FAX, transmit the "Write-Up Sheet" to MC&A for bar code label generation.

8.1.1.2 ISO Containers

SHIPPING COORDINATOR

8.1.1.2.1 After receiving the "Item Production/Certification/Identification" (65-1 card) Form FS-F-1945-1 (See Figure 1) and applicable "Material Evaluation and Container Information" sheets, (See Figures 2a thru 2e) check for accuracy and completeness.

8.1.1.2.2 When the applicable "Weight Ticket" (See Figure 7) is received from the heavy equipment operator (HEO), contact the Shipping Supervisor to ensure that the containers were prepared as required and the condition is in compliance with shipping regulations.

8.1.1.2.3 Contact Radiological Control and request an initial survey and smear test of containers to be shipped.

8.1.1.2.4 When the initial "Radiological Survey Report" (See Figure 3) is received from Radiological Control, prepare the following documents:
(A) "Write-Up Sheet" (See Figure 4)
(B) "Data Entry Form" (See Figure 5)
(C) "Waste Summary" (See Figure 6)

8.1.1.2.5 Using the FAX, transmit the "Write-Up Sheet" to MC&A for bar code label generation.

8.0 PROCEDURE (cont.)

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8.1.2 Initiation of Documentation for Waste Stream ONL0000000002 (Construction Rubble) in ISO Containers and White Metal Boxes

SHIPPING COORDINATOR

NOTE 1: The letter clears the project waste for shipment.

NOTE 2: MC&A shall generate the documentation (68-69 card) for moving the waste packages for final preparation.

8.1.2.1 After receiving the required "RCRA Letter" (See Figure 8) and an NTS Waste Acceptance Criteria (WAC) (See Figure 9) from Waste Characterization, contact MC&A and request the 65-1 card, the Material Evaluation and Container Information" form (Figures 2a and 2b), and that the LLRW containers be transferred for shipment preparation.

8.1.2.2 Using the applicable "Material Evaluation and Container Information" sheets, verify that the container contents are acceptable for shipment.

8.1.2.3 Forward the 65-1 card and "Material Evaluation and Container Information" form to the Shipping Supervisor for verification and weight entry.

8.1.2.4 When the 65-1 card and "Material Evaluation and Container Information" sheet is returned, prepare a "Write Up" (See Figure 4) sheet.

8.1.2.5 Using the fax machine, transmit a copy of the 65-1 card to QC.

QUALITY CONTROL

8.1.2.6 Check for outstanding "Deficiency Reports" (DRs) on the container.

8.1.2.7 Prepare a DR Release.

8.1.2.8 Send the release to the Shipping Coordinator.

SHIPPING COORDINATOR

8.1.2.9 Contact Radiological Control and request an initial survey and smear tests of the containers to be shipped.

8.1.2.10 When the initial "Radiological Survey Report" (See Figure 3) is received from Radiological Control, prepare the following documents:
(A) "Data Entry Form" (See Figure 5)
(B) "Waste Summary" (see Figure 6)

8.1.2.11 Using the FAX, transmit the "Write-Up Sheet" to MC&A for bar code label generation.

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8.0 **PROCEDURE** (cont.)

8.1.3 Initiation of the Documentation for Waste Stream ONL0000000006 (Low/High Grade residues) in White Metal Boxes

SHIPPING COORDINATOR

8.1.3.1 Check the "Material Evaluation and Container Information" sheet (Figures 2a thru 2e) on file to ensure that the containers to be shipped have been included.

8.1.3.2 After receiving the "Item Production/Certification/Identification" (65-1 card) FS-F-1945-1 (See Figure 1), "Write-Up Sheet" (See Figure 4), and "Assay Letter (See Figure 10) from MC&A, contact Radiological Control and request an initial survey and smear tests of containers to be shipped.

8.1.3.3 When the initial "Radiological Survey Report" (See Figure 3) is received from Radiological Control, prepare the following documents:
(A) "Data Entry Form" (See Figure 5)
(B) "Waste Summary" (See Figure 6)

8.1.4 Initiation of the Documentation for Waste Stream ONL0000000007 (Contaminated Trash) in ISO Containers

SHIPPING COORDINATOR

8.1.4.1 After receiving the "Item Production/Certification/Identification" (65-1) card (See Figure 1) from MC&A and "Weight Ticket" (See Figure 7) from HEO, contact the Shipping Supervisor and request verification that containers were prepared as required and that container condition is in compliance with shipping regulations.

8.1.4.2 Contact Radiological Control and request an initial survey and smear test of containers to be shipped.

8.1.4.3 When the initial "Radiological Survey Report" (See Figure 3) is received from Radiological Control, prepare the following documents:
(A) "Write-Up Sheet" (See Figure 4)
(B) "Data Entry Form" (See Figure 5)
(C) "Waste Summary" (See Figure 6)

8.1.4.4 Using the FAX, transmit the "Write-Up Sheet" to MC&A for bar code label generation.

8.1.5 Initiation of the Documentation for Waste Stream ONL0000000008 (Low/High Grade residues - Subcontracted) in White Metal Boxes

SHIPPING COORDINATOR

8.1.5.1 Receive the "Item Production/Certification/Identification" (65-1 card) FS-F-1945-1 (See Figure 1) and "Write-Up Sheet (See Figure 4) from MC&A.

8.0 PROCEDURE (cont.)

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8.1.5.2 Check the "Material Evaluation and Container Information" sheet (See Figures 2a thru 2e) on file to ensure that the containers to be shipped have been included.

8.2 Data Entry for Waste Streams ONL0000000001, 2, 6, and 7

SHIPPING COORDINATOR

8.2.1 Give the following documents to the Shipping Data Entry Clerk:
- (A) "Item Production/Certification/Identification" (65-1 card) FS-F-1945-1 (See Figure 1)
- (B) initial "Radiological Survey Report" (See Figure 3)
- (C) "Write-Up Sheet" (See Figure 4)
- (D) "Data Entry Form" (See Figure 5)
- (E) "Waste Summary" (See Figure 6)

SHIPPING DATA ENTRY CLERK

8.2.2 Prepare the following documents:
- (A) "Package Storage and Disposal" (See Figure 11)
- (B) "NTS Shipment Tally Sheet" (See Figure 12)
- (C) "Storage and Disposal/Curie Sheet" (See Figure 13)
- (D) "Circle Copy" (See Figure 14)
- (E) "Drum Data Sheet" (See Figure 15)
- (F) "Container Data Sheet" (See Figure 16)
- (G) "Lot Data Sheet" (See Figure 17)
- (H) "Upload Sheet" (See Figure 18)

8.2.3 Give the completed documents to the Shipping Coordinator.

SHIPPING COORDINATOR

8.2.4 Using the FAX, transmit the "Circle Copy" and "Write-Up Sheet" (See Figure 4) to the Shipping Supervisor.

8.3 Shipping Packet Preparation

SHIPPING COORDINATOR

8.3.1 Ensure that all documentation has been prepared.

8.3.2 Place the "Assay Letter" (Figure 9) and other documentation in the Shipping Packet.

8.3.3 Fill out the applicable portions of a "Shipping Order for Nuclear Material" (See Figure 19).

8.3.4 Place the "Shipping Order" in the packet with the rest of the documents.

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8.0 **PROCEDURE** (cont.)

NOTE: Effective 04-17-94, a "Material Evaluation and Container Information - Wood", Form No. FS-F-3465 (See Figure 2a) is needed if a wood pallet is used inside the container.

8.3.5 Ensure that all documentation is present in the packet and is complete and accurate.

8.3.6 Deliver the packet to QC.

QUALITY CONTROL (per QP-12.07)

8.3.7 Using the applicable checklist, ensure that the packet contents are complete and accurate.

8.3.8 Place the checklist in the Shipping Packet.

8.3.9 Deliver the packet to the Waste Certification Officer (WCO).

QUALITY ASSURANCE (WASTE CERTIFICATION OFFICER) (per QP-12.07)

8.3.10 Review the Shipping Packet.

8.3.11 Complete the appropriate checklist.

8.3.12 Sign the Package Storage and Disposal Sheet upon approval.

8.3.13 Prepare the documentation required by the Traffic Section.

8.3.14 Fax the specified documents in the Shipping Packet to traffic.

8.3.15 Make the appropriate logbook entries.

8.3.16 Transmit the specified documents to MC&A.

MC&A

8.3.17 Complete the "Shipping Order" form.

8.3.18 Prepare a Shipping File.

8.3.19 Copy the "Radiological Survey" for the "Shipping Document File."

8.3.20 Generate applicable bar code labels.

9.0 **APPLICABLE FORMS**

9.1 FS-F-1945-1, "Item Production/Certification/Identification" (65-1 card) (Figure 1)

9.2 FS-F-3465, "Material Evaluation and Container Information-Wood" (Figure 2a)

9.3 FS-F-3580, "Material Evaluation and Container Information - Plastic, Rubber, Paper, Fiberglass, Rope" (Figure 2b)

9.0 **APPLICABLE FORMS** (cont.)

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9.4 FS-F-3472, "Material Evaluation and Container Information - Scrap Vehicle" (Figure 2c)

9.5 FS-F-3715, "Material Evaluation and Container Information - Glass" (Figure 2d)

9.6 FS-F-3464, "Material Evaluation and Container Information - Metal" (Figure 2e)

9.7 FS-F-1993-1, "Radiological Survey Report" (Figure 3)

9.8 "Write-Up Sheet" (Figure 4)

9.9 "Data Entry Form" (Figure 5)

9.10 "Waste Summary" (Figure 6)

9.11 FMPC-PRO-238, "Weight Ticket" (Figure 7)

9.12 "RCRA Letter" (Figure 8)

9.13 "NTS Waste Acceptance Criteria" (Figure 9)

9.14 "Assay Letter" (Figure 10)

9.15 "Package Storage and Disposal" (Figure 11)

9.16 "NTS Shipment Tally Sheet" (Figure 12)

9.17 "Curie Sheet" (Figure 13)

9.18 "Circle Copy" (Figure 14)

9.19 "Drum Data Sheet" (Figure 15)

9.20 "Container Data Sheet" (Figure 16)

9.21 "Lot Data Sheet" (Figure 17)

9.22 "Upload Sheet" (Figure 18)

9.23 FS-F-558-3, "Shipping Order for Nuclear Material" (Figure 19)

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CARD 65-1 **ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION**

INV. NO.:

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DATE DAY	DATE YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE MONTH	SEAL DATE DAY	SEAL DATE YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE	
PACKAGE SIZE	
PROJECT	

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		
OVERPACK		
REPACK		

PLANT	PROD. MBA	MEF NO.
DCAR	SURV. NO.	GROSS WEIGHT
		TARE WEIGHT
		NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIG[illegible] DATE

FS-F-1945-1 (REV. 11/20/92)

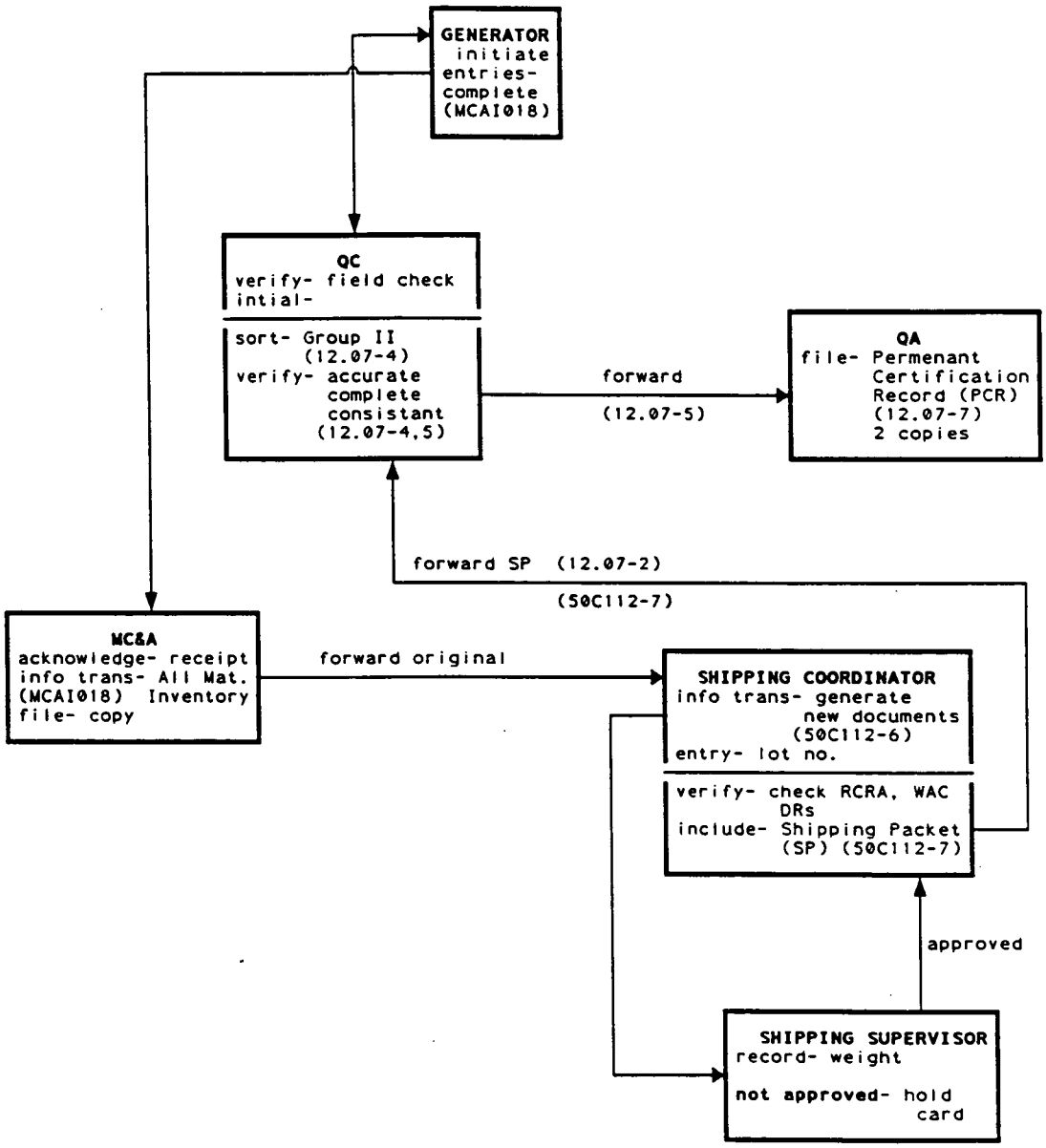
☆U.S. GPO:1992-751-382

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION (65-1 CARD)
FORM NO. FS-F-1945-1
SHEET 1 OF 3
Figure 1

5690

CARD 65-1

WHITE METAL BOXES (WMB) and DRUMS



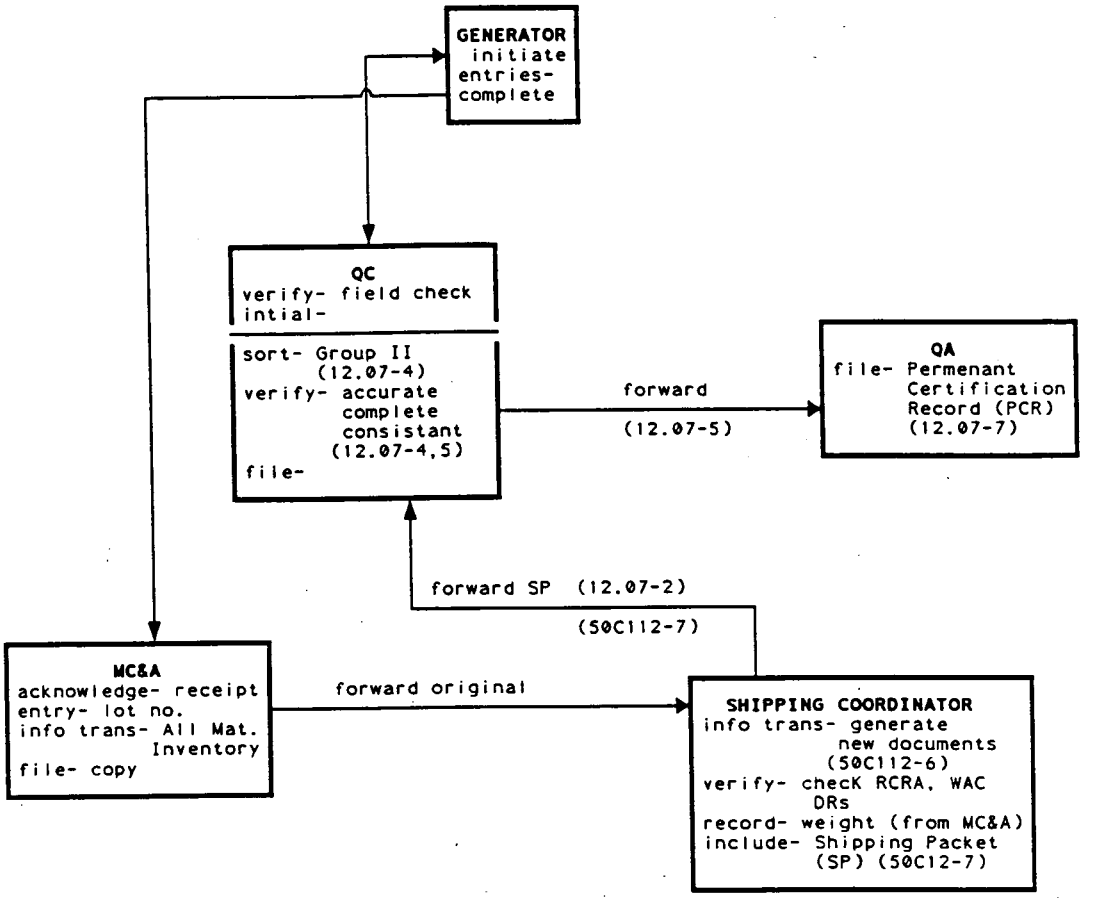
ROUTING DIAGRAM

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION (65-1 CARD)
SHEET 2 OF 3
Figure 1

5690

CARD 65-1

ISO CONTAINERS



ROUTING DIAGRAM

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION (65-1 CARD)
SHEET 3 OF 3
Figure 1

5690

FEMP
LOW-LEVEL RADIOACTIVE WASTE

Reference MEF # 905

MATERIALS EVALUATION AND CONTAINER INFORMATION - WOOD

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Treated: Material free from creosote treatment			
2. Residues: Free from process or waste residues			
3. Stains: Stains cover less than 10% of wood surface			
4. Paint: Free from lead-based paint or Paint covers less than 10% of material			
5. Plastic/Rubber: Material consists of less than 20% other materials by volume and does not contain any oil, solid residues, or entrapped liquids (e.g. plastic or rubber parts/hardware)			
6. Metal: Metal constitutes less than 20% by volume (if no, then metals checklist (FS-F-3464) must also be used.)			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION (Provide a complete description of the waste in the container, including information on source or origin of contamination)

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW NON-ACRAI BY WASTE CHARACTERIZATION

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE	PACKAGING FINISH DATE	3. VERIFIED BY	DATE

4. CONTAINER NUMBER	5. CONTAINER TYPE
	☐ S/L ☐ White Metal Box

6. LOCATION PACKAGED

7. *MEF NUMBER	8. INCHES FREEBOARD/HEADSPACE

APPROVED BY	APPROVED BY:
SUPERVISOR(S) SIGNATURE/DATE	QC SIGNATURE/DATE

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO MAKE DISTRIBUTION:
1 | White | Waste Characterization
2 | Blue | Low-Level Waste Handling and Disposal |
3 | Yellow | Materials Control and Accountability |
4 | Green | Waste Generator

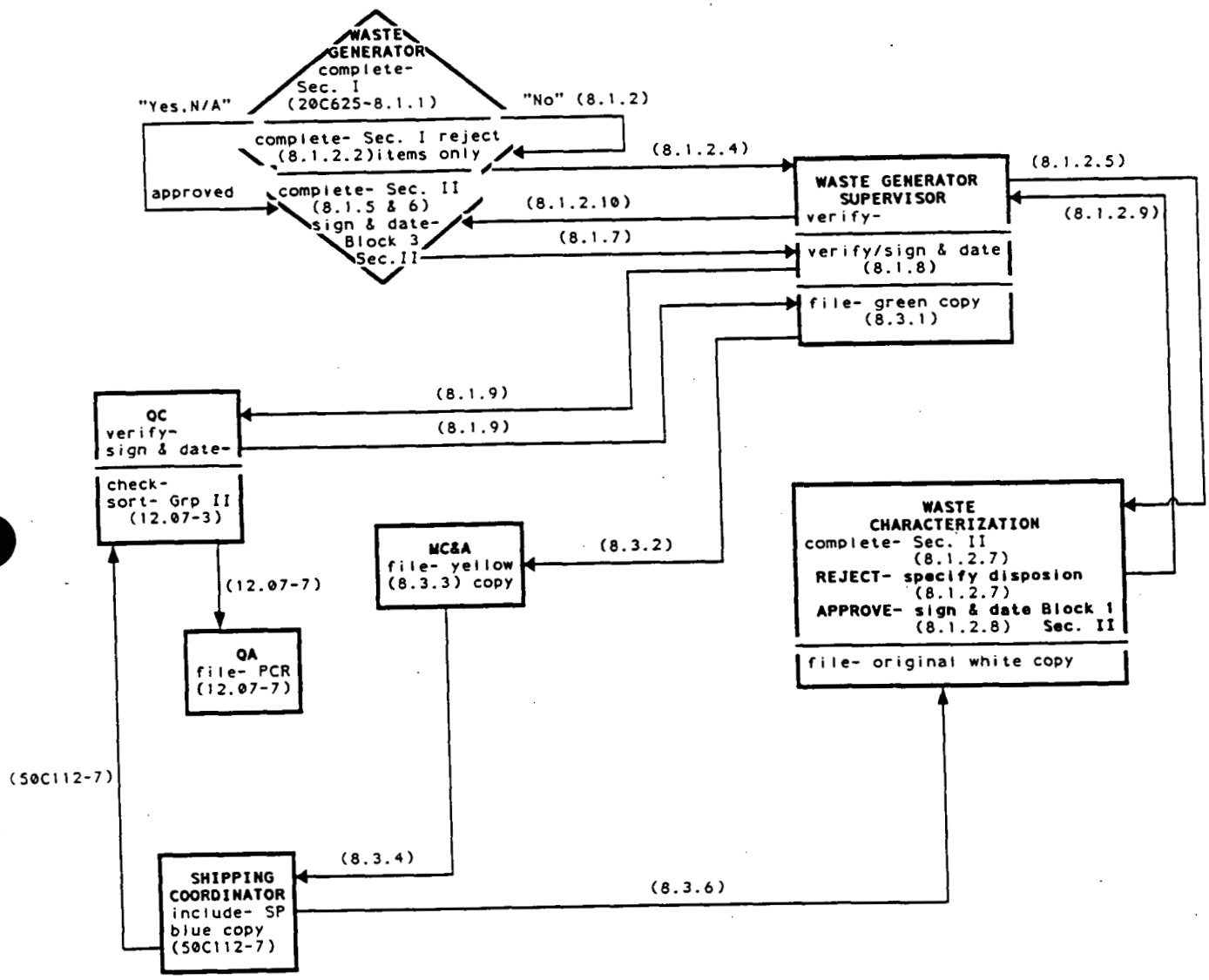
FS-F-3465 (REV 11/93)

MATERIALS EVALUATION AND CONTAINER INFORMATION-WOOD
FORM NO. FS-F-3465
SHEET 1 OF 2
Figure 2a

5690

MATERIAL EVALUATION FORM (MEF) CHECKLIST

WASTE STREAMS -001, -002, -006, -008



ROUTING DIAGRAM

MATERIALS EVALUATION AND CONTAINER INFORMATION-WOOD
FORM NO. FS-F-3465
SHEET 2 OF 2
Figure 2a

5690

FEMP
LOW-LEVEL RADIOACTIVE WASTE
MATERIALS EVALUATION AND CONTAINER INFORMATION - PLASTIC, RUBBER, PAPER, FIBERGLASS, ROPE

Reference MEF # 1539

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Liquids: Materials do not contain entrapped or internal liquids			
2. Residues: Free from process or waste residues			
3. Stains: Stains cover less than 10% of material surface			
4. HWMU: Material was not generated within the physical limits of a hazardous waste management unit (HWMU)			
6. Containers: Waste containers (i.e. plastic bottles) must be "empty" as defined by OAC 3745-51-07 in lieu of CFR 40 261.7			
7. Other: Material other than plastic, rubber, paper, fiberglass, rope, *wood and metal (see footnote) constitute less than 20% by volume.			

* If metal and/or wood constitutes more than 20% by volume, then Metal Checklist (FS-F-3484) and/or Wood Checklist (FS-F-3485) must also be used. When materials are packages that do not meet the criteria established in Section I, but have an approved MEF number, the MEF number must be recorded in Section II, question 7. If YES or N/A was checked for all of the above, the material is covered by MEFs listed above and should be handled as Low-Level Radioactive non-hazardous waste. If not, contact Waste Characterization. Radioactive characterization based on generation in a radiologically controlled area and can be changed based on a radiation survey of the material.

SECTION II - CONTAINER INFORMATION

1 MATERIAL ORIGIN/DESCRIPTION (Provide a complete description of the waste on the container, including information on source or origin of contents.)

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLAW NON-ACRAI BY WASTE CHARACTERIZATION

WASTE CHARACTERIZATION SIGNATURE/DATE

2 PACKAGING START DATE | PACKAGING FINISH DATE | 3 VERIFIED BY | DATE

4 CONTAINER NUMBER | 5 CONTAINER TYPE ☐ S/L ☐ WMB ☐ Other. Specify _____

6 LOCATION PACKAGED

7 *MEF NUMBER | 8 INCHES FREEBOARD/HEADSPACE

APPROVED BY* _____ SUPERVISOR(S) SIGNATURE/DATE | APPROVED BY* _____ QC SIGNATURE/DATE

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

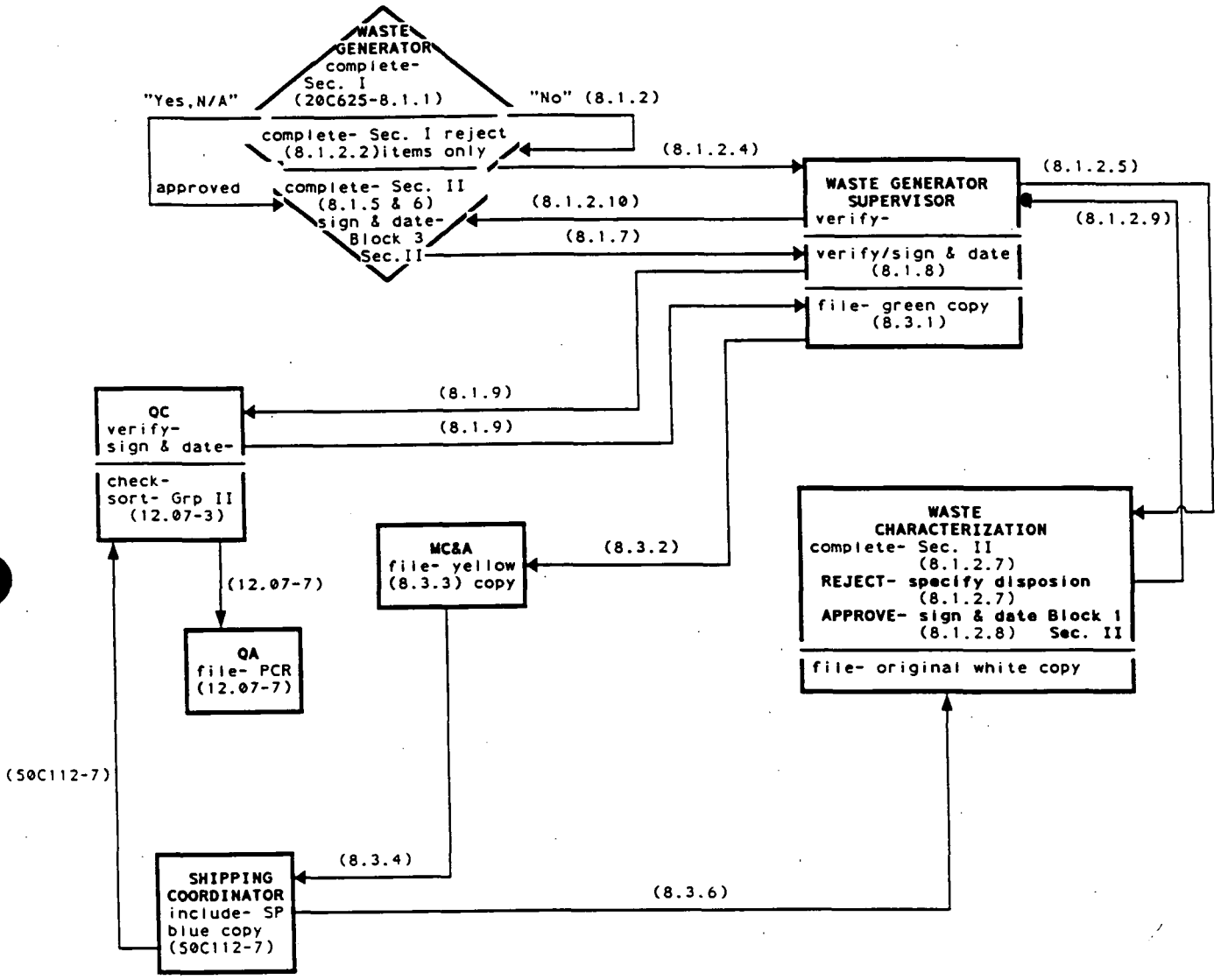
GENERATOR TO MAKE DISTRIBUTION:
1 White Waste Characterization
2 Blue Low-Level Waste Handling and Disposal
3 Yellow Materials Control and Accountability
4 Green Waste Generator

FS-F-3580 (REV. 11/5/93)

MATERIALS EVALUATION AND CONTAINER INFORMATION
- PLASTIC, RUBBER, PAPER, FIBERGLASS, ROPE
FORM NO. FS-F-3580
SHEET 1 OF 2
Figure 2b

MATERIAL EVALUATION FORM (MEF) CHECKLIST 5690

WASTE STREAMS -001, -002, -006, -008



ROUTING DIAGRAM

MATERIALS EVALUATION AND CONTAINER INFORMATION
- PLASTIC, RUBBER, PAPER, FIBERGLASS, ROPE
FORM NO. FS-F-3580
SHEET 2 OF 2
Figure 2b

FEMP 5690

Reference MEF # 1230

LOW-LEVEL RADIOACTIVE WASTE

MATERIALS EVALUATION AND CONTAINER INFORMATION - SCRAP VEHICLE

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Free from the following fluids: a. Anti-freeze			
b. Brake fluid			
c. Gasoline			
e. Engine oil			
f. Power steering			
g. Differential fluid (rear end)			
h. Windshield Wiper Fluid			
2. Removed: a. Radios			
b. Distributor caps and amplifiers			
c. Alternators			
d. Electronic fuel injector circuit			
3. Fuel tank removed			
4. Propane tank removed			
5. Tires Deflated			
6. Tire valve stem removed			
7. Freon purged/contained for recycling			
8. Auxiliary Hydraulic Unit removed or drained			
9. Oil filter and Gas filter removed and filter receptacles on engine sealed			
10. Batteries removed			
11. All Hoses that contain liquids have been cut and Drained			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION (Provide a complete description of the waste in the container, including information on source or origin of contamination)

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW (NON-RCRA) BY WASTE CHARACTERIZATION:

(WASTE CHARACTERIZATION SIGNATURE/DATE)

2. PACKAGING START DATE / PACKAGING FINISH DATE:	3. VERIFIED BY: / DATE:
4. CONTAINER NUMBER:	5. CONTAINER TYPE:
6. LOCATION PACKAGED:	
7. *MEF NUMBER:	8. INCHES FREEBOARD/HEADSPACE:
APPROVED BY: (PROPERTY MANAGER SIGNATURE)	APPROVED BY: (FCI SIGNATURE)

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO MAKE DISTRIBUTION:		
1	White	Waste Characterization
2	Blue	Low-Level Waste Handling and Disposal
3	Yellow	Materials Control and Accountability
4	Green	Waste Generator

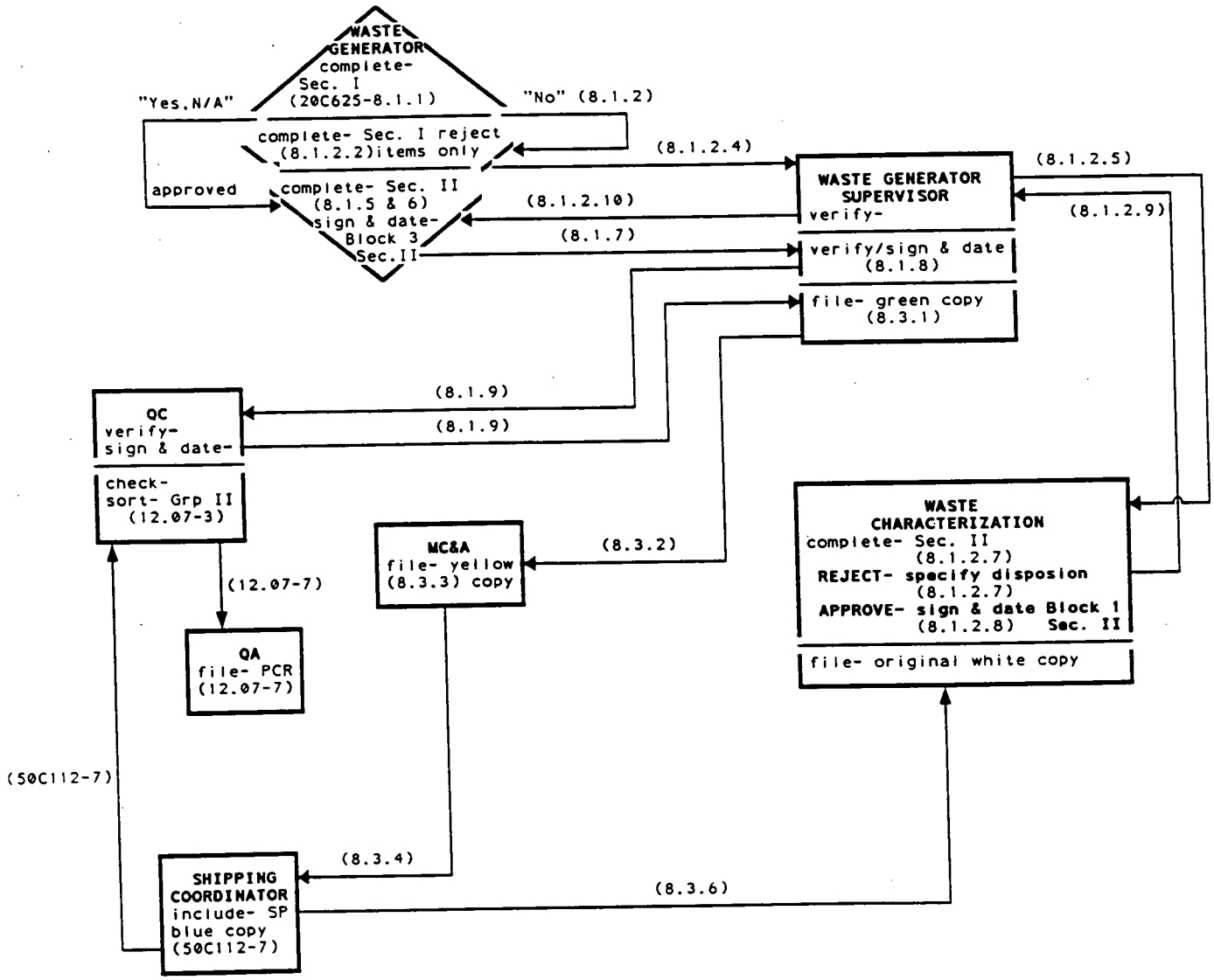
FS-F-3472 (REV. 12/07/93)

MATERIALS EVALUATION AND CONTAINER INFORMATION-SCRAP VEHICLE
FORM NO. FS-F-3472
SHEET 1 OF 2
Figure 2c

5690

MATERIAL EVALUATION FORM (MEF) CHECKLIST

WASTE STREAMS -001, -002, -006, -008



ROUTING DIAGRAM

MATERIALS EVALUATION AND CONTAINER INFORMATION-SCRAP VEHICLE
FORM NO. FS-F-3472
SHEET 2 OF 2
Figure 2c

FEMP
LOW-LEVEL RADIOACTIVE WASTE
MATERIALS EVALUATION AND CONTAINER INFORMATION - GLASS

Reference MEF # 1284 5690

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Liquids: The glass waste does not contain any free liquids			
2. Residues: The glass waste is free of any process or waste residues. For all containers (e.g., glass sample jars) this means that the container must have been emptied using the practices commonly employed to remove materials from that type of container (e.g., pouring, pumping, or aspirating) and no more than 3 percent remains in the container			
3. Acute Waste: The glass was not used as a container to hold an acute hazardous waste (refer to table 1 in SOP 20-C-625) unless the container has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate. (NOTE: Available container labels may be used to verify this criteria.)			
4. Light Bulbs: The glass waste does not include any fluorescent light bulbs (broken or unbroken). (NOTE: The glass waste may include incandescent light bulbs.)			
5. AA Lamps: The glass waste does not include any atomic absorption (AA) lamps used for Toxicity Characteristic metals analyses			
6. Metal/Rubber: The glass waste contains only metal, rubber, and plastic associated with lids or tops of containers (e.g., sample jar lids)			
7. Labels: The glass waste is labelled, and the information from these labels has been summarized in Section II of this form or in an attachment, or the glass waste is not labelled			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION (Provide a complete description of the waste or the commercial, chemical product or source of origin of contents)

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW NON-RCRA BY WASTE CHARACTERIZATION:

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE	PACKAGING FINISH DATE	3. VERIFIED BY:	DATE

4. CONTAINER NUMBER	5. CONTAINER TYPE
	☐ S/L ☐ WMB ☐ Drum ☐ Other, Specify _____

6. LOCATION PACKAGED

7. *MEF NUMBER	8. INCHES FREEBOARD/HEADSPACE

APPROVED BY	APPROVED BY:
SUPERVISOR/SI SIGNATURE/DATE	QC SIGNATURE/DATE

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO MAKE DISTRIBUTION:
1 White Waste Characterization
2 Blue Low-Level Waste Handling and Disposal
3 Yellow Materials Control and Accountability
4 Green Waste Generator

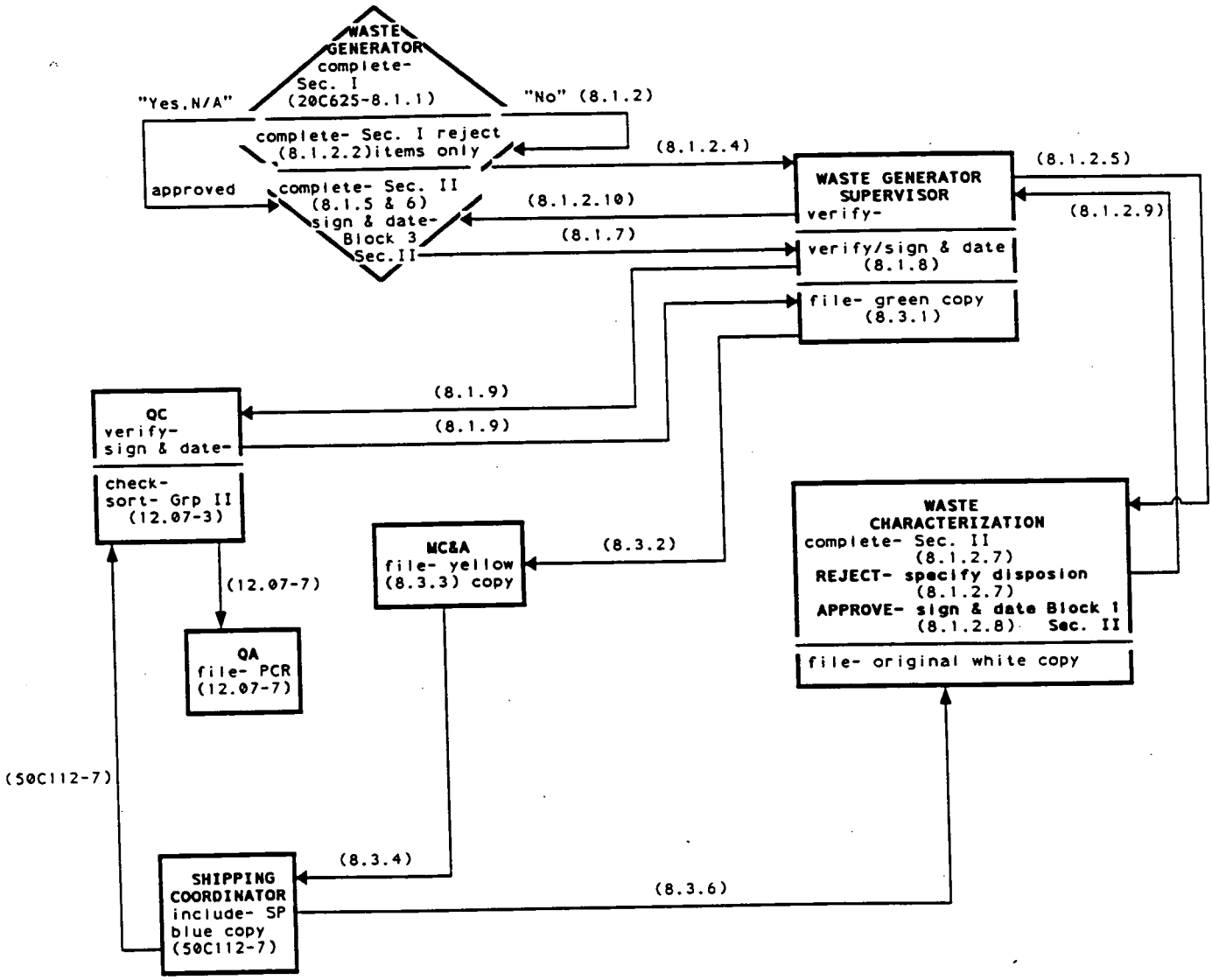
FS-F-3715 (REV. 11/9/93)

MATERIALS EVALUATION AND CONTAINER
INFORMATION - GLASS
FORM NO. FS-3715
SHEET 1 OF 2
Figure 2d

5690

MATERIAL EVALUATION FORM (MEF) CHECKLIST

WASTE STREAMS -001, -002, -006, -008



ROUTING DIAGRAM

MATERIALS EVALUATION AND CONTAINER
INFORMATION - GLASS
FORM NO. FS-3715
SHEET 2 OF 2
Figure 2d

5690

FEMP
LOW-LEVEL RADIOACTIVE WASTE
Reference MEF # 1088

MATERIALS EVALUATION AND CONTAINER INFORMATION - METAL

SECTION I

WASTE EVALUATION	YES	NO	N/A
1. Free from the following: a. Grease/oils			
b. Solid residues			
c. Entrapped liquids			
d. Internal fluids			
2. Material tagged as drained			
3. Paint: Material free from lead-based paint or Paint covers less than 10% of materials or Material is greater than 1/16 inch thick			
4. Electrical Equipment: a. Ballasts removed			
b. Starter caps removed			
c. Mercury switches removed			
d. Dielectric fluid removed			
5. Plastic/Rubber: Material consists of less than 20% other materials by volume and meets the criteria set in #1 (e.g. plastic, or rubber parts/hardware)			
6. Wood: Constitutes less than 20% by volume (if no, then wood checklist (FS-F-3465) must also be used.)			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION (Provide a complete description of the waste in the container, including information on sources or origin of contamination)

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW NON-RCRA BY WASTE CHARACTERIZATION:

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE | PACKAGING FINISH DATE | 3. VERIFIED BY: | DATE

4. CONTAINER NUMBER: | 5. CONTAINER TYPE: ☐ S/L ☐ White Metal Box

6. LOCATION PACKAGED:

7. *MEF NUMBER: | 8. INCHES FREEBOARD/HEADSPACE:

APPROVED BY: SUPERVISOR(S) SIGNATURE/DATE | APPROVED BY: QC SIGNATURE/DATE

* For materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO MAKE DISTRIBUTION:
1 | White : Waste Characterization
2 | Blue : Low-Level Waste Handling and Disposal
3 | Yellow : Materials Control and Accountability
4 | Green : Waste Generator

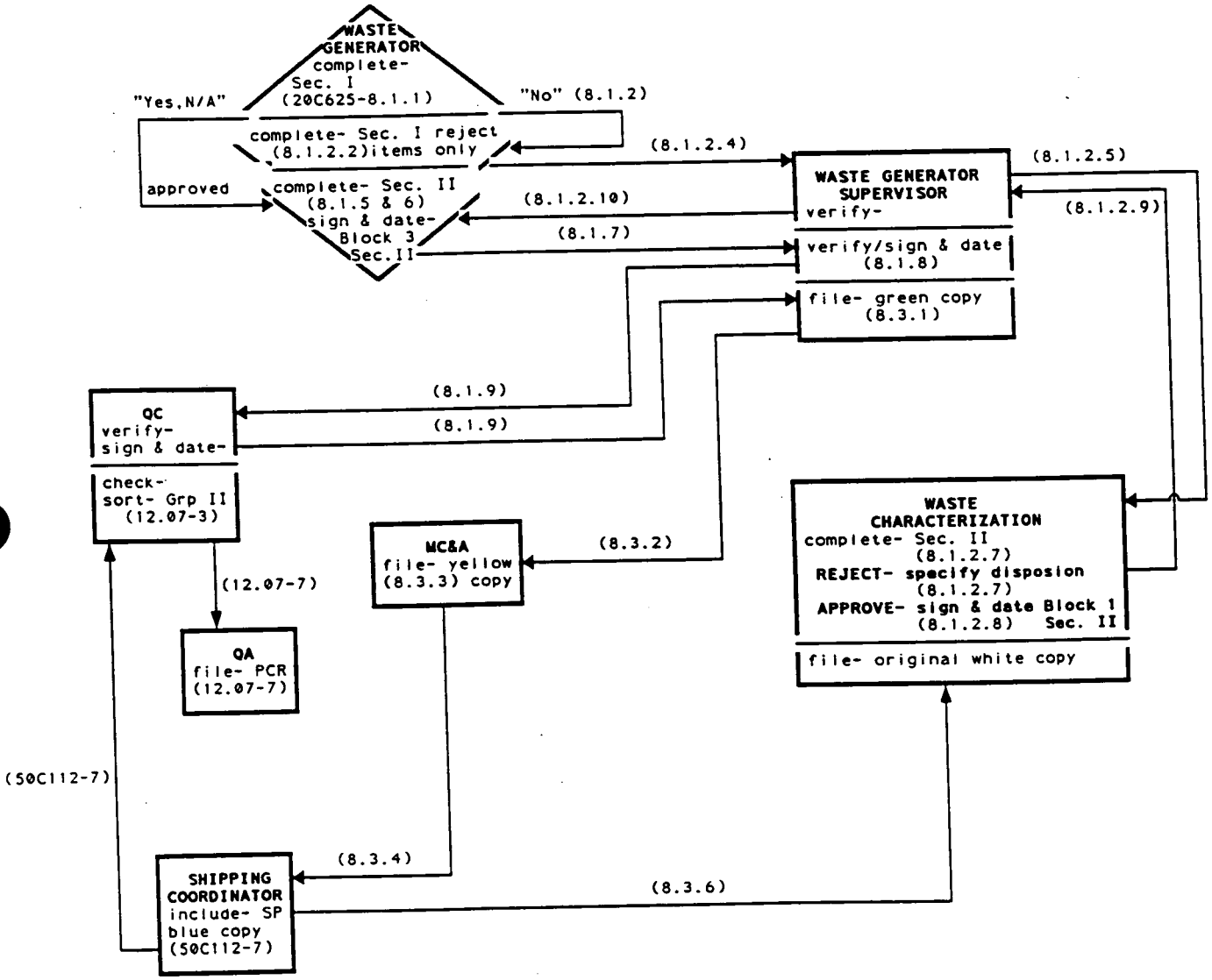
FS-F-3464 (REV. 11/9/93)

MATERIALS EVALUATION AND CONTAINER INFORMATION-METAL
FORM NO. FS-F-3464
SHEET 1 OF 2
Figure 2e

5690

MATERIAL EVALUATION FORM (MEF) CHECKLIST

WASTE STREAMS -001, -002, -006, -008



ROUTING DIAGRAM

MATERIALS EVALUATION AND CONTAINER INFORMATION-METAL
FORM NO. FS-F-3464
SHEET 2 OF 2
Figure 2e

5690

FEMP
RADIOLOGICAL SURVEY REPORT

DATE:	LOCATION:	RCT:	BADGE:	PAGE:
TIME:	LEVEL	SIGNATURE:		1 of ___

REASON FOR SURVEY

INSTRUMENTS

MODEL	SERIAL NUMBER	TYPE (α, β, γ)	CALIBRATION-DUE DATE	BKGD. (cpm)	EFF./CF	COUNT TIME (min)	MDA (dpm)	INSP./PERFORMANCE TEST SAT? YES	NO

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (ft.)	DPM/100cm² ALPHA		DPM/100cm² BETA-GAMMA		CORRECTED DOSE RATE (MREM/HR)			
			REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	γ CONTACT	β CONTACT	γ AT ___ FT.	β AT ___ FT.

NO.	DISTRIBUTION OF COPIES
1	RCT Supervisor
2	Facility Supervisor
3	CRU Manager

NOTIFICATION OF SURVEY RESULTS

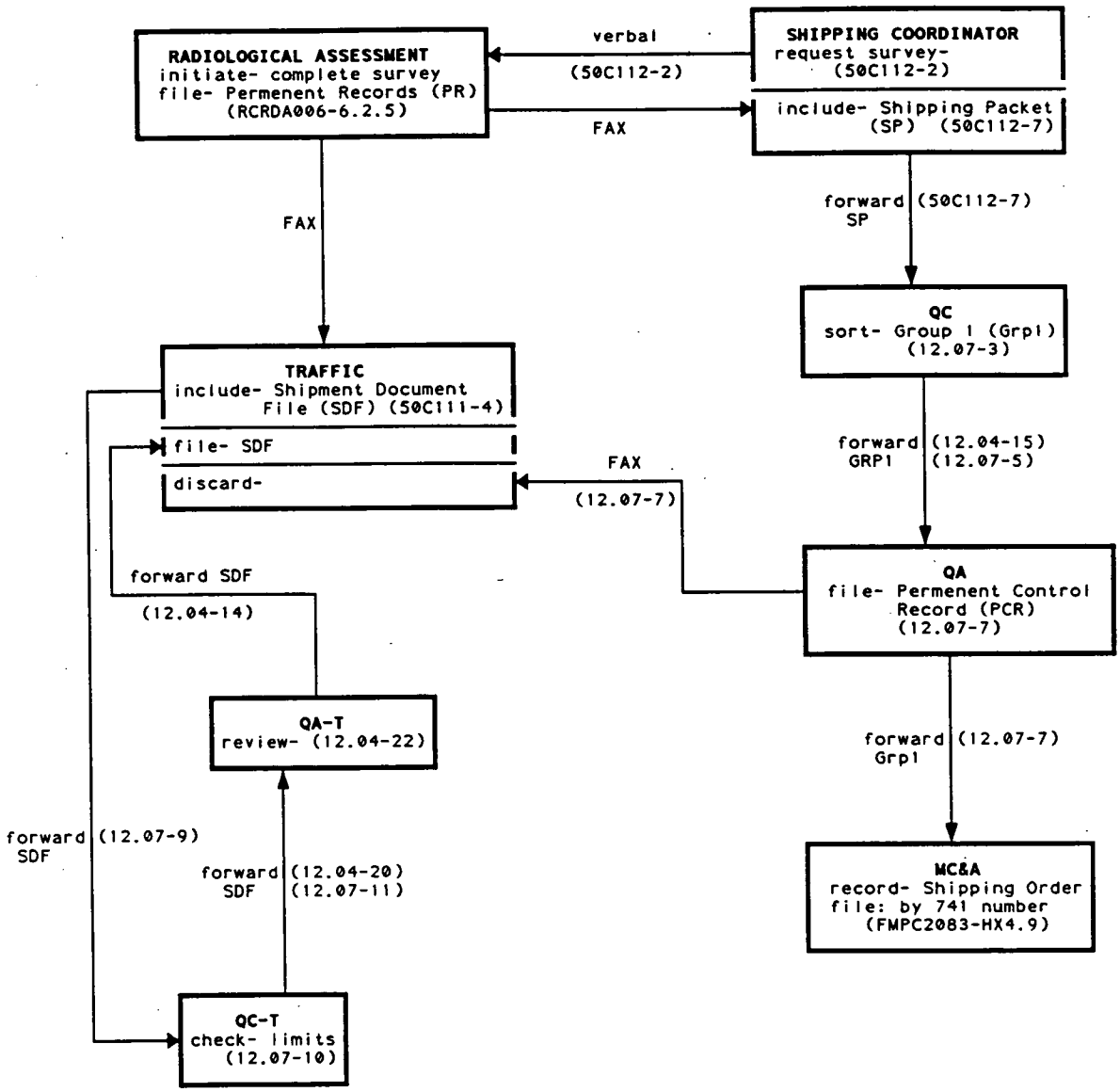
SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE

FS-F-1993-1 (REV. 12/31/92)

RADIOLOGICAL SURVEY REPORT
FORM NO. FS-F-1993-1
SHEET 1 OF 2
Figure 3

5690

RADIATION DOSE RATE OF WASTE PACKAGES



ROUTING DIAGRAM

RADIOLOGICAL SURVEY REPORT
FORM NO. FS-F-1993-1
SHEET 2 OF 2
Figure 3

5690

WRITE-UP SHEET
Waste Stream -006 & -008
WMBs

Fernald Site
LOW-LEVEL RADIATION WASTE SHIPMENT PREPARATION WORKSHEET - BOXES/SEALANDS
Page 1 of 1

MATERIAL TYPE	TOTAL NUMBER OF BOXES	TOTAL WEIGHT
Magnesium Fluoride	7	41 352

SHIPMENT NUMBER	Badge #	LOCATION	DATE	WASTE STREAM IDENTIFICATION NUMBER
94-0123	8865	INSPECTION	1-3-94	CNL0000000006

INVENTORY NUMBER	SERIAL NUMBER	MATERIAL DESCRIPTION	LOT NUMBER		BOX #	GROSS WEIGHT	TARE WEIGHT =	NET WEIGHT	TYPE OF BOX	FREE ST	
W 131600	739389	MgF2	W090 564 V 034	6744	1.	5676	1421	4255	WMB		2575
131603	739393		W088	6747	2.	5772	1499	4273			2617
131602	739391		W081	6748	3.	5642	1479	4163			2559
131601	739390		W090	6749	4.	5512	1397	4115			2500
125703	653562		W094	6750	5.	6770	1249	5521			3071
125704	653583		W094	6751	6.	6396	1255	5141			2901
139233	653841		W087	6752	7.	5584	1325	4259			2533
					8.						
					9.						
			Totals		10.	41352	9755	31597			

ADDITIONAL INFORMATION: _____

WRITE-UP SHEET
SHEET 1 OF 4
Figure 4

000865

5690

WRITE-UP SHEET
Waste Stream -006 & -008
Drums in WMBs

2 of 2

DRUM LOT IDENTIFICATION NUMBER					DRUM NO.	DRUM CRUSHED	DRUM WEIGHTS GROSS	TARE	NET	REAGENTS ADDED TO DRUMS DESCRIPTION	WEIGHT	Free Standing Water Pump/Drain YES	NO	REMARKS
9496	X500	564	1034	1003	4		776	72	704					
10495	X500	564	1034	1003	5		791	72	719					
9237	X500	564	1034	1006	5		763	72	691					
9238	X500	564	1034	1006	7		754	72	682					
233	X500	564	1034	1006	2		814	72	742					
236	X500	564	1034	1006	6		737	72	665					
DRUM TOTALS							4635	432	4203	Signature-Staging Technician [redacted]				Date 12-30-93

RB INV. NO.	SERIAL NO.	WMB LOT NUMBER					Box No.	ABSORBANTS ADDED TO WMB	WEIGHT	REMARKS
31600	739389	W090	564	V	034	6746	1	1 ABSORBANT PAD	1	

Elmer Alemon

179 #

Tare Wt. of WMB 1048
Tare Wt. of Drs. 432
Wt. of Absorbants 1
Total Tare 1481

Gross Weight 5676

Net Weight 4195

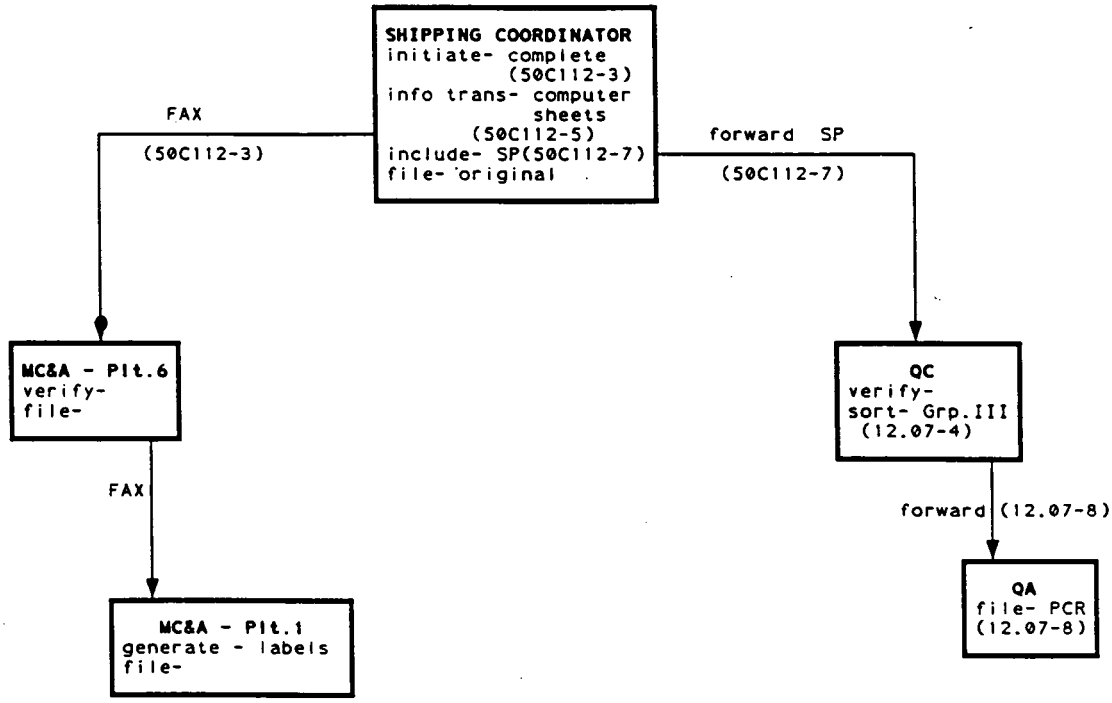
Signature-Packager [redacted] Date 12-30-93

WRITE-UP SHEET
SHEET 2 OF 4
Figure 4

5690

WRITE-UP SHEET

WASTE STREAM -001, -002



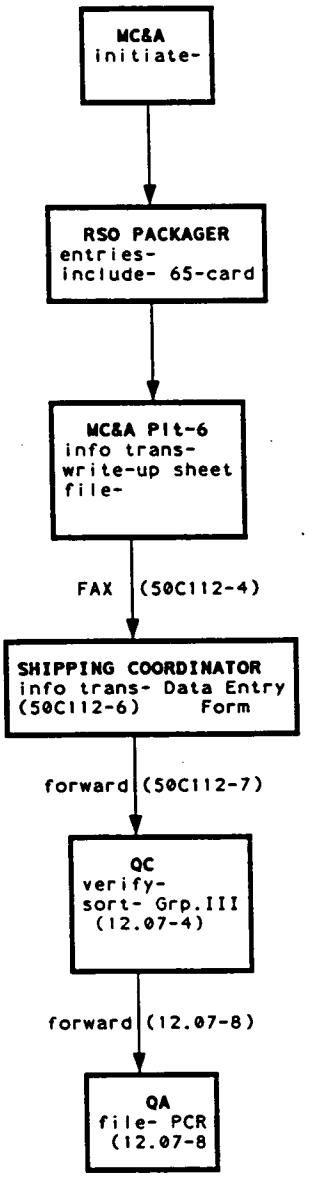
ROUTING DIAGRAM

WRITE-UP SHEET
SHEET 3 OF 4
Figure 4

WRITE-UP SHEET

WASTE STREAM -006, -008

5690



ROUTING DIAGRAM

WRITE-UP SHEET
SHEET 4 OF 4
Figure 4

5690

WASTE SHIPMENT DATA ENTRY INFORMATION

Shipment Number: 94-

Lot Information

LOT NUMBER	CLASS CODE	CONTENT CODE	ATTRIBUTE CODE	WASTE CODE
W050-100-P003-	*2122*			
W050-100-P003-	*2122*			

Container Information

Container Type	Burial Volume (cu/ft)	DEs	Total Containers
55 gallon drum	*8 (102)*	*1*	
85 gallon drum	*14 (124)*	*1.55*	
Metal Box	*106 (117)*	*10*	
Metal Box	*109 (119)*	*11.08*	
Sea/Land Container	*1349 (109)*	*182.3*	
Top/Load Container	*varies (121)*	*170*	

Waste Code

CE = *Contaminated equipment (components, metal wastes, etc.)*

DD = *Decontamination debris (wastes usually from decontamination and decommissioning efforts, construction debris, etc.)*

DS = *Dry solids (normal production waste, blotting paper, combustible materials, etc.)*

Content Code

100 = *Process Waste*
105 = *Metal*
200 = *Construction Waste*
601 = *Magnesium Fluoride*
602 = *Graphite*
603 = *Sump Cake*
701 = *Baled Trash*
801 = *SEG*

Attribute Code

2122 = Combustible
2222 = Non-Combustible

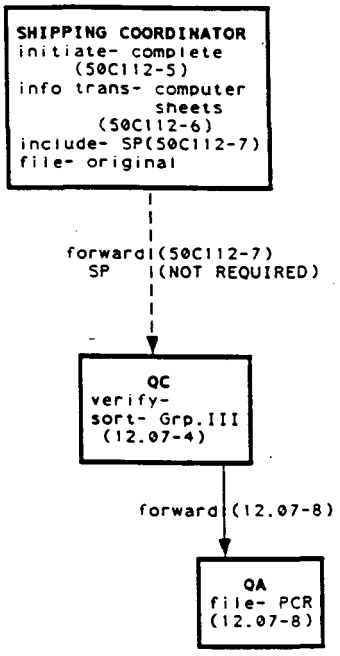
Rev. 2-7-94

DATA ENTRY FORM
SHEET 1 OF 2
Figure 5

5690

DATA ENTRY FORM

WASTE STREAM -001, -002, -006, -007, -008



ROUTING DIAGRAM

DATA ENTRY FORM
SHEET 2 OF 2
Figure 5

000870

DATE _____

5690

WASTE SUMMARY

SHIPMENT NUMBER

_____

WASTE STREAM

_____

LETTER OR MEF NUMBERS

_____

_____

_____

MATERIAL	YES	NO
Wood		
Metal		
Paper		
Plastic		
Cardboard		
Rubber		
Glass		
Fiberglass		
Concrete		
Soil		

CHECKLIST NEED	YES	NO
905		
1088		
1539		
1284		

WAC	YES	NO

FILLER BOXES

WASTE STREAM

_____

LETTER NUMBER

_____

MATERIAL	YES	NO

Signature _____

Rev. 10-21-93

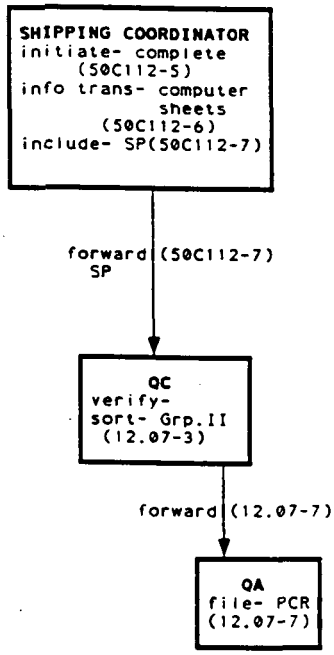
WASTE SUMMARY
SHEET 1 OF 2
Figure 6

000871

5690

WASTE SUMMARY

WASTE STREAM -001, -002, -006, -007, -008



ROUTING DIAGRAM

WASTE SUMMARY
SHEET 2 OF 2
Figure 6

5690

FEMP

WEIGHT TICKET DATE:

LOT NUMBER: ▶	**GROSS WEIGHT:**
DRUM NUMBER: ▶	**TARE WEIGHT:**
MATERIAL TYPE: ▶	**NET WEIGHT:**
OPERATOR: ▶	**ZERO:**
SHIRT: ▶	**CHECKWEIGHT:**

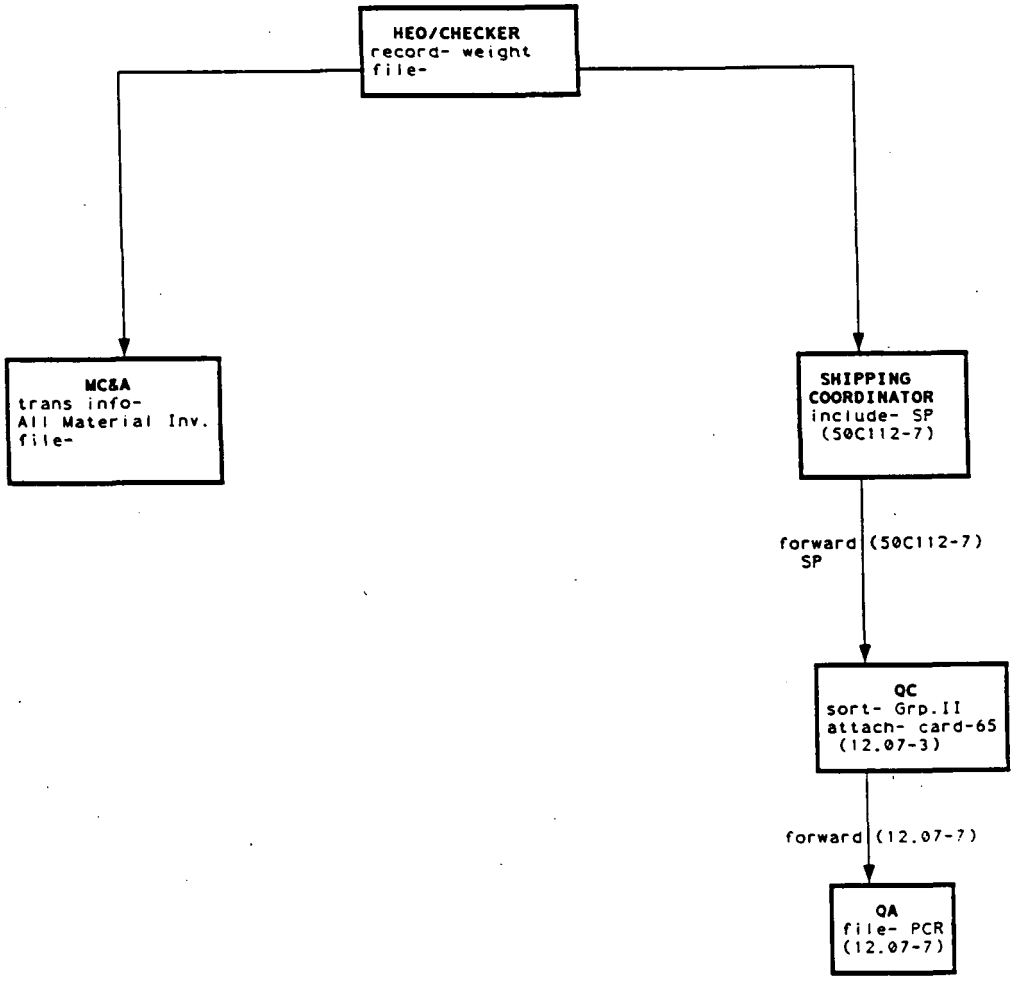
FS-F-238 (REV. 1/5/93)

WEIGHT TICKET
FORM NO. FMPC-PRO-238
SHEET 1 OF 2
Figure 7

5690

CONTAINER WEIGHT TICKET

SEA/LAND CONTAINERS



ROUTING DIAGRAM

WEIGHT TICKET
FORM NO. FMPC-PRO-238
SHEET 2 OF 2
Figure 7

5690

Fernald Environmental
FERMCO
Restoration Management Corporation

INTEROFFICE MEMORANDUM

To:	Leo Singleton	Date:	November 30, 1993
Location:	Fernald, MS 76	Reference:	
From:	Jerry Erfman	FERMCO #:	M:RSO:(WM):93-058
Location:	Fernald, MS 46	Client:	DOE DE-AC05-920R21972
Extension:	6085	Subject:	RE-EVALUATION OF THE PLANT 1 ORE SILO'S PROJECT

c: File Record Storage Copy 106.4.10.6
James Clements MS 73
Matthew Frost MS 73
Darryl Howe MS 30
Lori Hurst MS 63
Harold Knue MS 28
Glenn Rieman MS 46
Shane Stierhoff MS 66
Frank Thompson MS 67
Carolyn Waugh MS 46
RCRA Operating Record MS 30
WCG Files MS 46

The soil is greater than 100 pCi/g, and is RCRA non-hazardous as specified in MEF Number 2504 verification form.

The concrete rubble/concrete block, is RCRA non-hazardous (a.k.a. non-RCRA) as specified in MEF Number 2007 verification form.

The conduit and wiring is RCRA non-hazardous (a.k.a. non-RCRA) as specified in MEF Number 2008 verification form.

The protective clothing (anti C's, rubber gloves, etc.) is RCRA non-hazardous (a.k.a. non-RCRA), as specified in MEF Number 1722 verification form.

The asbestos is RCRA non-hazardous (a.k.a. non-RCRA) as specified in MEF Number 1572 verification form.

The lead base paint chips are RCRA HAZARDOUS WASTE (D008) as specified in MEF Number 817 verification form.

RCRA LETTER
SHEET 1 OF 3
Figure 8

5690

Fernald Environmental
FERMCO
Restoration Management Corporation

INTEROFFICE MEMORANDUM

FERMCO No. M:RSO:(WM):93-058
November 30, 1993
Page 2

Using SOP 20-C-625 the following waste streams can be evaluated using MEF's and checklists. Only trained personnel can be used for MEF's and checklists.

Scrap metal will be managed under MEF # 1088 and the metal checklist # FS-F-3464.

Scrap wood will be managed under MEF # 905 and the wood checklist # FS-F-3465.

Scrap plastic, rubber, paper, fiberglass, and rope will be managed under MEF # 1539 and checklist # FS-F-3580.

If any of the material fails the checklists, a new MEF must be generated and forwarded to Waste Characterization Group for evaluation.

No materials have been identified, **with the exception of the lead base paint chips**, that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51-31 to 33, (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-51-21 to 23, (in lieu of 40 CFR 261.21 to 24).

SUMMARY

It is WCG's intention to provide radiological characterizations and RCRA determinations for construction waste prior to its generation. WCG believes that these determinations properly represent the waste or waste streams discussed herein.
The waste will have to be monitored by the Radiological Safety Group for proper radiologically disposition.

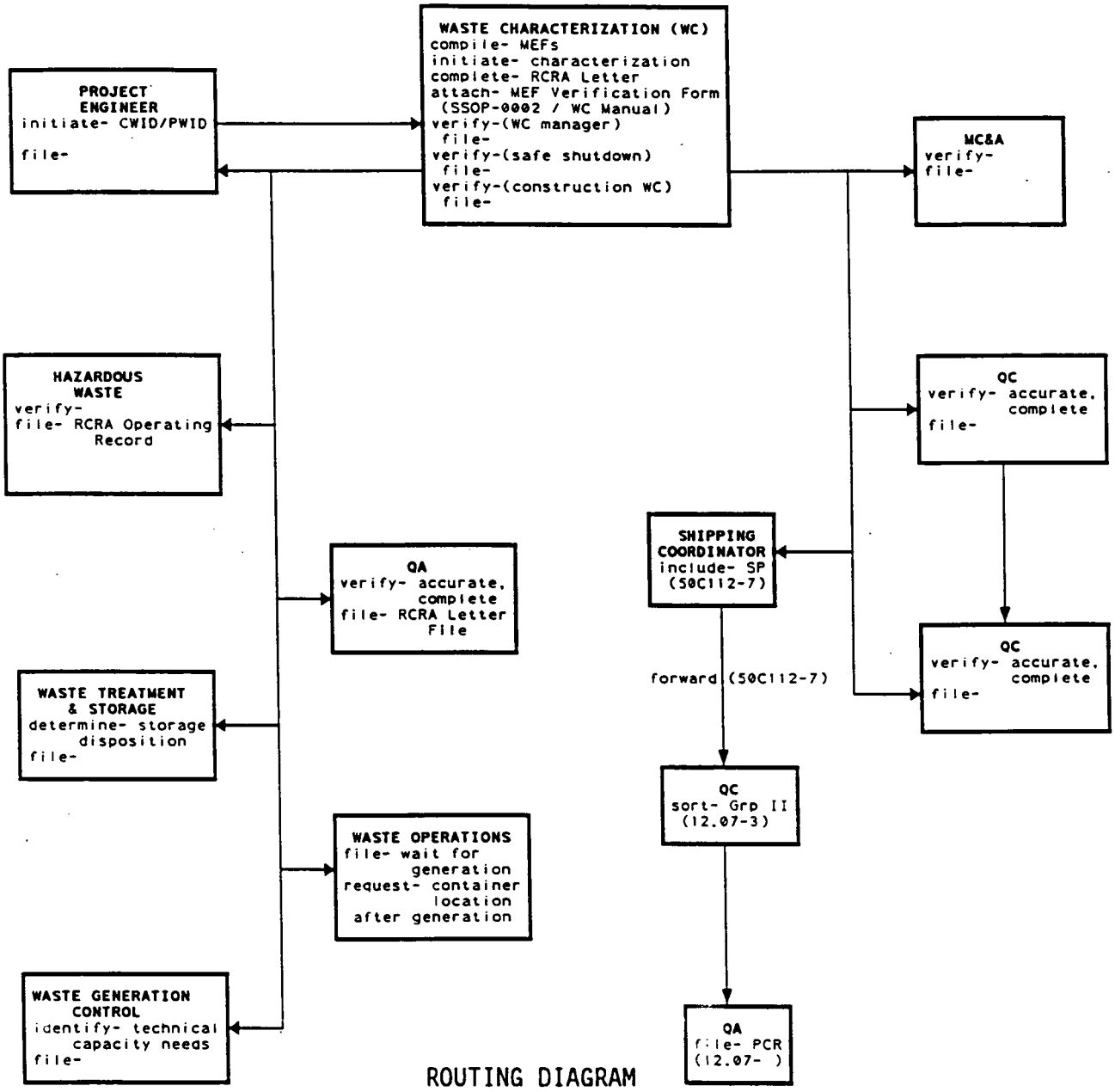
If there are any questions, please call me at extension 6085 or C. S. Waugh at extension 6777.

JPE:tmk
Attachment
WCG:93-433

RCRA LETTER
SHEET 2 OF 3
Figure 8

RCRA LETTER

5690



ROUTING DIAGRAM

RCRA LETTER
SHEET 3 OF 3
Figure 8

5690

NTS WASTE ACCEPTANCE CRITERIA

(page 14 of 14

is worksheet documents evaluation of this material to determine if it meets the NVO-325 Waste Acceptance Criteria (WAC) for shipment to the Nevada Test Site

A. WASTE STREAM IDENTIFICATION

1. MEF #: 1088 2. MTC 003 SRC _ (see MEF for 15 digit lot codes) 3. EVALUATOR: NAF 4. DATE: 07/26/93

If any of the criteria are not met, or are "unknown," then the material may not be shipped to the NTS unless corrective action is taken to alleviate the nonconformance Material status with respect to NVO-325 WAC (i.e., "Meets the Criteria?") must be revised on this form following corrective action.

B. NVO-325 WAC Pertaining to Waste Form

Meets the Criteria?	Evaluation Criteria	Corrective Action Required
X yes _ no (NVO-325 5.5.1.1)	Low Level Radioactive Waste (LLRW): The material is defined as LLRW under DOE Order 5820.2A.	
X yes _ no (NVO-325 5.5.1.1(A))	TRU Waste: The material is not regulated as TRU waste. TRU radionuclide concentration less than 100 nCi/g.	
X yes _ no (NVO-325 5.5.1.1(B))	RCRA Hazardous Waste: The material not regulated as hazardous waste under the federal or Ohio hazardous waste regulations.	
X yes _ no _ unknown (NVO-325 5.5.1.1(C))	Free Liquids: The material does not contain free liquids which readily separate from the solid portion of the waste under ambient temperature and pressure conditions.	Free Liquid: Material meets WAC contingent on verification (and processing, if required) by Operations.
X yes _ no (NVO-325 5.5.1.1(D))	Particulates: The material contains less than one weight percent of less-than-ten-micrometer-diameter particles, or 15 weight percent of less-than-200-micrometer particles.	Particulates: Material meets WAC provided the waste is packaged, in accordance with NVO-325, Rev. 1 requirements.
X yes _ no _ unknown (NVO-325 5.5.1.1(E))	Gases: The material has been stabilized or absorbed such that the pressure in the waste package does not exceed 1.5 atmosphere at 20°C. The material does not contain any compressed gases as defined by Title 49 CFR 173.300, including unpunctured aerosol cans. Aerosol cans have been punctured such that the puncture disfigurements are recognizable by Real-Time Radiography. Expended gas cylinders have valve mechanism removed.	
X yes _ no (NVO-325 5.5.1.1(F))	Stabilization: Where practical, the material has been treated to reduce volume and provide a more structurally and chemically stable waste form.	
X yes _ no (NVO-325 5.5.1.1(G))	Etiological Agents: The material does not contain any pathogens, infectious waste, or other etiological agents as defined in 49 CFR 173.386.	
X yes _ no (NVO-325 5.5.1.1(H))	Chelating Agents: The material does not contain chelating or complexing agents at concentrations greater than one percent by weight.	
X yes _ no (NVO-325 5.5.1.1(I))	Polychlorinated Biphenyls (PCBs): The material does not contain any PCB materials that are regulated under TSCA. In addition, the material does not contain any PCB materials with greater than 2 ppm PCBs (Westinghouse Corporate Policy).	
X yes _ no (NVO-325 5.5.1.1(J))	Explosives and Pyrophorics: The material does not contain any explosive or pyrophoric materials that may spontaneously combust if the container is breached.	

C. NVO-325 S&A Data Requirements

All individual S&A results below regulatory level: X yes __ No Waste sampled if practicable (including confirmatory): _ yes X no

If no then information source: Heterogeneous COMMENT: Not amenable to S+A

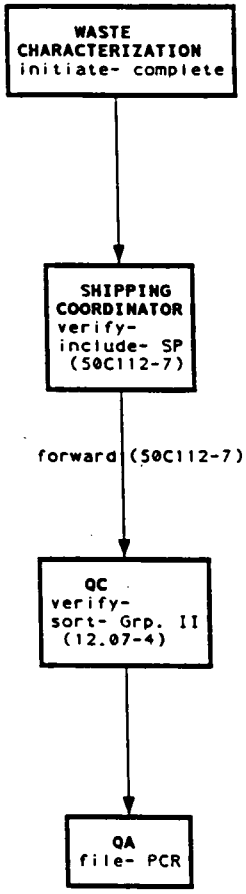
Revision 2.0 03/15/93 wcpform\nts.frm

NTS WASTE ACCEPTANCE CRITERIA (WAC)
SHEET 1 OF 2
Figure 9

000978

5690

NTS WASTE ACCEPTANCE CRITERIA



ROUTING DIAGRAM

NTS WASTE ACCEPTANCE CRITERIA (WAC)
SHEET 2 OF 2
Figure 9

5690

FERMCO
Restoration Management Corporation

INTEROFFICE MEMORANDUM

To:	Jeff Rowe	Date:	May 11, 1993
Location:	M/S 66	Reference:	WMCO:CO:(MCA)90-257
From:	Don Dunaway D. L. Dunaway	FERMCO #:	M:AF(MCA)93-104
Location:	M/S 28	Client:	DOE DE-AC05-92OR21972
Extension:	6353	Subject:	Factor Assays and Lot Markings for Waste

c: File Record Storage Copy 106.4.7
H. Bailey
L. Boyd
D. Burns
J. Clements
T. Dukes
B. Gall
J. Gray
D. Green
H. Knue
C. Lower
E. Spencer
R. Thiel

Reference: Letter, D.L. Dunaway to R.L. Gardner, Factor Assays and Lot Markings for Waste, dated August 22, 1990

At the request of QA, MC&A has updated the information on factor assays and lot markings to be used when packaging and shipping waste. The following are in general use at this time:

Construction rubble, which is generated during construction projects, should be lot marked W050 100 P 003 XXXX, for example for Plant 1 generated materials; specific sources may be used when appropriate.

Maintenance rubble and contaminated metal, which are generated throughout the site, should be lot marked W050 700 P 003 XXXX, more specific sources may be used when appropriate.

Contaminated metal from the scrap metal pile, which is being transferred to SEG on site, should be lot marked W050 SEG P 003 XXXX.

In general, the above materials will be assigned the factor assays 0.01% U and 0.5% U-235, however, the lot mark, %U, and %U-235 factors should reflect the generator's best estimate when possible.

Baled trash will be lot marked W050 240 P 027 XXXX and assigned the factor assays 0.05% U and 0.51% U-235.

ASSAY LETTER
SHEET 1 OF 3
Figure 10

5690

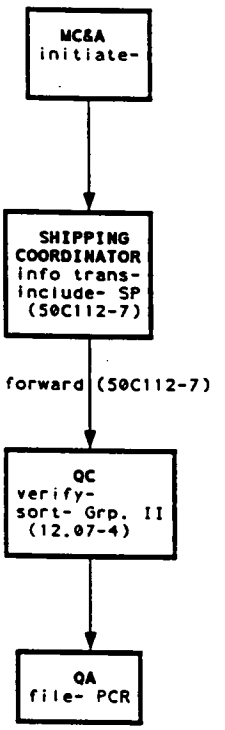
SHIPMENTS OF SUMP (069 MTC) TO N. T. S. PREPARED BY _____ DATE_____

SER.#	DRUM #	CIDI	LOT NUMBER	CONT.	NET	NET LBS	M	%U	U LBS		U GMS	%U-235	U-235 C
	48	G05	S095 817 0 069 7170	1		450	T	1.85	8.3		3,765	0.945	35.6
	4	G05	S095 817 0 069 7148	1		450	T	1.85	8.3		3,765	0.945	35.6
	23	G05	S095 817 0 069 7148	1		450	T	1.85	8.3		3,765	0.945	35.6
	1	G05	S095 817 0 069 7148	1		450	T	1.85	8.3		3,765	0.945	35.6
	32	G05	S095 817 0 069 7170	1		450	T	1.85	8.3		3,765	0.945	35.6
	39	G05	S095 817 0 069 7170	1		450	T	1.85	8.3		3,765	0.945	35.6
739925	Box 6	G05	W095 817 V 069 1322	1	4,774	4,993		1.90	91	90.79	41,141	0.959	390.[illegible]
	30	G05	S095 817 0 069 7216	1		450	T	1.85	8.3		3,765	0.945	35.6
	24	G05	S095 817 0 069 7216	1		450	T	1.85	8.3		3,765	0.945	35.6
	23	G05	S095 817 0 069 7216	1		450	T	1.85	8.3		3,765	0.945	35.6
	22	G05	S095 817 0 069 7216	1		450	T	1.85	8.3		3,765	0.945	35.6
	15	G05	S095 817 0 069 7159	1		191	T	1.85	3.5		1,588	0.945	15.0
	55	G05	S095 817 0 069 7159	1		210	T	1.85	3.9		1,769	0.945	[illegible]
	38	G05	S095 817 0 069 7258	1		450	T	1.85	8.3		3,765	0.945	[illegible]
	55	G05	S095 817 0 069 7258	1		450	T	1.85	8.3		3,765	0.945	35.6
	44	G05	S095 817 0 069 7258	1		450	T	1.85	8.3		3,765	0.945	35.6
	32	G05	S095 817 0 069 7144	1		450	T	1.85	8.3		3,765	0.945	35.6
	43	G05	S095 817 0 069 7258	1		450	T	1.85	8.3		3,765	0.945	35.6
739921	Box 7	G05	W095 817 V 069 1323	1	4,321	4,451		1.90	82	82.10	37,240	0.950	353.8
113	TOTAL SHIPMENT	G05		7	33,540	34,079		0.78	262	262	118,795	0.948	1,126.7

ASSAY LETTER
SHEET 2 OF 2
Figure 10

5690

ASSAY LETTER



ROUTING DIAGRAM

ASSAY LETTER
SHEET 3 OF 3
Figure 10

5690

TO: Reynolds Electrical & Engineering Co., Inc.
Defense Waste Management - Package Storage & Disposal Data

Prepared By: _____ Date: _____

Approved By: _____ Date: _____

11/09/93
14:40:28

Phone: 513-738-8648 or 513-738-8646

SHIPMENT NO. WML94019

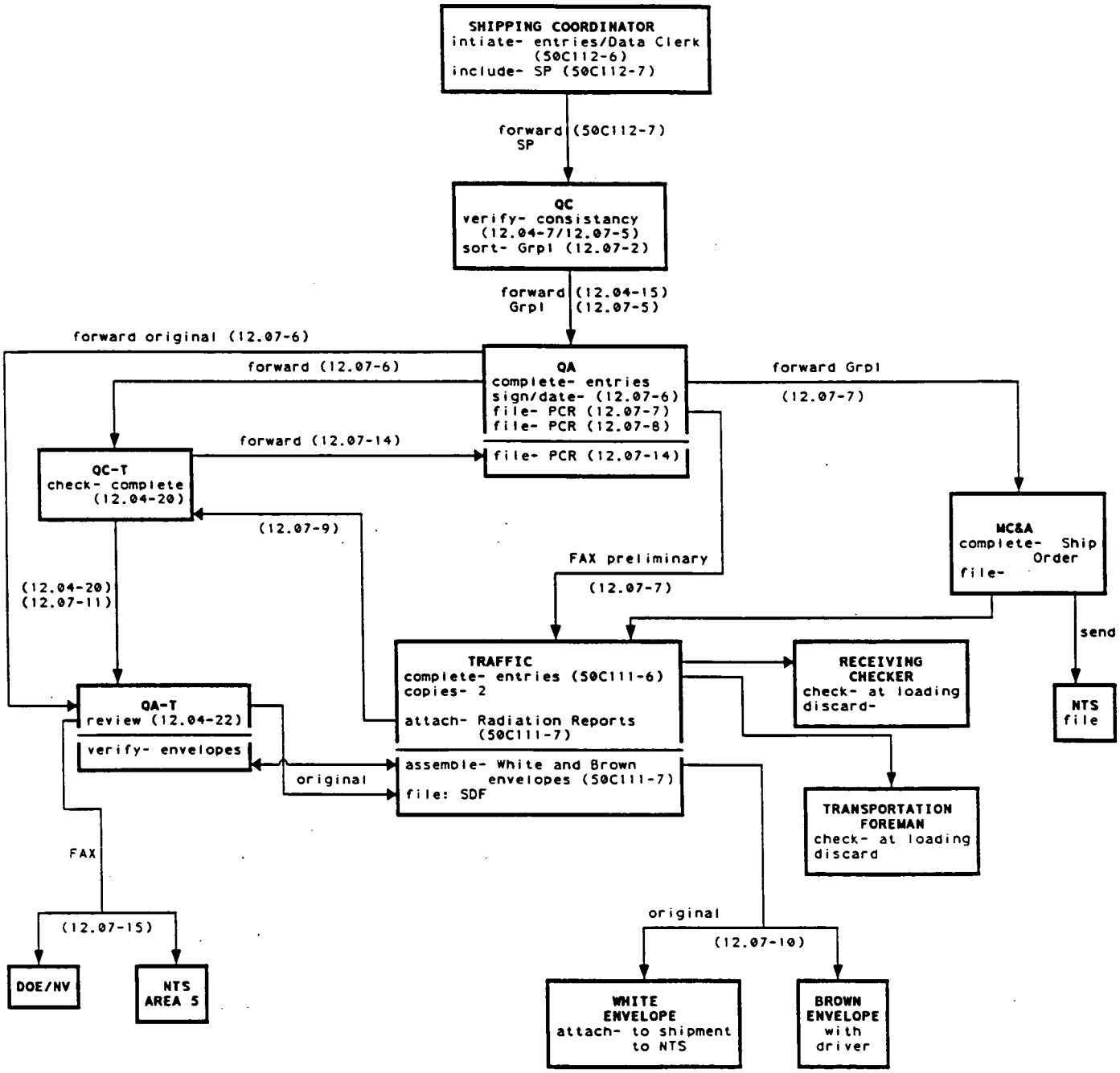
WASTE STREAM ID NUMBER(S)	NUCLIDE CATEGORY	WASTE MATERIAL DESCRIPTION	NO. OF PKGS.	CONTAINER CODE	PACKAGE DESCRIPTION
ONL0000000006	2	MAGNESIUM FLUORIDE	9	117	3-1/2 x 4-1/2 x 6-3/4 Box

PACKAGE IDENT. NUMBER	WASTE STREAM ID NO.	ASSAY DATE DDMMMYY	PACKAGED DATE DDMMMYY	CONT TYPE CODE	OPER CODE	WASTE CODE	EXTERNAL VOLUME CU. M	INTERNAL VOLUME CU. M.	GROSS WEIGHT KGS.	NET WEIGHT KGS.	RADIATION AT SURF MR/HR	RADIATION 1 METER MR/HR	NUCLIDE QUANTITIES U-238 CURIES	U-235 CURIES	U-234 CURIES	TOTAL CURIES
653903	06	08NOV93	02NOV93	117	B	DS	3.010E+00	1.982E+00	2.041E+03	1.446E+03	1.40	.50	9.706E-03	4.657E-04	9.874E-03	2.005E-02
653933	06	08NOV93	02NOV93	117	B	DS	3.010E+00	1.982E+00	2.060E+03	1.467E+03	.60	.50	8.787E-03	4.389E-04	9.237E-03	1.846E-02
653936	06	08NOV93	02NOV93	117	B	DS	3.010E+00	1.982E+00	1.854E+03	1.302E+03	.50	.50	7.783E-03	3.887E-04	8.181E-03	1.635E-02
653947	06	08NOV93	02NOV93	117	B	DS	3.010E+00	1.982E+00	1.824E+03	1.256E+03	.60	.50	7.441E-03	3.570E-04	7.570E-03	1.537E-02
653952	06	08NOV93	02NOV93	117	B	DS	3.010E+00	1.982E+00	1.889E+03	1.329E+03	.60	.50	6.900E-03	3.356E-04	7.097E-03	1.433E-02
653956	06	08NOV93	02NOV93	117	B	DS	3.010E+00	1.982E+00	2.019E+03	1.433E+03	.50	.50	8.101E-03	3.887E-04	8.241E-03	1.673E-02
653979	06	08NOV93	02NOV93	117	B	DS	3.010E+00	1.982E+00	2.410E+03	1.799E+03	.50	.50	1.059E-02	5.219E-04	1.101E-02	2.212E-02
653980	06	08NOV93	02NOV93	117	B	DS	3.010E+00	1.982E+00	1.984E+03	1.432E+03	.60	.50	8.610E-03	4.187E-04	8.856E-03	1.788E-02
653988	06	08NOV93	02NOV93	117	B	DS	3.010E+00	1.982E+00	1.807E+03	1.252E+03	1.50	.50	6.825E-03	3.319E-04	7.020E-03	1.418E-02
TOTALS:							2.709E+01	1.784E+01	1.789E+04	1.271E+04			7.474E-02	3.647E-03	7.709E-02	1.555E-01

PACKAGE STORAGE AND DISPOSAL
SHEET 1 OF 2
Figure 11

PACKAGE STORAGE & DISPOSAL DATA

5690



ROUTING DIAGRAM

PACKAGE STORAGE AND DISPOSAL
SHEET 2 OF 2
Figure 11

5690

WML-94 019

11/09/93
14:40:20

TO: Reynolds Electrical and Engineering Co., Inc.
U.S. DOE, Nevada Test Site, Zone 2
Mercury, NV 89023
Attention: G. Kendall

FROM: Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, OH 45239

NEVADA TEST SITE SHIPMENT
TALLY SHEET

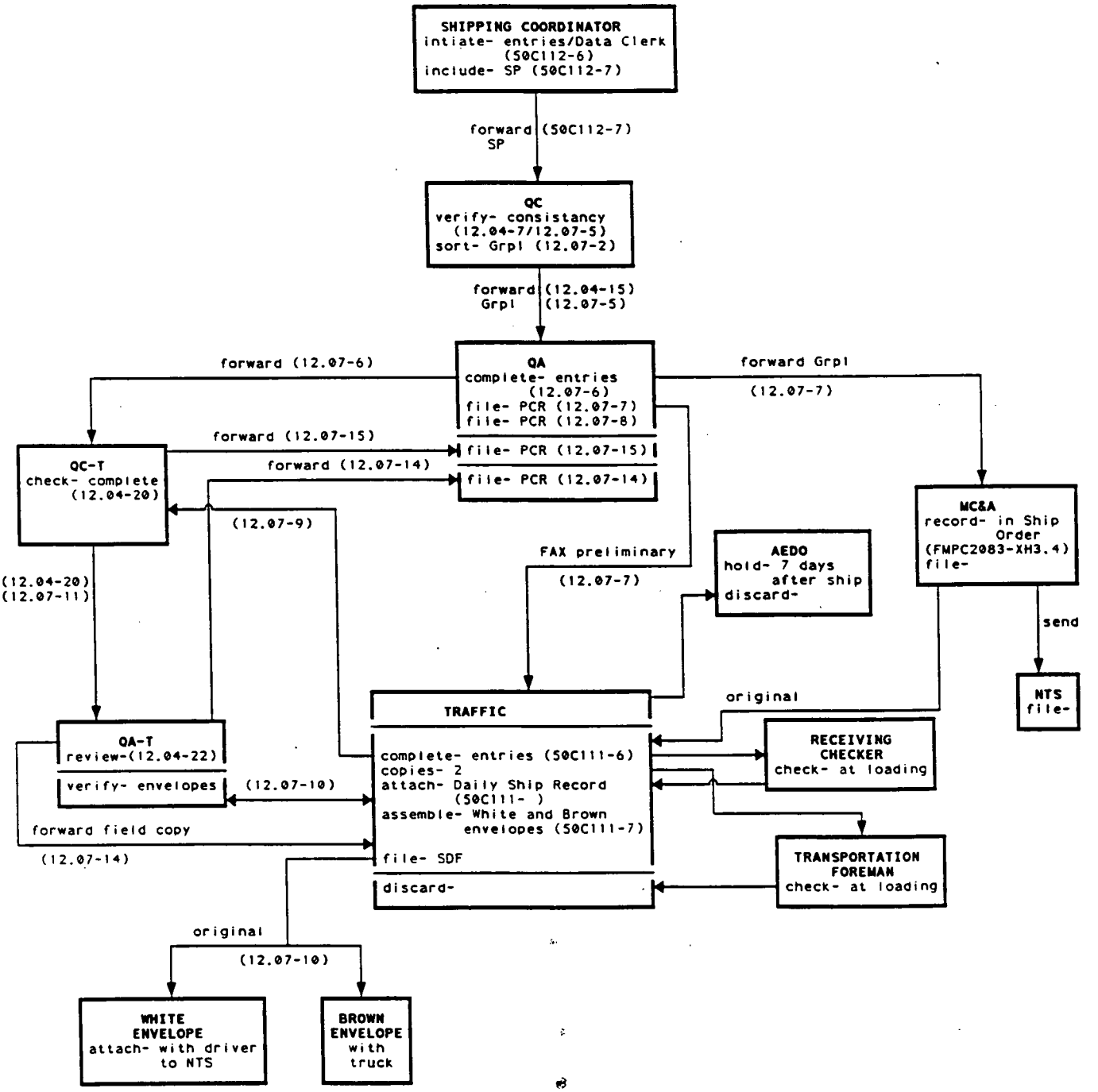
LOT NUMBER W074-513-V034-6663
LOT NUMBER W074-513-V034-6664
LOT NUMBER W074-513-V034-6666
LOT NUMBER W075-513-V034-6660
LOT NUMBER W075-513-V034-6665
LOT NUMBER W075-513-V034-6668
LOT NUMBER W076-513-V034-6662
LOT NUMBER W077-513-V034-6661
LOT NUMBER W077-513-V034-6667

LOT NUMBER	CONT. NO.	GROSS WT. (POUNDS)	TARE WT. (POUNDS)	NET WT. (POUNDS)	U ASSAY	PERCENT U-235	PERCENT U-238	PERCENT U-234	U POUNDS	ELEMENT WT(gms)	U-235 ISOTOPE WT(gms)	U-238 ISOTOPE WT(gms)	U-234 ISOTOPE WT(gms)	U-235 Ci	U-238 Ci	U-234 Ci	VOLUME CU FT
6664	653903	4500.0	1313.0	3187.0	2.030	.740	99.23	.006	64.7	29347	217.2	29121	8.8	4.657E-04	9.706E-03	9.874E-03	106.297
6667	653933	4542.0	1307.0	3235.0	1.810	.770	99.19	.006	58.6	26580	204.7	26365	10.6	4.389E-04	8.787E-03	9.237E-03	106.297
6661	653936	4088.0	1218.0	2870.0	1.810	.770	99.19	.006	51.9	23541	181.3	23351	9.4	3.887E-04	7.783E-03	8.181E-03	106.297
6666	653947	4022.0	1253.0	2769.0	1.790	.740	99.23	.006	49.6	22498	166.5	22325	6.7	3.570E-04	7.441E-03	7.570E-03	106.297
6660	653952	4164.0	1234.0	2930.0	1.570	.750	99.22	.006	46.0	20865	156.5	20702	6.3	3.356E-04	6.900E-03	7.097E-03	106.297
6663	653956	4452.0	1293.0	3159.0	1.710	.740	99.23	.006	54.0	24494	181.3	24305	7.3	3.887E-04	8.101E-03	8.241E-03	106.297
6662	653979	5312.0	1347.0	3965.0	1.780	.760	99.20	.006	70.6	32023	243.4	31767	12.8	5.219E-04	1.059E-02	1.101E-02	106.297
6665	653980	4374.0	1218.0	3156.0	1.820	.750	99.22	.006	57.4	26036	195.3	25833	7.8	4.187E-04	8.610E-03	8.856E-03	106.297
6668	653988	3984.0	1225.0	2759.0	1.650	.750	99.22	.006	45.5	20638	154.8	20477	6.2	3.319E-04	6.825E-03	7.020E-03	106.297
TOTALS		39438.0	11408.0	28030.0					498.3	226024	1700.8	224247	76.0	3.647E-03	7.474E-02	7.709E-02	956.674
--- LOT TOTALS ---																	
6663	1	4452.0	1293.0	3159.0					54.0	24494	181.3	24305	7.3	3.887E-04	8.101E-03	8.241E-03	106.297
6664	1	4500.0	1313.0	3187.0					64.7	29347	217.2	29121	8.8	4.657E-04	9.706E-03	9.874E-03	106.297
6666	1	4022.0	1253.0	2769.0					49.6	22498	166.5	22325	6.7	3.570E-04	7.441E-03	7.570E-03	106.297
6660	1	4164.0	1234.0	2930.0					46.0	20865	156.5	20702	6.3	3.356E-04	6.900E-03	7.097E-03	106.297
6665	1	4374.0	1218.0	3156.0					57.4	26036	195.3	25833	7.8	4.187E-04	8.610E-03	8.856E-03	106.297
6668	1	3984.0	1225.0	2759.0					45.5	20638	154.8	20477	6.2	3.319E-04	6.825E-03	7.020E-03	106.297
6662	1	5312.0	1347.0	3965.0					70.6	32023	243.4	31767	12.8	5.219E-04	1.059E-02	1.101E-02	106.297
6661	1	4088.0	1218.0	2870.0					51.9	23541	181.3	23351	9.4	3.887E-04	7.783E-03	8.181E-03	106.297
6667	1	4542.0	1307.0	3235.0					58.6	26580	204.7	26365	10.6	4.389E-04	8.787E-03	9.237E-03	106.297

NTS SHIPMENT TALLY SHEET
SHEET 1 OF 2
Figure 12

TALLY SHEET

5690



ROUTING DIAGRAM

NTS SHIPMENT TALLY SHEET
SHEET 2 OF 2
Figure 12

5690

WML-94 019

Reynolds Electrical and Engineering Co., Inc.
Radioactive Waste Management-Storage & Disposal

	LSA Container Number	Net Weight	Gross Weight	Total Curies
	653903	3187.0	4500.0	.02004600
	653933	3235.0	4542.0	.01846314
	653936	2870.0	4088.0	.01635217
	653947	2769.0	4022.0	.01536756
	653952	2930.0	4164.0	.01433252
	653956	3159.0	4452.0	.01673082
	653979	3965.0	5312.0	.02212064
	653980	3156.0	4374.0	.01788449
	653988	2759.0	3984.0	.01417673
TOTAL LSA Containers	9	28030.0	39438.0	.15547412

	LQ Container Number	Net Weight	Gross Weight	Total Curies
TOTAL LQ Containers	0	.0	.0	.00000000

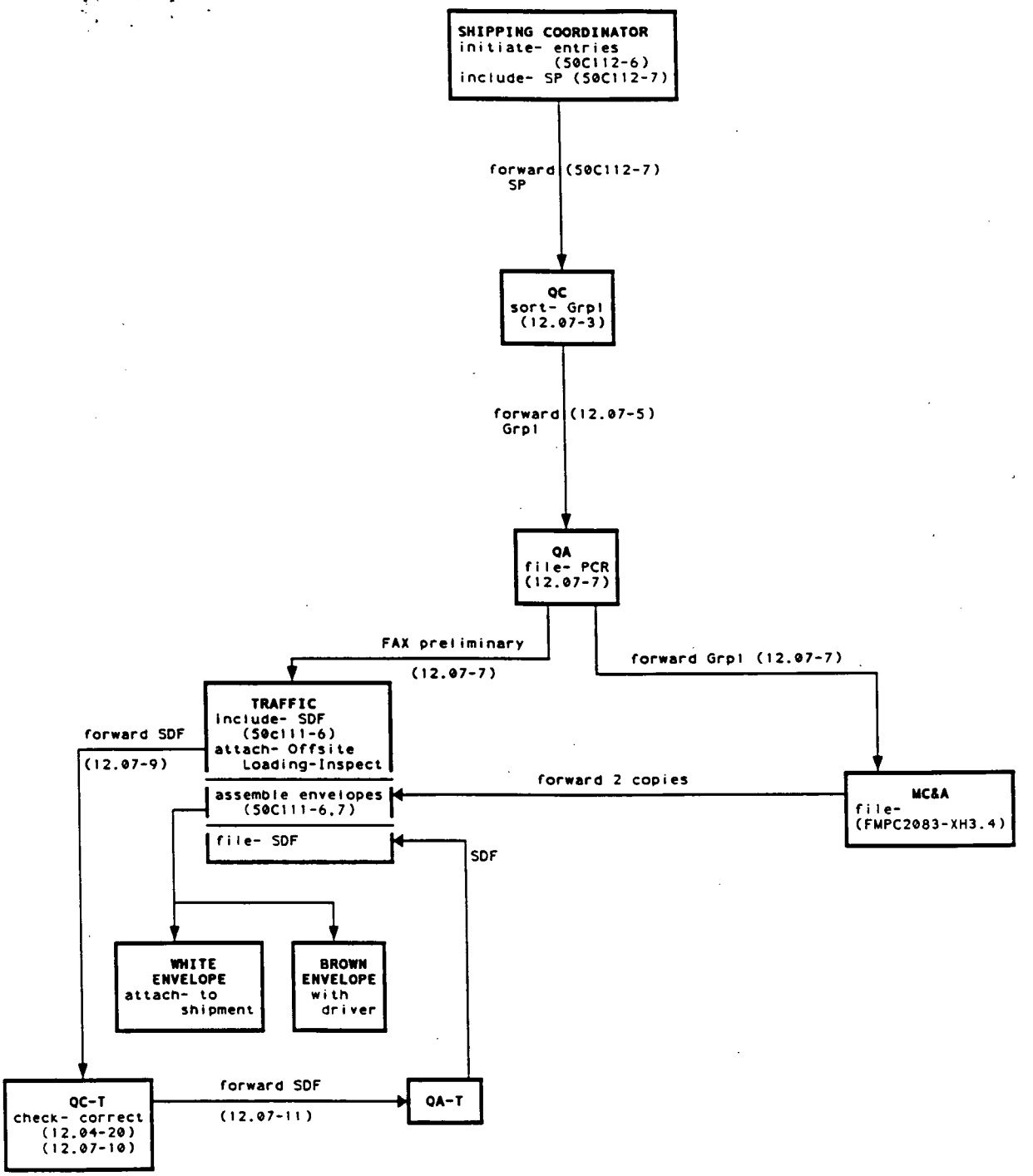
	RQ Container Number	Net Weight	Gross Weight	Total Curies
TOTAL RQ Containers	0	.0	.0	.00000000
TOTAL RQ/LSA Containers	0	.0	.0	.00000000
TOTAL RQ/LQ Containers	0	.0	.0	.00000000

CURIE SHEET
SHEET 1 OF 2
Figure 13

000887

CURIE SHEET

5690



ROUTING DIAGRAM

CURIE SHEET
SHEET 2 OF 2
Figure 13

5690

WML-94 019

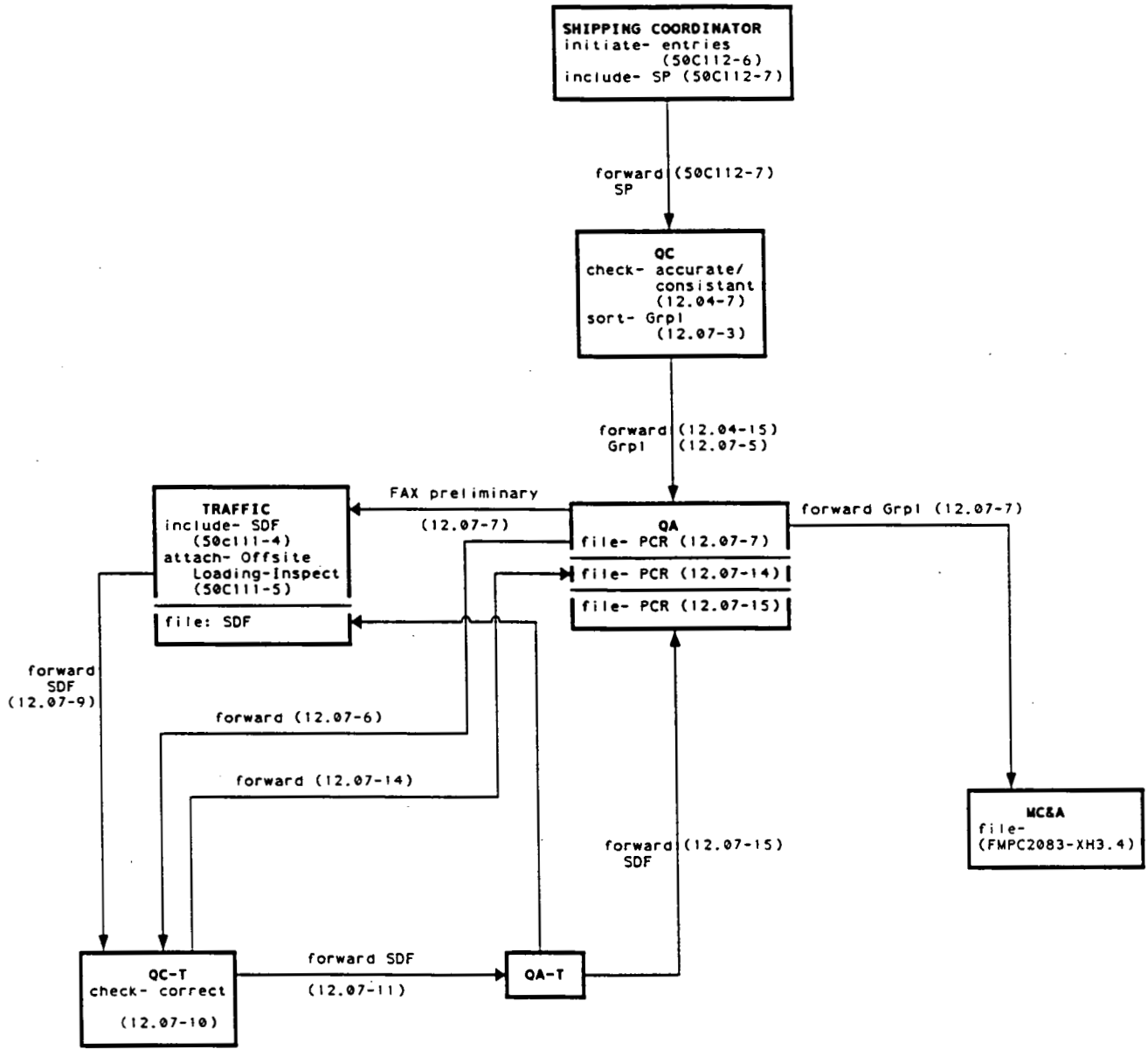
Reynolds Electrical and Engineering Co., Inc.
Radioactive Waste Management-Storage & Disposal

PACKAGE NO.	NET WT	TARE WT	GROSS WT	LSA	LQ	RQ
653903	3187.00	1313.00	4500.00	X		
653933	3235.00	1307.00	4542.00	X		
653936	2870.00	1218.00	4088.00	X		
653947	2769.00	1253.00	4022.00	X		
653952	2930.00	1234.00	4164.00	X		
653956	3159.00	1293.00	4452.00	X		
653979	3965.00	1347.00	5312.00	X		
653980	3156.00	1218.00	4374.00	X		
653988	2759.00	1225.00	3984.00	X		

CIRCLE COPY
SHEET 1 OF 2
Figure 14

CIRCLE COPY

5690



ROUTING DIAGRAM

CIRCLE COPY
SHEET 2 OF 2
Figure 14

000830

5690

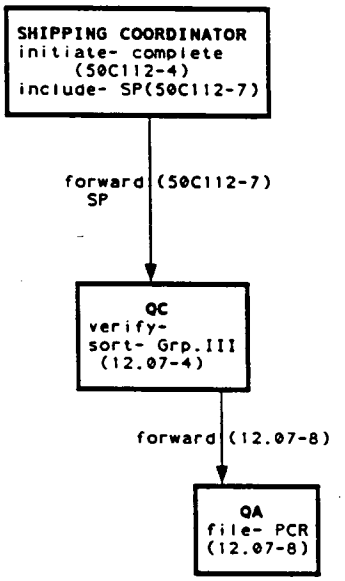
Shipment Number - 109

RECORD	DRUM	LOT	PACKAGE	GROSS WEIGHT	TARE WEIGHT
1	1	A933	156028	2239.0	850.0
2	2	A933	156050	2248.0	850.0
3	3	A933	157856	3019.0	850.0
4	4	A933	157876	2862.0	850.0
5	5	9561	155208	1559.0	850.0
6	6	9561	158082	1781.0	850.0
7	7	9561	158091	1847.0	850.0
8	8	9561	169974	2026.0	850.0
9	9	9562	177691	3588.0	850.0

DRUM DATA SHEET
SHEET 1 OF 2
Figure 15

5690

DRUM / CONTAINER / LOT DATA SHEET



ROUTING DIAGRAM

DRUM DATA SHEET
SHEET 2 OF 2
Figure 15

5690

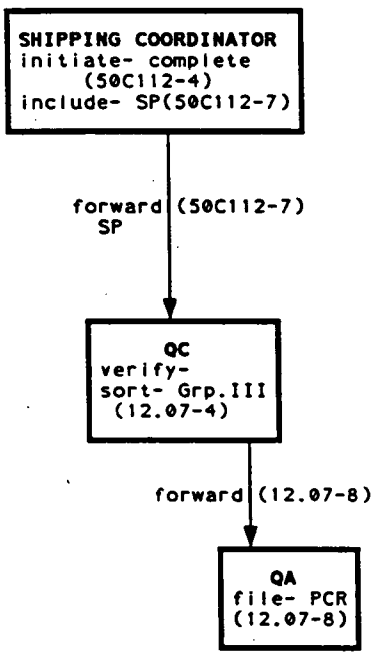
Shipment Number - 109

RECORD	PACKAGE	VOLUME	WEIGHT	DATE	P_DATE	SURFACE	METER	COUNT
1	156028	3.0870	.0	01/19/94	10/06/92	.50	.50	OK
2	156050	3.0870	.0	01/19/94	10/06/92	.50	.50	OK
3	157856	3.0870	.0	01/19/94	10/06/92	.50	.50	OK
4	157876	3.0870	.0	01/19/94	10/06/92	.50	.50	OK
5	155208	3.0870	.0	05/11/93	07/05/91	.50	.50	OK
6	158082	3.0870	.0	05/11/93	03/23/92	.50	.50	OK
7	158091	3.0870	.0	05/11/93	03/23/92	.50	.50	OK
8	169974	3.0870	.0	05/11/93	12/20/92	.50	.50	OK
9	177691	3.0870	.0	01/19/94	01/26/93	.50	.50	OK

CONTAINER DATA SHEET
SHEET 1 OF 2
Figure 16

5690

DRUM / CONTAINER / LOT DATA SHEET



ROUTING DIAGRAM

CONTAINER DATA SHEET
SHEET 2 OF 2
Figure 16

0 0 0 6

5690

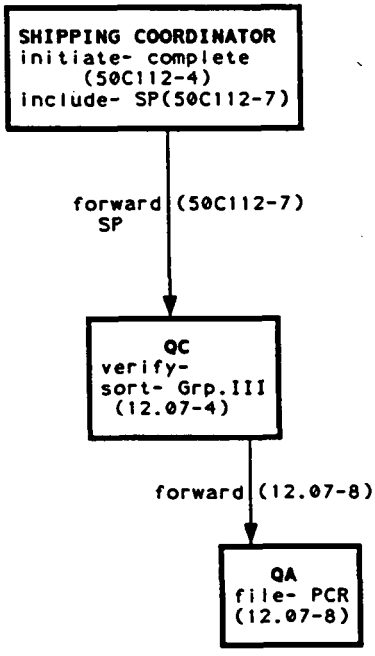
Shipment Number - 109

RECORD	LOT NUMBER	U ASSAY	%U-235	%U-238	%U-234	CLASS CODE	CONT CODE	ATTR CODE	WASTE CODES
1	W084-100-V003-A933	.010	.840	99.12	.007	2122	200	2122	DD
2	W050-100-P003-9561	.010	.500	99.48	.004	2122	100	2122	CE
3	W095-100-V003-9562	.010	.950	99.00	.008	2122	100	2122	CE

LOT DATA SHEET
SHEET 1 OF 2
Figure 17

5690

DRUM / CONTAINER / LOT DATA SHEET



ROUTING DIAGRAM

LOT DATA SHEET
SHEET 2 OF 2
Figure 17

5690

```
1L941047396070NL0000000006    14JAN94B18JAN941173.010E+001.925E+002DS2.506E+031.885E+03U-235 8.446E-04
1L941047396070NL0000000006    14JAN94B18JAN941173.010E+001.925E+002DS2.506E+031.885E+03U-238 1.368E-02
1L941047396070NL0000000006    14JAN94B18JAN941173.010E+001.925E+002DS2.506E+031.885E+03U-234 1.715E-02
1L941047396150NL0000000006    14JAN94B18JAN941173.010E+001.925E+002DS2.460E+031.837E+03U-235 7.347E-04
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1L941047396190NL0000000006    14JAN94B18JAN941173.010E+001.925E+002DS2.674E+032.052E+03U-235 8.529E-04
1L941047396190NL0000000006    14JAN94B18JAN941173.010E+001.925E+002DS2.674E+032.052E+03U-238 1.381E-02
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1L941047399220NL0000000006    14JAN94B18JAN941173.010E+001.925E+002DS2.498E+031.887E+03U-235 8.150E-04
1L941047399220NL0000000006    14JAN94B18JAN941173.010E+001.925E+002DS2.498E+031.887E+03U-238 1.320E-02
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1L941047399400NL0000000006    14JAN94B18JAN941173.010E+001.925E+002DS2.676E+032.068E+03U-234 1.712E-02
```
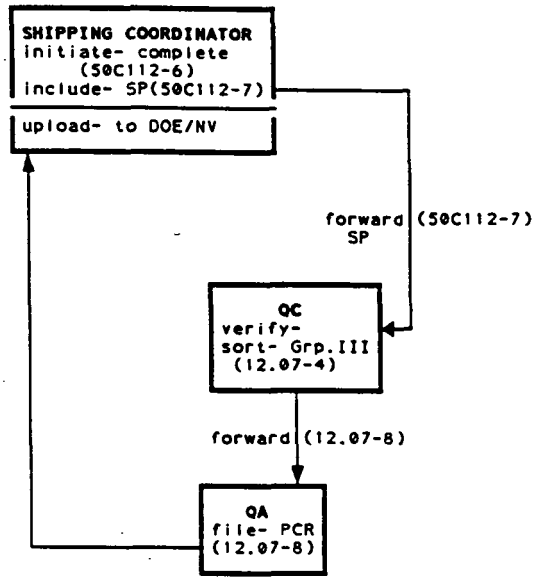

UPLOAD SHEET
SHEET 1 OF 2
Figure 18

5690

UPLOAD SHEET



ROUTING DIAGRAM

UPLOAD SHEET
SHEET 2 OF 2
Figure 18

000838

5690

Fernald Environmental Restoration Management Corporation

SHIPPING ORDER FOR NUCLEAR MATERIAL

Date Prepared: _____

SHIP TO:	ROUTING:			SHIPPERS AUTHORIZATION NO.:	SHIPPING ORDER NO.:
STREET:	☐ PREPAID ☐ COLLECT	CAR OR TRAILER NO.:	SEAL NO.:	SHIPPED FROM PLANT:	ORIGINATOR NO.:
CITY: STATE:	ZIP CODE:	BILL OF LADING NO.:	QUALITY CONTROL APPROVAL:		DATE SHIPPED:
SPECIAL INSTRUCTIONS:		COUNTRY CONTROL NO.:	PROJECT NO.:		TIME SHIPPED:

Type of Material _____ FEMP Production Order No. _____ Originator's Signature _____

Station RIS _____ DOE 741 No. _____ Shipment Authorized By _____ NUCLEAR MATERIALS REPRESENTATIVE

NMC DATA			ORIGINATOR'S DATA						MATERIAL CONTROL DATA					
FROM MBA	COST CODE	741 NO.	P O NO	LOT NUMBER	QUANTITY	WEIGHT (LBS) GROSS	TARE	NET	ANAL. CODE	ELE. ANAL.	ELE. LBS	ELE. GRAMS OR KGS	ISO ANAL	U^{235} GRAMS OR KGS

DISTRIBUTION OF COPIES			
1	NMA (RECORD COPY)	4	Environmental Restoration
2	Traffic	5	Quality Certification
3	NMA (Cost)	6	Originator

I, _____ certify that this shipment was made on the above date after complying with all regulations.

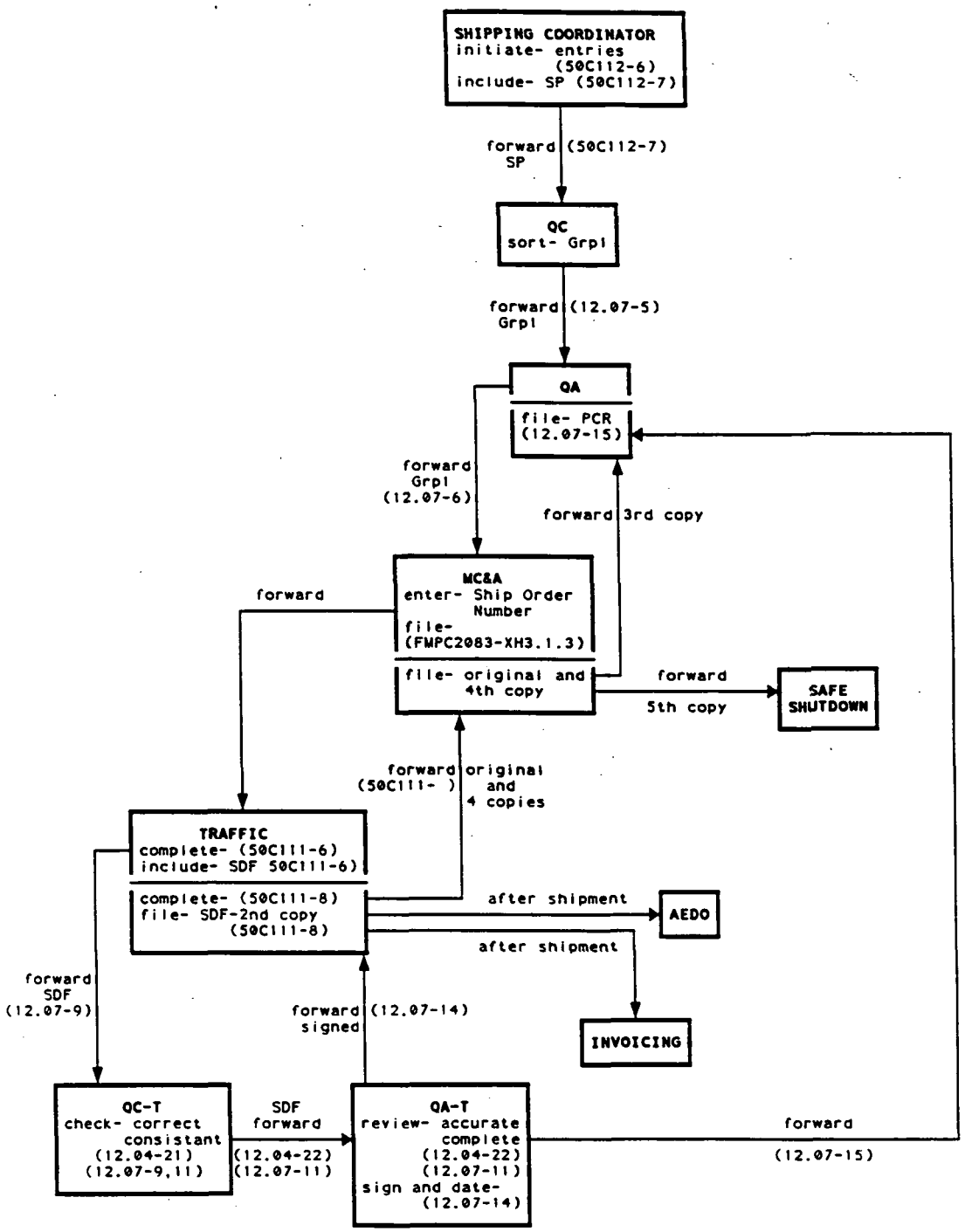
Audited by _____ Date _____

FS-F-558 (REV 2/11/93)

SHIPPING ORDER FOR NUCLEAR MATERIAL
FORM NO. FS-F-558-3
SHEET 1 OF 2
Figure 19

SHIPPING ORDER

5690



ROUTING DIAGRAM

SHIPPING ORDER FOR NUCLEAR MATERIAL
FORM NO. FS-F-558-3
SHEET 2 OF 2
Figure 19

000900

5690

RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
04-15-94	0	Procedure required for preparing LLRW off-site shipment documentation per Request No. P93-1297, initiated by S. Stierhoff.

NON-CONTROLLED COPY 5690

1.0 PURPOSE

The purpose of this procedure is to establish the activities and documentation needed to schedule, order, load, and release carrier trucks for the shipment of certified Low Level Radioactive Waste (LLRW) from the Fernald Environmental Management Project (FEMP).

2.0 APPLICABILITY

This procedure applies to all certified LLRW containers shipped by van or flat bed truck from the FEMP to the Department of Energy/Nevada Test Site (DOE/NV).

3.0 RESPONSIBILITIES

3.1 **Radiological Control-Radiological Assessment** - Responsible for performing and documenting the results of radiological surveys of trucks, trailers, and waste packages. Responsible for securing the truck and trailer after testing and applying the appropriate chain-of-custody seals.

3.2 **Maintenance Services Garage** - Responsible for inspecting the road-worthiness of trailers and trucks and documenting the observations.

3.3 **Materials Control & Accountability** - Responsible for completing the shipping order, and AD and DOE 741 forms; for sending the Package Storage and Disposal Sheet and Tally Sheet to DOE/NV; for forwarding documents for appropriate distribution, and for keeping appropriate files.

3.4 **Motor Vehicle Operator** - Responsible for moving packages and loading trucks.

3.5 **Quality Assurance** - Responsible for verifying the completeness and accuracy of the shipment documents and maintaining the Permanent Certification Record file for each shipment. Responsible for taking pictures of half and finished loaded trucks. Responsible for signing and dating the Shipping Order, Certification Statement and Statement of Compliance.

3.6 **Quality Control** - Responsible for verifying the completeness and accuracy of the shipment documents.

3.7 **Waste Management Traffic** - Responsible for ordering, scheduling, and releasing trucks. Responsible for completing and signing shipping orders, bills-of-lading, and other documents and maintaining the Shipping Document File (SDF).

3.0 **RESPONSIBILITIES** (cont.)

5690

3.8 **Transportation** - Responsible for the preliminary inspections of packages, trucks, and trailers. Responsible for securing packages, weighing trucks, completing LLRW check lists and attaching tamper-proof seals on the truck doors.

4.0 **DEFINITIONS**

4.1 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 US Postal Service.

4.2 Consignee - The person or organization designated in the shipping papers to receive a shipment.

4.3 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 transport. The commonly used ISO containers at the FEMP are Sea/land containers.

4.4 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) by product 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.

4.5 Limited Quantities (LQ) - Materials that the radiation level at any point on the external surface of the package does not exceed 0.5 m/R per hour, and the package does not contain more than 15 grams of uranium-235 and materials which quantities do not exceed those delineated in 49 CFR Section 173.423.

4.6 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); or uranium, thorium, and tritium oxide as listed in 49 CFR Section 173.403 (n); or objects externally contaminated.

4.7 Off-Site - All of the areas outside the main perimeter security fence that are not controlled at all times by guards and security fences.

4.8 Package - Pertaining to radioactive materials, the packaging together with its radioactive contents as presented for transport.

4.9 Packaging - Pertaining to radioactive materials, the assembly of components necessary to ensure compliance with the packaging requirements of 49 CFR Subpart I.

4.10 Radioactive Material - Any material having a specific activity greater than 0.002 microcuries per gram.

4.0 **DEFINITIONS** (cont.)

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4.11 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.

4.12 White Metal Box - Intermediate bulk container with a net capacity greater than 452 liters and less than 3,000 liters that meets HM-181 test standards.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

5.1.1 10 CFR 71, "Packaging of Radioactive Material"

5.1.2 49 CFR 173, "Shippers - General Requirements"

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

5.1.4 RM-0012, "Quality Assurance Program Description"

5.1.5 NVO-325 (Rev. 1), "Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements"

5.2 References

5.2.1 PP-0314, "Packaging, On-Site Movement and Off-Site Shipment of Material"

5.2.2 SOP 01-C-602, "LLRW Shipment Preparation"

5.2.3 PO-D-035, "Shipment of LLRW Requirements"

5.2.4 PO-0307, "Control and Accountability of Nuclear Material"

5.2.5 SOP 01-C-608, "Storage of Radioactive Material"

5.2.6 RC-RDA-006, "Radioactive Material Shipping and Receiving"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

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6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.2 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

7.0 GENERAL

7.1 Notes, Cautions, and Warnings precede the Step or Item to which they apply.

7.2 Sheet 1 of the Figures is a sample of the specific document (See Item 9.0). Sheet 2 of the Figures is a flow diagram of the specific document routing.

NOTE: The number in parenthesis indicates the procedure - page that specifies the activity associated with the document.

12.07 = QP 12.07 "Certification of LLW Shipments to NTS" (12/93)
12.04 = QP 12.04 "Certification of Loading and Shipment of LLRW" (12/93)
50C111 = SOP 50-C-111 "Traffic Documentation for Off-Site Shipment of (LLRW)" (4/94)
50C112 = SOP 50-C-112 "Preparation of Documentation for Off-Site shipment of (LLRW)" (4/94)
RCRDA006 = RC-RDA-006 "Radiological Survey Requirements for Radioactive Material Shipping and Receiving" (10/93)
FMPC2083 = FMPC-2083 "Materials Control & Accountability Manual" (2/90)

7.3 If unable to complete any Step of this procedure, contact supervisor.

8.0 PROCEDURE

8.1 Documentation During Scheduling

WASTE MANAGEMENT TRAFFIC

8.1.1 Initiate assembly of Shipping Document file (SDF) as follows:

8.1.1.1 Receive Radiological Assessment from Radiological Control/Radiological Assessment including: Radiological Survey Report (Package Dose Rate), Form No. FS-F-1993-1 (See Figure 1a), and Radiological Survey Report (Package Smear/Contamination), Form No. FS-F-1993-1 (See Figure 1b).

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8.0 **PROCEDURE** (cont.)

8.1.1.2 Receive the following from QA: Tally Sheet (in-process) (See Figure 2), Package Storage and Disposal Data (See Figure 3), Curie Sheet (See Figure 4), and Circle Copy (See Figure 5).

8.1.2 Attend the weekly shipping meeting to schedule the truck/trailer loading date.

8.1.3 Order the trailer(s) from carrier.

8.2 Documentation During Receiving and Inspecting the Trailer and Truck

WASTE MANAGEMENT TRAFFIC

8.2.1 Receive from Radiological Assessment "Vehicle Radiation Monitoring Report" (trailer-empty before loading), Form No. FS-F-1596-1 (See Figure 6a) and "Radiological Survey Report" (trailer empty before loading), Form No. FS-F-1993-1 (See Figure 1d).

8.2.2 Receive from garage "Preliminary Visual Trailer Inspection", Form No. FS-F-3344 (See Figure 7).

8.3 Documentation During Loading of the Trailer (Van or Flatbed)

WASTE MANAGEMENT TRAFFIC

8.3.1 Receive from MC&A completed Tally Sheet (See Figure 2) and "Shipping Order for Nuclear Materials," Form No. FS-F-556-3 (See Figure 8) before loading. Make two copies of Tally Sheet and Package Storage and Disposal Sheet for Transportation who forwards one copy to the checker.

8.3.2 When the Package Storage and Disposal Data Sheet (See Figure 3) is received from MC&A and Receiving Checker, discard the Receiving Checker (duplicate) copy.

8.3.3 After the trailer is loaded, receive from Transportation the following for entries (all LSA, LQ, or RQ), and verification of completion and inclusion in SDF:

- "LLW Shipment Checklist & NTS Notification" (not complete), Form No. FMPS-SAML-3065 (See Figure 9)
- "Offsite Loading-Tie Down Inspection-Vehicle Inspection", Form No. FMPS-SAML-2495 (See Figure 10)
- "Weight Ticket" (original, white, and yellow copy), Form No. FMPC-PRO 2380 (See Figure 11).

8.3.4 Attach the Circle Copy (See Figure 5) original copy to the "Offsite Loading-Tie Down Inspection-Vehicle Inspection" form (See Figure 10).

8.0 **PROCEDURE** (cont.)

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8.4 Documentation During the Releasing of the Truck for Off-Site Shipment

WASTE MANAGEMENT TRAFFIC

8.4.1 Radiological Control (after loading) surveys the carrier vehicle trailer (Procedure RC-RDA-006) and provides the following documents to be added to the SDF:
- "Vehicle Radiation Monitoring Report," Form No. FS-F-1596-1 (See Figure 6b)
- "Radiological Survey Report" (trailer outgoing), Form No. FS-F-1993-1 (See Figure 1e).

8.4.2 Enter the following information on the Shipping Order for Nuclear Materials (See Figure 8):

A. Carrier name
B. Trailer number
C. Seal number (vans only)
D. Bill of Lading number
E. Date shipped
F. ETA (time and date)
G. Sea/land and seal numbers (if applicable)

8.4.3 Complete, sign, and add to the SDF the "Bill of Lading" (4th copy), Form No. FS-F-452 (See Figure 12), and "Shipping Order for Nuclear Materials", Form No. FS-F-556-3 (See Figure 8).

8.4.4 Complete LLW Shipment Checklist & NTS Notification (See Figure 9) by adding bill of lading number, shipping order number, and any other missing information.

8.4.5 Check for the Transportation Foreman's signature; sign the checklist (See Figure 9), and attach it to the following forms and include in the SDF:

A. Vehicle Radiation Monitoring Report (trailer-empty before loading) (See Figure 6a)
B. Radiological Survey Report (trailer-empty before loading) (See Figure 1d)
C. Preliminary Visual Trailer Inspection (See Figure 7)
D. Vehicle Radiation Monitoring Report (See figure 6b)
E. Radiological Survey Report (trailer-outgoing) (See Figure 1e)

8.4.6 Complete the "Brown Envelope" containing:

A. Tally Sheet (See Figure 2)
B. Package Storage and Disposal Data (See Figure 3)
C. Curie Sheet (See Figure 4)

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8.0 **PROCEDURE** (cont.)

8.4.6.1 Ensure that, if the trailer is a van, this envelope is attached to the last container inside the trailer by the Transportation Foreman and Quality Control Inspector. The 741 #, Trailer #, and Seal # are recorded on the envelope.

8.4.7 Complete the "White Envelope" which is carried by the truck driver and contains the following documents:

A. Tally Sheet (See Figure 2)
B. Weight Ticket (white copy) (See Figure 11)
C. Curie Sheet (See Figure 4)
D. Package Storage and Disposal Data Sheet (See Figure 3)
E. Certification Statement (See Figure 13)
F. Statement of Compliance (See Figure 14)

8.4.7.1 If the trailer is a van, record the 741 #, trailer #, and seal # on the envelope.

8.4.7.2 If the trailer is a flatbed, record the 741 #, trailer #, sea/land #, and seal # on the envelope.

8.4.8 Attach the following shipment surveys to the Package Storage and Disposal Data sheet (See Figure 3):

A. Radiological Survey Report (verification), Form No. FS-F-1993-1 (See Figure 1c)
B. Radiological Survey (Radiation/dose rate) (See Figure 1b)
C. Radiological Survey (smear/contamination) (See Figure 1c)

8.4.9 Assemble the Driver Packet which includes:

A. Carrier/Driver Radioactive Shipment Instructions (See Figure 15)
B. Instructions Regarding Controls for Radioactive Shipments Consigned as Exclusive Use (Sole Use or Full Load), Form No. FS-F-2934-2 (See Figure 16)
C. Potential Hazards, Form No. M-731 (See Figure 17)
D. Routes for Vehicles Transporting Radioactive Materials, Las Vegas Area, Form No. FS-F-2934-3, (See Figure 18)
E. Notification Procedures, 49 CFR 171.15 and 171.16 Emergency Instructions, Form No. FS-F-2934-4 (See Figure 19)
F. DOE Regional Coordinating Offices for Radiological Assistance (See Figure 20)
G. Kentucky Hazardous Material Permit (See Figure 21)
H. Nevada Hazardous Materials Transportation Permit (See Figure 22)
I. Tally Sheet (See Figure 2)

8.4.9.1 Copy the first and second instruction pages (See Figures 15 and 16) to make up the cover sheet.

8.4.10 Notify Quality Control that shipment is ready for certification and forward the SDF to QC/QA for verification.

8.4.11 Receive the verified SDF from QA at Traffic.

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8.0 **PROCEDURE** (cont.)

8.4.12 Receive the following added documents from QA; verify; and add to the SDF:

A. "Quality Certification Traffic Shipment Document Checklist", Form No. ECQ-880731-1 (See Figure 23).
B. "Quality Certification Final Trailer Checklist", Form No. ECQ-880801 (See Figure 24)
C. "Certification Statement" (original - yellow dot at top of left corner), Form No. ECQ-900914-1 (See Figure 13).
D. "Statement of Compliance" (original - yellow dot at top of left corner), Form No. QA/QC-930818-1 (See Figure 14).
E. "Preliminary Trailer Checklist for Flat Beds" (ISO containers), Form No. ECQ-891010-1 (See Figure 25).
F. "Preliminary Trailer Checklist for Vans", Form No. ECQ-88080-1-1 (See Figure 26)

8.4.13 Call Carrier for Driver.

DRIVER

8.4.14 Hook-up the trailer following procedure.

QUALITY CONTROL TECHNICIAN

8.4.15 Inspect the truck/trailer following procedure QP-12.07.

DRIVER

8.4.16 Sign the Bill of Lading (See Figure 12), the original and copy of the Driver Packet cover sheet (See Figures 15 and 16).

WASTE MANAGEMENT TRAFFIC

8.4.17 Attach Bill of Lading (See Figure 12) copies to front of driver packet (2nd copy), and into white envelope with QC/papers (3rd copy).

8.4.18 Give the truck driver the following:

A. Completed Driver Packet
B. White envelope for NTS
C. Yellow copy of Weight Ticket (See Figure 11)
D. Extra placards for trailer if needed
E. Brown envelope (if shipping flatbed)
F. Instructions to report into FERMCO each day on-the-road with trailer #, name, and location.

8.4.19 Complete Shipping Order (See Figure 6) by recording in the departure time, separating the second copy and placing it in the SDF, and sending remaining copies to MC&A at the end of the day.

8.4.20 Enter shipment data into NTS computer system.

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8.0 PROCEDURE (cont.)

8.4.21 Monitor daily calls from the drivers and change the Estimated Time of Arrival (ETA) as needed.

8.4.22 Maintain the SDF file.

9.0 APPLICABLE FORMS

9.1 Form No. FS-F-1991-1,"Radiological Survey Report" (Figure 1)

9.2 "Tally Sheet" (Figure 2)

9.3 "Package Storage and Disposal Data" (Figure 3)

9.4 "Curie Sheet" (Figure 4)

9.5 "Circle Copy" (Figure 5)

9.6 Form No. FS-F-1596-1, "Vehicle Radiation Monitoring Report" (Figure 6)

9.7 Form No. FS-F-3344, "Preliminary Visual Trailer Inspection" (Figure 7)

9.8 Form No. FS-F-558-3, "Shipping Order for Nuclear Materials" (Figure 8)

9.9 Form No. FMPC-SAML-3065, "LLW Shipment Checklist & NTS Notification" (Figure 9)

9.10 Form No. FMPC-SAML-2495, "Offsite Loading-Tie Down Inspection - Vehicle Inspection" (Figure 10)

9.11 Form No. FMPC-PRO-238, "Weight Ticket" (Figure 11)

9.12 Form No. FS-F-452, "Bill of Lading" (Figure 12)

9.13 Form No. ECQ-900914-1, "Certification Statement" (Figure 13)

9.14 Form No. QA/QC-930818-1, "Statement of Compliance" (Figure 14)

9.15 Form No. FS-F-2934-1, "Carrier/Driver Radioactive Shipment Instructions" (Figure 15)

9.16 Form No. FS-F-2934-2, "Instructions Regarding Controls for Radioactive Shipments Consigned as Exclusive Use (Sole Use or Full Load)" (Figure 16)

9.17 Form No. M-731, "Potential Hazards/Emergency Action" (Figure 17)

9.18 Form No. FS-F-2934-3, "Routes for Vehicles Transporting Radioactive Materials" (Figure 18)

9.19 Form No. FS-F-2934-4, "Notification Procedures-49CFR 171.15 and 171.16/Emergency Instructions" (Figure 19)

9.20 Form No. FS-F-2934-5, "DOE Regional Coordinating Offices for Radiological Assistance" (Figure 20)

9.0 **APPLICABLE FORMS** (cont.)

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9.21 "Kentucky Hazardous Material Permit" (Figure 21)

9.22 "Nevada Hazardous Materials Transportation Permit" (Figure 22)

9.23 Form No. ECQ-880731-1, "Quality Certification Traffic Shipment Document Checklist" (Figure 23)

9.24 Form No. ECQ-880801, "Quality Certification Final Trailer Checklist" (Figure 24)

9.25 Form No. ECQ-891010-1, "Preliminary Trailer Checklist for Flat Beds" (Figure 25)

9.26 Form No. ECQ-880801-1, "Preliminary Trailer Checklist for Vans" (Figure 26).

5690

93-8ADC1-1886

FEMP
RADIOLOGICAL SURVEY REPORT

DATE	LOCATION	RCT	WADSEC	PAGE
12/30/93	2/3 PAD	[redacted]	7500 / 3147	
TIME 1410	LEVEL NA			1 of 1

REASON FOR SURVEY: RADIATION SURVEY- SEALAND # 261035
READINGS INDICATE THE HIGHEST READINGS FOUND ON TOP, SIDES, BOTTOM !

INSTRUMENTS

MODEL	SERIAL NUMBER	TYPE (α, β, γ)	CALIBRATION-DUE DATE	BKGD. (cpm)	EFF./CF	COUNT TIME (min)	MDA (dpm)	RESP./PERFORMANCE TEST SAT. YES	NO
M-3	75062	β γ	8/94	N/A	N/A	N/A	N/A	✓	
M3	7269	β γ	12/93	NA	NA	NA	NA	✓	

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (ft)	DPM/100cm² ALPHA REMOVABLE	DPM/100cm² ALPHA FIXED PLUS REMOVABLE	DPM/100cm² BETA-GAMMA REMOVABLE	DPM/100cm² BETA-GAMMA FIXED PLUS REMOVABLE	CORRECTED DOSE RATE (MREM/HR) α CONTACT	β CONTACT	γ 3.3 AT FT	n AT FT
1	SEALAND # 261035						<0.5	<0.5		

NO.	DISTRIBUTION OF COPIES
1	RCT Supervisor
2	Facility Supervisor
3	CRU Manager

NOTIFICATION OF SURVEY RESULTS

SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE
				ABC	12/30/93

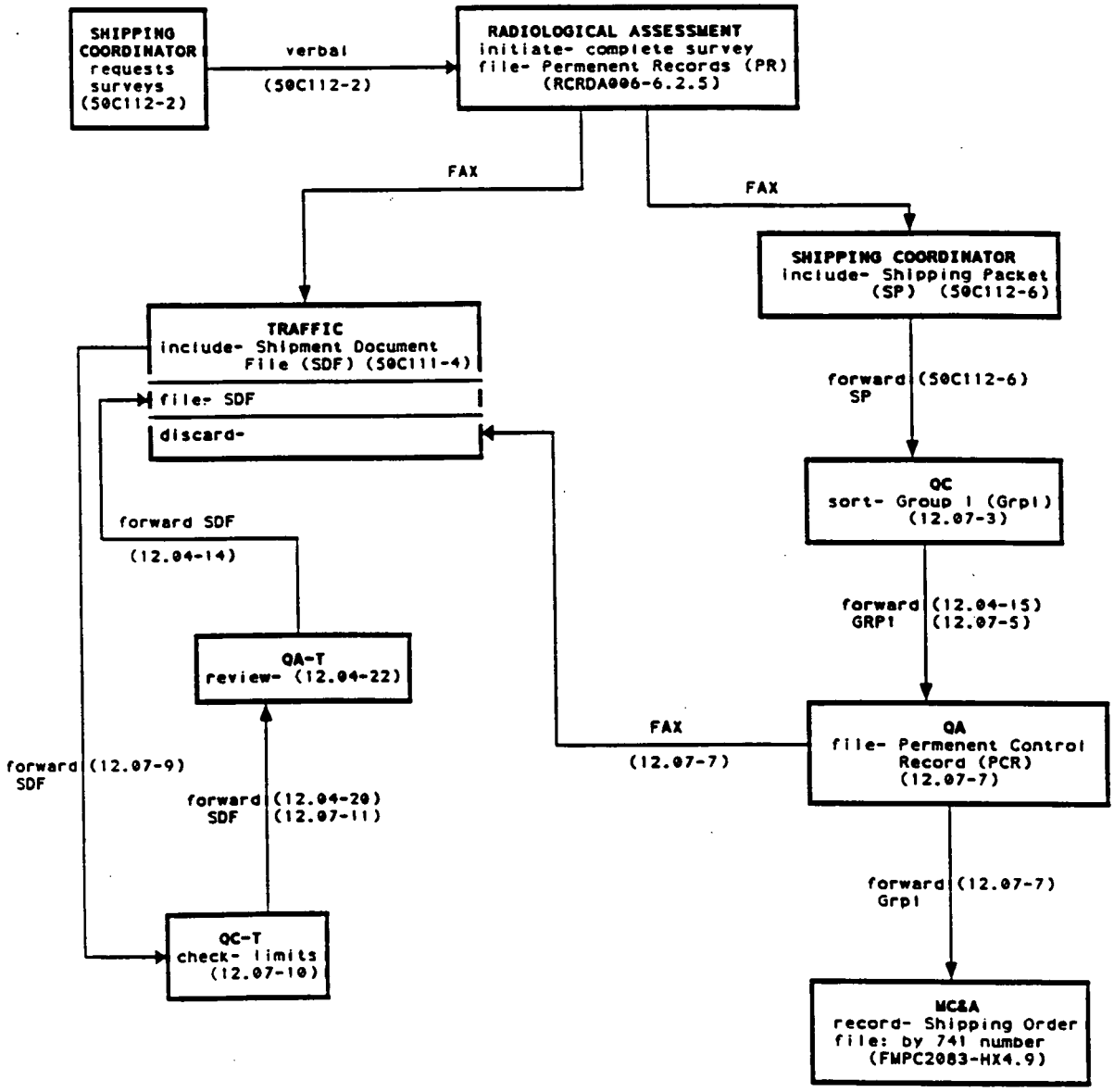
FS-F-1993-1 (REV. 12/31/92)

DEC-30-93 THU 15:39 RAD CONTROL TECHS FAX NO. 5137355107 P. 01

RADIOLOGICAL SURVEY REPORT (RADIATION/DOSE RATE)
(SHEET 1 OF 2)
Figure 1a

5690

RADIATION DOSE RATE OF WASTE PACKAGES



RADIOLOGICAL SURVEY REPORT (RADIATION/DOSE RATE)
(SHEET 2 OF 2)
Figure 1a

5690

JAN-07-94 FRI 14:35 • RAD CONTROL TECHS FAX NO. 5137385107 P.01

FEMP

RADIOLOGICAL SURVEY REPORT

DATE 1-7-94	LOCATION 2/3 PAD	RCT [redacted]	BADGE 8146
TIME 1020	LEVEL 580'	SUP [redacted]	PAGE 1 of 2
REASON FOR SURVEY	INITIAL SURVEY OF SEALGOOD #41035		

INSTRUMENTS

MODEL	SERIAL NUMBER	TYPE (α, β, γ)	CALIBRATION DUE DATE	BKGD. (cpm)	EFF./CF	COUNT TIME (min)	MDA (dpm)	INSP./PERFORMANCE TEST SATIS. YES	NO
LBS100	5	α	2-94	0.26	0.228	0.5	42.8	✓	
LBS100	5	β γ	2-94	2.6	0.318	0.5	54.8	✓	

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (ft)	DPM/100cm² ALPHA REMOVABLE	DPM/100cm² ALPHA FIXED PLUS REMOVABLE	DPM/100cm² BETA-GAMMA REMOVABLE	DPM/100cm² BETA-GAMMA FIXED PLUS REMOVABLE	CORRECTED DOSE RATE (MREM/HR) γ CONTACT	β CONTACT	γ AT ___ m	β AT ___ m
1	RIGHT FRONT		<MDA		<MDA					
2	LEFT FRONT		<MDA		<MDA					
3	BOTTOM LEFT SIDE		<MDA		<MDA					
4	BOTTOM LEFT SIDE		<MDA		<MDA					
5	BOTTOM LEFT SIDE		<MDA		<MDA					
6	LEFT SIDE		<MDA		<MDA					
7	LEFT SIDE		<MDA		<MDA					
8	REAR		<MDA		<MDA					
9	REAR		<MDA		<MDA					
10	BOTTOM RIGHT SIDE		<MDA		<MDA					
11	BOTTOM RIGHT SIDE		<MDA		<MDA					
12	BOTTOM RIGHT SIDE		<MDA		<MDA					
13	RIGHT SIDE		<MDA		<MDA					
14	RIGHT SIDE		<MDA		<MDA					
15	TOP		<MDA		<MDA					
16	TOP		<MDA		<MDA					
17	TOP		<MDA		<MDA					
18	TOP		<MDA		<MDA					

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NOTIFICATION OF SURVEY RESULTS

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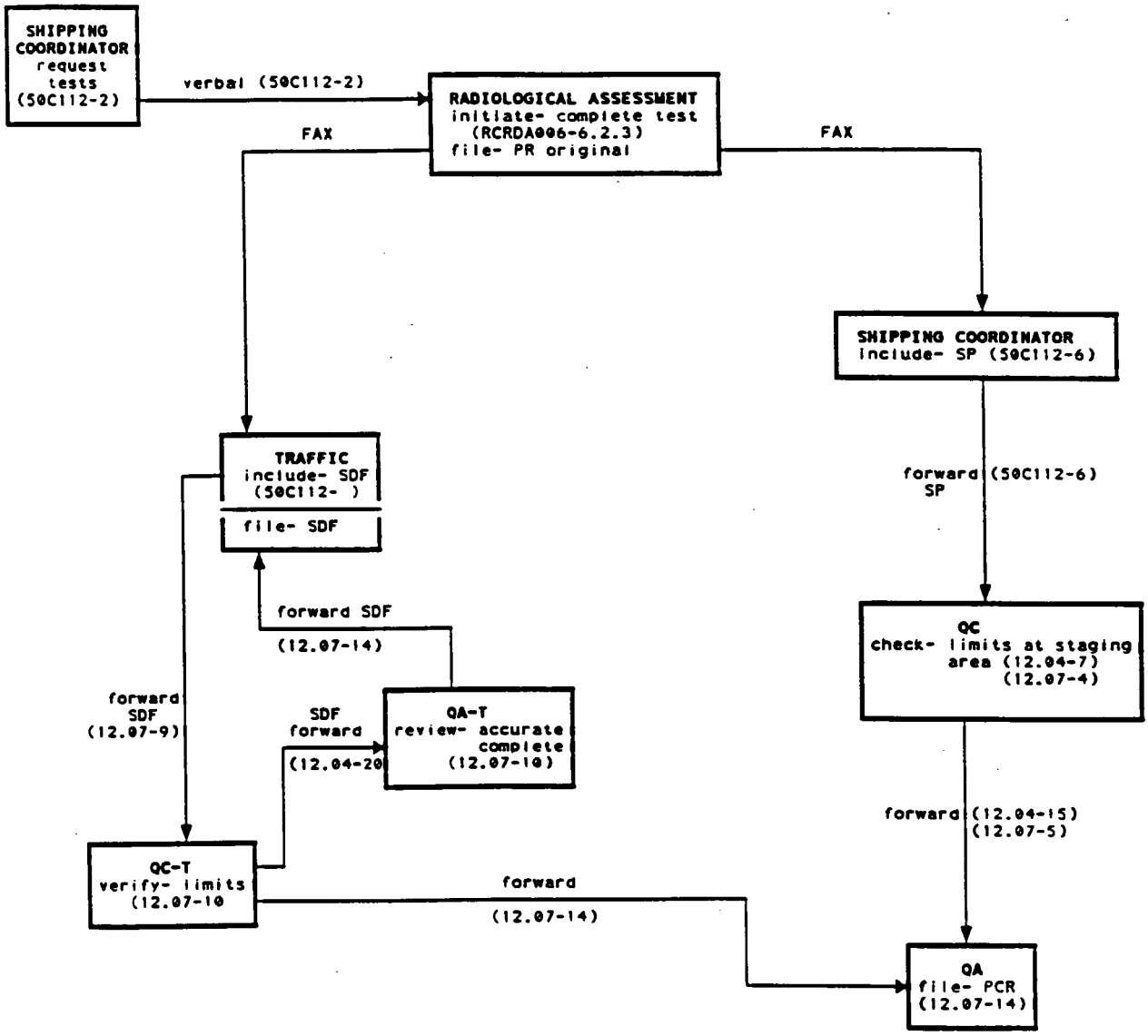
				FAL	

FF-1593-1 (REV. 12/31/92)

RADIOLOGICAL SURVEY REPORT (SMEAR/CONTAMINATION)
(SHEET 1 OF 2)
Figure 1b

5690

SMEAR TEST FOR CONTAMINATION OF WASTE PACKAGES



RADIOLOGICAL SURVEY REPORT (SMEAR/CONTAMINATION)
(SHEET 2 OF 2)
Figure 1b

5690

94-8ADC1-51

FEMP
RADIOLOGICAL SURVEY REPORT

DATE	LOCATION	[redacted]	BADGE	PAGE
1-12-94	2/3 PeD		7508	1 of 1
TIME 0810	LEVEL N/A			

REASON FOR SURVEY: Verification Survey of Sealand # 261035 w/ MI # 94-134
* all smears are L.A.S.

INSTRUMENTS

MODEL	SERIAL NUMBER	TYPE (α, β, γ)	CALIBRATION-DUE DATE	BKGD. (cpm)	EFF./CF	COUNT TIME (min)	MDA (dpm)	INSP./PERFORMANCE TEST SAT. YES	NO
M-3	97187	Bγ	5-94	80	.26	N/A	400	✓	

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (IL)	DPM/100cm² ALPHA REMOVABLE	DPM/100cm² ALPHA FIXED PLUS REMOVABLE	DPM/100cm² BETA-GAMMA REMOVABLE	DPM/100cm² BETA-GAMMA FIXED PLUS REMOVABLE	CORRECTED DOSE RATE (MREM/HR) γ CONTACT	β CONTACT	γ AT ___ FT.	β AT ___ FT
1	Sealand # 261035			<MDA						

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3	CRU Manager

NOTIFICATION OF SURVEY RESULTS

SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE
				HBC	1/12/94

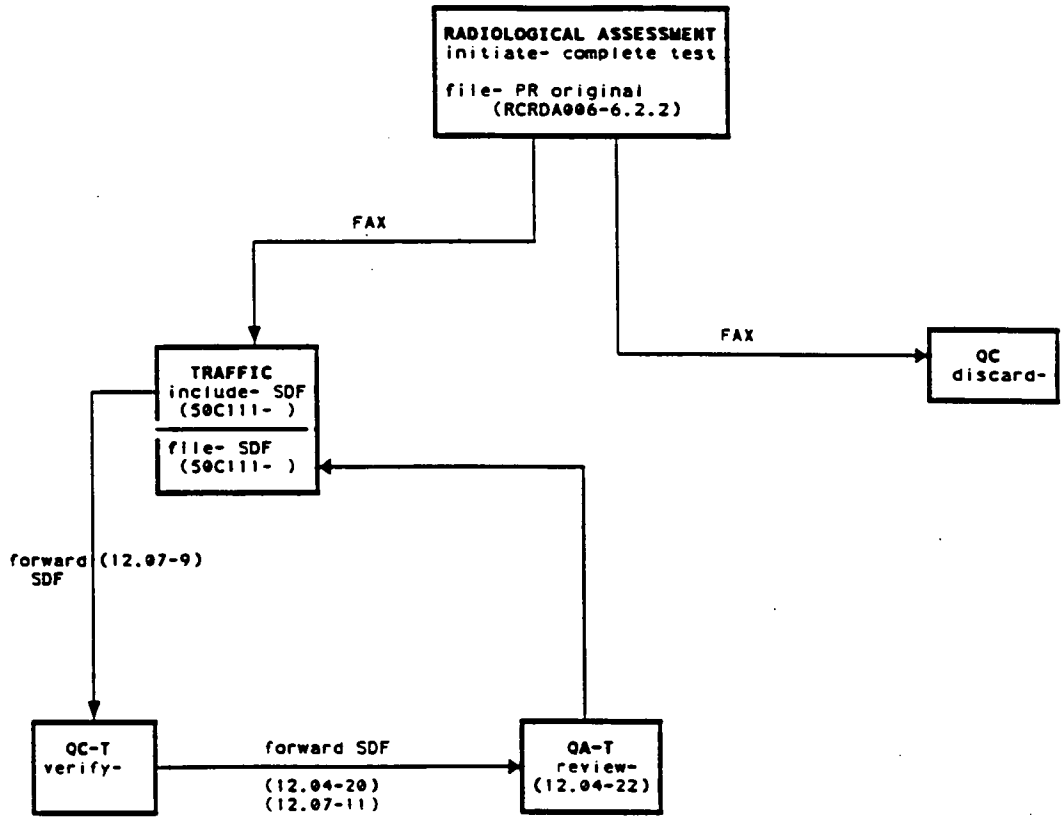
FS-F-1993-1 (REV. 12/31/92)

JAN-12-94 WED 13:10 RAD CONTROL TECHS FAX NO. 5137585107 P. 01

RADIOLOGICAL SURVEY REPORT (VERIFICATION)
(SHEET 1 OF 2)
Figure 1c

000916

5690



RADIOLOGICAL SURVEY REPORT (VERIFICATION)
(SHEET 2 OF 2)
Figure 1c

5690

JAN-07-94 FRI 14:36 RAD CONTROL TECHS FAX NO. 5137386107 P.03

94-XADX1-20

FEMP
RADIOLOGICAL SURVEY REPORT

DATE	LOCATION	ROD	BADGE	PAGE
1-7-94	RIMIA	[redacted]	7715	1 of 3
TIME 1300	LEVEL 580'			

REASON FOR SURVEY: Empty Before Loading of Ranger# 290443 Seal# 0001185

INSTRUMENTS

MODEL	SERIAL NUMBER	TYPE (α, β, γ)	CALIBRATION-DUE DATE	BKGD. (cpm)	EFF/CF	COUNT TIME (min)	MDA (dpm)	INSP./PERFORMANCE TEST SAT'l YES	NO
LB5100	05	α	2-94	.26	.228	.5	42.8	✓	
LB5100	05	BX	2-94	2.6	.318	.5	54.8	✓	
M-3	97018	BX	6-94	80	.10	NA	1000	✓	

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (ft.)	DPM/100cm² ALPHA REMOVABLE	DPM/100cm² ALPHA FIXED PLUS REMOVABLE	DPM/100cm² BETA-GAMMA REMOVABLE	DPM/100cm² BETA-GAMMA FIXED PLUS REMOVABLE	CORRECTED DOSE RATE (MREM/HR) γ CONTACT	β CONTACT	γ AT ___ FT.	β AT ___ FT.
1	Front I/S Wall		<MDA		<MDA					
2	Right I/S Wall		<MDA		<MDA					
3	Left I/S Wall		<MDA		<MDA					
4	Floor		<MDA		<MDA					
5	"		<MDA		<MDA					
6	"		<MDA		<MDA					
7	"		<MDA		<MDA					
8	Bumper		<MDA		<MDA					
9	Right Dollie		<MDA		<MDA					
10	Left Dollie		<MDA		<MDA					
11	Direct Frisk of bed					<MDA				

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NOTIFICATION OF SURVEY RESULTS

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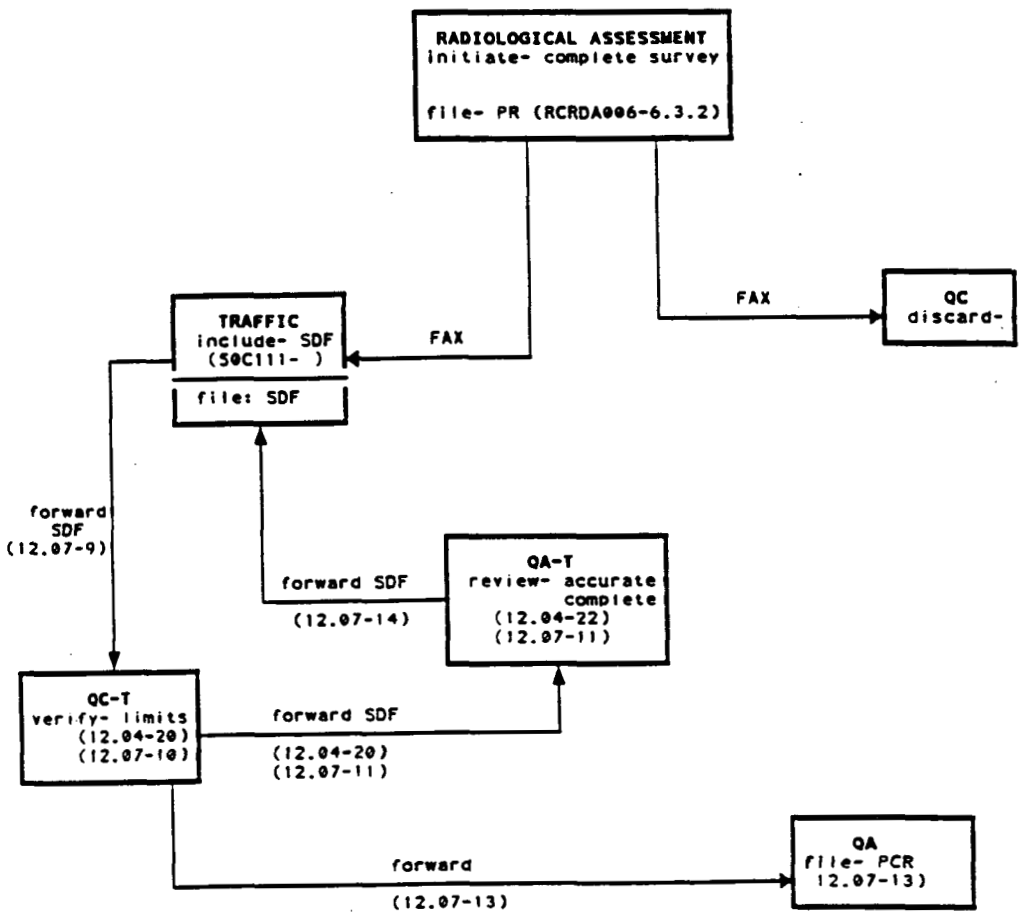
FS-F-1993-1 (REV. 12/21/92)

RADIOLOGICAL SURVEY REPORT (TRAILER EMPTY BEFORE LOADING)
(SHEET 1 OF 2)
Figure 1d

5690

RADIOLOGICAL SURVEY AND MONITORING - TRAILER BEFORE LOADING



RADIOLOGICAL SURVEY REPORT (TRAILER EMPTY BEFORE LOADING)
(SHEET 2 OF 2)
Figure 1d

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FEMP
RADIOLOGICAL SURVEY REPORT 94-BADCI-54

DATE	LOCATION	POT	BADGE	PAGE
1-12-94	West of Plant 6	[redacted]	7508	1 of 3
TIME: 0850	LEVEL: 580'			

REASON FOR SURVEY: Loaded outgoing on Ranger Flatbed 47035 WML-94-134

INSTRUMENTS

MODEL	SERIAL NUMBER	TYPE (α, β, γ)	CALIBRATION-DUE DATE	BKGD. (cpm)	EFF./CF	COUNT TIME (min)	MDA (dpm)	INSP./PERFORMANCE TEST SATT YES	NO
LB5100	#5	α	Feb 94	.26	.228	.5	42.8	/	
LB5100	#5	Bβ	Feb 94	2.6	.318	.5	54.8	/	

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (ft.)	DPM/100cm² ALPHA REMOVABLE	DPM/100cm² ALPHA FIXED PLUS REMOVABLE	DPM/100cm² BETA-GAMMA REMOVABLE	DPM/100cm² BETA-GAMMA FIXED PLUS REMOVABLE	CORRECTED DOSE RATE (MREM/HR) γ CONTACT	β CONTACT	γ AT ___ FT.	β AT ___ FT.
1	Right Front of Bed		<MDA		<MDA					
2	Left Front of Bed		<MDA		<MDA					
3	Right Rear of Bed		<MDA		<MDA					
4	Left Rear of Bed		<MDA		<MDA					
5	Rear Lip		<MDA		<MDA					
6	Bumper		<MDA		<MDA					

NO.	DISTRIBUTION OF COPIES
1	RCT Supervisor
2	Facility Supervisor
3	CRU Manager

NOTIFICATION OF SURVEY RESULTS

SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE
				ABC	1/12/94

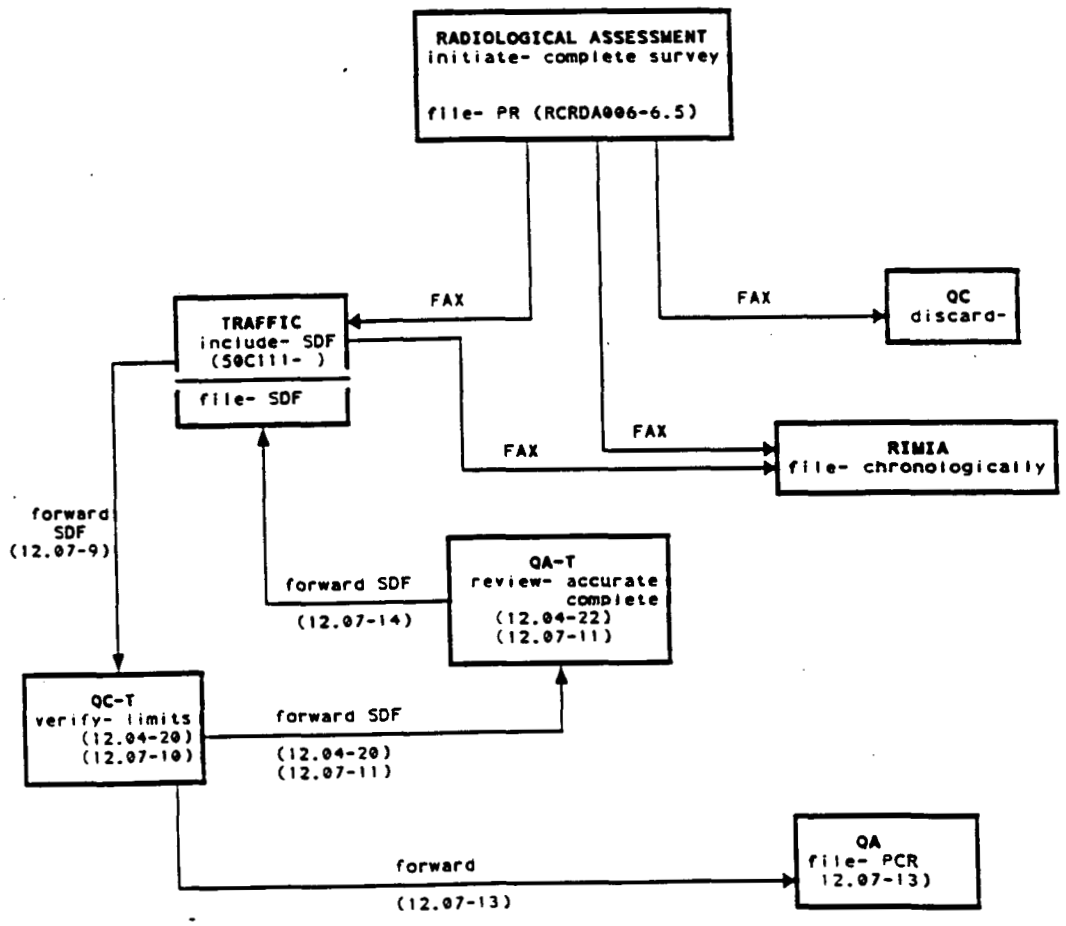
FS-F-1993-1 (REV. 12/31/92)

JAN-12-94 WED 12:59 RAD CONTROL TECHS FAX NO. 5137386107 P. 04

RADIOLOGICAL SURVEY REPORT (TRAILER OUTGOING)
(SHEET 1 OF 2)
Figure 1e

5690

RADIOLOGICAL SURVEY AND MONITORING - TRAILER AFTER LOADING



RADIOLOGICAL SURVEY REPORT (TRAILER OUTGOING)
(SHEET 2 OF 2)
Figure 1e

5690

WML-94 001

10/01/93
11:29:08

TO: Reynolds Electrical and Engineering Co., Inc.
U.S. DOE, Nevada Test Site, Zone 2
Mercury, NV 89023
Attention: G. Kendall

FROM: Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, OH 45239

NEVADA TEST SITE SHIPMENT
TALLY SHEET

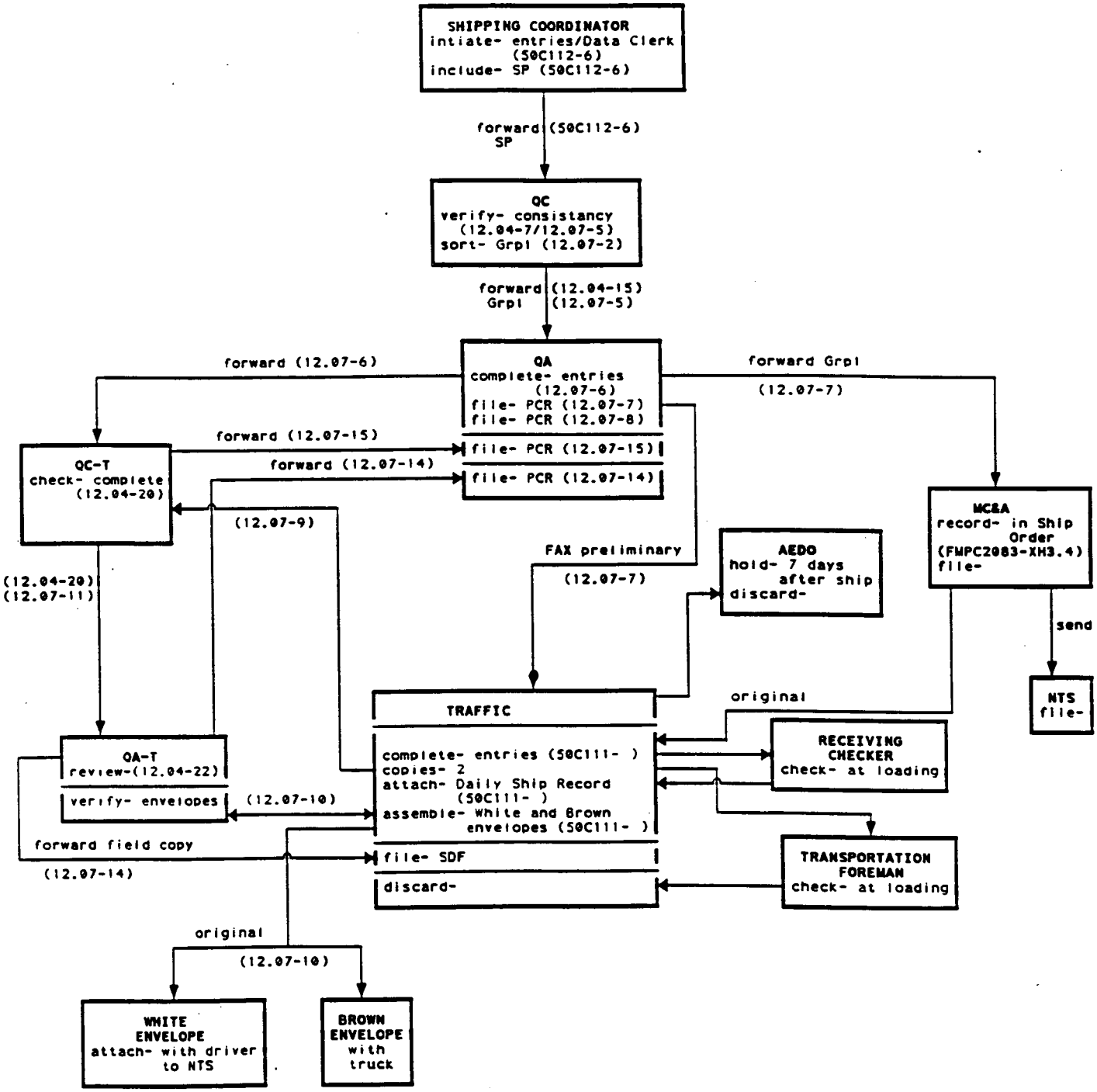
LOT NUMBER	W101-513-V034-1002
LOT NUMBER	W101-513-V034-1032
LOT NUMBER	W101-513-V034-1037
LOT NUMBER	W102-513-V034-1016
LOT NUMBER	W103-513-V034-1033
LOT NUMBER	W103-513-V034-1036
LOT NUMBER	W104-513-V034-1009
LOT NUMBER	W104-513-V034-1034
LOT NUMBER	W104-513-V034-1035

LOT NUMBER	CONT. NO.	GROSS WT. (POUNDS)	TARE WT. (POUNDS)	NET WT. (POUNDS)	U ASSAY	PERCENT U-235	PERCENT U-238	PERCENT U-234	U POUNDS	ELEMENT WT(gms)	U-235 ISOTOPE WT(gms)	U-238 ISOTOPE WT(gms)	U-234 ISOTOPE WT(gms)	U-235 Ci	U-238 Ci	U-234 Ci	VOLUME CU FT
1002	738186	3970.0	1584.0	2386.0	1.560	1.010	98.94	.008	37.2	16874	170.4	16695	8.4	3.655E-04	5.564E-03	7.354E-03	106.297
1009	738219	4038.0	1575.0	2463.0	1.840	1.040	98.91	.008	45.3	20548	213.7	20324	10.3	4.583E-04	6.774E-03	9.183E-03	106.297
1016	738422	3960.0	1533.0	2427.0	1.660	1.020	98.93	.008	40.3	18280	186.5	18084	9.1	3.998E-04	6.027E-03	8.034E-03	106.297
	738429	4270.0	1548.0	2722.0	1.510	1.010	98.94	.008	41.1	18643	188.3	18445	9.3	4.038E-04	6.148E-03	8.125E-03	106.297
	738430	4120.0	1573.0	2547.0	1.520	1.010	98.94	.008	38.7	17554	177.3	17368	8.8	3.802E-04	5.789E-03	7.651E-03	106.297
	738431	3738.0	1553.0	2185.0	1.720	1.030	98.92	.008	37.6	17055	175.7	16871	8.5	3.767E-04	5.623E-03	7.559E-03	106.297
1035	738432	3978.0	1572.0	2406.0	1.850	1.040	98.91	.008	44.5	20185	209.9	19965	10.1	4.502E-04	6.654E-03	9.021E-03	106.297
1034	738439	4236.0	1560.0	2676.0	1.840	1.040	98.91	.008	49.2	22317	232.1	22073	11.2	4.977E-04	7.357E-03	9.974E-03	106.297
1033	738440	3795.0	1507.0	2288.0	1.730	1.030	98.92	.008	39.6	17962	185.0	17768	9.0	3.967E-04	5.922E-03	7.961E-03	106.297
TOTALS		36105.0	14005.0	22100.0					373.5	169416	1738.8	167592	84.7	3.729E-03	5.586E-02	7.486E-02	956.674
						--- LOT TOTALS ---											
1002	1	3970.0	1584.0	2386.0					37.2	16874	170.4	16695	8.4	3.655E-04	5.564E-03	7.354E-03	106.297
1032	1	4120.0	1573.0	2547.0					38.7	17554	177.3	17368	8.8	3.802E-04	5.789E-03	7.651E-03	106.297
1037	1	4270.0	1548.0	2722.0					41.1	18643	188.3	18445	9.3	4.038E-04	6.148E-03	8.125E-03	106.297
1016	1	3960.0	1533.0	2427.0					40.3	18280	186.5	18084	9.1	3.998E-04	6.027E-03	8.034E-03	106.297
1033	1	3795.0	1507.0	2288.0					39.6	17962	185.0	17768	9.0	3.967E-04	5.922E-03	7.961E-03	106.297
1036	1	3738.0	1553.0	2185.0					37.6	17055	175.7	16871	8.5	3.767E-04	5.623E-03	7.559E-03	106.297
1009	1	4038.0	1575.0	2463.0					45.3	20548	213.7	20324	10.3	4.583E-04	6.774E-03	9.183E-03	106.297
1034	1	4236.0	1560.0	2676.0					49.2	22317	232.1	22073	11.2	4.977E-04	7.357E-03	9.974E-03	106.297
1035	1	3978.0	1572.0	2406.0					44.5	20185	209.9	19965	10.1	4.502E-04	6.654E-03	9.021E-03	106.297

TALLY SHEET (IN-PROCESS)
(SHEET 1 OF 2)
Figure 2

TALLY SHEET

5690



TALLY SHEET (IN-PROCESS)
(SHEET 2 OF 2)
Figure 2

000923

5690

TO: Reynolds Electrical & Engineering Co., Inc.
Defense Waste Management - Package Storage & Disposal Data

Prepared By: [illegible] Date: 10/4/93
Approved By: [illegible] Date: 10/4/93

10/01/93
11:29:18

Phone: 513-738-8648 or 513-738-8646

SHIPMENT NO. WM94001

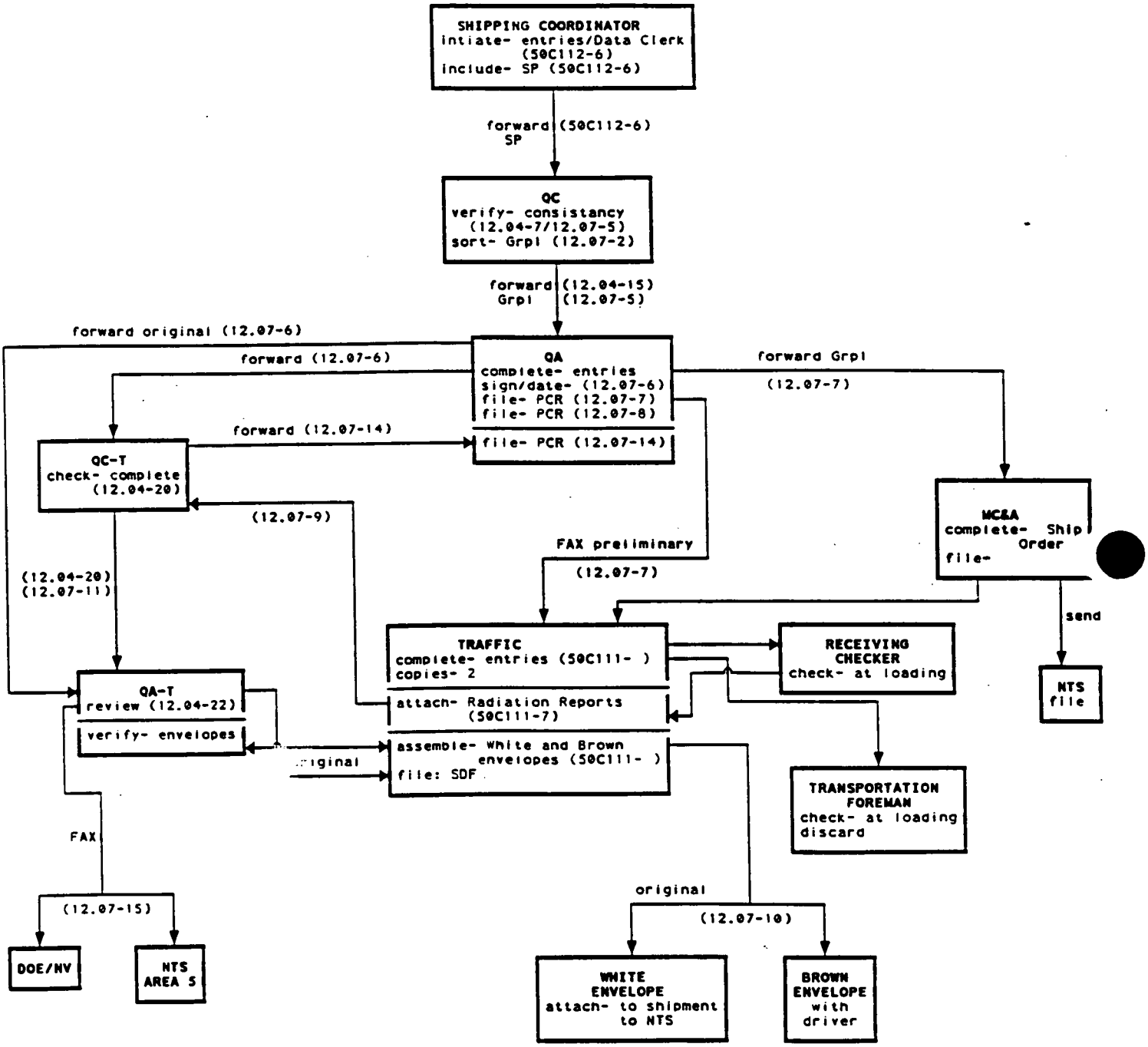
WASTE STREAM ID NUMBER(S)	NUCLIDE CATEGORY	WASTE MATERIAL DESCRIPTION	NO. OF PKGS.	CONTAINER CODE	PACKAGE DESCRIPTION
OMLO000000006	2	MAGNESIUM FLUORIDE	9	117	3-1/2 x 4-1/2 x 6-3/4 Box

PACKAGE IDENT. NUMBER	WASTE STREAM ID NO.	ASSAY DATE DDMMMYY	PACKAGED DATE DDMMMYY	CONT TYPE CODE	OPER CODE	WASTE CODE	EXTERNAL VOLUME CU. M.	INTERNAL VOLUME CU. M.	GROSS WEIGHT KGS.	NET WEIGHT KGS.	RADIATION AT SURF MR/HR	RADIATION 1 METER MR/HR	NUCLIDE QUANTITIES U-238 CURIES	U-235 CURIES	U-234 CURIES	TOTAL CURIES
738186	06	27SEP93	10SEP93	117	B	DS	3.010E+00	1.982E+00	1.801E+03	1.082E+03	.50	.50	5.564E-03	3.655E-04	7.354E-03	1.328E-02
738219	06	27SEP93	10SEP93	117	B	DS	3.010E+00	1.982E+00	1.832E+03	1.117E+03	.50	.50	6.774E-03	4.583E-04	9.183E-03	1.642E-02
738422	06	27SEP93	14SEP93	117	B	DS	3.010E+00	1.982E+00	1.796E+03	1.101E+03	.50	.50	6.027E-03	3.998E-04	8.034E-03	1.446E-02
738429	06	27SEP93	20SEP93	117	B	DS	3.010E+00	1.982E+00	1.937E+03	1.235E+03	.50	.50	6.148E-03	4.038E-04	8.125E-03	1.468E-02
738430	06	27SEP93	20SEP93	117	B	DS	3.010E+00	1.982E+00	1.869E+03	1.155E+03	.50	.50	5.789E-03	3.802E-04	7.651E-03	1.382E-02
738431	06	27SEP93	20SEP93	117	B	DS	3.010E+00	1.982E+00	1.696E+03	9.911E+02	.50	.50	5.623E-03	3.767E-04	7.559E-03	1.356E-02
738432	06	27SEP93	20SEP93	117	B	DS	3.010E+00	1.982E+00	1.804E+03	1.091E+03	.50	.50	6.654E-03	4.502E-04	9.021E-03	1.613E-02
738439	06	27SEP93	20SEP93	117	B	DS	3.010E+00	1.982E+00	1.921E+03	1.214E+03	.50	.50	7.357E-03	4.977E-04	9.974E-03	1.783E-02
738440	06	27SEP93	20SEP93	117	B	DS	3.010E+00	1.982E+00	1.721E+03	1.038E+03	.50	.50	5.922E-03	3.967E-04	7.961E-03	1.428E-02
TOTALS:							2.709E+01	1.784E+01	1.638E+04	1.002E+04			5.586E-02	3.729E-03	7.486E-02	1.345E-01

PACKAGE STORAGE AND DISPOSAL DATA
(SHEET 1 OF 2)
Figure 3

PACKAGE STORAGE & DISPOSAL DATA

5690



PACKAGE STORAGE AND DISPOSAL DATA
(SHEET 2 OF 2)
Figure 3

5690

WML-94 001

Reynolds Electrical and Engineering Co., Inc.
Radioactive Waste Management-Storage & Disposal

	LSA Container Number	Net Weight	Gross Weight	Total Curies
	738186	2386.0	3970.0	.01328401
	738219	2463.0	4038.0	.01641503
	738422	2427.0	3960.0	.01446173
	738429	2722.0	4270.0	.01467668
	738430	2547.0	4120.0	.01381965
	738431	2185.0	3738.0	.01355883
	738432	2406.0	3978.0	.01612514
	738439	2676.0	4236.0	.01782825
	738440	2288.0	3795.0	.01428004
TOTAL LSA Containers	9	22100.0	36105.0	.13444940

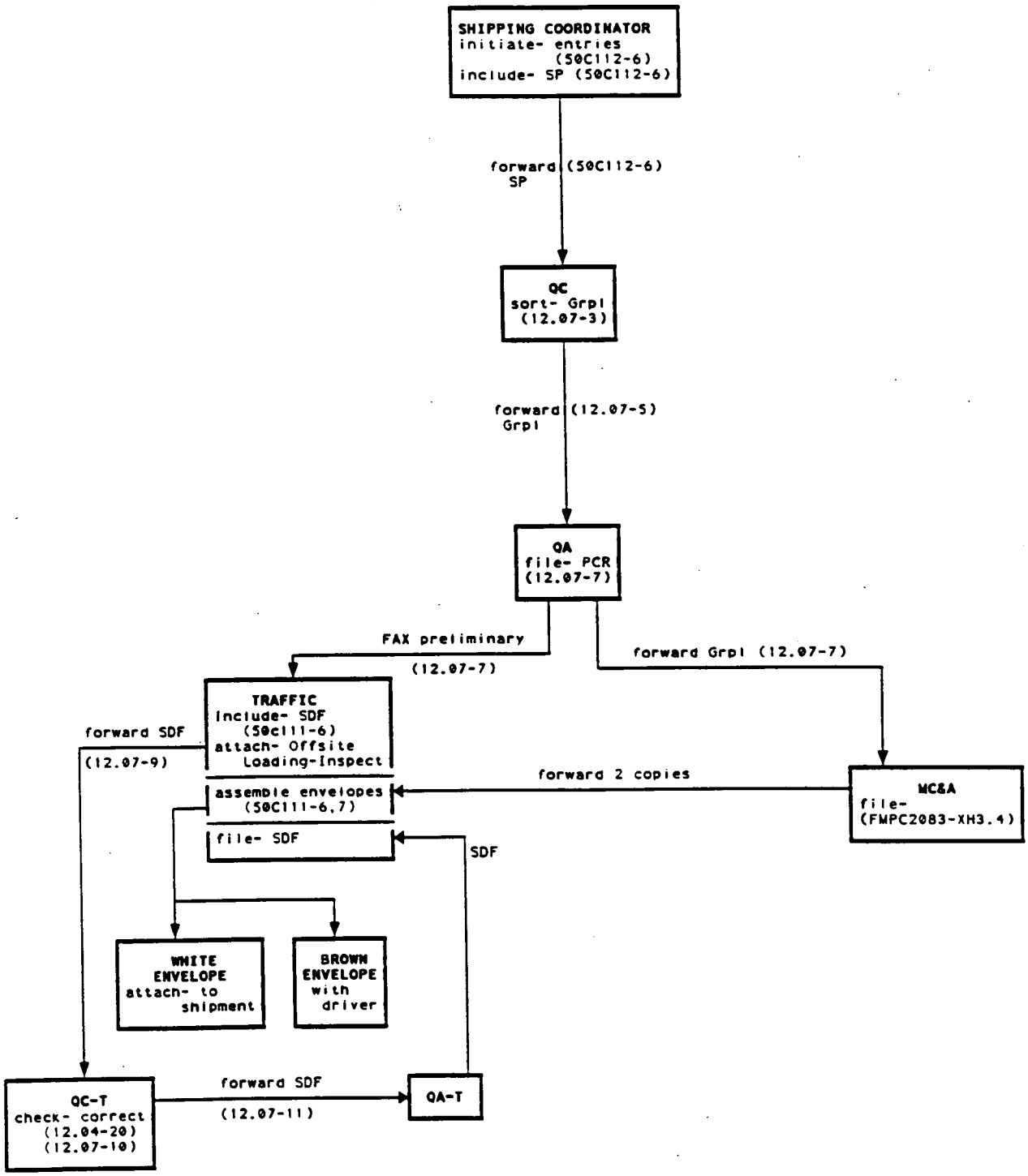
	LQ Container Number	Net Weight	Gross Weight	Total Curies
TOTAL LQ Containers	0	.0	.0	.00000000

	RQ Container Number	Net Weight	Gross Weight	Total Curies
TOTAL RQ Containers	0	.0	.0	.00000000
TOTAL RQ/LSA Containers	0	.0	.0	.00000000
TOTAL RQ/LQ Containers	0	.0	.0	.00000000

CURIE SHEET
(SHEET 1 OF 2)
Figure 4

CURIE SHEET

5690



CURIE SHEET
(SHEET 2 OF 2)
Figure 4

5690

WML-94 001

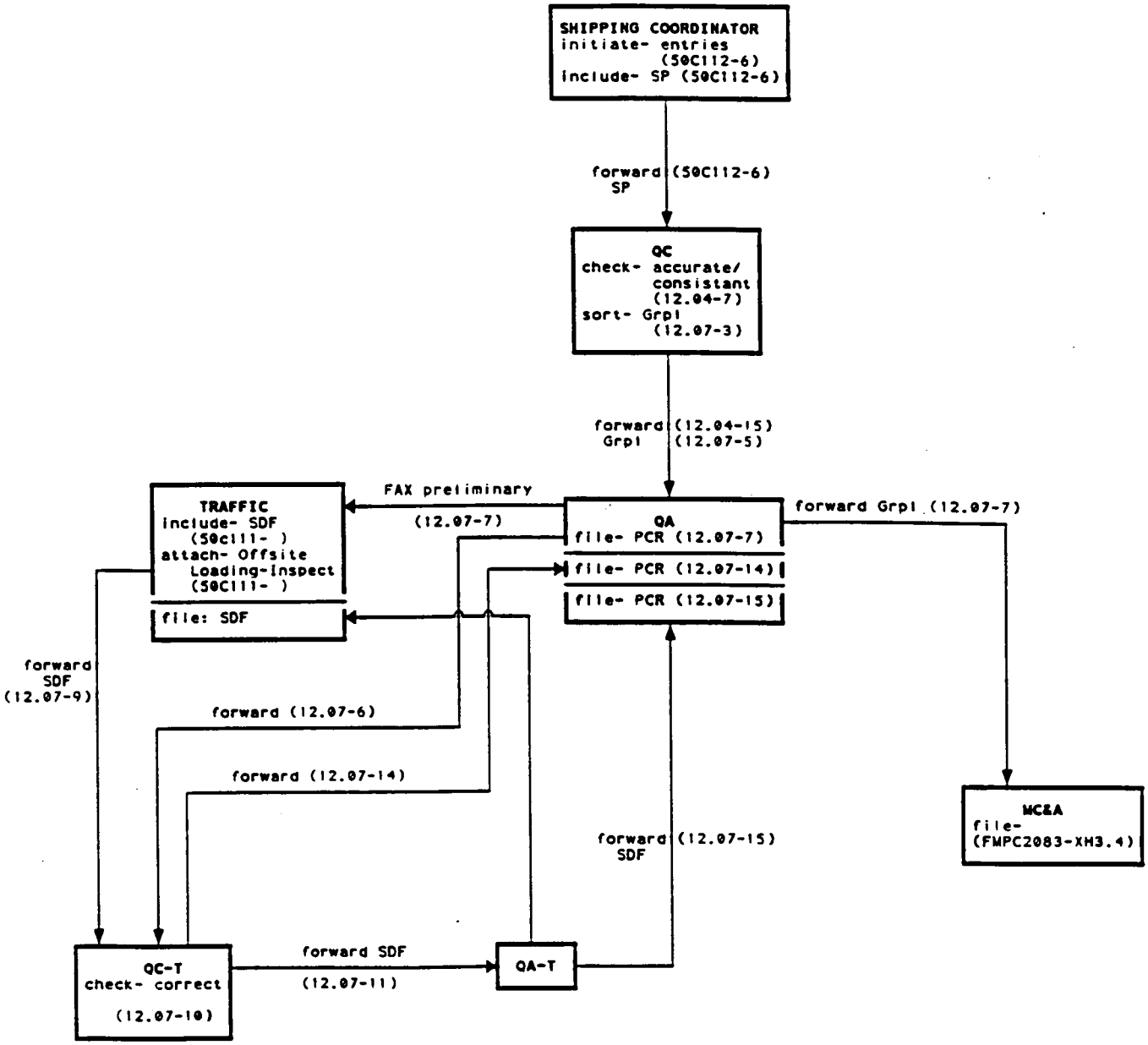
Reynolds Electrical and Engineering Co., Inc.
Radioactive Waste Management-Storage & Disposal

PACKAGE NO.	NET WT	TARE WT	GROSS WT	LSA	LQ	RQ
738186	2386.00	1584.00	3970.00	X		
738219	2463.00	1575.00	4038.00	X		
738422	2427.00	1533.00	3960.00	X		
738429	2722.00	1548.00	4270.00	X		
738430	2547.00	1573.00	4120.00	X		
738431	2185.00	1553.00	3738.00	X		
738432	2406.00	1572.00	3978.00	X		
738439	2676.00	1560.00	4236.00	X		
738440	2288.00	1507.00	3795.00	X		

CIRCLE COPY
(SHEET 1 OF 2)
Figure 5

CIRCLE COPY

5690



CIRCLE COPY
(SHEET 2 OF 2)
Figure 5

5690

JAN-07-94 FRI 14:37 RAD CONTROL TECHS FAX NO. 5137365107 P.04

94-SADCI-26

FEMP
ES&H - RADIOLOGICAL CONTROL
VEHICLE RADIATION MONITORING REPORT Page 2 of 3

DATE MONITORED	TIME	TECHNICIAN (PRINT)	TECHNICIAN (SIGNATURE)
1-7-94	1300	DWIGHT D. WERNER	Dwight D Werner

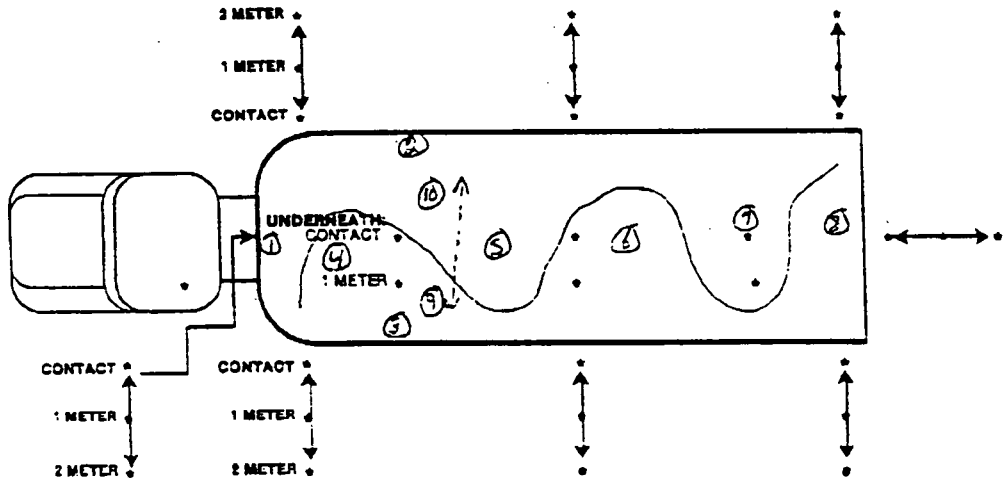
CARRIER NAME: RANDER

VEHICLE TYPE: ☐ TRACTOR ☑ TRAILER ☐ OTHER MOTOR VEHICLE ☐ RAILCAR ☐ OPEN FLATBED ☑ COVERED
☐ OTHER (EXPLAIN).

LICENSE NO. (IF MOTOR VEHICLE)	STATE	TRAILER OR RAILCAR IDENTIFICATION	SEAL NUMBER
NA	NA	290443	0001185

VEHICLE STATUS
☐ (a) OUTGOING
☑ (b) INCOMING
☐ (c) OUTGOING EMPTY
☑ (d) EMPTY-BEFORE LOADING
☐ (e) OTHER

Dose rate shown by asterisks in mr/hr.
Swipe Locations circled.



(1) Same locations apply to van-type trucks. For railcars, disregard cab section but show dose rates found at each end.
(2) Measurements at 1 or 2 meters not required if all readings at vehicle surface are not greater than 2 mrem/hr.

SURVEY INSTRUMENTS USED	TYPE	MODEL NO.	SERIAL NO.	CALIBRATION DUE
	BX	3	97068	6-94
	TYPE	MODEL NO.	SERIAL NO.	CALIBRATION DUE
	—	—	NA	—

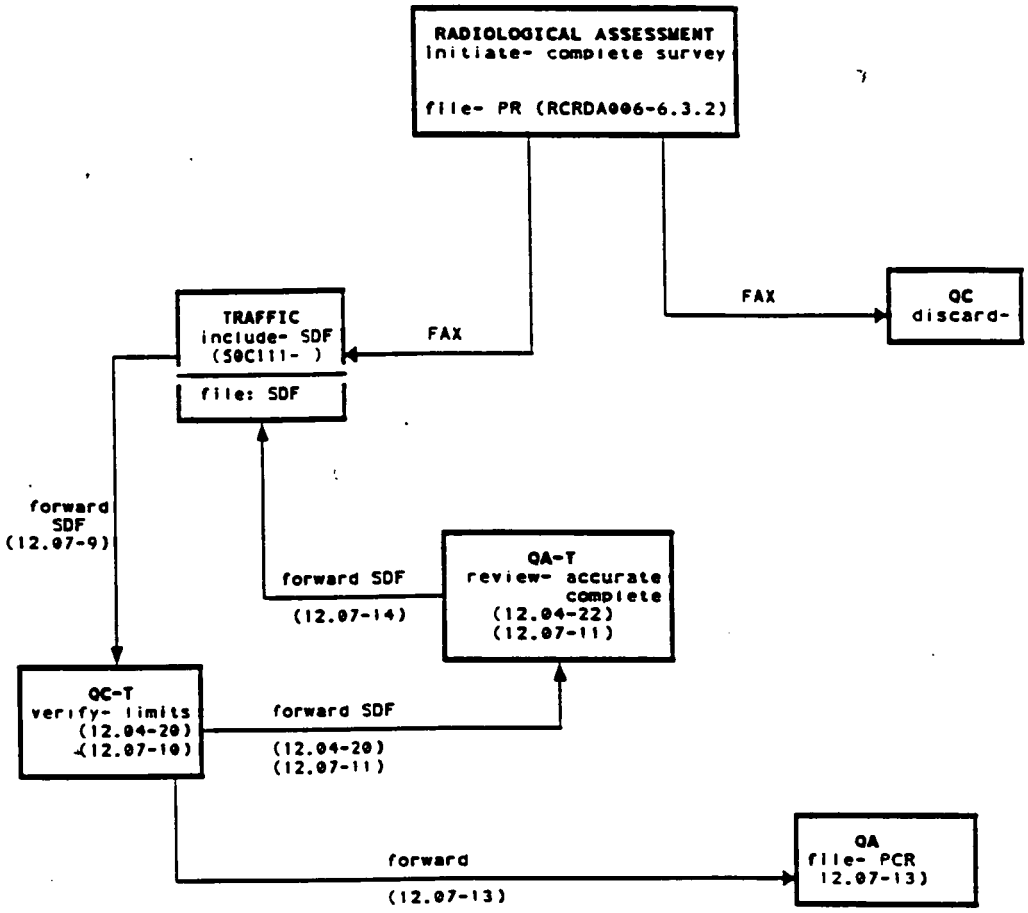
NO.	DISTRIBUTION OF COPIES
1	RADIOLOGICAL SAFETY (RECORD COPY)
2	TRAFFIC SUPERVISOR
3	QUALITY ASSURANCE

REVIEWED BY: PAC DATE:

FS-5-1536-1 (REV. 2/10/93)

VEHICLE RADIATION MONITORING REPORT (TRAILER EMPTY BEFORE LOADING)
(SHEET 1 OF 2)
Figure 6a

5690



VEHICLE RADIATION MONITORING REPORT (TRAILER EMPTY BEFORE LOADING)
(SHEET 2 OF 2)
Figure 6a

94-BADC1-54

5690

FEMP
ES&H - RADIOLOGICAL CONTROL
VEHICLE RADIATION MONITORING REPORT Page 2 of 3

DATE MONITORED:	TIME:	TECHNICIAN (PRINT)	TECHNICIAN (SIGNATURE)
1-12-94	0850	J. MOUNTS	[signature]

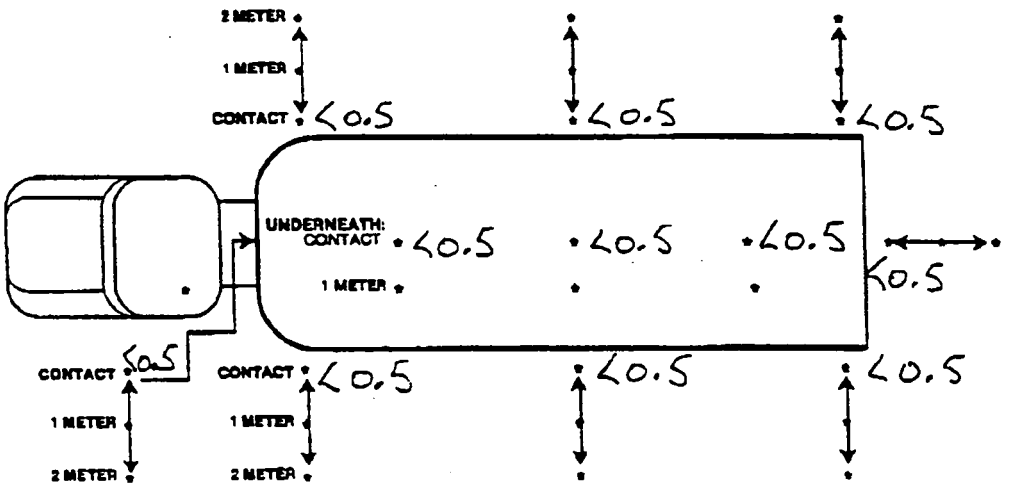
CARRIER NAME: RANGER

VEHICLE TYPE: ☐ TRACTOR ☐ TRAILER ☐ OTHER MOTOR VEHICLE ☐ RAILCAR ☑ OPEN FLATBED ☐ COVERED
☐ OTHER (EXPLAIN):

LICENSE NO. (IF MOTOR VEHICLE)	STATE	TRAILER OR RAILCAR IDENTIFICATION	SEAL NUMBER:
N/A	N/A	47035	N/A

VEHICLE STATUS
☑ (a) OUTGOING
☐ (b) INCOMING
☐ (c) OUTGOING EMPTY
☐ (d) EMPTY, BEFORE LOADING
☐ (e) OTHER: _____

Dose rate shown by esterisks in mr/hr.
Swipe Locations circled.



(1) Same locations apply to van-type trucks. For railcars, disregard cab section but show dose rates found at each end.
(2) Measurements at 1 or 2 meters not required if all readings at vehicle surface are not greater than 2 mrem/hr.

SURVEY INSTRUMENTS USED	TYPE	MODEL NO.	SERIAL NO.	CALIBRATION DUE
	Pad	M-3	75062	8-94
	TYPE	MODEL NO.	SERIAL NO.	CALIBRATION DUE
	N/A			

NO.	DISTRIBUTION OF COPIES
1	RADIOLOGICAL SAFETY (RECORD COPY)
2	TRAFFIC SUPERVISOR
3	QUALITY ASSURANCE

REVIEWED BY: Allan Calgrahan DATE: 1/12/94

CE-F-1588-1 (REV. 2/19/93)

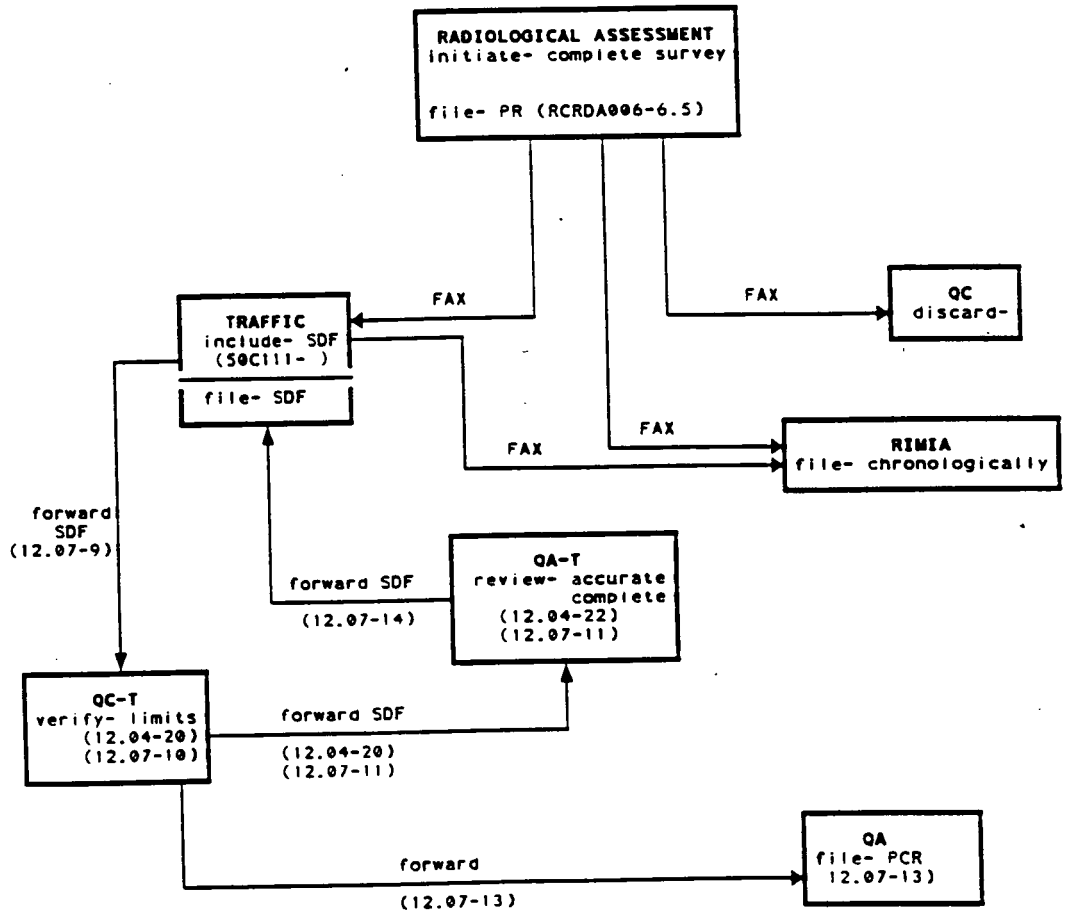
JAN-12-94 WED 13:00 RAD CONTROL TECHS FAX NO. 5137386107 P. 05

VEHICLE RADIATION MONITORING REPORT (AFTER LOADING)
(SHEET 1 OF 2)
Figure 6b

0 606

5690

RADIOLOGICAL SURVEY AND MONITORING - TRAILER AFTER LOADING



VEHICLE RADIATION MONITORING REPORT (AFTER LOADING)
(SHEET 2 OF 2)
Figure 6b

5690

Fernald Site

PRELIMINARY VISUAL TRAILER INSPECTION

CARRIER	TYPE TRAILER	TRAILER NUMBER
Ranger	Box	290443

CHECKLIST			DISCREPANCIES—COMMENTS
1. Inspect the following on trailer prior to driver unhooking			2. Discrepancies that need to be brought to the attention of the Garage Supervisor and FS&S
ITEM	ACCEPT	REJECT	
Lights	✓		
Cross Member	✓		
U Bolts & Springs	✓		
Torque Arms	✓		
Rims & Nuts	✓		
Brake Lines & Shoes	✓		
Tires	✓		
Wheel Seals	✓		

Comments: N/A

Signed: [redacted] Badge No.: 2909 Date: 1-10-94

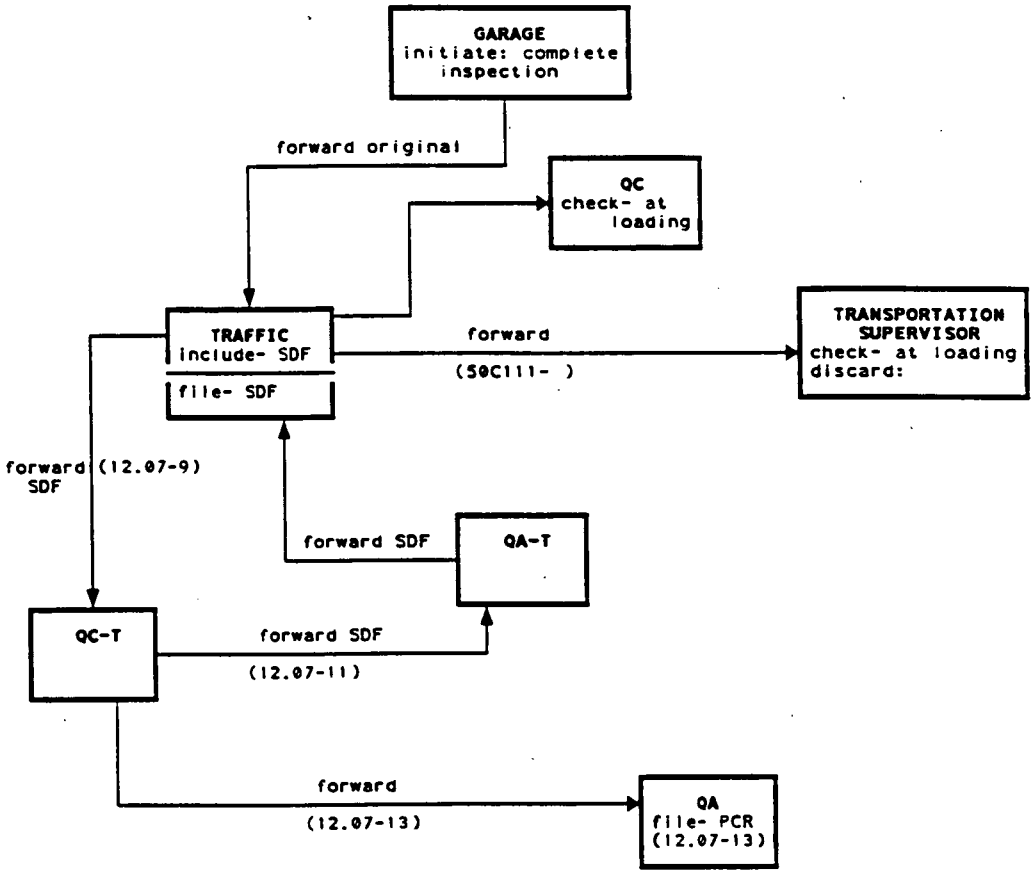
DISTRIBUTION: QA VERIFICATION
Facility Services & Support

FS-F-3344 REV 1/17/92

PRELIMINARY VISUAL TRAILER INSPECTION
(SHEET 1 OF 2)
Figure 7

5690

PRELIMINARY VISUAL TRAILER INSPECTION



PRELIMINARY VISUAL TRAILER INSPECTION
(SHEET 2 OF 2)
Figure 7

5690

Fernald Environmental Restoration Management Corporation

SHIPPING ORDER FOR NUCLEAR MATERIAL

Date Prepared: _____

SHIP TO:	ROUTING:			SHIPPERS AUTHORIZATION NO.:	SHIPPING ORDER NO.:
REYNOLDS ELECTRICAL & ENGINEERING CO.					
STREET: c/o U.S. DEPARTMENT OF ENERGY	■ PREPAID ☐ COLLECT	CAR OR TRAILER NO.:	SEAL NO.:	SHIPPED FROM PLANT:	ORIGINATOR NO.:
CITY: MERCURY STATE: NEVADA ZIP CODE: 89023		BILL OF LADING NO.:	QUALITY CONTROL APPROVAL:		DATE SHIPPED:
SPECIAL INSTRUCTIONS:		COUNTRY CONTROL NO.: US US 00 00	PROJECT NO.:		TIME SHIPPED:

Type of Material _____ FEMP Production Order No. N003 Originator's Signature _____

Station RIS VAB DOE 741 No. FVC-VAB- Shipment Authorized By _____ NUCLEAR MATERIALS REPRESENTATIVE

NMC DATA			ORIGINATOR'S DATA						MATERIAL CONTROL DATA					
FROM MBA	COST CODE	741 NO.	P.O. NO.	LOT NUMBER	QUANTITY	WEIGHT (LBS) GROSS	TARE	NET	ANAL. CODE	ELE. ANAL.	ELE. LBS.	ELE. GRAMS OR KGS	ISO. ANAL.	U^{235} GRAMS OR KGS

DISTRIBUTION OF COPIES			
1	NMA *(RECORD COPY)*	4	Environmental Restoration
2	Traffic	5	Quality Certification
3	NMA (Cost)	6	Originator

I, _____ certify that this shipment was made on the above date after complying with all regulations.

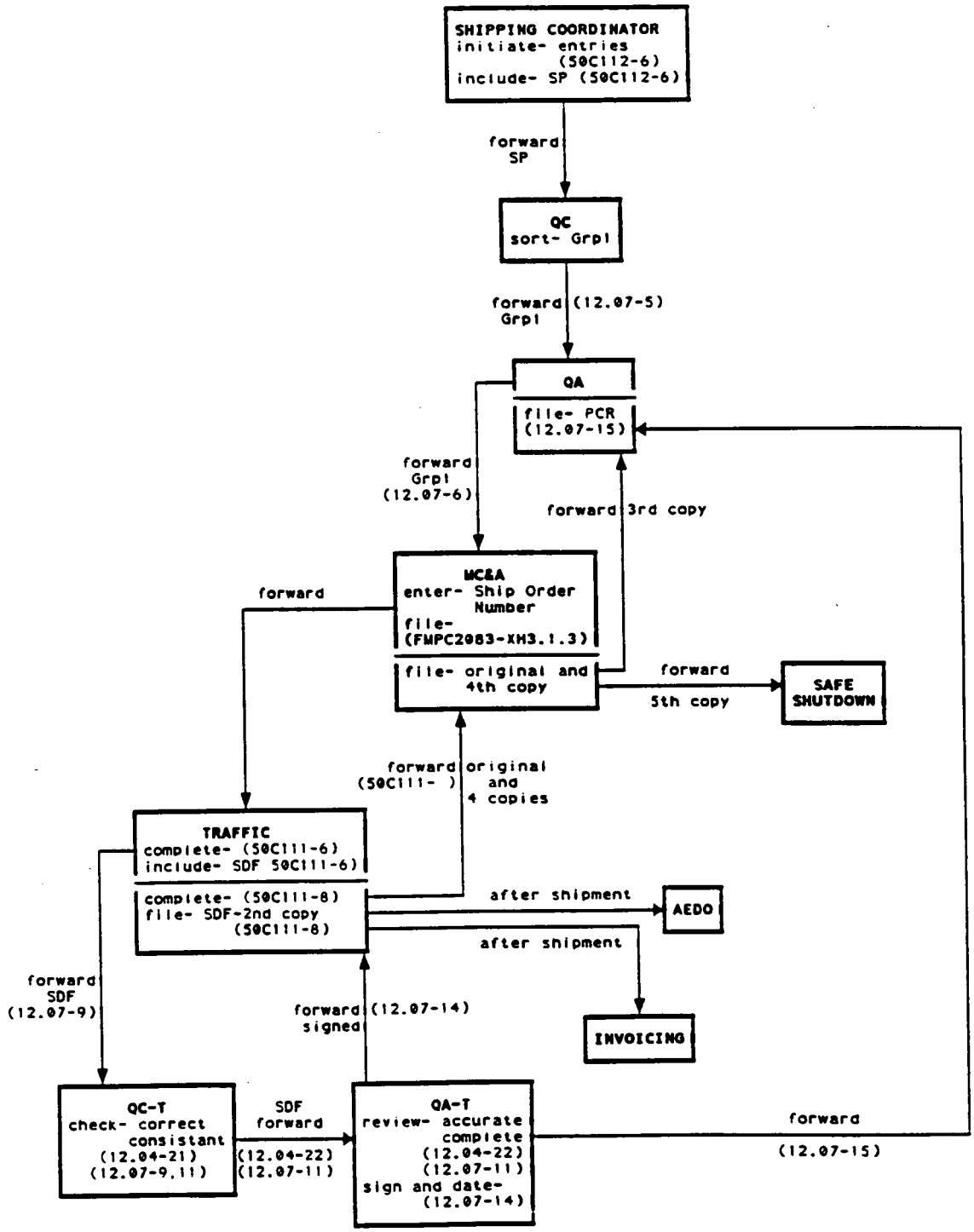
Audited by _____ Date _____

FS-F-558-8 (REV. 2/11/93)

SHIPPING ORDER FOR NUCLEAR MATERIALS
(SHEET 1 OF 2)
Figure 8

SHIPPING ORDER

5690



SHIPPING ORDER FOR NUCLEAR MATERIALS
(SHEET 2 OF 2)
Figure 8

569 U

FMPC
SECURITY, ACQUISITION & MATERIALS LOGISTICS - TRANSPORTATION SECTION

LLW SHIPMENT CHECKLIST & NTS NOTIFICATION

DATE:	SHIPMENT NO.:	B/L NO.:	SS SO NO.:	CARRIER:	TRAILER NO.:

	LSA	DEPARTURE TIME: ETA: NOTIFICATION TO NTS: ☐ (FTS: 575-6307)
	RQ	FROM:
	LTD. QTY.	TO:
	DRUMS	DATE:
	WASTE CERTIFICATION CONTAINER TOTALS, WEIGHTS & CURIES OF LSA/LTD QTY - RQ SHEETS	BY WHOM:
	BOXES	TO WHOM
	SMEAR SHEETS	☐ FACSIMILE SENT ☐ DRIVER GIVEN DOSIMETER BADGE
	WASTE MANAGEMENT STORAGE & DISPOSAL SHEETS DELIVERED — PER NTS	MONITORING REPORTS:
	TALLY SHEETS	
	CARRIER/DRIVER INSTRUCTION PACK (2)	
	NEVADA PERMIT	
	INCOMING/EMPTY BEFORE LOADING	
	OUTGOING/LOADED	
	TRACTOR CAB	
	OFFSITE LOADING-TIE DOWN-VEHICLE INSPECTION REPORT	
	WEIGHT TICKET	
	CHECKED TALLY SHEET (BY CHECKER)	
	DRIVER RECEIVES: COPY OF B/L, TALLY SHEET, INSTRUCTION PACK, NEVADA PERMIT, & ENVELOPE FOR CONSIGNEE WITH TALLY SHEET & MEMO B/L	

SPECIALIST A/TRAFFIC:	TRANSPORTATION SUPERVISOR: (REVIEW)	TRAFFIC MANAGER: (REVIEW)

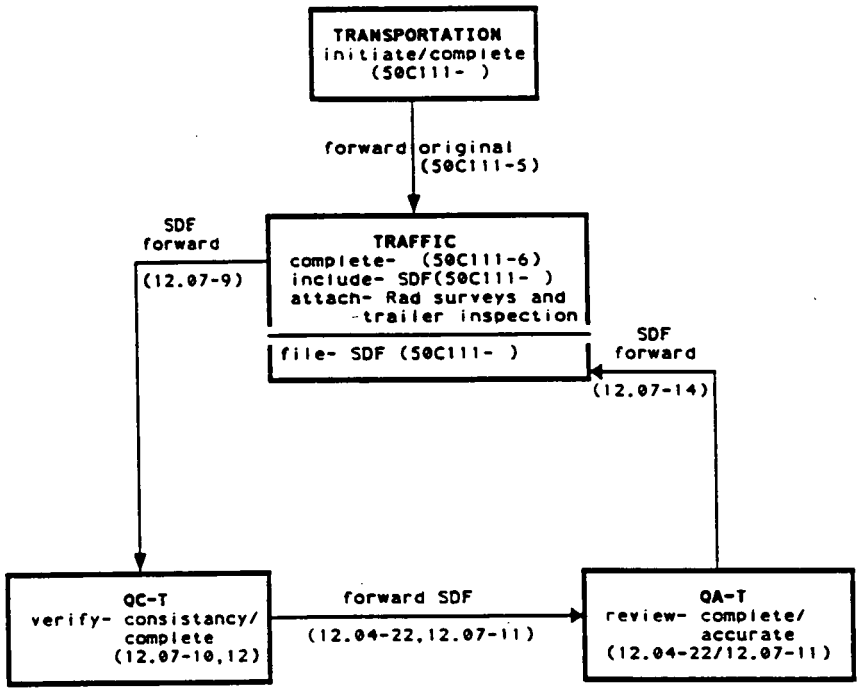
	CONDITION OF CONTAINERS	LOADERS:
	CONTAINER PROPERLY LABELED	
	RADIOACTIVE PLACARDS (FOR LSA ONLY)	
	ENVELOPE WITH STORAGE & DISPOSAL SHEETS AND TALLY SHEETS IN TRAILER	
	TRAILER LINED WITH PLASTIC & CARDBOARD ON FLOOR— SCRAP WOODEN PALLETS AND/OR BOXES ENCLOSED WITH PLASTIC AS ONE PACKAGE	
Transportation Supervisor: _____		

FMPC-SAML-3065 (4/5/89)

LLW SHIPMENT CHECKLIST AND NTS NOTIFICATION
(SHEET 1 OF 2)
Figure 9

5690

LLW SHIPMENT CHECKLIST & NTS NOTIFICATION



LLW SHIPMENT CHECKLIST AND NTS NOTIFICATION
(SHEET 2 OF 2)
Figure 9

5690

FMPC
SECURITY, ACQUISITION & MATERIALS LOGISTICS DEPARTMENT - TRANSPORTATION SECTION

OFFSITE LOADING — TIE DOWN INSPECTION — VEHICLE INSPECTION

Date: _____

COMMODITY:	CARRIER:	TRAILER NO.:	SEAL NO.:
			FA-WMCO

BALE/BOX/DRUM/SEA LAND CONTAINER NUMBERS:

LSA _____
LSA-RQ _____
LQ _____
LQ-RQ _____
TOTAL _____

DISCREPANCIES DETECTED	CORRECTED		SHIPMENT REJECTED	
	YES	NO	YES	NO

Checked By _____
SIGNATURE - CHECKER

TIE-DOWN INSPECTION AND CHECK-OFF SHEET

INSPECTION ITEM	YES	NO
Wood shoring installed to prevent longitudinal or lateral movement		
Steel strapping around the cargo securing as a stable shipment		
When weight dictates, containers divided into two units, one front and one rear of trailer not exceeding approximately 20,000 pounds each		
1¼" steel strapping utilized (5450 lbs. minimum tensile strength)		
____ each anchor plates or "U" bolts fastened to underframe (____ each side of unit) placed and secured for ____ transverse bands over unit		
Four each brakeman plates or "U" bolts fastened to underframe (two for each band) placed under each unit and secured for two longitudinal bands, securing the boxes/skids into one tight unit, anchored to the floor of the trailer		
Two Signode seals No. 107 crimped whenever two bands are used on an end over end lap joint		
Anchor and brakeman plates secured with eight each 2" nails		
Sea Land Containers ..... 4 each nylon straps		
..... Chains		
..... 2 X 4s		

VEHICLE INSPECTION REPORT

CONDITION	PASS	FAIL	CONDITION	PASS	FAIL	CONDITION	YES	NO
Condition of Floor			Condition of Sides			Detected Sabotage Devices		
Condition of Interior			Condition of Exterior					
Condition of Roof			Condition of Rear Doors			Detected Evidence of Sabotage		

Overall appearance:

General Comments:

Accepted: _____ Rejected: _____

Checked By: _____
SIGNATURE - TRANSPORTATION SUPERVISOR

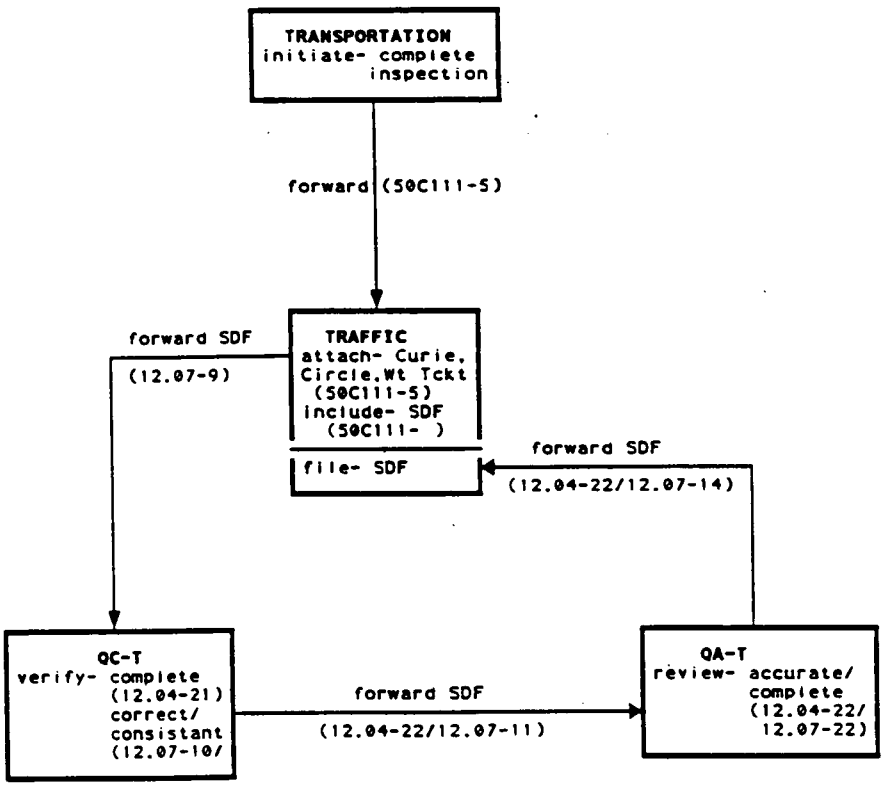
NO.	DISTRIBUTION OF COPIES
1	Transportation Section *(RECORD COPY)*

FMPC-SAML-2495 (REV. 4/5/89)

OFFSITE LOADING-TIE DOWN INSPECTION-VEHICLE INSPECTION
(SHEET 1 OF 2)
Figure 10

5690

OFFSITE LOADING - TIE DOWN INSPECTION - VEHICLE INSPECTION



OFFSITE LOADING-TIE DOWN INSPECTION-VEHICLE INSPECTION
(SHEET 2 OF 2)
Figure 10

5690

FEMP
WEIGHT TICKET DATE:

LOT NUMBER: ▶	GROSS WEIGHT:
DRUM NUMBER: ▶	TARE WEIGHT:
MATERIAL TYPE: ▶	NET WEIGHT:
OPERATOR: ▶	ZERO:
SHIRT: ▶	CHECKWEIGHT:

FS-F-238 (REV. 1/5/93)

FEMP
WEIGHT TICKET DATE:

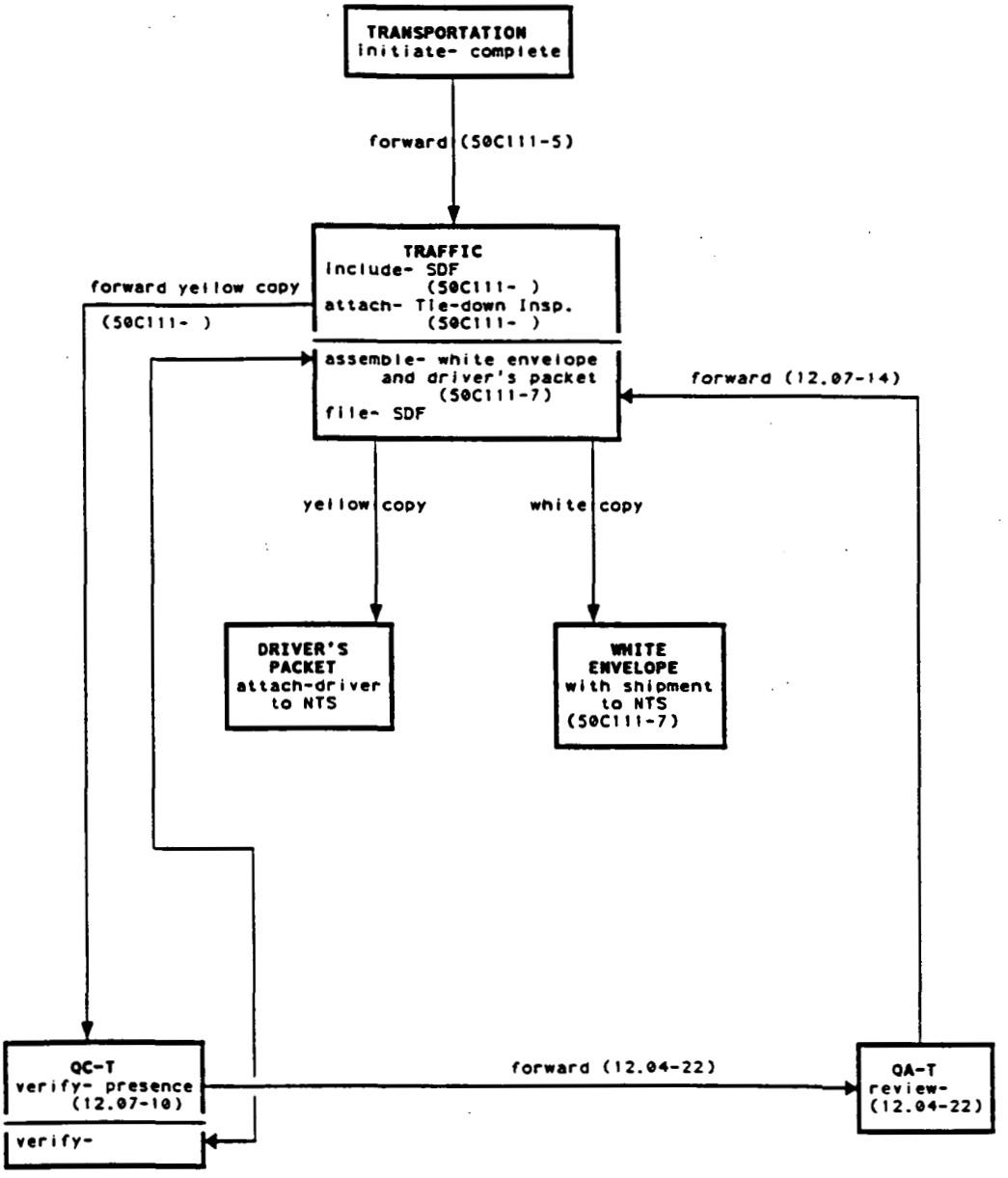
LOT NUMBER: ▶	GROSS WEIGHT:
DRUM NUMBER: ▶	TARE WEIGHT:
MATERIAL TYPE: ▶	NET WEIGHT:
OPERATOR: ▶	ZERO:
SHIRT: ▶	CHECKWEIGHT:

FS-F-238 (REV. 1/5/93)

WEIGHT TICKET
(SHEET 1 OF 2)
Figure 11

5690

WEIGHT TICKET



WEIGHT TICKET
(SHEET 2 OF 2)
Figure 11

STRAIGHT BILL OF LADING — SHORT FORM — ORIGINAL — NOT NEGOTIABLE 5690

CARRIER	DATE	CARRIER'S NO.	SHIPPER'S NO.

RECEIVED, subject to the classifications and tariffs in effect on the date of the receipt by the carrier of the property described in the Original Bill of Lading.

AT FERNALD, OHIO **FROM USDOE, c/o Fernald Environmental Restoration Management Corporation ACTING UNDER DOE CONTRACT DE-AC05-92OR21972**

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property either all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western and Illinois Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee — For purposes of notification only.)

Consigned to: _____

Destination: _____ State of: _____ County of: _____

Route: _____

Delivering Carrier: _____ Vehicle No.: Tra. #

Car Initial: _____ Car No.: _____ Seal No.: FA-WMCO-

NUMBER PACKAGES	HM	DESCRIPTION OF ARTICLES, SPECIAL MARKS, AND EXCEPTIONS	* WEIGHT (Subject to Correction)	CLASS OR RATE	CHECK COLUMN
		EMERGENCY CONTACT: DOE/FEMP/AEDO CONTROL CENTER, FERNALD, OH (513) 738-6200, COLLECT, NIGHT OR DAY.			

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement.
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

FERMCO
(Signature of consignor)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

Received $ _____ to apply in prepayment of the charges on the property described hereon.

Agent or Cashier

Per _____
(The signature here acknowledges only the amount prepaid.) _____

Charges Advanced:

$ _____

* If the shipment moves between two parts by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."
NOTE - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding:

_____ Per _____

+ THIS SHIPMENT IS CORRECTLY DESCRIBED.
CORRECT WEIGHT IS
_____ LBS
SUBJECT TO VERIFICATION BY THE E. W. & I. BUREAU NATIONAL WT. AGREEMENT

+ Shipper's imprint in lieu of stamp; not a part of bill of lading approved by the Interstate Commerce Commission.

741 NO.: _____

SS - SO NO.: _____

MSO NO.: _____

EQUAL EMPLOYMENT OPPORTUNITY — The nondiscrimination clauses contained in section 202 of Executive Order 11246 relative to equal employment opportunity for all persons without regard to race, creed, color, or national origin, and the implementing rules and regulations of the President's Committee on Equal Employment Opportunity which, to the extent not inconsistent with Executive Order 11246, remain in full force and effect as those of the Secretary of Labor, are incorporated herein.

THIS SHIPMENT is subject to the terms and conditions set forth in the standard form of the U. S. Government bill of lading and to any available special rates or charges.

+ **This shipment is the property of and the freight charges are assumed by the U. S. Government, Subject to the provisions of Section 10721 Quotation No. (Tender No. _____ Effective _____).**

+ IT IS UNDERSTOOD AND AGREED THAT THIS SHIPMENT IS MADE BY THE CONSIGNOR FOR AND ON BEHALF OF THE U. S. GOVERNMENT; THAT THE CONSIGNOR IS AUTHORIZED TO AND WILL MAKE ANY PAYMENT DUE HEREUNDER AS CONSIGNOR OR SHIPPER FROM GOVERNMENT FUNDS ADVANCED AND AGREED TO BE ADVANCED TO IT BY THE U. S. DEPARTMENT OF ENERGY AND NOT FROM ITS OWN ASSETS; AND THAT NOTHING HEREIN SHALL PRECLUDE LIABILITY OF THE GOVERNMENT FOR ANY PAYMENT PROPERLY DUE HEREUNDER IF FOR ANY REASON SUCH PAYMENT IS NOT MADE BY THE CONSIGNOR FROM SUCH GOVERNMENT FUNDS.

- THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED AND LABELED, AND ARE IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION.

USDOE, c/o Fernald Environmental Restoration Management Corporation, shipper

Per _____

Permanent post office address of shipper,

P. O. BOX 398704 CINCINNATI, OHIO 45239-8704
AREA CODE 513 738-6200

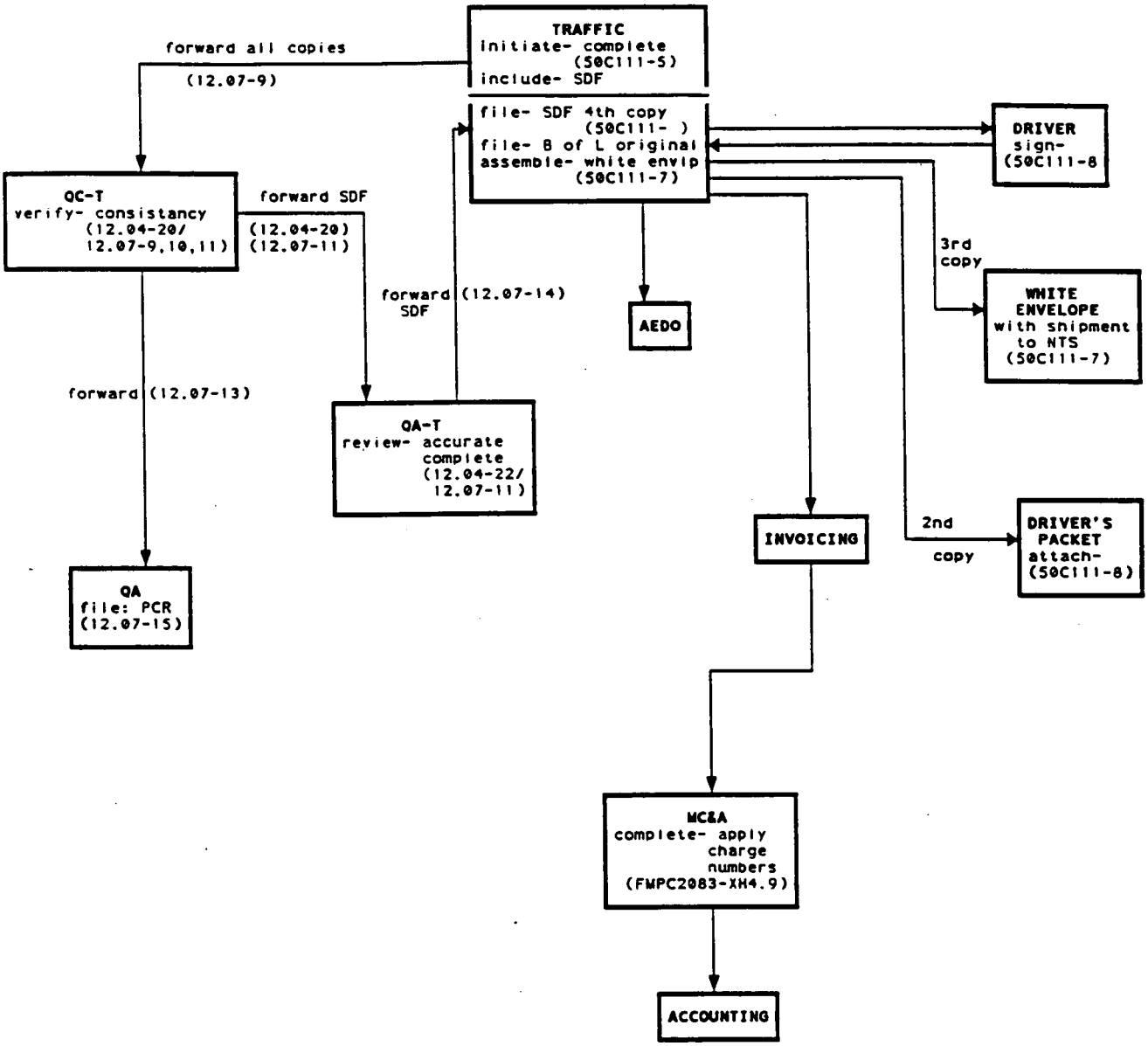
_____ Agent
Per _____

FS-F-452 (REV. 9/13/93)

BILL OF LADING
(SHEET 1 OF 2)
Figure 12

5690

BILL OF LADING



BILL OF LADING
(SHEET 2 OF 2)
Figure 12

5690

CERTIFICATION STATEMENT

LOW-LEVEL WASTE SHIPMENT FROM FEMP TO NEVADA TEST SITE

Bill of Lading No. _____	Seal Number(s) _____
Trailer No. _____	_____

I certify that the containers in Shipment No. WML _____ as listed on the attached Package Storage & Disposal Data report do not contain hazardous waste as defined in Title 40 CFR 261 or OAC 3745-54 hazardous waste regulations:

(1) according to the results of tests performed in accordance with the requirements as specified in Subpart C of Title 40 CFR 261; and/or

(2) according to the supporting documentation provided to me about the materials and processes that produced the waste.

To the best of my knowledge, I believe the information I have submitted is true, accurate, and complete.

_____
FEMP Waste Certification Official

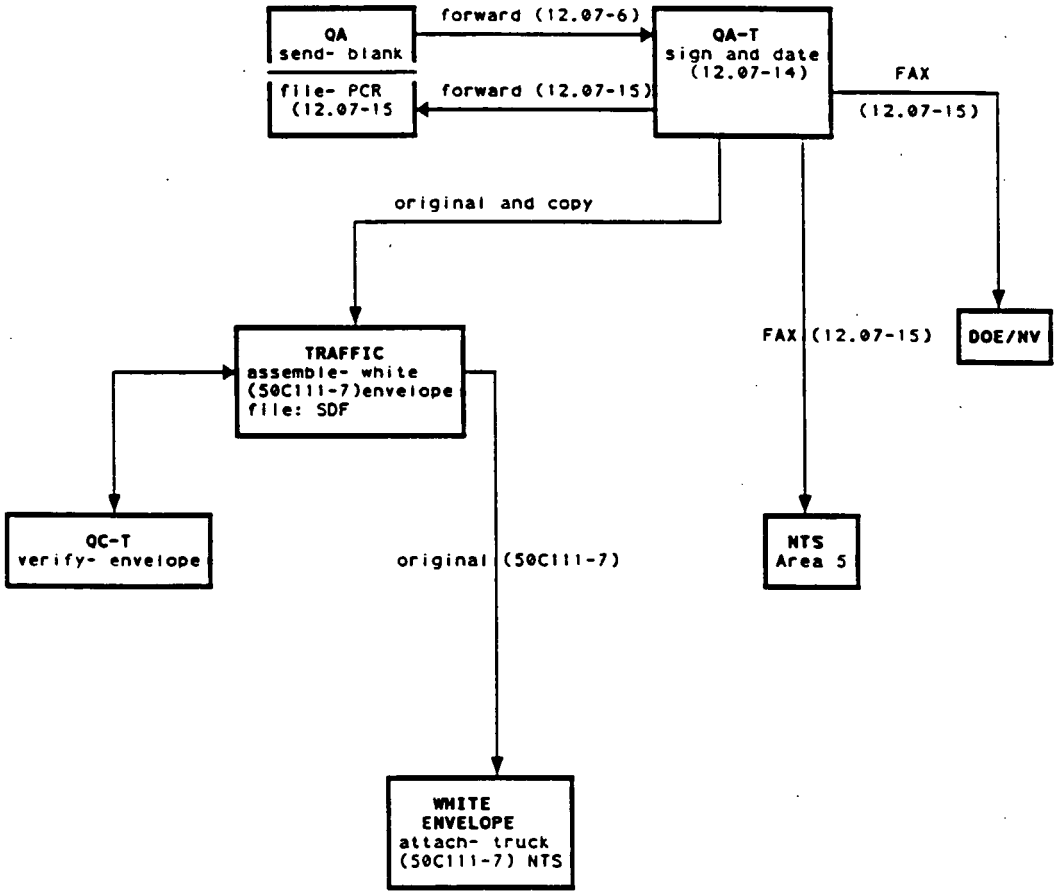
Date: _____

Quality Certification Form
ECQ-900914-1, Rev. 4 (11/23/92)

CERTIFICATION STATEMENT
(SHEET 1 OF 2)
Figure 13

5690

CERTIFICATION STATEMENT



CERTIFICATION STATEMENT
(SHEET 2 OF 2)
Figure 13

0 C 8 C

5690

STATEMENT OF COMPLIANCE

I have checked all packages in Shipment No. _____ to certify that each has an NV-211 label dated with a current date, and signed by either a Package Certifier or a Waste Certification Official. I fully understand the importance of the NV-211 label, and have performed this check with the utmost care to preclude any error on my part.

Caution: Sign this statement only when certain that you have performed the verification check thoroughly and accurately. If you were interuppted while checking NV-211 labels in this shipment, you are required to recheck the entire shipment prior to signing this statement.

Certified By: _____ Date _____

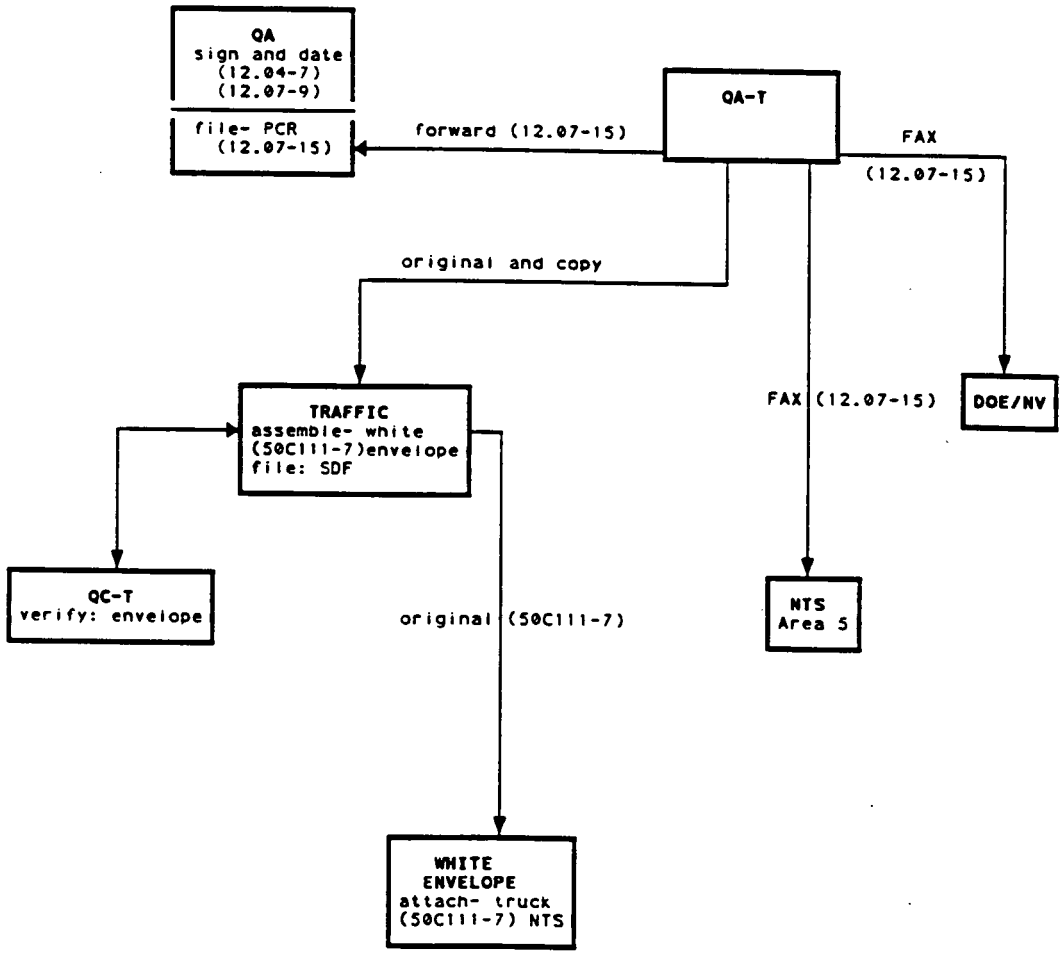
Waste Certification Official

QA/QC-930818-1, Rev. 0

STATEMENT OF COMPLIANCE
(SHEET 1 OF 2)
Figure 14

5690

STATEMENT OF COMPLIANCE



STATEMENT OF COMPLIANCE
(SHEET 2 OF 2)
Figure 14

5690

Attachment L Revision 1 SOP-TRF-46-C-110

TRAILER NO.:

CARRIER/DRIVER INSTRUCTIONS
RADIOACTIVE SHIPMENTS

B/L:
SSSO:
DATE:

FROM: DOE/FERMCO
P. O. Box 398704
Cincinnati, OH 45239-8704

IMPORTANT
DRIVER TO CALL EACH WEEKDAY MORNING COLLECT TO (513) 738-6191.
IN THE EVENT OF AN INCIDENT OR DELAY AT NIGHT OR ON WEEKENDS, CALL COLLECT TO FERNALD CONTROL CENTER (513) 738-6200.

CHECK IF APPLICABLE

☐ A. The shipping documents attached to this form contain the information prescribed by DOT regulations for a shipment of Radioactive Materials. These documents must accompany all carriers of this shipment. Accessibility of these documents must be in accordance with 49 CFR 177.81.

☐ B. VEHICLE CARRYING RADIOACTIVE MATERIALS (EXCLUSIVE USE). Under "EXCLUSIVE USE PROVISIONS" you will conform to the requirements specified in the attached Exclusive Use form, Exhibit 1.

☐ C. VEHICLE CARRYING RADIOACTIVE MATERIALS (NOT EXCLUSIVE USE). With the addition of this shipment, the total transport index on your vehicle shall not exceed 50.

D. ALL DRIVERS CARRYING RADIOACTIVE MATERIALS

☐ 1. You have inspected the load and agree it is properly secured against movement. 49 CFR 177.834.

☐ 2. Proper packaging, marking, labeling, and Shipper's Certification is indicated on the attached shipping papers.

☐ 3. Package marking or labeling, if necessary, is provided and affixed by the shipper. The carrier is responsible for replacing any labels that are lost or damaged.

☐ 4. Vehicle placarding, if necessary, is provided and affixed by the shipper. The carrier is responsible for replacing any placards that are lost or damaged. 49 CFR 172.506.

☐ 5. You are advised that certain shipments of Radioactive Materials cannot be transported through or on certain highway facilities; i.e.; tunnels, bridges, tollroads, etc. Check routings in advance to prevent delays. See Exhibit 2 for suggested routing through Las Vegas, NV.

☐ 6. In the event of an accident or emergency, notify the DOE/FEMP/AEDO Control Center, Fernald, OH (513) 738-6200, collect, day or night. Compliance to DOT Notification procedures specified in 49 CFR 171.15 and 171.16 is mandatory (see Exhibit 3). For Emergency Instructions, see Exhibit 4.

☐ 7. For Radiological assistance, you may contact the nearest Regional Coordinating Office of the U. S. Department of Energy. See Exhibit 5 for Regional Offices and their telephone numbers.

☐ E. DRIVER QUALIFICATION. You have been informed that the Federal Motor Carrier Regulations (DOT) require specific Driver Qualifications, if not exempted, for carriers of Hazardous Materials. 49 CFR 177.825.

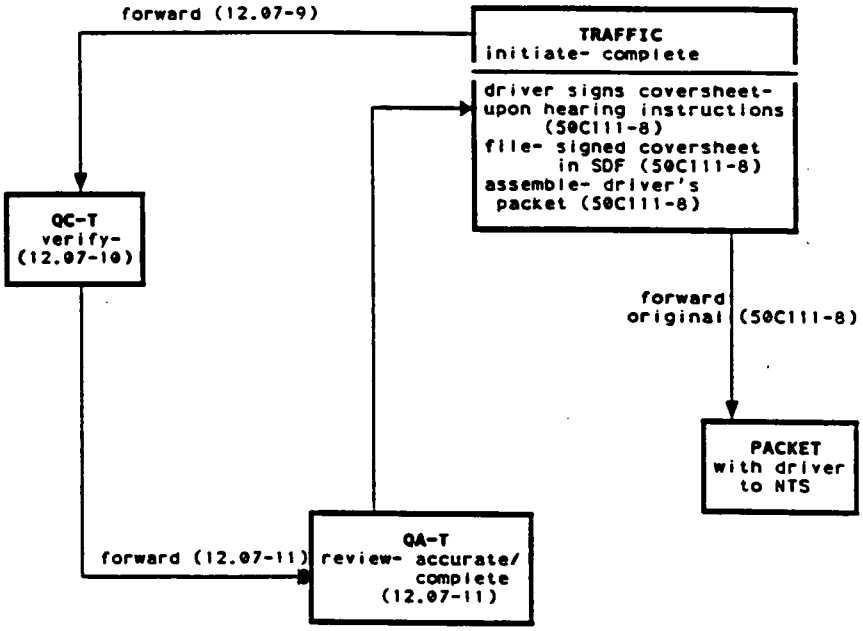
VEHICLE DRIVER'S ACKNOWLEDGEMENT			
BIRTH DATE:	BIRTH PLACE:	SOCIAL SECURITY NUMBER:	☐ P/U DRIVER ☐ ROAD DRIVER
SIGNATURE:	COMPANY:	DATE OF SHIPMENT:	

FS-F-2534-1 (REV. 9/14/93)

CARRIER/DRIVER RADIOACTIVE SHIPMENT INSTRUCTION
(SHEET 1 OF 2)
Figure 15

5690

DRIVER'S PACKET



CARRIER/DRIVER RADIOACTIVE SHIPMENT INSTRUCTIONS
(SHEET 2 OF 2)
Figure 15

5690

U. S. Department of Energy
C/O FERMCO
Fernald, Ohio

INSTRUCTIONS REGARDING CONTROLS FOR RADIOACTIVE SHIPMENTS CONSIGNED AS EXCLUSIVE USE (SOLE USE OR FULL LOAD)

Carrier: _____

Conveyance No(s).: _____

Shipper's Bill of Lading No.: _____ Date: _____

RESPONSIBILITY

These written instructions are provided to the carrier named on the shipping papers for the above referenced shipment and are to be maintained with said shipping papers. It is the carrier's responsibility to ensure that these instructions are conveyed to its driver(s) and administrative personnel, as appropriate, for the duration of the movement to final destination.

INSTRUCTIONS

1. *Maintain exclusive use of this vehicle for the duration of the movement. No other freight is to be loaded with this shipment except as directed by the consignor.*
2. *All loading or unloading of freight in this shipment shall only be done, or as directed, by the consignor or consignee.*
3. *The carrier is to move this shipment without delay, but in accordance with the legal statutes of transit jurisdictions.*
4. *Stops enroute are to be minimized to the extent practical and limited to accepted safe haven areas.*
5. *The carrier is to take positive steps enroute and during necessary stops to segregate this shipment from other freight, buildings, and personnel, so as to minimize potential exposures.*
6. *The carrier is to make periodic inspection of equipment, load, and placarding at appropriate intervals enroute to ensure maintenance of shipment safety controls.*
7. *To the maximum extent practical, the carrier, when movement is by highway, is to use interstate or limited access divided highways and avoid high density urban areas, especially where circumferential interstate highways are available to allow avoidance of travel through the highest populated portion of an urban area.*

SPECIAL HANDLING INSTRUCTIONS

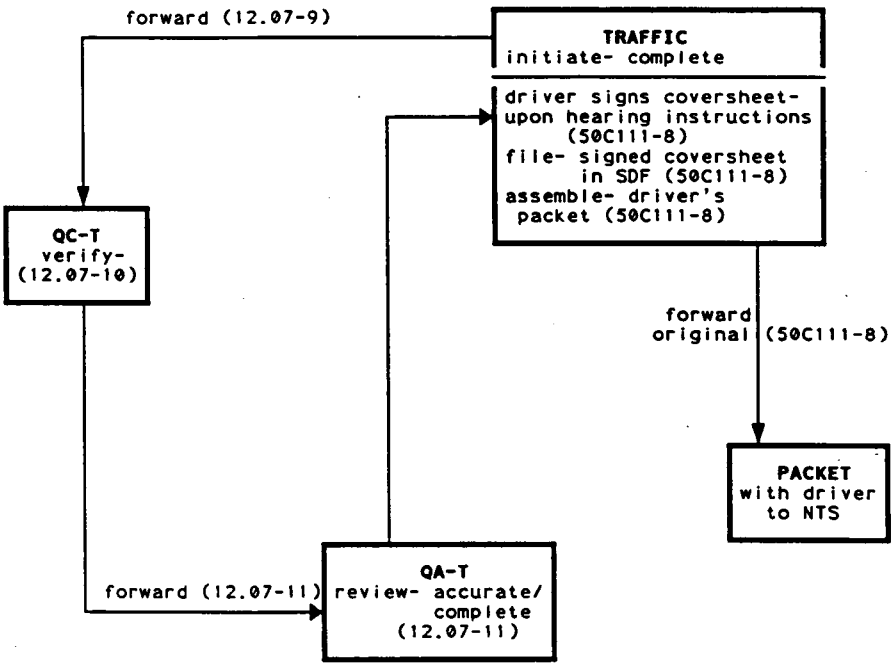
1. *If provided, by highway, the carrier driver is to maintain visual contact with escort(s).*
2. *Radiation surveys enroute will be made only with acceptable monitoring devices and the consignor or consignee will be notified that such monitoring has been done and by whom. Radiation surveys taken at destination by authorized personnel of the consignee will be provided to the carrier on request or the carrier will be notified if there are contamination levels that would warrant taking the conveyance out of service.*
3. *The carrier is to take the appropriate emergency response actions should an accident or spillage occur enroute. The carrier will make notification as indicated on accompanying shipping papers in the event of a delay, accident, or other emergency enroute.*
4. *In the event that this is a Highway Route Controlled shipment per the shipping paper, the carrier is to comply with the requirements of DOT 49 CFR 177.825.*

FS-F-2934-2 (REV. 9/14/93) **EXHIBIT 1**

INSTRUCTIONS REGARDING CONTROLS FOR RADIOACTIVE SHIPMENTS
CONSIGNED AS EXCLUSIVE USE (SOLE USE OR FULL LOAD)
FORM NO. FS-F-2934-2
(SHEET 1 OF 2)
Figure 16

5690

DRIVER'S PACKET



INSTRUCTIONS REGARDING CONTROLS FOR RADIOACTIVE SHIPMENTS
CONSIGNED AS EXCLUSIVE USE (SOLE USE OR FULL LOAD)
FORM NO. FS-F-2934-2
(SHEET 2 OF 2)
Figure 16

5690

ID NO.	NAME OF MATERIAL
UN2912	Radioactive Material, low specific activity or LSA, n.o.s.

GUIDE 62

POTENTIAL HAZARDS

HEALTH HAZARDS

- Fire may produce irritating or poisonous gases.
- Radioactive material; degree of hazard will vary from little to moderate, depending on type and quantity of radioactive material.
- Runoff from fire control or dilution water may cause pollution.

FIRE OR EXPLOSION

- Some of these materials may burn, but none of them ignites readily.

EMERGENCY ACTION

Keep unnecessary people at least 150 feet upwind of spill.

Isolate hazard area and deny entry.

Limit entry to shortest possible time.

Self-contained breathing apparatus (SCBA) and structural fire fighter's protective clothing will provide limited protection.

Delay cleanup until arrival or instruction of qualified Radiation Authority.

Call DOE/FEMP/AEDO CONTROL CENTER (513) 738-6200 for emergency assistance. If water pollution occurs, notify the appropriate authorities.

FIRE - Do not move damaged containers; move undamaged containers out of fire zone.

Small Fires: Dry chemical, CO_2, Halon, water spray or standard foam.

Large Fires: Water spray, fog or standard foam is recommended.

SPILL OR LEAK - **Do not touch damaged containers or spilled material.**

Large Spills: Dike far ahead of liquid spill for later disposal.

Cover powder spill with plastic sheet or tarp to minimize spreading.

FIRST AID - Use first aid treatment according to the nature of the injury.

If not affecting injury, remove and isolate contaminated clothing and shoes; wrap victim in blanket before transporting.

If not injured, remove and isolate contaminated clothing and shoes; shower victim with soap and water.

Advise medical care personnel that injured persons may be contaminated with radioactive material.

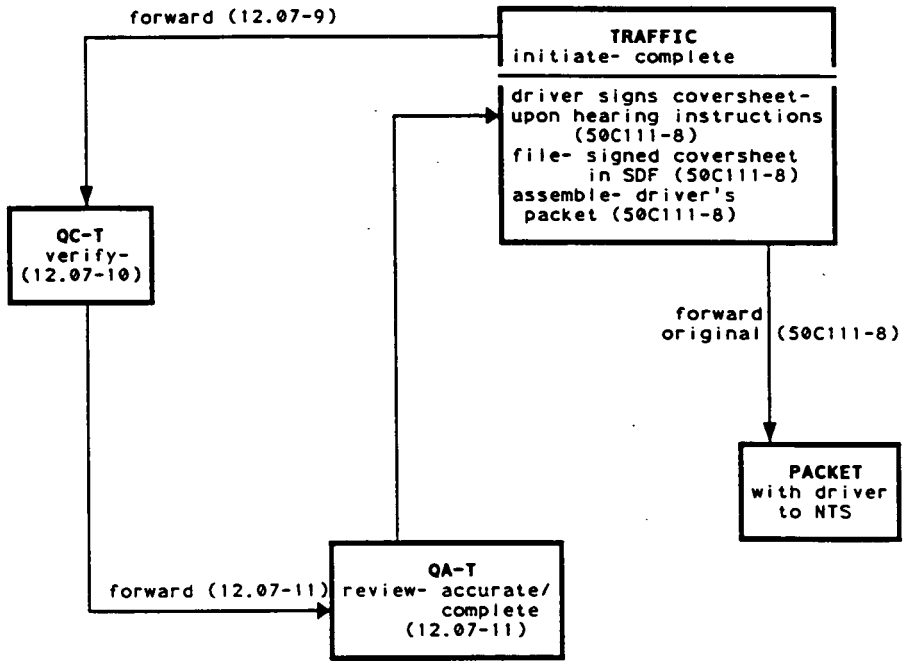
Excerpt from DOT P 5800.4, *1987 Emergency Response Guidebook*, guidebook for initial response to Hazardous Materials incidents, Guide 62.

M-731 (REV. 9/14/93)

POTENTIAL HAZARDS/EMERGENCY ACTION
FORM NO. M-731
(SHEET 1 OF 2)
Figure 17

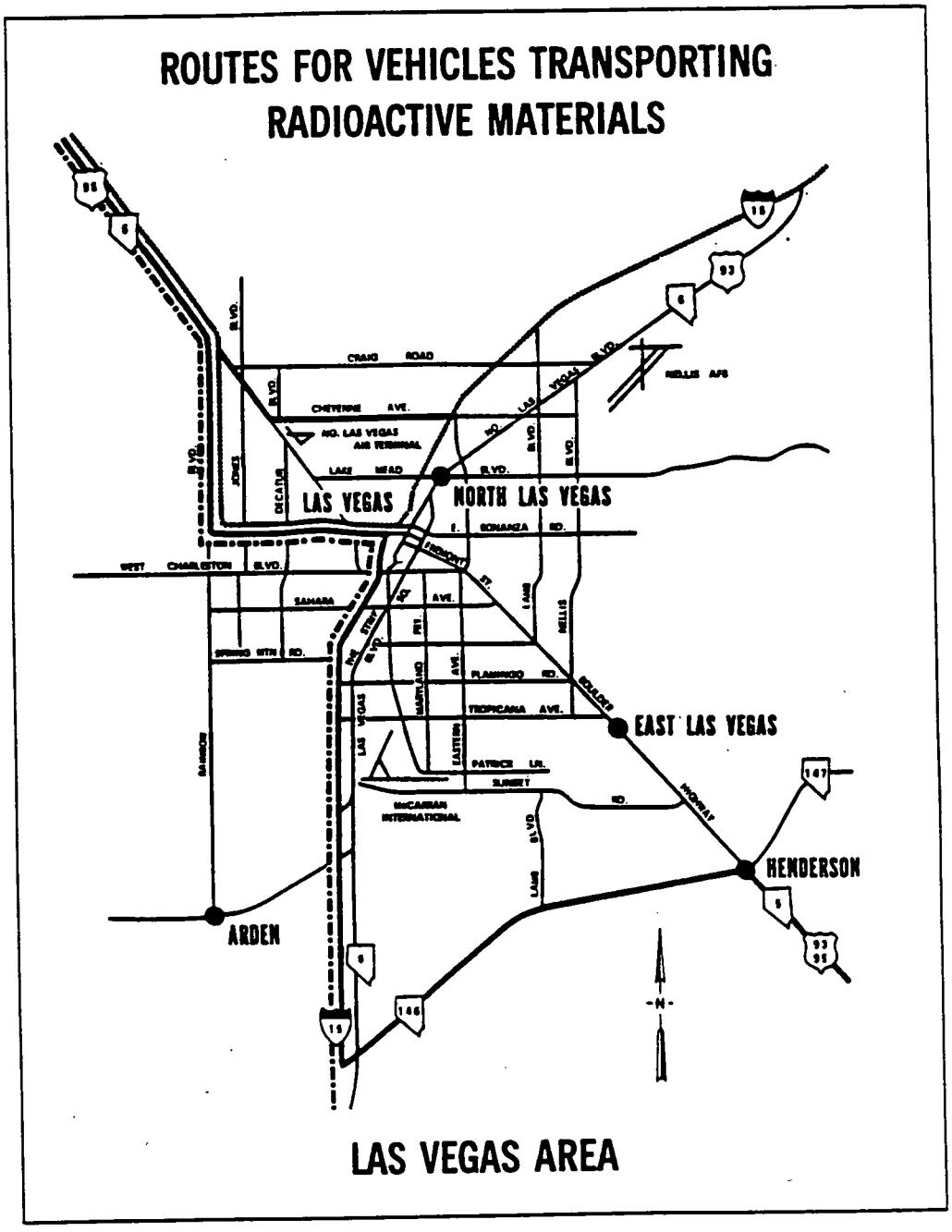
5690

DRIVER'S PACKET



POTENTIAL HAZARDS/EMERGENCY ACTION
FORM NO. M-731
(SHEET 2 OF 2)
Figure 17

5690

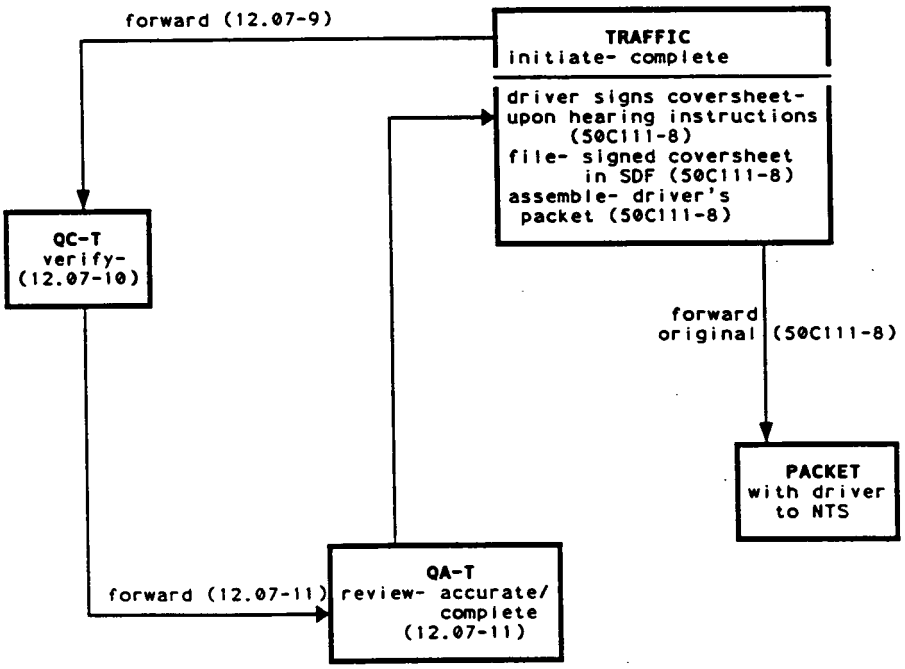


FS-F-2934-3 (REV. 9/14/93)

ROUTES FOR VEHICLES TRANSPORTING RADIOACTIVE MATERIALS
FORM NO. FS-F-2934-3
(SHEET 1 OF 2)
Figure 18

5690

DRIVER'S PACKET



ROUTES FOR VEHICLES TRANSPORTING RADIOACTIVE MATERIALS
FORM NO. FS-F-2934-3
(SHEET 2 OF 2)
Figure 18

5690

EXHIBIT 3
NOTIFICATION PROCEDURES
49 CFR 171.15 and 171.16

§171.15 Immediate notice of certain hazardous materials incidents.

(a) At the earliest practicable moment, each carrier who transports hazardous materials (including hazardous wastes) shall give notice in accordance with paragraph (b) of this section after each incident that occurs during the course of transportation (including loading, unloading and temporary storage) in which as a direct result of hazardous materials:

(1) A person is killed;

(2) A person receives injuries requiring his hospitalization;

(3) Estimated carrier or other property damage exceeds $50,000;

(4) Fire, breakage, spillage, or suspected radioactive contamination occurs involving shipment of radioactive material. (See also §§174.45, 175.45, 176.48, and 177.807 of this subchapter.); or

(5) Fire, breakage, spillage, or suspected contamination occurs involving shipment of etiologic agents; or

(6) A situation exists of such a nature that, in the judgment of the carrier, it should be reported in accordance with paragraph (b) of this section even though it does not meet the criteria of paragraph (a)(1), (2), or (3) of this section; e.g., a continuing danger to life exists at the scene of the incident.

(b) Each notice required by paragraph (a) of this section shall be given to the Department by telephone (toll free) on 800-424-8802. Notice involving etiologic agents may be given the Director, Center for Disease Control, U.S. Public Health Service, Atlanta, Ga., Area Code (404) 633-5313, in place of the notice to the Department or (toll call) on 202-267-2675. Each notice must include the following information:

(1) Name of reporter.

(2) Name and address of carrier represented by reporter.

(3) Phone number where reporter can be contacted.

(4) Date, time, and location of incident.

(5) The extent of injuries, if any.

(6) Classification, name, and quantity of hazardous materials involved, if such information is available.

(7) Type of incident and nature of hazardous material involvement and whether a continuing danger to life exists at the scene.

(c) Each carrier making a report under this section shall also make the report required by §171.16.

Note.—Under 40 CFR 302.6 EPA requires persons in charge of facilities (including transport vehicles, vessels, and aircraft) to report any release of a hazardous substance in a quantity equal to or greater than its reportable quantity, as soon as that person has knowledge of the release, to the U.S. Coast Guard National Response Center at (toll free) 800-424-8802 or (toll) 202-267-2675. [52 8560 March 19, 1987]

§171.16 *Detailed hazardous material incident reports.*

(a) Each carrier who transports hazardous materials shall report in writing in duplicate on DOT Form F5800.1[1] to the Department within 15 days of the date of discovery, each incident that occurs during the course of transportation (including loading, unloading, or temporary storage) in which, as a direct result of the hazardous materials, any of the circumstances set forth in §171.15(a) occurs or there has been an unintentional release of hazardous materials from a package (including a tank) or any quantity of hazardous waste has been discharged during transportation. If a report pertains to a hazardous waste discharge:

(1) A copy of the hazardous waste manifest for the waste must be attached to the report, and

(2) An estimate of the quantity of the waste removed from the scene, the name and address of the facility to which it was taken, and the manner of disposition of any unremoved waste must be entered in Part H of the report (Form F 5800.1).

(b) Each carrier making a report under this section shall send that report to the Information Systems Manager, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590.

(c) Except as provided in paragraph (d) of this section, the requirements of paragraph (a) of this section do not apply to incidents involving the unintentional release of hazardous materials being transported under the following proper shipping names:

(1) Consumer commodity.

(2) Battery, *electric storage*, wet, filled with acid *or* alkali.

(3) Paint and paint related material when shipped in packagings of five gallons or less.

(d) The exceptions to incident reporting provided in paragraph (c) of this section do not apply to:

(1) Incidents required to be reported under §171.15(a);

(2) Incidents involving transportation aboard aircraft; nor

(3) Incidents involving the transportation of hazardous waste.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 171-7, 35 FR 16837, Oct. 3, 1970, as amended by Amdt. 171-56, 45 FR 73683, Nov. 6, 1980; Amdt. 171-57, 45 FR 80829, Dec. 8, 1980; Amdt. No. 171-65, 47 FR 24584, June 7, 1982; Amdt. 171-66, 47 FR 43064, Sept. 30, 1982; Amdt. 171-72, 48 FR 17095, Apr. 21, 1983]

[1]Filed as part of the original document.

EXHIBIT 4
EMERGENCY INSTRUCTIONS

1. Evacuate personnel from the emergency site in the direction from which the wind is blowing to stay clear of smoke, mist or other airborne particles.
2. Isolate the area from traffic and spectators.
3. Contact State Police and/or local law enforcement agency for assistance.
4. Sealed containers, if lying on the roadway, may be moved to the side of the road or right-of-way. **Do not** attempt to move and/or repackage material from any open container until authorized to do so by the proper authorities.
5. Obtain names and addresses of all persons involved. Write down a description, sequence, and times of all aspects of the emergency situation.
6. Make no statements to the press, news media, or the general public, unless instructed by the shipper or other proper authority.

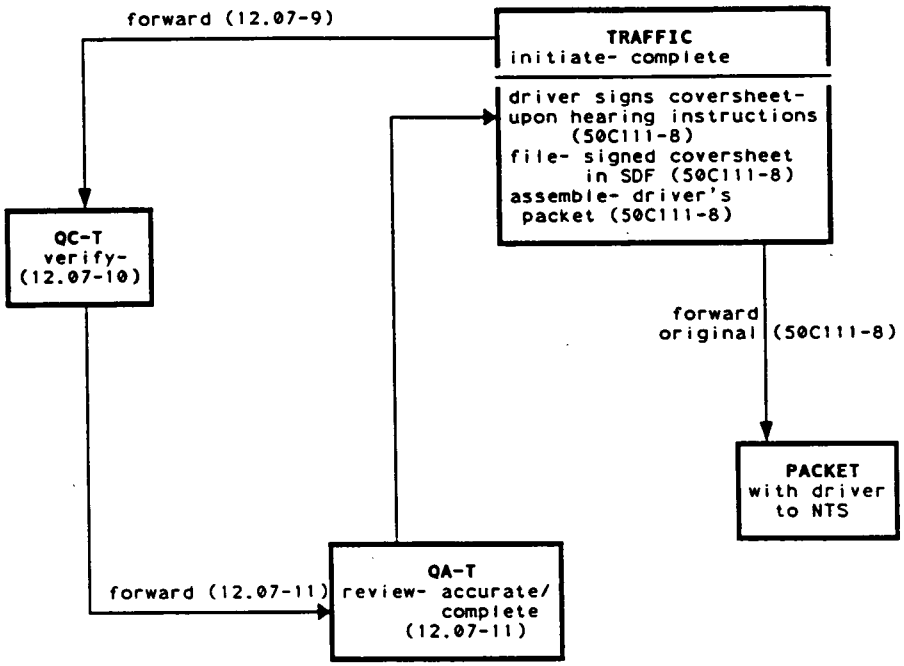
FS-F-2934-4 (REV. 9/14/93)

EXHIBITS 3 AND 4

NOTIFICATION PROCEDURES 49CFR 171.15 AND 171.16/EMERGENCY INSTRUCTIONS
FORM NO. FS-F-2934-4
(SHEET 1 OF 2)
Figure 19

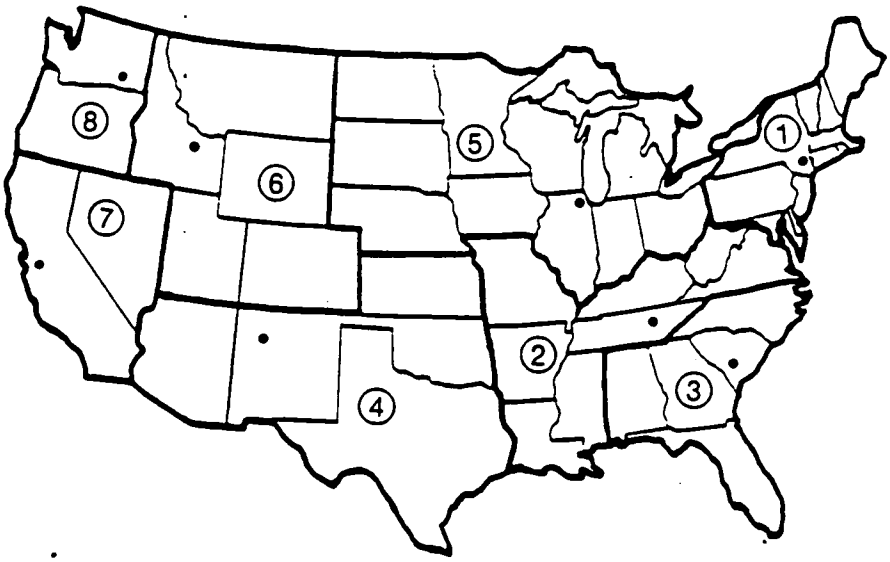
5690

DRIVER'S PACKET



NOTIFICATION PROCEDURES 49CFR 171.15 AND 171.16/EMERGENCY INSTRUCTIONS
FORM NO. FS-F-2934-4
(SHEET 2 OF 2)
Figure 19

5690



DEPARTMENT OF ENERGY

REGIONAL COORDINATING OFFICES

FOR

RADIOLOGICAL ASSISTANCE

AND

GEOGRAPHICAL AREAS OF RESPONSIBILITY

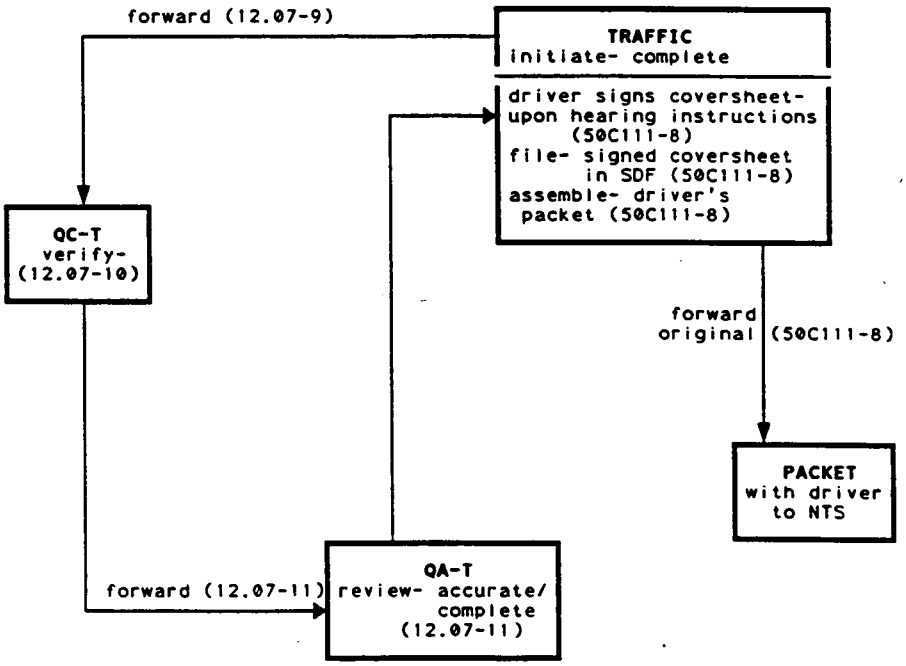
	REGIONAL COORDINATING OFFICE	POST OFFICE ADDRESS	TELEPHONE FOR ASSISTANCE
1	BROOKHAVEN AREA OFFICE	UPTON, L.I. NEW YORK 11973	(516) 282-2200
2	OAK RIDGE OPERATIONS OFFICE	P. O. BOX E OAK RIDGE, TENNESSEE 37830	(615) 576-1005 OR (615) 525-7885
3	SAVANNAH RIVER OPERATIONS OFFICE	P. O. BOX A AIKEN, S.C. 29802	(803) 725-3333
4	ALBUQUERQUE OPERATIONS OFFICE	P. O. BOX 5400 ALBUQUERQUE, NEW MEXICO 87115	(505) 844-4667
5	CHICAGO OPERATIONS OFFICE	9800 S. CASS AVE. ARGONNE, ILLINOIS 60439	DUTY HOURS: (312) 972-4800 OFF HOURS: (312) 972-5731
6	IDAHO OPERATIONS OFFICE	550 SECOND ST. IDAHO FALLS, IDAHO 83401	(208) 526-1515
7	SAN FRANCISCO OPERATIONS OFFICE	1333 BROADWAY OAKLAND, CALIFORNIA 94612	(415) 273-4237
8	RICHLAND OPERATIONS OFFICE	P. O. BOX 550 RICHLAND, WASHINGTON 99352	(509) 373-3800

FS-F-2934-5 (REV. 9/14/93)

DOE REGIONAL COORDINATING OFFICES FOR RADIOLOGICAL ASSISTANCE
FORM NO. FS-F-2934-5
(SHEET 1 OF 2)
Figure 20

5690

DRIVER'S PACKET



DOE REGIONAL COORDINATING OFFICES FOR RADIOLOGICAL ASSISTANCE
FORM NO. FS-F-2934-5
(SHEET 2 OF 2)
Figure 20

REV. 7-88 5690

TRANSPORTATION CABINET
DIVISION OF MOTOR CARRIERS
QUALIFICATIONS/PERMITS BRANCH
POST OFFICE BOX 2007
FRANKFORT, KENTUCKY 40602

KENTUCKY HAZARDOUS MATERIAL PERMIT
(NON-TRANSFERABLE)

RANGER TRANSPORTATION, INC.
P. O. BOX 19060
JACKSONVILLE, FL 32245-

FEE YEAR: 1993
PERMIT #: 000557
DATE: 11/04/92

having complied with the LAWS of the COMMONWEALTH OF KENTUCKY and the REGULATIONS of the DEPARTMENT OF VEHICLE REGULATION is hereby granted authority to operate as a transporter of:

Radioactive Material

(1). Individual associated with carrier who is to be contacted in the event of emergency:

HERMAN KAUSS

MANAGER SPECIALIZED HAULING
PHONE NUMBERS
During Business Hours (800)872-9543
After Business Hours ( ) -

(2). Description of emergency procedures which the carrier will follow in the event of an accident: (Notify the Kentucky Division of Motor Vehicle Enforcement (502) 564-3276)

IN CASE OF EMERGENCY, DRIVERS FIRST CONCERN WILL BE TO TAKE ACTION TO PROTEC THE PUBLIC AND THE ENVIRONMENT. HE WILL THEN CONTACT CHEMTREC AND HIS HOME OFFICE (WE HAVE SOMEONE ON DUTY 24 HOURS A DAY.) MYSELF OR SOMEONE IN THE HOME OFFICE WILL TAKE FURTHER ACTION REGARDING CO-ORDINATION WITH GOVERNMENT AGENCIES AND EMERGENCY RESPONSE TEAMS.

THIS PERMIT SHALL REMAIN IN EFFECT UNTIL EXPIRED BY LAW OR REVOKED BY THE DEPARTMENT OF VEHICLE REGULATION. ANY VEHICLE OPERATED UNDER THIS PERMIT MUST CARRY A PHOTOSTATIC COPY OF THIS PERMIT IN THE VEHICLE AT ALL TIMES. THE ORIGINAL PERMIT SHALL REMAIN IN THE OFFICE OF THE CARRIER FOR PUBLIC INSPECTION.

This permit must be renewed on or before January 1st of each calendar year.

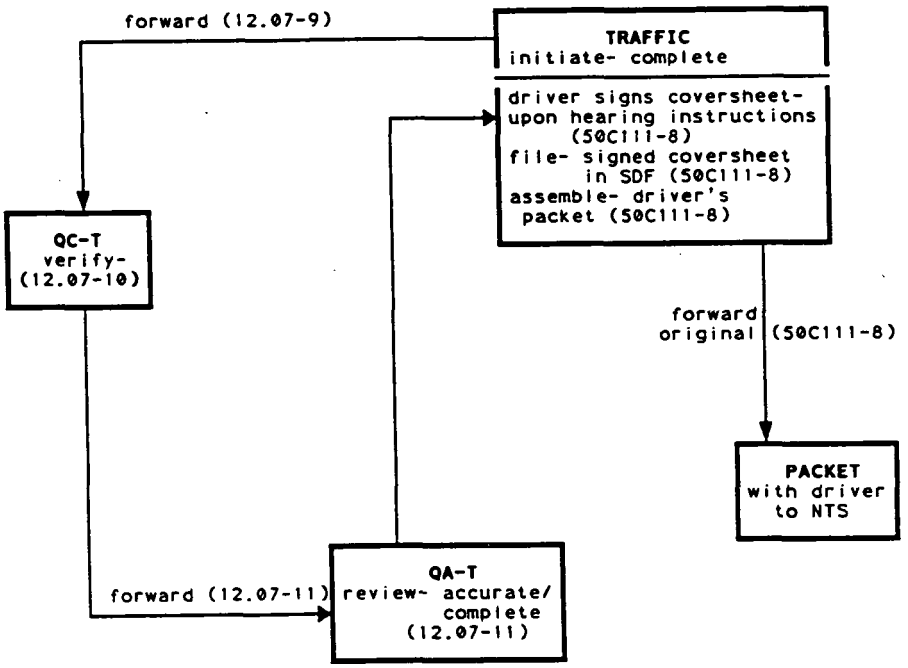
Virginia Travis
SUPERVISOR
DEPARTMENT OF VEHICLE REGULATION
(502) 564-4454

** TOTAL PAGE.003 **

KENTUCKY HAZARDOUS MATERIAL PERMIT
(SHEET 1 OF 2)
Figure 21

5690

DRIVER'S PACKET



KENTUCKY HAZARDOUS MATERIAL PERMIT
(SHEET 2 OF 2)
Figure 21

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STATE OF NEVADA
DEPARTMENT OF
MOTOR VEHICLES AND PUBLIC SAFETY
Nevada Highway Patrol
555 Wright Way
Carson City, Nevada 89711-0525
(702) 687-5300

THE HAZARDOUS MATERIAL TRANSPORTATION PERMIT ORIGINAL COPY MUST BE MAINTAINED BY THE CARRIER IN THIS OFFICE OF HIS PRINCIPLE PLACE OF BUSINESS, AS LISTED IN THE APPLICATION. LEGIBLE COPIES OF THE ORIGINAL ANNUAL PERMIT MUST BE MAINTAINED IN THE DRIVER'S COMPARTMENT OF ALL VEHICLES TRANSPORTING HAZARDOUS MATERIAL WITHIN THE STATE OF NEVADA. VEHICLES WITHOUT A VALID COPY OF THE PERMIT WILL NOT BE ALLOWED TO CONTINUE TRAVEL UNTIL EITHER A VALID COPY OF THE ANNUAL PERMIT IS PLACED IN THE VEHICLE OR THE DRIVER PURCHASES A VALID TEN DAY TEMPORARY PERMIT.

IF THERE IS ANY CHANGE IN THE INFORMATION CONTAINED IN AN ANNUAL PERMIT, THE CARRIER SHALL, WITHIN 14 DAYS AFTER THE CHANGE OCCURS, GIVE WRITTEN NOTICE OF THE CHANGE TO THE HAZARDOUS MATERIAL PERMIT SECTION.

CARRIER'S EMERGENCY 24 HOUR PHONE NUMBER MUST BE KEPT CURRENT.

NOTE: PERMITS MUST BE RENEWED PRIOR TO JANUARY 1, AS THERE IS NO GRACE PERIOD. RENEWALS MAY COMMENCE AFTER OCTOBER 1 OF THE CURRENT YEAR.

NEVADA HAZARDOUS MATERIALS TRANSPORTATION PERMIT

Nevada Highway Patrol
Hazardous Materials Permit Section
555 Wright Way
Carson City, Nevada 89711-0525
(702) 687-5300

1537
PERMIT NO.

CONTROL

00047

ISSUE DATE: 921218

CARRIER: RANGER TRANSPORTATION

EXPIRATION: 931231

ADDRESS: 4057 CARMICHAEL AVENUE
JACKSONVILLE, FL 32207

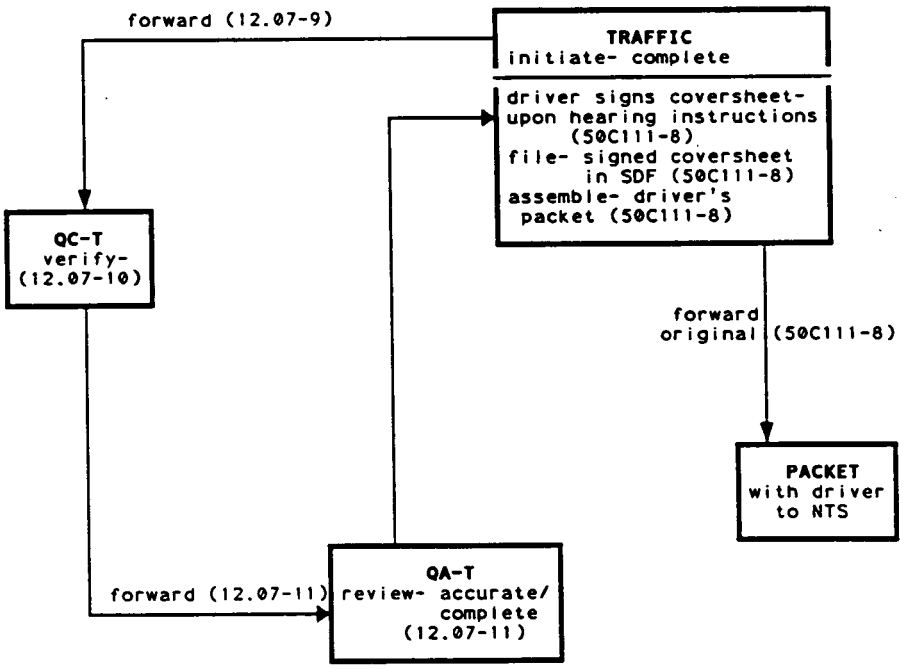
TELEPHONE: (904)398-9400

COPY MUST BE IN DRIVER'S COMPARTMENT OF VEHICLE

NEVADA HAZARDOUS MATERIALS TRANSPORTATION PERMIT
(SHEET 1 OF 2)
Figure 22

5690

DRIVER'S PACKET



NEVADA HAZARDOUS MATERIALS TRANSPORTATION PERMIT
(SHEET 2 OF 2)
Figure 22

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Quality Certification Traffic Shipment Document Checklist

	Bill/Lading(B/L)	Shipping Order(S.O.)
Ship #	_____	_____
B/L#	_____	_____
S.O.#	_____	_____
Trailer#	_____	_____
Date Prep	_____	_____
Mat.Type	_____	_____
Gross Wt.	_____	_____
Tare Wt.	_____	_____
Net Wt.	_____	_____
E.T.A.	_____	_____
Seal #	_____	_____
MCA sign	_____	_____
# of cont.	_____	_____
LSA/LQ/RQ	_____	_____

Low Level Checklist		Packaging Information	
Ship #	_____	Hazard Class	_____
B/L #	_____	Material Form	_____
S.O.#	_____	Chemical Form	_____
All Checks	_____	Labels Required	_____
3 sign	_____	Packaging Type	_____

Radiation Monitoring Sheets

	Empty	Outgoing	Survey	Cab
Trailer#	_____	_____	_____	_____
Date/Time	_____	_____	_____	_____
Survey com.	_____	_____	_____	_____

*Complete liscense # _____
*Temporary Seal # _____

Container Radiological Sheets

	Date	Time	Data Complete	Ship #
Initials	_____	_____	_____	_____
Resmears	_____	_____	_____	_____

Off Site Tie Down Contaminated Articles Sheet

Ship #	_____	Curies	_____
Trailer #	_____	Signature	_____
Seal #	_____	Data Complete	_____
Sup.Sign	_____		

*3 Tally Sheets & 1 Storage/Disposal Sheet present _____
*Driver Inst. Pack complete and numbered _____
*Weight Ticket *Ft. Axle_____* Rear Axle_____* GR. Wt._____
(Maxium weight on front or rear axle 34,000 lbs.)
*Two stick-on Radioactive Placards included for Sea/Land shipments _____

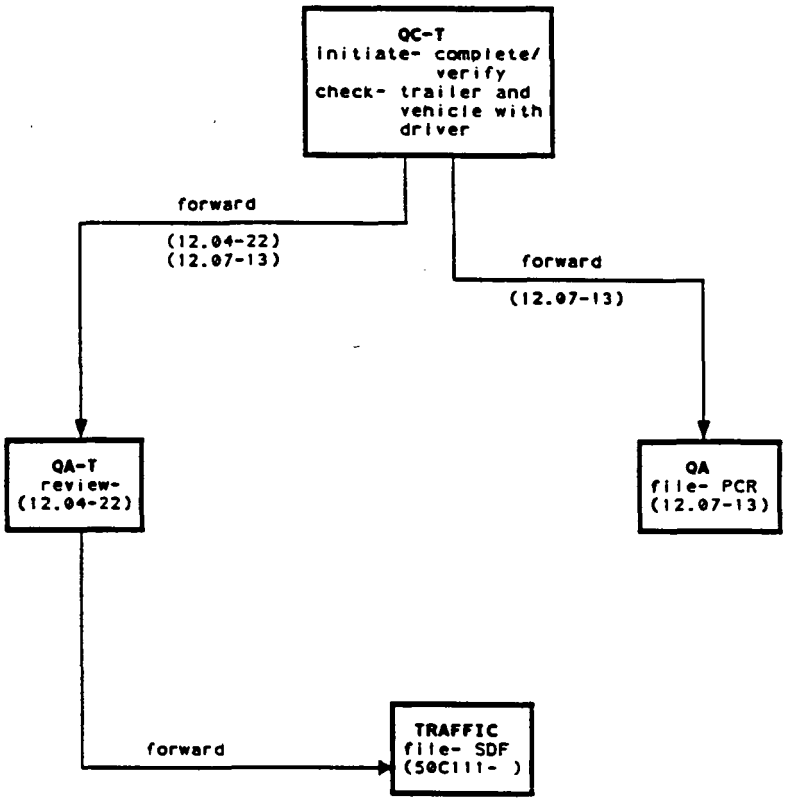
ECQ-880731-1, Rev.3 (07/31/91)

QUALITY CERTIFICATION TRAFFIC SHIPMENT DOCUMENT CHECKLIST
(SHEET 1 OF 2)
Figure 23

5690

QUALITY CERTIFICATION TRAFFIC SHIPMENT DOCUMENT CHECKLIST

QAULITY CERTIFICATION FINAL TRAILER CHECKLIST



QUALITY CERTIFICATION TRAFFIC SHIPMENT DOCUMENT CHECKLIST
(SHEET 2 OF 2)
Figure 23

5690

Quality Certification Final Trailer Checklist

Trailer Number:_____

1. Verify the driver has performed a safety inspection of vehicle prior to departure from the site .

   Headlights (low & high beams) _____
   Turn signals (front & rear) _____
   Brake Lights _____
   Horn _____
   Windshield Wipers _____
   Tires (minimum 2/32" on trailer) _____
   Tires (minimum 4/32" on tractor) _____

Comments:_____
_____

2. Verify the envelope containing the Storage & Disposal Sheet and Tally Sheet having the correct Seal #, Shipment #, and trailer #, is in trailer .

   Seal Number _____
   Shipment Number _____
   Trailer Number _____

3. Verify that a DOT approved seal has been placed on the trailer doors when replacing the temporary seal that the ERMT has applied after monitoring the vehicle .

   Temporary Seal Number _____
   DOT Seal Number _____

4. Verify the proper placards are in place,as required
   Material Type (LSA or LQ) _____
   PlacardType (Radioactive or Drive Safely) _____

5. Verify that packages are properly tied-down as specified by SOP-TRF-46-C-110. Sea/Land containers shall be secured with four straps on each container, and shall be both chained and blocked with a 2X4 on front and back of load. _____

Date Shipped:_____ Time Shipped:_____

I hereby certify that the above checklist has been completed and witness that all the above items are correct to the best of my knowledge.

Signed:_____ Date:_____
Quality Certification Specialist

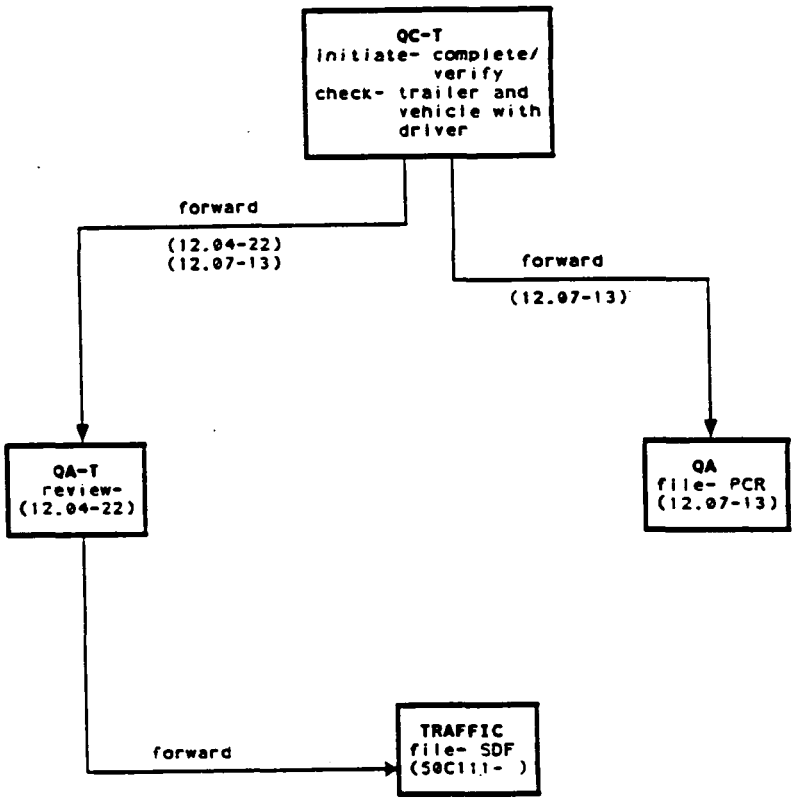
ECQ-880801, Rev.3 (01/27/93)

QUALITY CERTIFICATION FINAL TRAILER CHECKLIST
(SHEET 1 OF 2)
Figure 24

5690

QUALITY CERTIFICATION TRAFFIC SHIPMENT DOCUMENT CHECKLIST

QAULITY CERTIFICATION FINAL TRAILER CHECKLIST



QUALITY CERTIFICATION FINAL TRAILER CHECKLIST
(SHEET 2 OF 2)
Figure 24

5690

QUALITY CERTIFICATION - PRELIMINARY TRAILER CHECKLIST FOR FLAT BEDS (ISO CARGO CONTAINER SHIPMENTS)

RADIATION SMEARS DATE: _____ LOCATION: _____

CARRIER: _____ TRAILER NO.: _____

CHECKLIST ITEM			VERIFIED BY
1. Verify the preliminary trailer inspection completed (on trailer only) prior to driver unhooking from the empty trailer:	Accepted	Rejected	
	_____	_____	_____
2. Prior to loading verify the RS Technician has surveyed the empty trailer, recorded results on Form ES&H-1596-1, and that results meet acceptance requirements listed in 49 CFR 173.441. (Note: If over 48 hrs. since smears were made, the trailer must be resmeared.)			_____
3. Verify that the doors of the ISO cargo containers are banded closed and secured with a tamper proof DOT approved seal.			_____
4. Record shipping information in the blocks below:			_____

Shipment No. WML- _____ - _____

Container No. 1: Ser. No. _____ Seal No. _____

Container No. 2: Ser. No. _____ Seal No. _____

Signed: _____ Date: _____
(Quality Certification)

Distribution: 1. QA Certification 2. Traffic Manager

QA Certification Form
ECQ-891010-1, Rev. 4 (01/27/93)

PRELIMINARY CHECKLIST FOR FLAT BEDS
(SHEET 1 OF 2)
Figure 25

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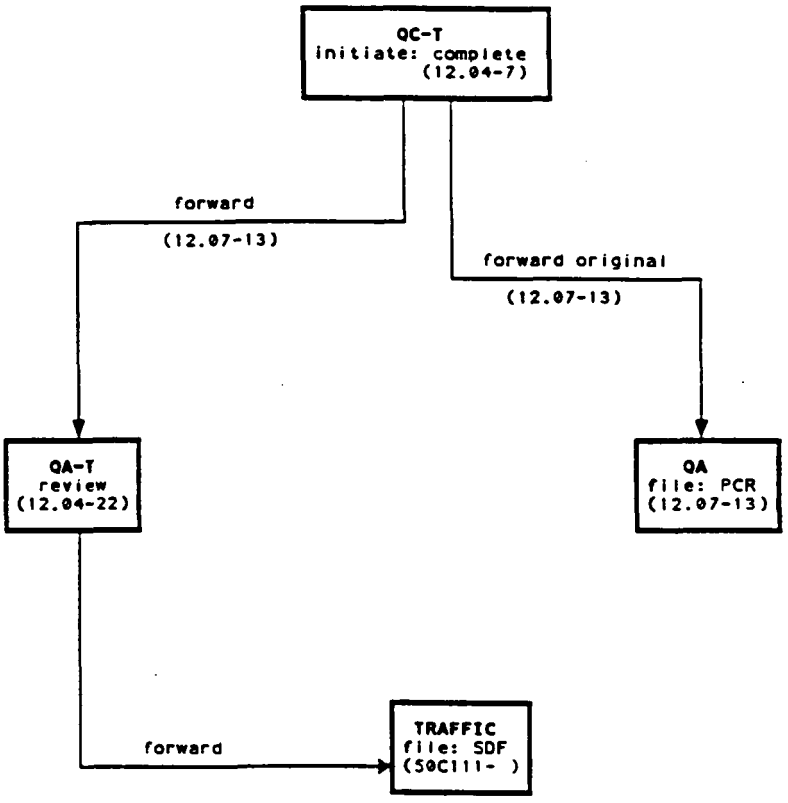
QUALITY CERTIFICATION - PRELIMINARY TRAILER CHECKLIST FOR VANS/FLATBEDS



PRELIMINARY TRAILER CHECKLIST FOR FLAT BEDS
(SHEET 2 OF 2)
Figure 25

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QUALITY CERTIFICATION - PRELIMINARY TRAILER CHECKLIST FOR VANS

RADIATION SMEARS DATE: _____ LOCATION: _____

CARRIER: _____ TRAILER NO.: _____

CHECKLIST ITEM	VERIFIED BY
1. Verify preliminary trailer inspection completed (on the trailer only) prior to driver unhooking from the empty trailer: Accepted ____ Rejected ____	_____
2. Verify the RS Technician has surveyed the empty trailer, recorded results on Form ES&H-1596-1, and results meet acceptance requirements listed in 49 CFR 173.441.	_____
3. After the survey, verify the RS Technician has sealed the doors with a tamper proof seal. Seal No. _____	_____
4. Prior to loading, verify seal number is same as applied by RS Technician and shows no evidence of tampering.	_____
5. Verify that packages have been properly tied-down as specified by SOP-TRF-46-C-110.	_____
6. Verify that the loaded trailer rear doors are secured with a tamper proof seal. Shipment No. WML- - _____ Seal No. _____	_____

Signed: _____ Date: _____
(Quality Vertification)

Distribution: 1. QA Certification 2. Traffic Manager

QA Certification Form
ECQ-880801-1, Rev. 5 (05/11/93)

PRELIMINARY TRAILER CHECKLIST FOR VANS
(SHEET 1 OF 2)
Figure 26

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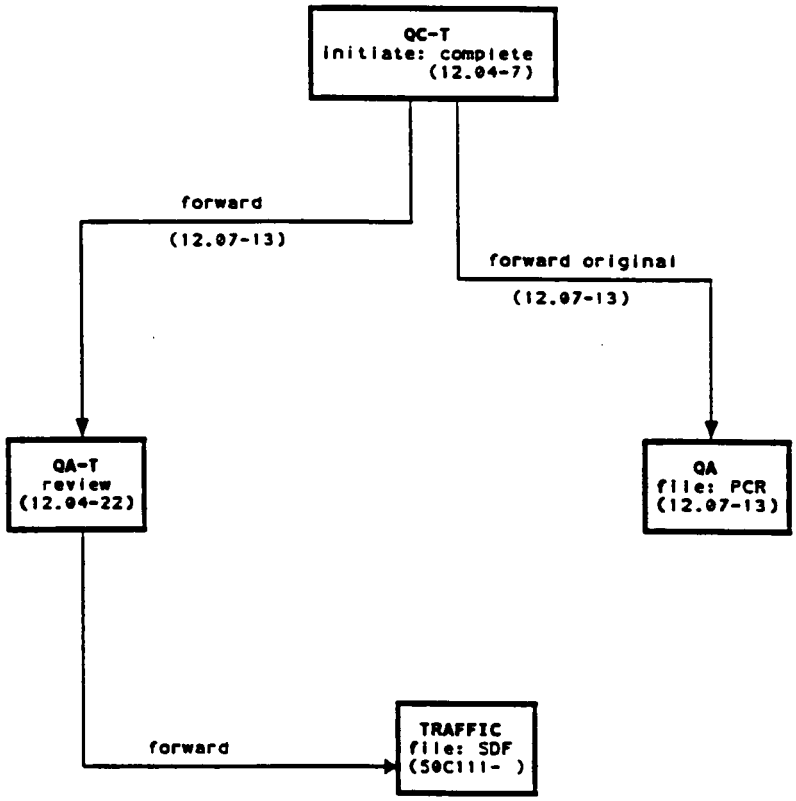
QUALITY CERTIFICATION - PRELIMINARY TRAILER CHECKLIST FOR VANS/FLATBEDS



PRELIMINARY TRAILER CHECKLIST FOR VANS
(SHEET 2 OF 2)
Figure 26

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
04-15-94	0	Procedure requirement for Shipment of LLRW per Request No. P93-1286, initiated by B. Giessl.

5690

QA87001

WASTE CERTIFICATION PROGRAM PLAN

FOR

LOW LEVEL WASTE CHARACTERIZATION AND CERTIFICATION

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION

P. O. Box 398704

Cincinnati, Ohio 45239-8704

Revision 7 December 1993

DISCLAIMER

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RECORD OF REVISIONS

5690

REVISION NO.	DATE
0	10/1/87
1	9/19/88
2	1/24/89
3	4/06/89
4	6/28/89
5	6/30/90
6	11/20/92
7	12/01/93

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PURPOSE OF PLAN

This Waste Certification Program Plan (WCPP) describes the procedures that are used by the Fernald Environmental Management Project (FEMP), Fernald, Ohio, to ensure that the low level waste (LLW) shipped to the Nevada Test Site (NTS) for disposal conforms with all pertinent federal, state and local regulations, and NTS acceptance criteria. The FEMP is managed by Fernald Environmental Restoration Management Corporation (FERMCO) for the U. S. Department of Energy (DOE). The FEMP, previously designated as the Feed Materials Production Center (FMPC), served an important role in DOE defense programs by employing a variety of chemical and metallurgical processes. Although the site is no longer in the production mode, remediation and environmental restoration by FERMCO requires management and disposal of LLW associated with prior defense programs.

The production processes at the FEMP generated solid and liquid low level radioactive wastes. The primary waste forms to be packaged and shipped are waste process residues, scrap wood and wood pallets, refuse metal, miscellaneous trash, thorium waste, and construction/removal action wastes. The uranium content of the uranium waste streams range from about 0.1% to 88%. The ^{235}U isotopic content normally is 0.2% to 2.0%. The specific activity content of the wastes allows it to be classified as Limited Quantity (LQ), or as Low Specific Activity (LSA), subject to exclusive use vehicle shipment regulations.

This WCPP is based primarily on the Waste Acceptance Criteria (WAC) established by NTS NVO-325, and on the American National Standards Institute/American Society of Mechanical Engineers (ANSI/ASME) NQA-1 Quality Assurance Program (QAP) and its supplements, which is applicable to nuclear facilities. In addition, adherence to the QAP ensures compliance with applicable U. S. Department of Transportation (DOT), U. S. Nuclear Regulatory Commission (NRC), U. S. Environmental Protection Agency (EPA), State Environmental Protection Agency and DOE regulations and orders. This WCPP document presents a brief description of operations, waste generation, and applicable standards, regulations, and guidelines, and the QA measures concerning each of the 18 NQA-1 elements.

This WCPP defines key responsibilities for quality assurance and waste certification. Specific responsibilities are defined for Waste Certification Officials (WCOs) and Waste Package Certifiers (WPCs) who certify the waste for shipment.

Flow diagrams and brief descriptions of organizational functions pertaining to waste certification are provided to identify each organization's involvement in the certification process, and to show how each interfaces with the other.

WASTE CERTIFICATION PROGRAM PLAN

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1.0 ORGANIZATION

1.1 FEMP Management Organization

The Fernald Environmental Management Project (FEMP) is managed by FERMCO under contract to DOE. An overall FERMCO organizational chart appears in Figure 1. All internal organizations that generate waste are responsible for having their waste characterized and handling it accordingly. The characterization, packaging, certification, and shipment of LLW at the FEMP involves numerous organizations.

1.1.1 Remediation Support Operation Division/Waste Programs Management Department/Low Level Waste Handling and Disposal Section

Remediation Support Operation (RSO)/Waste Programs Management (WPM)/Low Level Waste Handling and Disposal (LLWH&D) Section manages the waste management functions. Remediation Support Operation Division has the responsibility of defining the management system used to assure the quality of the desired results for waste certification activities. This organization is responsible for establishing sufficient quality control hold points and verifying satisfactory performance of the Quality Certification Program. Specifically, quality control hold points shall be monitored by the WPM management staff to assure program quality is accomplished. The staff shall also evaluate results of program reviews, surveys, surveillances, and audits to determine satisfactory progress of certification activity. However, the performance of these activities may be accomplished by other qualified organizations.

1.1.2 On-site Waste Generators (All Organizations)

The on-site waste owners/generators are the CERCLA/RCRA Units (CRUs) 1 through 5 under Environmental Programs. A Waste Owner/Generator by Waste Stream Matrix (Figure 2, Appendix I) shows the waste streams generated by each CRU. These waste generators have the responsibility of ensuring that personnel performing work under their direction have been trained in accordance with current requirements. On-site waste generators are responsible for identifying and describing their waste for characterization, and are required to initiate a Material Evaluation Form (MEF) and submit it, along with supporting information, to Waste Characterization (WC) subsection. An exception to this is construction projects, where an information package was submitted to WC for characterization prior to implementation of the MEF system for this waste stream. For construction projects, waste characterization is documented with a RCRA Characterization/Radiological Determination (RD/RC) letter or a completed MEF. Some MEFs authorize characterization by generator using a prescribed check list.

The waste characterization flow diagram (Figure 1 in Volume I) reflects the process whereby construction project wastes are characterized. All waste streams generated at the FEMP will be assigned an MEF number and evaluated in accordance with the MEF worksheets.

Once the waste is characterized and determined to be LLW, the waste generator initiates an Item Production/Certification/Identification Card (W65-card) for each waste package generated, which is traceable to the container either by the container serial number, or the FEMP lot number and assigned container number in combination (If the waste was packaged prior to characterization, Nuclear Materials Control records may be used in lieu of the W65-card). The waste generator is responsible for communicating the ongoing status of packaging operations to Quality Control (QC) to ensure that all necessary QC examinations can be performed and documented in a timely manner.

1.1.3 Remediation Support Operation Division/Waste Program Management Department/Waste Identification Section

Waste Characterization subsection has the responsibility for characterization. The FEMP's Waste Characterization Program has been developed and refined over several years as the facility has worked to characterize its inventory of backlogged (primarily process residues) and newly generated waste. Additional responsibilities include documenting the evaluation process, maintaining the characterization files, and distributing results of the evaluation.

1.1.4 Acquisitions and Finance Division/Materials Control & Accountability Department

Materials Control & Accountability (MC&A) is responsible for documenting the transfer of the nuclear material constituents of the low level waste. MC&A completes the Shipping Order for the Nuclear Material (FS-F-558-3) which authorizes each shipment. They also perform other nuclear material accountability functions, including preparation, approval and transmission of the Nuclear Material Transaction Report (DOE-741).

MC&A is responsible for nuclear materials measurement control at the FEMP, which includes weighing, sampling, and analysis. When materials are not amenable to sampling, process measurements are evaluated by MC&A to produce factor assays that are used to quantify nuclear materials in each shipment. They also are responsible for generating barcode labels and tracking nuclear materials, which provides accountability and traceability of LLW. The FEMP Lot Marking and Color Coding System is defined in Site Document RM-0005.

1.1.5 Remediation Support Operation Division/Materials Management Department/ Logistics Administration & Inventory Control & Warehousing Section

Logistics Administration & Inventory Control & Warehousing (LAIC&W) contracts with carriers for services that meet DOE and DOT requirements for transportation. This organization schedules transportation, overviews supporting documentation for conformance to DOT requirements, and prepares and signs the Bill of Lading authorizing shipment. Information on each shipment, including estimated time of arrival, is communicated to NTS and updated as necessary. LAIC&W exercises review approval of all packaging, loading configuration, shoring, and securing of materials in each shipment.

1.1.6 Remediation Support Operation Division/Waste Programs Management Department/Low Level Waste Handling & Disposal Section

Remediation Support Operations is responsible for loading shipments in accordance with approved procedures. Included in this action is inspection of each trailer for leaks, holes, adverse deterioration, or improper sealing. (See Figure 12)

1.1.7 Remediation Support Operation Division/Facility Engineering & Maintenance Department/Maintenance Services Section

The Facility Engineering & Maintenance Department is responsible for performing a limited mechanical inspection of all trailers received at the FEMP and designated for shipment of LLW. Results of these inspections are documented on FS-F-3344 (Figure 11).

1.1.8 Remediation Support Operation Division/Waste Programs Management Department/Low Level Waste Handling & Disposition Section

RSO Division is also a significant waste generator in support of CRU3 and responsible for packaging final preparation of packages for shipment. Responsibilities include examination, final closure, weighing, labeling, marking, touch-up painting, and staging of shipments for loading.

1.1.9 Remediation Support Operation/Waste Programs Management/Low Level Waste Handling & Disposal - Waste Shipping Coordinator

The Waste Shipping Coordinator generates the initial paperwork for each shipment that is reviewed by QC and submitted to Quality Certification for approval. The shipment paperwork package contains the Reynolds Electrical & Engineering Company (REECo), Inc. Package Storage and Disposal Data Form and other information supporting shipment. Once a shipment is prepared, this individual, or delegate, is responsible for the electronic data transmission to the Low Level Waste Information System, as required by REECo Document DM-5.13.

1.1.10 Administration Division/Training Department/Training Administration Section

The Training Department is a service organization that reports to the Vice President of Administration Division. The overall purpose of the section is to assure needed training is identified, developed, implemented, and administered effectively and in accordance with applicable requirements. The Training Department maintains training records for the FEMP.

1.1.11 Remediation Support Operation Division/Analytical Laboratory Services Department

Analytical Laboratory Services performs six thousand radiochemical, inorganic, and organic analyses per month to support CERCLA, RCRA, environmental monitoring, groundwater, utilities, and technology demonstration programs. This department also supports all quality control elements for on-site laboratories, off-site subcontractor laboratories, and sample programs including data verification, data package assembly, and laboratory performance evaluation. Finally, the Department develops and implements procedures to comply with all applicable environmental, health and safety, and quality assurance requirements.

1.1.12 Environmental Safety & Health Division/Environmental Protection Department/Environmental Protection Section

Site Media Sampling within Environmental Monitoring & Surveillance subsection prepares sampling and analysis plans used in the characterization of low level waste. Site Media Sampling reviews analytical data, perform statistical summary reports, and forwards the results to WC.

1.1.13 Environmental Safety & Health Division/Radiological Control Department

The Radiological Control Department performs radiological surveys of all packages and vehicles involved in the transportation of LLW. It also maintains an instrumentation laboratory for the maintenance and calibration of instruments used to perform these surveys.

The Radiological Compliance Section ensures that radioactive material shipments comply with applicable safety procedures, site procedures, DOT regulations and the DOE Radiological Control Manual through periodic assessments of packaging and transportation activities.

1.1.14 Quality Assurance Division

The Quality Assurance (QA) Division, reporting directly to the Office of the President, is comprised of three departments.

The Quality Systems Department is responsible for developing and maintaining the site QA Plan and administration of the QA Division.

The Independent Program Assessment & Oversight Department is responsible for performing FERMCO's independent oversight of QA program activities. The department is composed of two sections. The first, Audits & Appraisals Section performs in-depth QA audits and ES&H appraisals required by DOE 5700.6C and 5482.1B. The other, Environmental Assurance Section is focused on providing up-front quality engineering involvement in planning and review activities, performing field surveillance activities, and providing independent corrective action verifications. This department is heavily involved in the procurement process, which includes qualifying contract laboratories.

The Quality Certification Department certifies waste shipments and provides overview of the Waste Certification Program. This organization is responsive for developing and formally implementing the certification program and ensuring compliance with disposal site criteria. Activities are witnessed, documentation examined, and files maintained to support the certification and release of waste materials. The Quality Certification Department Manager is also the Chief Waste Certification Official.

1.1.15 Remediation Support Operations Division/Quality Control Department

The Quality Control (QC) Department is divided into four sections.

The Procurement Quality Control Section has responsibility for all routine inspections of procured items and services, including inspection at suppliers.

The Remediation/NDE Quality Control Section performs Real Time Radioscopy examination of selected packages. Functions include verifying that no identifiable prohibited materials are packaged, and that space is utilized for waste minimization.

The Waste Verification Section witnesses filling of containers; verifies traceability; inspects packaging, marking, and labeling; and verifies loading and shipping operations. This section is directly responsible for the Waste Package Certifiers who certify packages of waste for the NTS.

The Quality Control Operations Section provides quality control services for the Laboratory Qualification Program. Other functions performed by this section are not applicable to this WCPP.

1.2 Waste Certification Organization Independence

The Chief Waste Certification Official (CWCO) is the Manager of Quality Certification, a department within the QA Division. The QA Division organization chart specifically notes that the "Chief Waste Certification Official has full access to the Office of the President to resolve certification issues." In addition, the QA Manager reports directly to the Office of the President.

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Alternate Waste Certification Officials (WCOs) report to the CWCO. Those individuals are entitled to documented direction from the CWCO in the resolution of issues. As members of the QA Division, these individuals have certain other rights of independence as guaranteed by the Quality Assurance Program Description, RM-0012.

Waste Package Certifiers (WPCs) are members of the Quality Control Department/RSO Division. In the performance of their duties, these individuals report to the Manager of the Waste Verification Section. Although these is no direct organization link, these individuals have unrestricted access to the CWCO to address certification concerns. Also, the CWCO has overview responsibility over the WPCs training and work activities, which ensure independent support of the certification program.

1.3 Specific Waste Certification Program Responsibilities

1.3.1 The President of FERMCO retains the authority and responsibility for the overall QA Program of FERMCO.

1.3.2 The Manager of QA has delegated authority for establishing, administering, and evaluating the effectiveness of the QA Program.

1.3.3 Low Level Waste Handling and Disposal (LLWH&D) Section Manager shall define a management system to be used to assure the quality of the desired results for waste certification activities. The RSO staff shall:

- Ensure sufficient quality control hold points are established.
- Monitor quality control hold points to assure that program quality has satisfactorily been accomplished.
- Ensure sufficient program reviews, surveys, surveillances, and audits are conducted to ensure satisfactory progress of waste certification activities.

1.3.4 The CWCO, who is the Manager of Quality Certification Department in the QA Division has the responsibility to:

- Sign the FERMCO application signature page certifying that the information is correct and that the waste stream(s) will meet the NTS WAC upon implementation of the certification program.
- Ensure certification procedures are prepared and used for waste certification activities.
- Ensure the performance of internal audits, inspections, and surveillances.
- Ensure timely identification of deficiencies and effective corrective action.
- Be responsible for assuring that alternate WCOs and WPCs are properly trained and qualified to the requirements of NTS Defense WAC and Certification requirements (NVO-325).

The Waste Package Certifiers (WPCs) which are in the Quality Control Department and are listed in the application, report to the Manager of Waste Verification. The WPC has the responsibility to:

- Verify and document compliance with NVO-325 waste acceptance requirements.
- Sign and affix NV-211 stickers to packages of waste personally examined for shipment to the NTS.

The alternate Waste Certification Officials (WCOs) listed in the application report directly to the CWCO in the performance of their certification duties. The WCO has the responsibility to:

- Verify and document compliance with NVO-325 waste acceptance requirements.
- As a prerequisite for certification, overview all pertinent documentation and activities as required by procedure to ensure completeness and accuracy, including work of Waste Package Certifiers.
- Sign the Waste Package Disposal Data Report.
- Sign and affix NV-211 stickers to packages of waste they have personally examined for shipment to the NTS.
- Sign applicable shipping documents such as the Nuclear Materials Shipping Order to acknowledging QA release of each individual waste shipment.
- Sign the LLW certification statement for each shipment.

1.4 Waste Process and Certification Interface Description

1.4.1 Responsibility for specific operations for LLW generation rests primarily with LLWH&D, WC, MC&A, LAIC&W, and QA. Figure 3 shows the waste processing interface, and Figure 4 shows waste certification process.

1.4.2 Once a material, or a group of materials, is declared a waste, the waste is characterized for either storage or disposal. If the waste is characterized as low level defense waste, and sufficient funding is available, RSO Division may apply to the NTS for approval to ship the waste for burial. The request is prepared in accordance with NVO-325 requirements, with a specified list of approvals required. It is the responsibility of FERMCO RSO Division to assure that the latest waste acceptance requirements are available from DOE/NV and properly distributed to ensure effective compliance.

1.4.3 Only after approval of the application to ship a waste is received from DOE/NV will shipment be made. It is the responsibility of LLWH&D Section to provide written notification of approval of any new waste stream, or changes in approval status, to the affected organizations involved in the shipment of LLW.

1.4.4 At the FEMP, a waste generator initiates the waste disposal process by submitting a request to characterize the waste, or by determining that a characterization of the waste has already been made. This is done to verify that the waste is truly a LLW suitable for disposal at NTS. The process for obtaining waste characterization is contained in Site Procedure SSOP-0002.

1.4.5 The waste characterization process is described in detail in Section II of the application to ship waste to NTS. Basic requirements of the program are that waste characterization shall demonstrate compliance with Title 40 Code of Federal Regulations (CFR) 261 through 268, and provide information required by DOE Order 5820.2a. The FEMP waste characterization will also address other waste disposal characteristics specified by NVO-325. Characterization shall be made by process knowledge, and/or through sampling and testing. The results of the characterization shall be supplied to effected organizations and shall specify any administrative controls required to ensure compliance. Administrative controls may typically be special QA verification requirements, specific packaging requirements, or special segregation requirements.

1.4.6 Once the waste generator receives written notification from the WC subsection that a waste is characterized as LLW, and complies with the general waste form criteria specified by NVO-325, the waste is packaged in containers approved by RSO Division and accepted by the FEMP Acquisitions & Finance process. For some wastes, characterization may be completed by the generator using specified check lists (SOP 20-C-625).

All void space in containers is used within practical limits, contingent upon weight restrictions. Waste minimization is further achieved in loading to the extent practical through strategic arrangement, and by utilizing properly sized containers.

During filling, the waste generator complies with requirements of a prohibited materials list either attached to the container or maintained in close proximity to the packaging operation. Also, the waste generator shall abide by any administrative controls that are specified in the results of characterization received from WC. When required by procedure, all waste containers are sealed and/or locked to maintain integrity. All packages are closed and temporarily fastened and/or sealed prior to transfer to the Waste Shipping Area.

The waste generator, or a cognizant official representative, completes the multiple copy Item Production/Certification/Identification Card for each container (package). If waste is already packaged prior to characterization, it may not be necessary to generate an Item Production/Certification Card, provided nuclear materials control inventory records are available that identify the material with the characterization documentation. The card and other information from packaging is processed by MC&A in the transfer of the container to LLWH&D.

1.4.7 In accordance with procedure, QC Waste Packaging Verification subsection personnel inspect empty containers to verify container integrity, verify container preparation for filling, and witness packaging operations to ensure integrity of the waste being packaged. Documentation will be made with the use of surveillance reports, inspection reports, or check lists.

1.4.8 At the waste generator's request, MC&A personnel arrange for RSO to move waste packages to a shipment staging area. Waste Shipping receives the waste and prepares the packages for shipment. In some instances (e.g., sea/land type cargo containers), the sealing and final closure may be performed by Waste Shipping at the generation site.

1.4.9 Unless excluded by management directive, all waste containers (except drums) are opened and examined by LLWH&D for any obvious prohibited materials, utilization of space, and damage prior to final closure. Procedures for closing and securing individual containers vary with the container type. All containers are gross weighed on a calibrated scale to provide accountability and ensure compliance with weight limits. Tare weights may be actual weights, or factor weights based on weighing given quantities of empty containers.

1.4.10 Radiological Control monitors all transport vehicles and each waste container prior to shipment. Both inbound and outbound vehicles are monitored. Survey measurements on packages are taken prior to preparation of the shipping paperwork. Radiological swipe samples may be taken later, but are required prior to shipment. Administrative time limits are imposed on the swipe sample results commensurate with the package storage environment.

1.4.11 The Waste Shipping Coordinator receives the Item Production/ Certification/Identification Cards (W-65 cards) for each package along with other documentation, and uses this information to prepare the REECo Package Storage and Disposal Data Report, and a tally sheet, for each shipment. Once completed, the entire paperwork package, which includes such information as radiological surveys for radiation emission, waste characterization documentation, and a partially completed Nuclear Materials Shipping Order, is reviewed by Quality Control (QC) and delivered to Quality Certification for final review and approval.

1.4.12 Quality Certification reviews the shipment paperwork package for accuracy and completeness, verifies compliance with requirements, and approves the Waste Package Disposal and Data Report as required by Procedure EQP-12.07. This is a key control point, as only paperwork listing wastes accepted by formal characterization by WC, and that are listed in a DOE/NV approved application to ship to the NTS will be approved. Although a comprehensive check list is used, certification personnel are not restricted to the checklist requirements, and are encouraged to investigate any anomaly. When approval is granted, the Package Storage and Disposal Data Report is signed by the Waste Certification Official, and pertinent paperwork (e.g., tally sheet, nuclear materials shipping order, radiological survey report, and packaging curie list, is forwarded to MC&A.

1.4.13 MC&A completes and approves the Nuclear Materials Shipping Order, and forwards it along with other pertinent information to Logistics Administrative, Inventory Control & Warehousing (LAIC&W) Section to schedule shipment and arrange for transport with an approved carrier.

1.4.14 Radiological checks are made on vehicles entering the site for loading. Also, the trailers receive a mechanical check, which is performed by the mechanics. Once accepted, trailers are staged for subsequent use. At the loading area, a visual examination is made of the interior and loading surfaces to determine suitability for loading.

1.4.15 Quality Certification, either a WPC or a WCO, makes a visual inspection of each package in each shipment while still at the staging area. Packages are checked for damage, closure, weight limits, identification, labeling, and marking. Administrative controls include a verification comparison of container identity and other information on the package against that on the respective Package Storage & Disposal Data (PS&DD) Report and corresponding "circle copy." An approved inspection plan, or check list, is used to document verification of acceptance, and is signed by the WPC or WCO directly involved in the examination. The WPC or WCO then signs and affixes an NV-211 sticker to each package on the basis of the examination and confirmation that the PS&DD Report was signed by a WCO. The WCO's approval signature on the PS&DD Report provides verification that documentation is in file justifying certification and shipment of the packaged material(s). Once the NV-211 sticker is affixed, a tamper indicating device (more than one if needed) is applied to each waste container.

1.4.16 At loading, a signed copy of the Package Storage & Disposal Data Report, and accompanying paperwork, is used by Quality Control to verify that only packages approved for shipment are loaded. The actual loading is witnessed to ensure that packages are not damaged in the loading process, and that loading is conducted in accordance with procedure. When vans are left unattended, with doors unlocked or unblocked, a temporary security seal is placed on the closure mechanism. Absence of a security seal, after a period of inattention, requires careful examination to assure the integrity of the contents. When shipments are made on flat bed trailers, security seals are attached to the package closure mechanisms to detect possible intrusion.

1.4.17 Once loaded, shipments are weighed and moved to the traffic area. Drivers are scheduled to the site and are required to assist in performing a limited vehicle safety check prior to release of the shipment. Radiological checks are made of the outgoing vehicle, including the cab, to ensure compliance with 49 CFR. A WPC witnesses a driver's check of the vehicle and checks tire condition and placarding.

1.4.18 The Logistics Administrator's group prepares the Bill of Lading for each shipment and submits a collection of shipment paperwork to a Waste Package Certifier for preliminary review. The paperwork is then given to the Waste Certification Official for final review and approval. A comprehensive review is made of the paperwork supporting shipment, which includes: Nuclear Materials Shipping Order; Bill of Lading; drivers' routing instructions; permit; radiological surveys of the vehicle; and various checklists, including some prepared by Certifiers. Signatures are verified, including the Waste Certification Official's approval signature on the Package Storage and Data Disposal Report. Once completed and accepted, the Waste Certification Official signs the Nuclear Materials Shipping Order and a Certification Statement in compliance with NVO-325, which officially releases the shipment to the Manager of LAIC&W. Based on traffic requirements, the Logistics Administrative Manager, or his delegate, signs the Bill of Lading to authorize shipment to NTS. A unique tamper-proof security seal is affixed to the closure mechanism of each van to provide evidence of any unexpected intrusion during transit.

2.0 WASTE CERTIFICATION PROGRAM

2.1 Quality Assurance Policy Statement - Responsibilities

This WCPP and associated implementing procedures incorporate the FERMCO policies for achieving or exceeding the required level of quality for the packaging and shipping of waste to the NTS for disposal. These documents define a program which provides assurance that DOE, EPA, DOT, and NTS WAC are met.

The authority and responsibilities for the overall quality of the program rests with the President of FERMCO. Members of the President's staff are responsible for implementing the program in their organizations. The responsibility for establishing, administering, and evaluating the effectiveness QA Program is assigned to the Manager of QA. As required by NVO-325, The Manager of LLWH&D is responsible for defining the management system to be used, defining and effecting desired results, and overviewing the certification program to assure that program quality has been satisfactorily accomplished. The CWCO is responsible for overviewing package and shipment certification activities. Each employee is responsible for compliance with the requirements of this WCPP and the implementing of procedures as they apply to his/her work assignments. Organization charts are shown in Figure 1.

All the FEMP organizations are required and shall provide support as necessary to certify LLW for disposal at the NTS. Certification shall be based on test results and documentation of compliance, which may originate in any one of these groups. To provide highly visible evidence of compliance, a WPC, or a WCO, shall sign an NV-211 sticker affixed to each package certifying that the package meets the specified requirements of DOT (49 CFR), EPA (40 CFR), DOE/NV (NVO-325). Prior to LLW leaving the FEMP, a Waste Certification Official shall sign a certification statement that all packages in each shipment do not contain hazardous waste, as defined in 40 CFR 261, or the State of Ohio hazardous waste regulations, as defined in the Ohio Administrative Code (OAC) 3745-54.

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2.2 Statement of Independence - Interface Control

In the performance of duties, WCOs report directly to the Quality Certification Department and WPCs in the performance of their duties report to the Quality Control Department/Waste Verification Section. Neither of these organizations are directly involved in the actual packaging and shipment of waste. The Manager of Quality Certification reports to the Manager of QA, who reports to the President of FERMCO.

The Chief Waste Certification Official, as Manager of Quality Certification, directly supervises alternate WCOs and has overview responsibility over WPCs in the performance of certification activities. WCOs and WPCs have the freedom, and are encouraged, to bring certification issues to the attention of the Chief Waste Certification Official for resolution.

The Chief Waste Certification Official has final authority over certification, and is obligated to respond in writing to written requests for resolution of issues presented by the WCOs and WPCs. However, this authority can be revoked at any time by the President of FERMCO by providing proper notification. As delineated in NVO-325, FERMCO is required to provide DOE/NV and REECo/WMD immediate written notification of any changes in the names of WCOs (includes CWCO) and WPCs.

Both WCOs and WPCs are trained and qualified in accordance with approved procedures to provide necessary skills to make independent judgement decisions regarding certification of low level waste. The Manager of QA, or his delegate, certifies that personnel are properly trained and qualified to certify waste packages and shipments as applicable. (Reference Appendix I, WCPP/SOPs, FEMP Department Procedures EQP-6.05 and 6.06 for specific qualification requirements.)

Other individuals who are independent may perform certification verification work provided they are properly trained for the work performed, as determined by the CWCO. However, only WCOs are authorized to sign certification statements and release shipments, and only WCOs and WPCs are authorized to sign the NV-211 package certification stickers.

2.3 Waste Certification Program Description

The Waste Certification Program provides verification and documentation that waste packages, the materials contained therein, and all package labels and markings thereon, comply with DOE, DOT, and NTS requirements as specified by NVO-325, latest revision, prior to shipment to the NTS. Specific requirements regarding disposal of waste are issued by the FERMCO WC Section, and are used by Waste Certification personnel as additional control.

Competent and trained individuals are employed in the packaging, marking, labeling, verifying, and certifying process to provide and collect physical evidence of compliance.

Trained and qualified certifiers (QA Procedure EQP-6.04 and 6.05) are responsible for verifying that all waste packages are in compliance with all applicable requirements. The WPC is responsible for certifying each package for shipment to NTS. The program empowers the Waste Certification Official, as an independent overviewer, authority to withhold approval of shipments. The Deviation and Corrective Action Report Processing (SSOP-0023) provides a means to address questions regarding disposition and corrective action.

The verification and certification of activities, packages, and shipments are directed by Quality Certification procedures EQP-12.03, Certification of Waste Package Examination and Sealing for Off-Site Shipment; EQP-12.04, Certification of Loading and Shipment of Low-Level Radioactive Waste; and EQP-12.07, Certification of Low Level Waste Shipments to NTS. Numerous other procedures control activities providing documentation used in the certification process. These are included in the list in Table I.

The integrity and acceptability of waste packaged is monitored and documented by checklists or by approved inspection reports.

Prior to initiating shipment of waste, a WPC and a WCO checks the documentation supporting each shipment to ensure conformance to NTS waste acceptance requirements. Material descriptions and traceability are checked against characterization documents to verify that the material has an acceptable characterization determination. Various other checks are made at this time.

Prior to loading packages in each shipment, a WPC or a WCO verifies that the record of contents of each package has been checked and approved by a WCO. All packages are visually examined for damage and presence of proper marking and labeling. Once conformance has been determined, the WPC or WCO performing the examination signs and dates the NV-211 label, affixes or witnesses the affixing of the NV-211 label to the container. One or more tamper indicating devices (TIDs) identified by stamp of initials is affixed to each container to detect possible intrusion.

The loading of each vehicle is monitored by a WPC and/or WCO to verify as a minimum that each package has a signed and dated NV-211 label affixed, the tamper indicating device (TIDs) is still attached, the correct packages are loaded properly, and packages are not damaged during loading. Prior to loading, a verification is always made that the respective trailer was accepted on incoming inspection.

Prior to shipment certification and release, the WPC witnesses an operational check of each vehicle. The WPC verifies the placarding and application of uniquely numbered seals either to individual packages on flat bed trailers, or on the exterior of vans. The WPC makes a preliminary check of the loading and shipment paperwork, and presents the paperwork package to the WCO for final review and approval, approvals acknowledged by signing the Nuclear Materials Shipping Order. Once approved, the WCO signs the shipment Certification Statement (Figure 14) to release the shipment.

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2.4 Qualification of Waste Certification Officials

Waste Certification Officials (WCOs) are qualified per procedure EQP-6.05, Qualification of WCOs. Qualification is based on education, experience, surveillance skills, and rights of management. In order to be certified as a WCO, the candidate must understand and be able to apply the requirements unique to the waste type and the acceptance criteria specific to the repository, treatment, or disposal facility. Waste Certification Officials are required to have working knowledge of applicable regulations and procedures and to be familiar with prohibited and non-prohibited waste materials and their chemical constituents. Experience and ongoing training in environmental compliance and DOT regulations are required. This training is accomplished through attendance at DOE sponsored courses, as well as other agency courses that may be available.

2.5 Qualification of Waste Package Certifiers

WPCs are qualified per procedure EQP-6.04, Qualification of Waste Package Certifiers. Qualification is made on the basis of education, experience, management judgement, and surveillance skills. In order to be certified for a waste package type, the candidate must understand and be able to verify the requirements unique to that package type and the acceptance criteria unique to the repository, treatment, or disposal facility. Specific verification skills include specialized areas of expertise, such as vehicle inspection, understanding of applicable standards, and FEMP requirements.

2.6 General Requirements for Certification/Verification Personnel

Personnel performing certification verification work are selected and assigned work based upon work experience and training. Formal training is required on NVO-325, the WCPP, and the W-65 card (FMPC-CONT-1945-XX, Item Production/Certification/Identification). Supplementary training is prescribed commensurate with needs.

3.0 DESIGN CONTROL

3.1 Design of Waste Certification Process

At the present time, no actual design work relating to the waste certification process is in progress. However, development and control of design is controlled by Site Procedure FMPC-0702. This procedure specifies the activities that are required to assure that design requirements are correctly translated into specifications, drawings, procedures and instructions. It also specifies requirements for a formal design verification process.

All containers used for shipment to NTS shall be properly designed to reduce the chance of radiological or occupational safety occurrences during the transporting, handling, and disposing operations. The size and the load of each container shall be controlled to ensure the minimization of the number of waste shipments to NTS and the space required for disposal (Table V).

All new packaging except drums is purchased with a unique individual container identification number. Once received, a highly visible (large type) inventory number is also assigned to each container for tracking purposes. The serial number and/or inventory are used to identify individual containers for characterization and certification documentation.

3.1.1 Waste materials shall not be mixed with other waste or materials which could cause any harmful effects, such as heat or pressure, fire or explosion, toxic dusts, fumes, or gases or flammable fumes or gases (40 CFR 265 Appendix V). Compatibility determinations are based on analytical data and/or process knowledge. The type of waste container selected to hold a waste is compatible with the respective waste, and meets requirements of the Department of Transportation (49 CFR 173.411, 173.421 and 173.425).

3.2 Waste Form Processing for Compliance

The Operational Defense Waste Management Plan for the NTS, NVO-325, and DOE Order 5700.6C establishes procedures and criteria for the safe shipping, receiving, processing, disposing, and storing of radioactive defense waste at NTS. These criteria are based on current low level radioactive waste management practices and guidelines of (DOE Order 5820.2A). The quality assurance guidelines of DOE Order 5700.6C and ANSI/ASME NQA-1 have also been incorporated in the FERMCO Quality Assurance Program Description (RM-0012). All work is performed in accordance with this manual.

Old, stored waste forms will be handled in much the same manner as newly generated waste. A waste characterization shall be performed to determine major radionuclide content and a RCRA determination, if not previously done. After characterization is complete and the waste form meets NVO-325 requirements as stated above, the waste shall be processed, if necessary, and repackaged or overpacked for shipment and disposal to meet NVO-325 packaging requirements and DOT transport regulations. Traceability of old waste to the respective characterization will not necessarily be maintained with the FMPC-CONT-1945-XX, Item Production/Certification/Identification card. These wastes may be identified by Nuclear Materials Control Inventory records and the container identify used in the characterization process.

3.3 Waste Packaging Processing for Compliance

Waste packaging criteria for LLW shipped to the NTS for disposal shall meet DOT regulations, 49 CFR 173, Subpart I. Standard operating procedures listed in Table I concerning storage and off-site shipments shall be used to assure that all shipments meet DOT requirements.

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4.0 PROCUREMENT DOCUMENT CONTROL

The procurement document package is prepared by requisitioners/users, and includes drawings, specifications, and quality requirements for suppliers of critical items, such as waste shipping containers. The document packages are reviewed by quality, safety, security, and financial organizations as appropriate to assure that specifications are complete, appropriate quality level assignments are made, and that quality requirements are included that correspond to the quality level assigned for the procurement. The procurement review process is contained in site procedure FMPC-0302, Request for Purchase.

Quality Assurance provides Acquisitions & Finance with recommended supplier lists that are generated based on QA supplier surveillance activity and performance on prior contracts.

Critical characteristics for inspection are identified during QA review of the specification documents with a cognizant engineer representing the requisitioner/user of the items being procured, and an Inspection Plan is prepared. The Inspection Plan is used by Quality Control during surveillance activity conducted at the supplier's facilities in the verification of inspection of the items being procured. Surveillance activity at the supplier's facilities is used to verify compliance with the procurement contract requirements and eliminate receipt and isolation of nonconforming items at the FEMP. Receiving inspection for waste shipping containers is administered by QA and QC. A prearranged Inspection Plan is used for this function. Acceptable items are tagged acceptable (Form FS-F-2707) and released for use. Nonconforming items, identified during FEMP Receiving Inspection, are isolated, red-tagged (Form FMPC-Q-2708), and dispositioned based on approved Deviation/Corrective Action Reports.

Traceability is maintained for the Procurement Document Control activities for the critical items listed in Table V.

5.0 INSTRUCTIONS, PROCEDURES & DRAWINGS

5.1 Procedures for Waste Generation, Segregation, Packaging & Shipping

When a waste operations process is in the development state, qualification of the new or revised process shall be achieved in accordance with the documented "Test Authorization," (Operating Manual OM-0003 and Site Procedure PP-0721). Results of the development and a record of the changes to the process will be documented by the Test Coordinator in a "Test Authorization" Completion Report.

Prior to implementation, procedures developed for waste generating, segregating, packaging, and shipping must be routed and approved by all departments involved in the process. Procedures are approved by the applicable department managers. The approvals verify that particular control requirements are applicable for their intended use. Understanding and acceptance are indicated by the signature(s) and the date(s) on the procedure.

The release and distribution of Site Plans, Site Manuals, and Site Standard Operating Procedures are controlled by the Forms and Procedures Development Section of the Administration Services Department which is part of the Administration Division . This group is also responsible for directing the user to dispose of applicable procedures.

Some procedures are routed and controlled within each individual department (e.g. Radiological Control). These procedures are approved by the responsible division manager, and are controlled and released by the applicable department.

In accordance with the site document control procedure, all procedures will be reviewed annually for accuracy and to assure they are up-to-date.

5.2 Analytical Procedures

Wastes are sampled for hazardous waste determination according to sample plans developed, the FEMP Waste Characterization Plan, and the U.S. EPA method as described in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (SW-846), and the FEMP Procedure SOP 20-C-805, "Sampling Drummed Waste for Hazard Identification."

Samples may be taken using an open scoop, a slotted pipe, a sheathed or closed auger, or other approved sampling device, depending on the nature of the material. The sample obtained from the waste material requires sample preparation, which may including: drying, milling, blending, screening, pulverizing, and subsampling. The prepared sample is then submitted to the FEMP Laboratory for the percent uranium (or thorium) analysis and isotopic evaluation. Before a given sampling device or procedure can be finally accepted for sampling purposes, it is necessary to evaluate the accuracy and precision of the method as it is used to sample a specific type of material. It is also desirable to provide periodic and/or continuous checks on the various sampling techniques. These evaluations may be accomplished in a number of ways.

Sampling of uranium (or thorium) solutions is accomplished by taking dip samples or removing a sample from a well-agitated storage tank using a liquid sampler. However, bulk solids sampling presents the greatest difficulty. Some of the various methods for evaluating sampling procedures are:

1. Duplicate sampling by identical procedures.
2. Dual sampling, using at least two different samplers.
3. Dilution of inert material with a known amount of standard oxide, and blending the mixture.
4. Process evaluation in which samples of questionable materials, not amenable to sampling in their original state, may be evaluated by comparison with samples taken of the processed or oxidized product, once it is in a form suitable for sampling.

In all cases, analytical variance statistical techniques are used in determining the significance of differences between sampling tests. Sample results are entered into the Analytical Laboratory Information System (AnaLIS) and available to the users.

Some materials, such as contaminated baled trash and solid metal, cannot be representatively sampled for percent uranium. These types of materials are assigned factor assays. These factor assays are based upon recovery campaigns, special studies, or process knowledge estimates.

Tentative assay values are used for materials routinely produced, until individual lot assays are performed by the Analytical Laboratory Operations Section. A complete factor and tentative assay list is issued as needed by MC&A for general use.

The MC&A Section calculates element and isotopic content by weight. The necessary release documentation for off-site shipment is then prepared. All process residues prepared for off-site disposal are sampled, and analyses are performed in accordance with approved Analytical Laboratory methods.

The hazardous waste determination performed on FEMP waste follows a strict chain-of-custody protocol for collected samples. Chain-of-custody accounts for the transfer of each sample from collection through delivery to the laboratory. Following collection of the samples for hazardous determination, the lids on the containers shall be securely fastened, and proper chain-of-custody documentation prepared (see Figures 5 & 6).

5.3 Sample Custody

Sample custody starts with preparation of the "Site-Wide Analysis Request/ Custody Record" (Figure 7). Routine samples of process waste collected, while packaging, are accompanied by an "Analytical Laboratory Sample Seal;" "Analytical Laboratory Sample Label;" "Chain-of-Custody Record," and FACTS label (Figures 5 and 6). These forms are completed by the requester, who retains a copy and forwards the form and samples to the analytical laboratory.

Wet/dry residue samples for percent uranium are returned to the waste stream for disposal. The Chain-of-Custody Record is kept for at least three years by the sample receiving laboratory. The Communications Services Group maintains the Chain-of-Custody Record and analyses reports for a minimum of three years.

Sample determinations for hazardous materials following EPA (SW-846) protocols require chain-of-custody documentation to accompany the samples.

5.4 Drawings - Facilities, Process Equipment & Forms Control

Documents (plans, drawings, specifications, procedures, instructions) that establish the waste process and the integrity of the waste container and its contents shall be controlled and maintained for a period of 20 years. Changes to these documents are initiated, reviewed, and approved by the same department/section that originated and approved the controlled documents. Tables II and III identify the documents to be controlled.

Each process, waste lot, or batch is accounted for by item number, net weight, element weight, and isotopic weight, which are the result of actual measurements. Lot numbers are assigned and controlled in accordance with RM-0005, FEMP Lot Marking and Color Coding System. The movement of material from a location is strictly controlled by MC&A and must be authorized in advance. Physical inventories are taken and recorded annually. All accounting records are maintained in computer data bases.

All box type containers are tracked and controlled in accordance with Site Procedure SSOP-0027, Control of Box Type Containers.

Whenever amenable, composite samples are taken of each lot during the waste and production process to verify isotopic and percent uranium content. Sampling and analysis of each individual waste is performed as required to classify each waste. Sampling of drummed waste is performed in accordance with SMS-93-290, Prototype Sampling and Analysis Plan for Containerized Waste at the FEMP.

Forms are controlled by unique numbers that are traceable.

5.5 Inspection & Certification Procedures

Inspection and certification activities shall be identified on documents traceable to the items, inspected or certified. Table I lists the procedures in which inspection and certification activities are documented. Inspection for certification is included in certification procedures EQP-12.03, EQP-12.04, and EQP-12.07. Inspection of procured materials, equipment, work-in-process, and completed items is addressed in SSOP-0075.

5.6 Method for Keeping Pertinent Regulations Up-To-Date

Compliance documents, federal and state regulations are ordered annually by subscription through the FEMP Project Document Control Section with approval by DOE. Current regulations are maintained in the library and the CFR are maintained in the Legal Library. Other FERMCO departments must request copies of regulatory documents through the Technical Library. A list of waste processing specifications appears in Table VI.

Subscription copies of Title 49 CFR, Part 100-177, and Title 40 CFR are maintained by the CWCO, and are kept up to date for use by WCOs and WPCs in the performance of their work.

All procedures and manuals (including this document) are reviewed by the responsible departments on a periodic basis and revised as required.

Regulatory Affairs initiates and routes new regulatory requirements to LLWH&D Section, Quality Certification, and waste generators in a document titled "Regulatory Compliance Guide." They also issue Federal Register Highlights and/or notify management by memorandum.

6.0 DOCUMENT CONTROL

6.1 Waste Certification Program Plan

The WCPP shall be controlled with unique numbers and identified on a controlled master list, so that the number designating the current issue can be quickly and easily checked to ensure that the most up-to-date version of a document is used. This list is updated on a periodic basis as the document(s) are changed and reissued. DOE/NV and REECo shall be issued a control copy of the WCPP, and significant revisions shall be submitted to DOE/NV and REECo for review.

6.2 Document Preparation, Review, Approval & Issuance

Site Document SSOP-0103, FEMP Site Document System, defines the system of documents by which the FEMP is managed, and details the requirement for development, preparation, and control of these documents.

Site document preparation, review, approval, and issuance is under the control of the Forms and Procedures Development Section in the Administration Division. Preparation of site documents involves a subject matter expert, a technical writer, and the user. All site documents undergo an extensive review process.

Department level documents are prepared, reviewed, approved, and issued by each department. Reviews and issuance of these documents may cross departmental lines. However, approval is by the Manager of the department having ownership of the document. It is the responsibility of each department to exercise control of their documents.

Some documents are controlled and issued by the Project Document Control Section, or are available for use in the library.

Controlled documents are maintained as stated in 6.1. Table I contains a list of documents to be controlled.

7.0 CONTROL OF PURCHASED ITEMS & SERVICES

7.1 Receipt Inspection

All shipping containers are initially reviewed upon receipt at FERMCO for visible damage and completeness of the shipping orders. Quality Control is responsible for receipt inspection of items as required. All inspections are documented on an inspection form containing the acceptance requirements. All items found to be acceptable are tagged and released for use (Figure 8). Items found to be nonconforming are tagged and a nonconformance report issued (see Section 15.0). In addition, inspections of containers are reviewed by QC at the supplier facility prior to shipment to FERMCO.

7.2 Contract Review

Review of contract and supplier submittal is performed by QA, the requisitioner, and Acquisitions & Finance Division. Based on the importance and complexity of the purchase, requirements are placed in the purchase order for QA to conduct, as applicable, supplier surveillances of fabricating, inspecting, testing, and shipping. During the course of the procurement process, documents by the supplier are submitted for FERMCO approval. The requisitioner, Acquisitions & Finance and QA and/or QC may witness supplier activities, if deemed necessary. Controlled items are listed in Table V.

7.3 Purchase Requisitions, Purchase Orders & Invoices

A purchase requisition package is initiated by requisitioners/users of the items to be procured which includes drawings, written specifications, and quality requirements for FEMP suppliers. The requisitioner/user applies a quality level numerical indicator to the requisition package and the package is reviewed and approved by QA and Safety prior to receipt by Acquisitions & Finance processing. Control of purchase is maintained by Site Procedure FMPC-0302, Request for Purchase, and SSOP-0315, Controlling the Purchase of Supplies and Equipment.

The FEMP QA Program provides a grade level system to indicate the appropriate management system controls to be imposed in order to assure conformance to applicable quality requirements. Quality levels are defined and guidelines are provided for matching quality requirements to quality levels in Site Procedure SSOP-0045, Identifying Quality Assurance Program Requirements for Quality (RISK) Levels. Quality levels are assigned, based on a risk assessment of the consequence and probability of a failure. Instructions for performing a risk assessment and a matrix for determining the appropriate quality level assignment are provided in Site Manual SM-0001, Risk Assessment and Management (RAM) System Manual.

The approved requisition package is Acquisitions & Finance's authority to initiate the procurement process. Acquisitions & Finance Division evaluates and selects suppliers based on a suggested suppliers identified on the requisition by the requisitioning party, recommended suppliers lists from QA, and evaluations made from bid/proposal responses solicited from potential suppliers. Based on these evaluations, Acquisitions & Finance issues a purchase order to the selected supplier. The purchase order is the contract agreement between FEMP and the supplier.

Acquisitions & Finance Division maintains a database for purchase order information. Receiving information is entered into the purchase order database direct by FEMP Logistics Administration & Inventory Control & Warehousing (LAIC&W) Section personnel. Logistics Administration & Inventory Control & Warehousing Section people can access the database for entry of receiving information or pricing. Critical items, as listed in Table V, are then moved into the Receiving Inspection Area for inspection by LAIC&W.

7.4 Source Inspections

Supplier inspection of containers, assay systems, and instruments are witnessed by QC and Procurement Contracts Sections. Surveillance of suppliers is planned and performed during material processing to assure the supplier satisfactorily performs the fabrication, inspection, and testing prior to shipping according to purchase order requirements. Surveillance activities, including supplier discrepancies and audit results, are documented. Source inspections of procured items are documented in surveillance reports.

8.0 IDENTIFICATION & CONTROL OF MATERIALS, PARTS & COMPONENTS

8.1 Containers & Packaging Materials

All packaging except drums is purchased with a unique individual container identification number. Once received, a highly visible (large type) inventory number is also assigned to each container for tracking purposes.

Package materials are maintained and controlled in FEMP Stores (stock room). Each item is numbered and cataloged. Daily computer printouts show maximum/minimum levels of items for reorder as necessary. Economic order quantity calculations to determine annual usage are performed on items which are not needed as often.

To assure waste determination, each generator must initiate an "Item Production/Certification/Identification" (see Figure 12). This form verifies the container is empty before filling, and that the container is filled with only the waste as specified. When the container is filled, the form is completed and signed by the generator. Prior to the shipment of waste, the signed form is sent to Quality Certification and is maintained as a permanent record.

Section **10.0 INSPECTION** on pages 34 and 35 of this WCPP further describes the control process utilized to assure correct and acceptable waste containers and packaged waste. Sections 11.2 Analytical Test Controls, 11.3 Traceability of Calibration Sources, and **15.0 CONTROL OF NONCONFORMING ITEMS** also further describe traceability, documentation, and identification of nonconforming item processes.

Processes that directly affect the certification of the waste material shall be performed in accordance with written procedures or instructions (see Table I). Assurance that current SOPs are being followed shall be ensured by internal audits and surveillances, and by inspections performed by QA personnel. Data from sample analyses offer a secondary assurance of conformance, and shall be collected and kept as recorded evidence of verification of the processes.

8.2 FEMP Materials Lot Marking System

Filled waste containers are marked in accordance with the "FEMP Lot Marking Code and Color Coding System," RM-0005. This code system identifies the waste material and the source. The system utilizes a 15-digit number which appears in the following sequence:

4-digits **Production Order (PO) Number**, which is an alpha numeric number assigned at the FEMP. Waste packaged specifically for shipment to NTS may be marked with the PO Number N003 for uranium wastes and PO Number N004 for thorium wastes.

or

When the PO Number is not applicable, other code designations may appear here. For LLW, a "W" as the first digit indicates the material is a nonrecoverable radioactive waste. The three digits following the "W" are the FEMP's best estimate of the secondary nuclide content expressed in percent of the total nuclides.

3-digits **Source Code.** The source code will vary for LLW dependent of the source location of the waste when packaging was completed for shipment. Thus, this code does not always indicate the initial source location or origin of the waste.

1-digit **Class or Enrichment Code.** The code can either be numeric or alphabetic. Codes currently assigned for waste are:

- P Depleted uranium (<0.710% U-235)
- N Normal uranium (0.710% to 0.712% U-235)
- V Enriched uranium (>0.712% U-235)
- T Thorium

3-digits **Material Description Code.** These codes are used at the FEMP to designate residue and product categories, which include the material codes for waste shipped to the NTS. Although an extensive number of codes are assigned, some are defined more generically to permit packaging and lotting the more diverse materials with similar characteristics together.

4-digits **Lot Sequence Number.** For residues, the 4-digit number identifies consecutive lots of specific material in sequence where more than one lot was produced in a month. Where not more than one lot was produced in a month, the lot sequence number indicates the consecutive month of production starting with January 1962 as Lot 0001. Thus, the lot designation for January 1992 is 0361, February 1992 is 0362, and etc.

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For trash, the last three digits of the four digit number indicate the consecutive lot sequence number that started in January 1962 as explained above. The preceding digit, or first digit, indicates the trash description as defined in the FEMP Lot Marking Manual as follows:

1 Glass
2 Rubber Hose
3 Plastic
4 Metal
5 Concrete, Ceramics, Soil
6 Contaminated Burnables
7 (not used for waste shipped to NTS)
8 Floor Sweepings
9 Other (Type of trash stenciled on container until dispositioned for shipment)

Examples of the lot marking for LLW are as follows:

Example 1: W050 - 100 - P003 - 9144

W = Waste
050 = Applicable to waste (0.5% U-235)
1 = Produced in Plant 1 Area
00 = General (no specific source area designated)

P = Enrichment designated as Depleted
003 = Material description is "Non-recoverable Trash - for Off-Site Burial

9 = Other trash
144 = The 144th lot produced sequentially, where rate of production was more than one lot each month.

Example 2: 0000 - 800 - T167 - 0024

0000 = (The first four digits of the code was not used and appear as zeros.)

8 = Produced in Plant 8 Area
00 = General (No specific area designated)

T = Thorium
167 = ThO_2 Powder - Refinery Feed

0024 = The 24th lot produced sequentially, where rate of production was more than one lot each month.

The lot marking system was designed many years ago to provide identity and method of accounting for radioactive materials associated with the defense program at the FEMP. During this extensive period, the system worked well, but required numerous changes to better account for an ever changing diversity of materials. The system is still undergoing change, much of it in response to the conversion of the FEMP from a production site to an environmental remediation site, which has induced a need to better define the non-nuclear components of the various radioactive and radioactive contaminated materials.

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Since there was, and continues to be, a practical limit to the number of material description codes and associated control and segregation work, some material description codes were intentionally made more generic. As a result, it is possible that like materials fitting more than one description may have been lotted at different times with different material description codes. Or in the case of updates to the coding system, a new material description may have been found more applicable to the material being lotted than a previously used code. Thus, it is important to understand that for nondescript materials that were lotted, the material description will not necessarily provide an exact physical description of all materials within a respective lot.

8.3 Analytical Calibration Standards

Primary reference standards are obtained from the National Institute of Standards and Technology (NIST) or other reliable sources. Secondary reference standards are traceable to primary standard, or compared to a primary standard within the FEMP Analytical Laboratories, if available. All standards used for TCLP analyses are traceable to the NIST. Preparation of secondary standards within the Analytical Laboratory Services are per approved documented procedures. Documentation of the preparation of secondary standards is complete and accurate.

9.0 CONTROL OF PROCESS

9.1 Sample for Waste Analysis

Process waste samples are collected when characterization by process knowledge cannot be completed and delivered to the FEMP laboratory for analysis. MC&A calculates an assay factor to estimate percent uranium on waste for which samples are not obtained. Typical chain-of-custody labels and forms for laboratory samples presently being used at the FEMP are found in Figures 6 & 7.

9.2 Control of Processes

Waste acceptance criteria (WAC) are incorporated by each organization (e.g. QA, Radiological Control, RSO) into established procedures for the safe processing of radioactive defense wastes based upon current LLW practices and guidelines (DOE Order 5820.2a). QA guidelines of DOE Order 5700.6C and ANSI/NQA-1 are incorporated into the FEMP waste processing system.

9.3 Nuclear Safety

The quantity of fissile materials within a package shall be limited so that an infinite array of such packages will remain subcritical, even with close water reflection on all sides. This quantity shall be determined on the basis of a specific nuclear safety analysis, considering credible accident situations, and taking into account the actual materials in the waste. Title 49 CFR 173.451, "Fissile Materials - General Requirements" shall be followed.

9.4 Storage and Shipment

All low level radioactive waste destined for off-site disposal at NTS shall meet DOT regulations (49 CFR 173, Subpart I). Standard operating procedures listed in Table I, concerning storage and off-site shipments, shall be used to assure that all shipments meet DOT requirements. Packaging shall be consistent with 49 CFR requirements and NVO-325.

9.5 Certification Process

9.5.1 The certification process is designed to "certify" that each waste package meets all applicable criteria and is accompanied by all necessary documentation before leaving the FEMP site. Figure 4 shows a flow chart of the process and QA hold points.

9.5.2 Waste certification begins with the generator, who is responsible for initiating characterization of the waste by submitting a Materials Evaluation Form (Site Procedure SSOP-0002). Based on the needs for characterization, the generator may be required to have the waste sampled. Once the waste is being packaged, the generator prepares an FMPC-ES&H-1945-XX form, "Item Production/Certification/Identification" card (see Figure 13) for each package to provide traceability and document that the waste packaged was as described and no prohibited materials were included. If the waste is already packaged, there may be instances where the MC&A records may be used in lieu of nonexistent FMPC-ES&H-1945-XX forms.

This form requires completion and signature of the person packaging, or observing the packaging of waste, which can be an hourly or salaried person. The approval of the form shall always be a responsible salaried person. Personnel from the QC Section periodically witness container filling in accordance with procedures, which requires full-time attention in some areas. The QC also provides routine verification of waste packaged at subcontract projects on site.

9.5.3 The Quality Certification Department, obtains information for certification from several sources. Considerable reliance is placed on QC for verification and certification of packages; WC for characterization of waste; Analytical for analytical results of materials characterized and shipped; ES&H/Radiological Control for radiological results; and MC&A for material control and waste information, and for formulation of factor assay analyses. The certification process utilizes the expertise of all pertinent organizations to the extent necessary to provide an authoritative basis for certification. All information used is related to the wastes of concern by a suitable reference identification supplemented by material descriptions as needed.

9.5.4 Waste Certification Officials overview waste packaging and shipment activities, and either directly or indirectly verify the adequacy and authenticity of documentation of certification. Based on their evaluation, certification is made or withheld. Reevaluation and changes in decisions are possible based on additional information providing there is valid technical justification for change.

9.5.5 Each filled container has an identification number that is unique either by itself or in combination with the FEMP lot code number assigned in accordance with RM-0005, FEMP Lot Marking and Color Coding System. This identifying information, and other pertinent information, is recorded on the FMPC-ES&H-1945-XX form (W-65 card), which upon shipment becomes part of the official certification file. (If individual packages are characterized without a W-65 card Nuclear Materials Control and Accounting Record may be used in lieu of the W-65 cards.) Once completed, the generator notifies MC&A who then requests transfer by RSO Division. The filled containers are then moved to LLWH&D for final shipment preparation, or to temporary storage. During the entire process, MC&A maintains an inventory and tracks the movement of all individual containers of LLW.

9.5.6 Low Level Waste Handling & Disposal completes final shipment preparation and assigns the sequential shipment number. Drums, which have sequential numbers starting over with each sequential lot, are at this time sequentially renumbered for each shipment to avoid duplication. Traceability is maintained by recording the change on the Item Production/Certification/Identification card (FEMP-CONT-1945-XX).

9.5.7 WPCs and/or WCOs perform final examination of each package of waste. They may be assisted by other personnel in examining packages and affixing labels provided direct and continuous overview is maintained, and the person assisting is not required to make significant judgement decisions. The signing of the NV-211 sticker (legibly handwritten - not stamped) by a trained and qualified WPC or WCO certifies that the package complies with U.S. DOT, EPA, and DOE/NV requirements.

9.5.8 The loading of packages on the transport vehicle by LLWH&D is monitored by WPC and/or a WCO to ensure that no damage occurs between certification and shipment. Transport vehicles are examined by WPC or WCO prior to and after loading. LLWH&D also checks the vehicles and the loading of the shipments.

9.5.9 Quality Certification provides control over materials shipped through an approval and certification process. The approval by a Waste Certification Official is required on the Storage and Disposal Data Report that is prepared for each shipment. The Nuclear Material Shipping Orders, and corresponding shipment certification statements, require approval signatures of a Waste Certification Official before shipments are released. Once this approval is complete, LAIC&W is responsible for final release and arrangement for transport of each waste shipment. They provide notification to NTS of estimated arrival times, change in schedules, and other traffic related matters.

9.5.10 Deviation reports document disposition of nonconformances, including technical justification of acceptance. Disposition requires independent evaluation and approval by a QA evaluator as applicable. Nonconformances that do not meet requirements for shipment are unacceptable. Quality Assurance initiates Corrective Action Reports to address serious or chronic deficiencies.

9.6 Shipping Process - Manifest, Labeling, Placarding, Weighing, and Loading

All radioactive waste shipments consigned to NTS shall be made in accordance with applicable Department of Transportation (Title 49 CFR) and DOE/NV requirements.

Special requirements for the documentation,, labeling, placarding, weighing and loading are detailed in Department Procedure SOP-TRF-46-C-110, and Site Document PP-0314, Packaging, On-site Movement and Off-site Shipment of Materials.

10.0 INSPECTION

10.1 Waste Package Receiving Inspections

Inspections of waste packaging are conducted by the supplier per approved inspection plan, and witnessed by QC. On the basis of acceptable results, a Supplier Quality Assurance Release is issued to permit shipment. Issuance of a surveillance report documents all inspection activity. Once received at the FEMP, the waste containers are inspected for evidence of damage incurred during shipping and handling. An inspection report is issued, and containers are tagged accepted, on the basis of results.

10.2 In-Process Inspections

In-process inspections/reviews of identified waste operations processes are met through procedures and checklists. FEMP acceptance standards are:

- Incoming vehicle inspections
- Verification of materials packaged
- Container integrity
- Proper markings on exterior of containers, including gross weight (49 CFR 172.310a), and container identification
- Integrity of container liner as applicable
- Waste material sufficiently dry
- Verification of absence of prohibited items
- Proper seating and tightening of container lid and closure to specifications
- Contamination readings on exterior of packages and vehicles
- Radiation reading at specified points (packages and vehicles)

Analytical results shall be performed, as necessary, to verify that the chemical and radiological composition of the waste is within the requirements specified for shipment to NTS.

10.3 Define Waste Certifying Function

The waste certifying function is to verify compliance with NVO-325, DOE, EPA, and DOT requirements through inspection and examination and certification of shipments of low level waste to the NTS. Documentation of inspections may be in the form of checklists and/or inspection reports. Certification statements are provided in accordance with NVO-325 requirements.

Primary waste certification activities for individual shipments include the following:

- Verifying inspection of containers
- Examining empty containers prior to filling
- Witnessing packaging of low level waste
- Verifying acceptable resolution of Deviation (nonconformance) Reports
- Verifying documentation of waste inspection
- Examining required data reports
- Verifying characterization, including waste characterization checklists
- Verifying waste material traceability
- Inspecting package closure and general condition
- Verifying marking and labeling of packages
- Verifying vehicle inspection prior to loading
- Verifying radiological survey and contamination results for packages and vehicles
- Verifying and examining packages during loading of shipment
- Witnessing operability check of vehicle
- Examining shipment paperwork
- Verifying accuracy of electronic data transfer

11.0 TEST CONTROLS

11.1 Definition of Test

Tests that are required to verify and certify conformance to specification requirements shall be planned and executed. Characteristics to be tested and test methods to be employed shall be specified. The results shall be documented and their conformance with acceptable criteria shall be evaluated and included in the certification reports.

When a process is in the development state, qualification of the new or revised process shall be achieved in accordance with the documented "Test Authorization" (TA). Results of the development and a record of the changes to the process will be documented by the Test Coordinator in the TA completion report. Applicable management review and approval is required to issue a TA. Results of the TA can be utilized to develop procedures and specifications that address particle size, package design, labeling, exterior contamination, radiation levels at exterior surfaces, and chemical composition.

11.2 Analytical Test Controls

Analytical Laboratories Services Department prepares and distributes quality control samples for the analytical laboratory. The individual laboratories analyze these quality control samples in the normal laboratory sample stream. Quality control samples make up approximately 10 percent of the total samples analyzed. The following Analytical Laboratory controls are:

- An internal laboratory standard, reference standard, is used to analyze the measurement system to ensure it is "in control." The frequency of analysis of reference standards depends on the characteristics of the individual measurement system.

- A blank sample is formulated in the laboratory or field in order to duplicate a routine sample excepting the absence of the analyte. Analysis of blank samples provides data for determining interferences due to contamination, and for establishing lower limits of detection.

- Two kinds of samples are used for replication of analyses, duplicate and recycle samples. Replicate analyses provide data for the evaluation of the precision of an analytical method.

- Control samples are a sample of known concentration of either a primary standard or a standardized production material. These samples provide data for the evaluation of the accuracy and precision of an analytical method.

- Finally, the Analytical Laboratory Services uses a spiked sample of a known amount of analyte. The percent recovery can be calculated from the difference between the measured concentrations of the spiked and routine samples. Analyses of the percent recovery from spiked samples is useful for determination of matrix and interference effects, determination of accuracy, and precision and testing for changes in analytical quality.

11.3 Traceability of Calibration Sources

The Analytical Laboratory Services supervisor has the responsibility to monitor the laboratory activities for strict adherence to calibration/standardization programs documentation as is approved by analytical methods and/or SOPs. The calibration/standardization of a given piece of equipment involves the following considerations:

- frequency
- range
- reference standards
- environmental conditions
- documentation

The calibration/standardization of each piece of equipment is documented in a logbook, card, label, or other record as appropriate. This document permits monitoring of instrument or system status and traceability of results.

11.4 Operational Package Weight

Package weight is controlled with checklists and SOPs. Package weight limits are listed in SSOP-0075, SSOP-0078, SSOP-0079, and SOP-TRF-46-C-110. Most process waste is packaged and weighed at the point of generation, except for ISO (sea/land®) containers which are weighed at the central truck scale. RSO personnel weighs construction waste to verify and record the package weight prior to transfer to LLWH&D Section. Packages not conforming to weight limits are returned to the waste generator. Weights are recorded on the FMPC-CONT-1945-XX form as well as each individual container.

11.5 Computer Programs and Software

Acceptance testing and verification of in-house developed programs and other software is performed according to "FERMCO Computer Software Management Plan."

12.0 CONTROL OF MEASURING & TEST EQUIPMENT

12.1 Calibration Schedules & Stickers

Each FERMCO organization is responsible for ensuring that items requiring calibration are of the proper type, range, accuracy, and tolerance to accomplish the function of determining conformance to specified requirements. Calibration control shall be achieved by manuals and procedures that describe techniques and requirements for the frequency of calibration of the operating instruments. This control ensures that all instruments, gauges, and other measuring and test equipment are calibrated to the required accuracies. Devices that require a high degree of accuracy are checked daily by the user before using (e.g., radiological monitoring equipment according to SP-P-35-028). If this check reveals that the device is out of calibration, the device is removed from service and/or recalibrated before they are used.

Test equipment and measuring devices shall (as practicable) bear, by label, evidence that they are currently calibrated or certified for current use. Users shall be knowledgeable of calibration requirements, and are responsible for only using instruments that are operational ready. When measuring and test equipment is found to be out of calibration, evaluation shall be made and documented of the validity of previous inspection or test results and of the acceptability of items previously inspected or tested.

Analytical laboratory equipment and instrumentation, and field equipment and instrumentation, shall be calibrated in accordance with the FEMP Sitewide CERCLA Quality Assurance Project Plan. Requirements are that measuring and test equipment used in the field and the laboratory be controlled by formally proscribed calibration requirements. Equipment shall be of the type, range, accuracy, and precision necessary to provide data compatible with the proscribed Analytical Support Levels specified in applicable Data Quality Objectives of Project-Specific Plans. Calibration of the measuring and test equipment shall be performed using documented and approved procedures. When available, accepted procedures published by the American Society for Testing and Materials, the EPA, the NIST, or manufacturer equipment manuals shall be used. Variance from these procedures shall be justified and documented in Project-Specific Plans. Reference standards

shall have known relationships to nationally recognized standards (e.g., NIST) or accepted values of natural physical constants (If national standards do not exist, the basis for calibration is documented). A log of calibration shall be maintained for each instrument.

Quality Control inspection equipment is either checked internally, or is serviced by contract. Procurement of these services is made per the FERMCO Acquisitions & Finance Control System.

Nuclear material scales are checked by the Facility Engineering & Maintenance Department using standards traceable to standards obtained from NIST.

Maintenance and calibration of laboratory balances is contracted using services procured through the FERMCO procurement control system.

Calibration of radiological test instruments are traceable to NIST.

All measuring and test equipment is categorized into one of three types:

1. "casual" devices & systems that do not need to be calibrated in service
2. "routine" devices and systems that are to be included in a calibration recall program on a regular cycle
3. "experimental" devices and systems that are to be calibrated by, or at the direction of the user

Items that fall in the first classification are rulers, tape measures, levels, and other such devices. Hand-held radiation meters and counters are calibrated on a routine schedule and are on a recall program. The specific items requiring calibration and frequency of recalibration are listed in Table IV.

12.2 Environmental Controls for Measuring Equipment

The environmental conditions under which a piece of equipment is calibrated/standardized shall duplicate the environmental conditions under which the desired analyses will be performed. Control samples/standards are run to monitor the response of equipment.

13.0 HANDLING, STORAGE & SHIPPING

13.1 Not Adverse to Certification

Waste containers destined for off-site disposal at NTS are maintained in such a way as to not alter the container certification. All containers are permanently closed and/or locked to prevent tampering. Containers awaiting shipment must be placed in temporary storage. Although not held in a totally secured area, the stamped or initialed TID affixed to the container provides evidence of any tampering. Immediately prior to loading, containers are rechecked per SOPs and checklists to verify the original certification.

Administrative controls are used to ensure radiological smears of packages are representative. Waste packages are not to be stored for shipment in areas where there is danger of rapid contamination. Packages may be protected by covering, or enclosed (e.g., in transport van), in which case the radiological smear results do not have an expiration time. Radiological results for unprotected packages have expiration time limits as defined in Procedure SP-P-35-009.

13.2 Security

The FEMP, where LLW activities are conducted, is a fenced and secured area. The Administration Division/Security Department conducts random mobile tours of the site during the first shift (8:00 AM - 4:30 PM). During the off-shifts and weekends, some of the buildings are locked and security foot patrols are conducted throughout the site. Security must be notified to open the door of a locked building.

13.3 Fire Safety

Specific fire and safety controls are detailed in the SOPs of applicable operations/processes. Monthly fire and safety inspections are performed in the waste and process areas/buildings by ES&H. A report is completed and forwarded to the facility owner. Special work practices, which may require additional monitoring by ES&H, can be arranged on an as need basis.

13.4 ALARA

The "As Low As Reasonably Achievable" (ALARA) principle is a requirement for waste processes to implement programs to assure that exposures to chemicals and physical stresses are maintained within the guidelines and standards provided in DOE/OR 5480.4. Additionally, the reduction of radiation exposure is maintained with the ALARA principle adherence to DOE/EV/1830-TS, 4-80. A dosimeter program is utilized for FEMP personnel and subcontractors. Employees are trained to work each job with ALARA principle as a key practice. Also, each SOP is reviewed with ALARA goals effecting each new or revised work practice.

13.5 Compliance with Title 49 of the CFR and NVO-325 Shipping Requirements

Compliance with Title 49 of the CFR for handling, storage, and shipping are detailed in site and department procedures. Remediation Support Operation Division personnel verifies by informal inspections that the enclosure and loading surfaces of vehicles packages are secured, marked, labeled, undamaged, loaded per procedure, and placarded as necessary (large containers loaded on flat bed trailers).

A radiation survey is performed to assure contamination levels are in compliance with Title 49 CFR criteria levels, and results are recorded on FMPC-ES&H-1596 and FS-F-1993 forms. The vehicle is weighed to ensure axle weights are within legal limits.

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Containers are checked at loading against the Waste Package Storage and Disposal, and Tally Sheet, for:

- correct container identification numbers
- shipment number
- quantities
- gross weights
- waste stream number
- LSA/LQ/RQ labels attached
- DOT Hazard labels as applicable
- inspect for any container defect
- proper container closure
- Security seals
- NV-211 certification sticker attached
- Tamper Indicating Device (TID) attached

The Manager of LAIC&W, or his delegate, gives final authorization to release a shipment off-site with the signing of the Bill of Lading and the required 49 CFR certification statement. Signing is conditional on the necessary shipping paperwork being complete, and a WCO's signature on the Nuclear Materials Shipping Order and certification statement required by NVO-325. The WCO signs the foregoing documents on the basis of verification of signatures and completion of various forms and checklist required by procedures documenting the certification process.

An envelope containing copies of the Tally Sheet, Curie List and REECo Waste Management Package Storage and Disposal Sheet is attached to the rear inside door, container or side panel, or given to the driver in the case of sea/land type cargo containers. Radioactive placards are posted, trailer doors closed, and a numbered tamper proof seal is applied to the locking mechanism.

Shipping documents are prepared in compliance with Title 49 CFR. Carrier/driver instructions, a signed copy of the Bill of Lading, Nevada Permit, Tally Sheet, envelope for consignee with Tally Sheet, Curie List, and Memo Bill of Lading are issued to the driver. Each driver is instructed to call FERMCO each day so that FERMCO can report any travel delay to REECo with a new estimated arrival time. If the trailer is not enclosed, the tamper proof seal is attached to the closing mechanism of each container.

14.0 INSPECTION, TEST & OPERATIONAL STATUS

14.1 Calibration Sources

The status of inspection and test activities shall be identified on documents traceable to the items tested or inspected. The status shall be maintained through indicators such as physical location and tags, markings, stamps, inspection records, or other needs.

An approved procedure SSOP-1020, "QA/QC Tagging," provides authorization for application of tags, markings, labels, and stamps. Authorization for removal is specified on nonconformance tags. In all other instances the initial work is invalidated with the removal of the tag, marking, label, or stamp.

Calibration stickers are placed on measuring and test equipment (Table IV).

14.2 Preventative Maintenance

Preventative maintenance on analytical measuring systems and instruments is provided by the Electronics Laboratory for analytical instruments, and by Safety and Training Instrument Laboratory (S&TIL) for radiological measuring equipment. Personnel performing preventive maintenance work have had manufacturer training courses for some of the equipment. Some complete service manuals and a limited stock of spare parts are available. The availability of these personnel and resources at FEMP provide a means of ensuring optimum performance and minimum downtime for instruments and measurement systems.

Vendor service contracts or contracts with service agencies are utilized to provide preventative maintenance for some major instrument systems to ensure performance and to minimize downtime. Process Area scales are maintained by the RSO personnel.

15.0 CONTROL OF NONCONFORMING ITEMS

15.1 Control and Disposition of Nonconformances

Nonconformances of major significance meeting specified criteria are handled in accordance with the Site Procedures ED-0001, Event Notification and Occurrence Reporting Procedure. The handling of all other nonconformances, except of a minor nature (e.g., paperwork inconsistencies easily and quickly resolved), is governed by SSOP-0023, Deviation and Corrective Action Report Processing. The system defined in the above include reporting, dispositioning, corrective action, tracking and closeout of nonconformances.

15.2 Special Tags & Labels

Nonconforming items are tagged for identification and control. The control of nonconforming items and use of tags are detailed in written site procedures. Three tags FS-F-2707 (Figure 8) for quality accepted, FS-F-2708 (Figure 9) for quality nonconformance, and FS-F-2709 for quality hold for inspection (Figure 10) are still valid for control purposes.

15.3 Segregation and/or Removal from Operating Status

Where practicable, nonconforming items are physically segregated to preclude inadvertent use. The nonconforming condition is evaluated by cognizant personnel and disposition specified, performed, and verified as complete as a basis for acceptance.

15.4 Documentation

The nonconforming condition is documented on a Deviation Report (DR) form and responsible supervision notified. If necessary, a Corrective Action Report is issued. Once the corrective action(s) are completed, physical corrective action verification is documented and physical control is released. Nonconforming conditions that are not easily and promptly reworked, or require corrective action of the root cause, are processed.

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16.0 CORRECTIVE ACTION

16.1 Nonconformance Items

Corrective actions on nonconforming items are part of the DRs/CARs system. Corrective action is to identify the root cause and preclude recurrence. In response to the request for corrective action, the applicable manager shall detail the underlying (root) cause of the deviation, action to be taken/proposed, and action taken to prevent recurrence. Permanent corrective actions are required to preclude recurrence of significant problems.

16.2 Findings/Recommendations

The administrator of DRs/CARs provides a trend analysis of DRs/CARs to identify chronic areas. This is reported to senior FERMCO managers and the DOE QA manager quarterly as described in SSOP-0023.

Findings and recommendations from external audits, internal audits, and internal surveillances require a response within the time period specified by the reviewing organization. Follow-up audits and surveillances, with written dispositions per the DR/CAR system, are required.

16.3 Exceptions Approval from the DOE/NV Manager

Exception requests are required for any envisioned noncompliance to NVO-325 requirements and will be included in the application to ship waste to the NTS. The exemption request shall include:

- the type of exemption requested and the present circumstances that prevent compliance with the criterion for which an exemption is being sought;
- the projected duration of the exemption or reason why the waste cannot be brought into compliance; and
- a plan and schedule for corrective action to bring the waste into compliance with all criteria.

17.0 QUALITY ASSURANCE RECORDS

Records that furnish documentary evidence of quality shall be specified, prepared, and maintained. Records shall be legible, identifiable, and retrievable. Mistakes or corrections in records shall have a single line drawn through the changed data and shall be signed or initialed and dated. Records shall be protected against damage, deterioration, and loss. Requirements, responsibilities for record transmittal, distribution, retention, maintenance, and disposition shall be established and documented. The waste processing records are identified in Table III and their retention period identified in DOE Order 1324.2.

18.0 AUDITS/WASTE CERTIFICATION

18.1 External

An audit by DOE/NV of FERMCO waste operations is conducted annually as defined in NVO-325. Currently there is no prescribed audit schedule by external organizations other than DOE/NV.

18.2 Internal

Internal overview activities of the waste shipment activities, in addition to the certification activities, are performed as surveillances or internal audits. Surveillance activities are outlined in the process flow diagram, Figure 4. Surveillances are conducted on a periodic basis or real time activities as described in standard operating procedures. These surveillances, conducted by QC and QA, are documented on a surveillance report addressed to responsible management for resolution of observations and findings. All nonconformances are documented on DRs/CARs reports. All corrective action responses are evaluated and verified to be acceptable and complete prior to close out of the surveillance.

Internal audits of the LLW shipping program shall be scheduled on basis of evaluation of need. Each audit may concentrate on a particular segment of the operation, but sufficient audits shall be conducted annually to overview the entire program. Each audit is conducted by a team using written checklists. Results of the audit is documented in an audit report addressed to responsible management for written corrective action responses to findings. Nonconformances are documented on DRs/CARs. Corrective responses are documented, evaluated, and accepted prior to close-out of the audit.

19.0 TRAINING

In compliance with NQA-1, NVO-325, 49 CFR Section 173.1(b), and DOE Order 5480.1A Chapter V, formal training of all personnel directly involved in the waste certification process and preparation of waste shipments shall be conducted. The training shall be documented, updated every two years, and available for inspection by any auditing official.

19.1 Training Program

A Centralized Training Program Manual, RM-FMPC-0002, establishes requirements for all personnel involved in the development and implementation of performance based training at the FEMP. This manual provides guidance on DOE Order 5480.18, Accreditation of Performance-Based Training for Category A Reactors and Nuclear facilities. Training per this training program complies with NA-1, NVO-325, and DOE Order 5480.1A Chapter V requirements.

Training shall be designed as a number of performance based modules. Each module contains learning objectives, conditions, and an evaluation to measure the trainee's competence in performing required tasks. Certified instructors from applicable departments shall provide instruction, generate training records, and conduct an evaluation of the effectiveness of the training program once every two years. Permanent training records are maintained by the Training Department of the Administration Division.

19.2 Training Requirements

In compliance with NVO-325, all persons associated with the waste certification program shall be trained in the requirements of this WCPP and NVO-325. All persons who generate, package, certify, prepare data, perform related radiation surveys, or perform the associated quality functions, must have received training in the requirements and implementing procedures for those parts of the certification program in which they are involved. In the absence of specific training courses for specific parts of the certification program, a general training course will be utilized to train personnel identified in the foregoing requirements.

WCOs and WPCs shall receive specialized training on NVO-325, this WCPP, and their certification procedures. They shall be required to pass a proficiency test to qualify for the respective position. Additional training pertaining to environmental compliance and DOT regulations shall be provided commensurate with responsibilities.

The FEMP RSO Division conducts training for personnel directly involved with off-site shipments. Also, there is a training program for safe operation of powered industrial trucks. RSOs' Division training programs are administered by their Training Coordinators who utilizes classroom instructions, demonstrations, and on-the-job training. The program consists of four phases: familiarization, operation, qualifications (written examination and performance tests), and nuclear safety.

19.3 Training Responsibilities

Each FEMP organization is responsible to ensure that their employees are trained per the requirements specified in this Plan. Validation that employees have been trained is the responsibility of each organization with the assistance of the Training Department. QA validation of training shall be in the form of surveillances and audits.

TABLE I

MASTER PLANS, MANUALS, AND PROCEDURES

FEMP DIVISION PROCEDURES

Environmental Quality Procedures

*	EQP- 6.04	Qualification of Waste Package Certifiers
*	EQP- 6.05	Qualification of Waste Certification Officials
	EQP- 6.06	Environmental Compliance and Quality Assurance Department Training Plan
	EQP- 6.07	Certification of Quality Assurance Audit Personnel
	EQP- 7.01	Administration and Conduct of Surveillance Activities
	EQP- 7.05	Participation in Supplier Selection
	EQP- 7.09	Source Surveillance
	EQP- 8.01	Disposition of Supplier Deviations
	EQP- 9.01	Designation, Preparation, Storage and Maintenance of Quality Documents
	EQP-10.01	Root Cause Analysis
	EQP-10.02	Tracking, Verification and Closure of Audit Corrective Action Reports and Open Audits
	EQP-10.04	Conduct of Quality Assurance and Environmental Audits
*	EQP-12.03	Certification of Waste Package Examination and Sealing for Off-Site Shipment
*	EQP-12.04	Certification of Loading and Shipment of Low-Level Radioactive Waste
	EQP-12.06	Certification of Hazardous Waste Loading, Examination of Transport Vehicle/Trailer for Off-Site Shipment
*	EQP-12.07	Certification of Low Level Waste Shipments to NTS
	EQP-12.08	Certification of Compacted Low Level Waste for Shipment from SEG to NTS
	EQP-14.01	Receiving Inspection

* These documents have been provided as part of the WCPP: all other documents will be provided upon request.

TABLE I (CONTINUED)

FEMP DIVISION PROCEDURES (CONT.)

Safety Procedures

RC-RDA-006	Radiological Survey Requirements for Radiological Materials Shipping and Receiving
SP-P-35-020	Radiological Survey of Vehicles Entering and Exiting the Controlled Areas of the FEMP

Project Engineering

PMP-424	Construction Waste Handling

Remediation Support Operations

1-C-305	Baling Scrap Metal Drums
1-C-306	Crushing Scrap Drums
1-C-602	Low Level Radioactive Waste (LLRW) Shipment Preparation
1-C-604	Inspection and Evaluation of Containerized Low Level Radioactive Waste (LLRW)
1-C-608	Storage of Radioactive Material
2-C-923	Trash Baler Operation
20-C-600	Overpacking Defective Containers
20-C-604	Control and Utilization of Contaminated Trash Dumpsters
20-C-607	Segregation of Wooden Pallets
20-C-625	Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment
20-C-805	Sampling Drummed Waste for Hazard Identification
20-C-912	Checking Scale Operation
M-102	Transportation Requirements Manual
PO-D-006	Calculation of Drum Equivalents for FMPC Waste Volumes
PO-D-035	Shipment of Low Level Radioactive Waste (LLRW) Requirements
PO-S-01-001	Storage and Handling of Empty Low Level Radioactive Waste Containers
PO-S-01-002	Internal Audit Program

TABLE I (CONTINUED)

FEMP SITE PROCEDURES

ED-0001	Event Notification and Occurrence Reporting Procedure
FMPC-0102	Training
FMPC-0302	Request for Purchase
FMPC-0702	Development and Control of Design
FMPC-0708	Personnel Certification
FMPC-0718	Measuring and Test Equipment Calibration and Control
PO-0307	Control and Accountability of Nuclear Materials
PP-0314	Packaging, On-Site Movement and Off-Site Shipment of Material
PP-0710	Quality Assurance Plans
PP-0721	Test Authorization
PP-5030	Change Proposal Procedure
PP-FMPC-5010	Management of Low-Level Waste (LLW)

FEMP MANUALS

OM-0003	Test Authorization
RM-0005	FEMP Lot Marking and Color Coding System
RM-0012	Quality Assurance Program Description
SM-0001	Risk Assessment and Management (RAM) System Manual

FEMP PLANS

ANL-SP-1001	Analytical Laboratory Quality Assurance Plan
FD-1000	FEMP Sitewide CERCLA Quality Assurance Project Plan
FMPC-2040	FEMP Waste Management Plan
FMPC-2114	Environmental, Safety, Health and Waste Management Plan
FMPC-2133	FEMP Waste Minimization Plan
FMPC-2185	Sampling Plan for Drummed Waste at the FEMP
PL-FMPC-3006	Materials Control and Accountability Plan
PL-FMPC-3009	Waste Minimization & Pollution Prevention Awareness Plan

TABLE I (CONTINUED)

FEMP SITE STANDARD OPERATING PROCEDURES

SSOP-0002	Completing the Material Evaluation Form
SSOP-0014	Documentation of a Subject Matter Expert (SME)
SSOP-0018	Processing the Site-Wide Analysis Request/Custody Record for Sample Control
SSOP-0023	Deviation and Corrective Action Report Processing
SSOP-0027	Control of Box-Type Containers
SSOP-0036	Quality Assurance Project Plans
SSOP-0044	Management of Soil, Debris, and Waste from a Project
SSOP-0045	Identifying Quality Assurance Program Requirements for Quality (RISK) Levels
SSOP-0049	FEMP Quality Audit Program
SSOP-0068	Inspection of Procured Material, Equipment, Work in Process and Completed Items
SSOP-0075	Packaging Low Level Radioactive Waste (LLRW) in Drums for Offsite Shipment
SSOP-0078	Packaging Low Level Radioactive Waste (LLRW) into ISO Containers for Offsite Shipment
SSOP-0079	Packaging Low Level Radioactive Waste (LLRW) in Metal Boxes for Offsite Shipment
SSOP-0103	FEMP Site Document System
SSOP-0709	Conduct of Independent Surveillance Activity
SSOP-0716	Control of Processes
SSOP-1020	QA/QC Tagging

FEMP DIVISION PLAN

FERMCO Computer Software Management Plan

TABLE II

WASTE PROCESSING - ARCHIVAL DOCUMENTS

DOCUMENT DESCRIPTION

Documents in Table I and Specifications listed in Table VI

Bill of Lading

Item Production/Certification/Identification Card

Laboratory Analysis Reports

Loading Inspection and Tie-down Sheet

Nuclear Materials Shipping Order

Nuclear Materials Transaction Report (DOE-741)

Plant Test Authorization and Reports

Quality Assurance Plans

Radiological Monitoring Records

Tally Sheets

Trailer/Vehicle Checklists

Waste Shipment Final Authorization Checklist

Waste Stream Characterization Data

Weight Tickets

TABLE III

WASTE PROCESSING - QUALITY ASSURANCE RECORDS

RECORDS DESCRIPTION

Audit Reports

Bill of Lading for Waste Shipments

Carrier/Driver Instructions for Radioactive Shipments, and exclusive use.

Inspections and Tests

Item Production/Certification/Identification cards.

Materials Evaluation checklists

Personnel Training Records

Purchase Requisition and Purchase Order documentation

Radiation Monitoring Records

Receipt Inspection of Incoming Materials, including Supplier Certification if applicable

Shipping Order for Nuclear Materials

Surveillance Reports

Tally Sheets

Test and Calibration Records

Transport vehicle inspection records

Waste Certification Checklists

Waste Certification Statements

Waste Certification Program Plan

Waste Stream Characterization Data Records

Weight Tickets

Note: Retention periods are in accordance with DOE Order 1324.2.

TABLE IV

WASTE PROCESSING - MEASURING AND TEST EQUIPMENT CALIBRATION
(Procedures indicate minimum action when in use)

Accountability Scales (Measures gross and tare weight used to calculate net shipping weight of waste packages.)	Quarterly*
IRS&T Radiological Monitoring Equipment	Semiannual
IRS&T Scintillation Alpha Counters (SAC)	Semiannual*
Laboratory Equipment	Annual*
Laboratory Instruments	Calibration Schedules maintained as specified for the method.
Torque Wrenches Waste Shipping	Quarterly

* Also daily efficiency checks.

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TABLE V

WASTE PACKAGING MATERIALS REQUIRING PROCUREMENT CONTROL

MATERIAL DESCRIPTION	DRAWING/SPECIFICATION
48-gallon Metal Drum ("Jug Head" Type)	FERMCO 40X-5500-M-00012-1
55-gallon Metal Drum (17H)	49 CFR 178.118-2 and in accordance with DOE Eval. Document for DOT-7A Type A pkg. MLM-3245 DP/00053-HI
83/85-gallon drums	N/A
Metal Box Shipping Container 42" H x 55" W x 80" L Gusset/Bolt type closure	Carolina Container Services Part No. PT 188-93
Metal Box Shipping Container 41 13/16" H x 55" W x 80" L Gusset/Bolt type closure	Galbreath Incorporated Dwg. No. IS1503
Metal Box Shipping Container 40-1/2" H x 57-1/4" W x 81-1/4" L Gusset/Bolt type closure	Container Products Assembly SSB-82.3-5-7A-BRF, Dwg. 01-542-2-01
Metal Box Shipping Container 41" H x 56" W x 80" L Retainer/Bolt type closure	ElectroPanel Dwg. 89DW000800, Rev. 9
Metal Box Shipping Container 42-1/2" H x 55-1/2 W x 79-1/2" L Bolted type closure	FERMCO Dwg. 40X-5500-M-00011
Metal Box Shipping Container 43" H x 53" W x 77" L Clip type closure	FERMCO Dwg. 30A-5500-M-00059
Metal Box Shipping Container 8' H x 8' W x 20' Top Load Clip type closure	FERMCO Dwg. 40X-5500-M-00034
Metal Box Shipping Container 8' x 8' x 20' Top Load Clip type closure	Container Products Dwg. 02-594-2-01
Metal Box Shipping Container 8' x 8' x 20' top load Bolt type closure	Sea Box Inc. Dwg. IS1272
Cargo Container 8-1/2' H x 8' W x 20" L Reconditioned, Front load	N/A

NOTE: The above listing represents basic designs. Future purchases will not necessarily be made to the drawings and/or specifications listed. However, new items procured will be similar, will meet specified requirements, and will receive similar procurement controls.

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TABLE VI

WASTE PROCESSING - SPECIFICATIONS

SPECIFICATION DESCRIPTION:

U. S. Department of Energy Nevada Operations Office, "Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements," NVO-325

U. S. Department of Energy, DOE Order 1540.1, "Materials Transportation and Traffic Management."

U. S. Environmental Protection Agency, "Code of Federal Regulations, Title 40, Part 261, Identification and Listing of Hazardous Waste."

U. S. Department of Transportation, "Code of Federal Regulations, Title 10, Section 71, Packaging and Transportation of Radioactive Material."

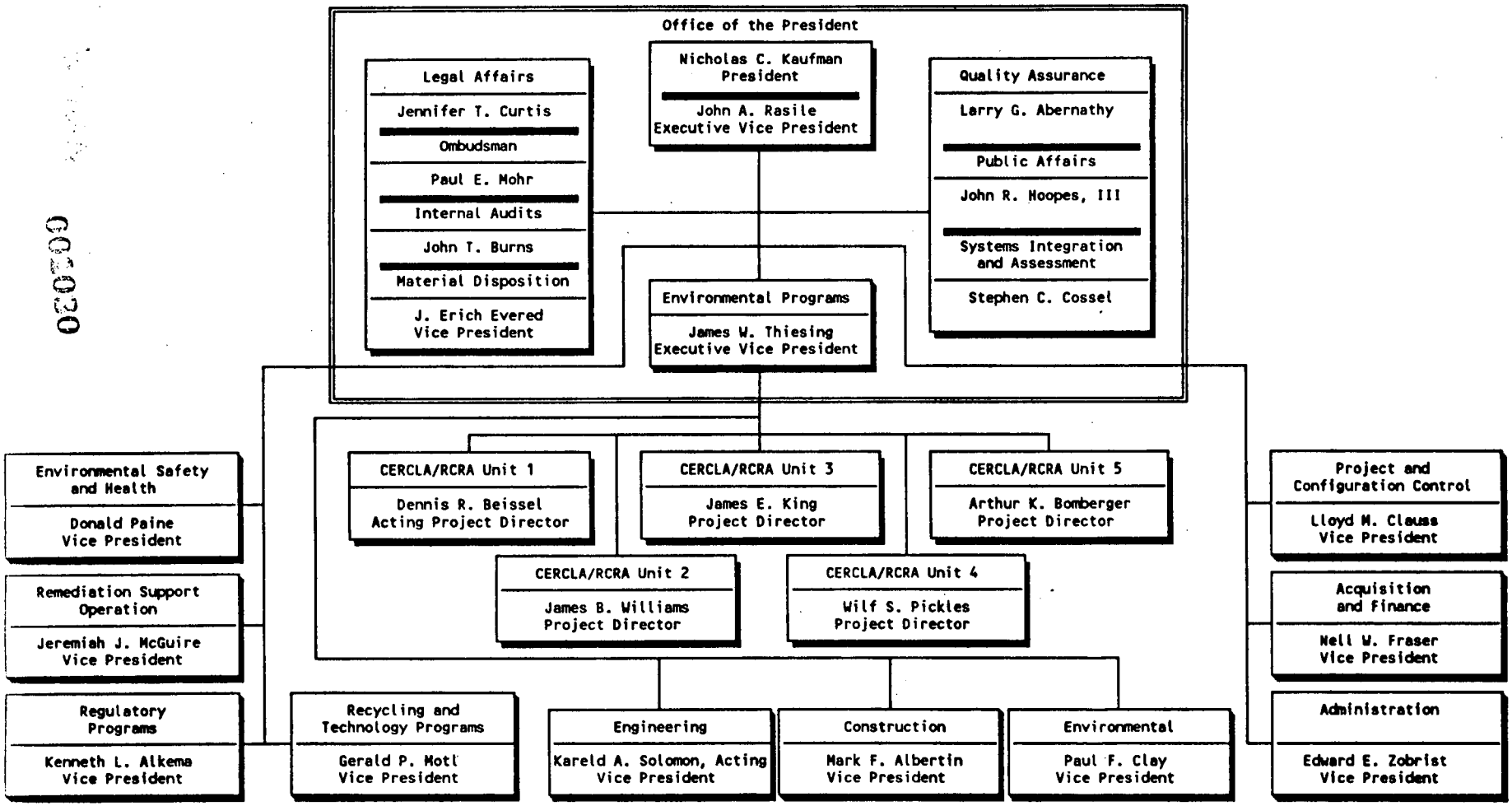
U. S. Department of Energy, ORO 5480.11, "Radiation Protection for Occupational Workers."

U. S. Department of Energy, DOE Order 5700.6C, "Quality Assurance."

U. S. Department of Energy, DOE Order 5820.2A, "Radioactive Waste Management."

U. S. Department of Transportation, " Code of Federal Regulations, Title 49, Transportation."

FERNALD ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION



═══ INDICATES MATRIXED OUT WITH DIVISION NUMBER
< > INDICATES MATRIXED IN WITH DIVISION NUMBER
(S) INDICATES TEMPORARY OR SUBCONTRACTOR

FERMCO

UPDATED: 11/05/93

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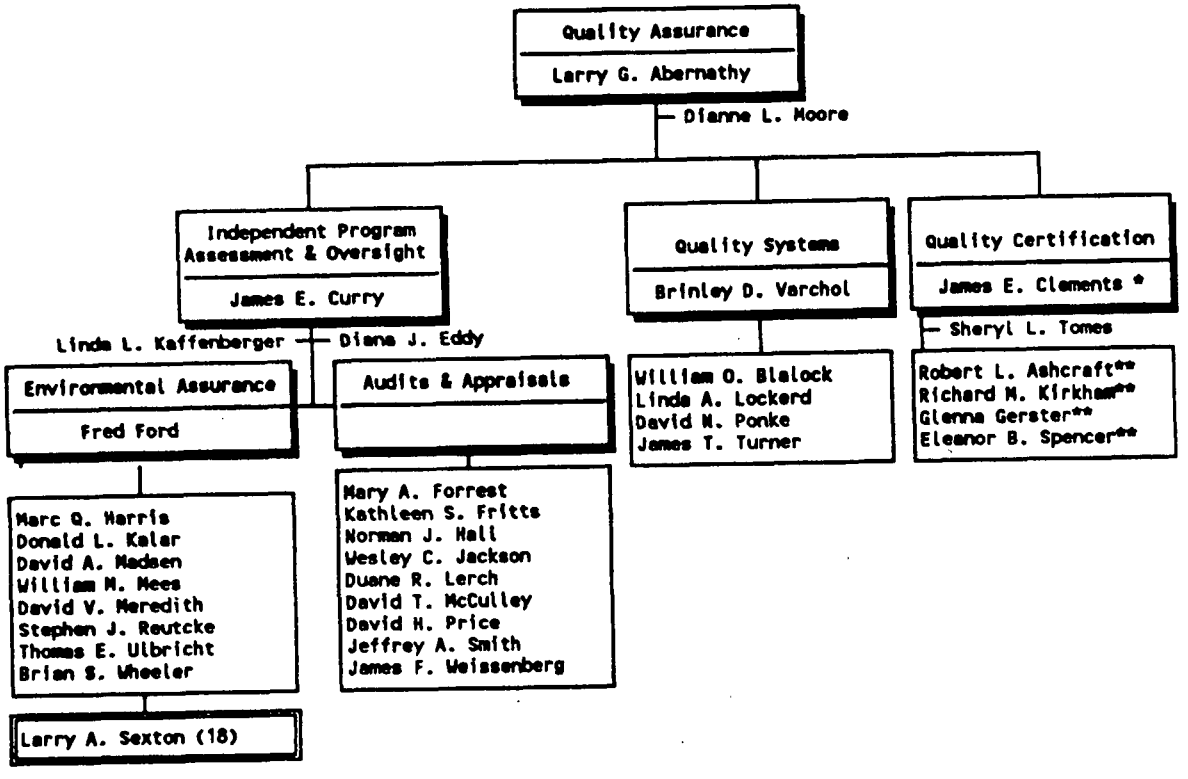
FERNALD ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION
QUALITY ASSURANCE



* CHIEF WASTE CERTIFICATION OFFICIAL HAS FULL ACCESS TO THE OFFICE OF THE PRESIDENT TO RESOLVE CERTIFICATION ISSUES.
** ALTERNATE WASTE CERTIFICATION OFFICIAL

▬ INDICATES MATRIXED OUT WITH DIVISION NUMBER
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UPDATED: 10/18/93

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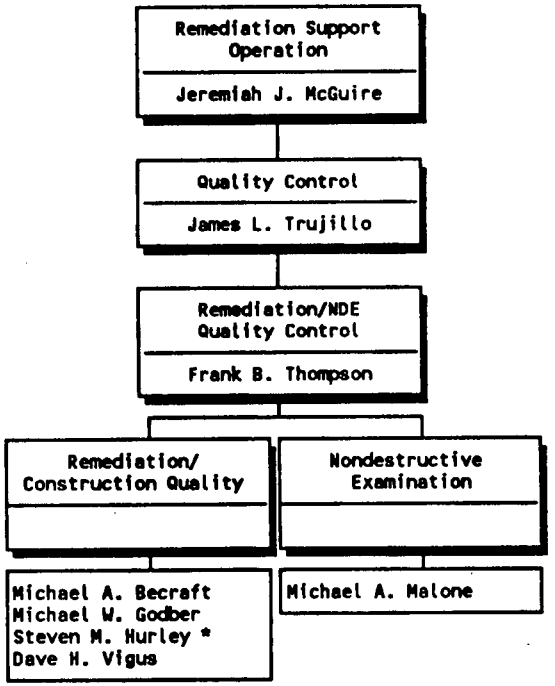
Figure 1-2

FERNALD ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION
REMEDIATION SUPPORT OPERATION



* INDICATES WASTE PACKAGE CERTIFIER
- Waste Package Certifiers have full access to the Chief Waste Certification Official while performing certification activities to resolve certification issues.

═══ INDICATES MATRIXED OUT WITH DIVISION NUMBER
< > INDICATES MATRIXED IN WITH DIVISION NUMBER
(S) INDICATES TEMPORARY OR SUBCONTRACTOR

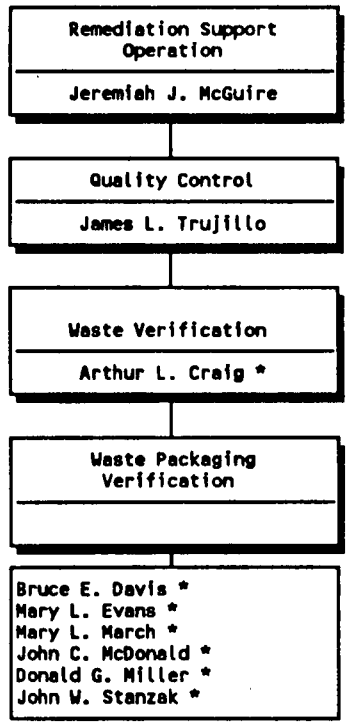
100202

UPDATED: 11/30/93

001032

5690

FERNALD ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION
REMEDIATION SUPPORT OPERATION



* INDICATES WASTE PACKAGE CERTIFIERS
- Waste Package Certifiers have full access to the Chief Waste Certification Official while performing certification activities to resolve certification issues.

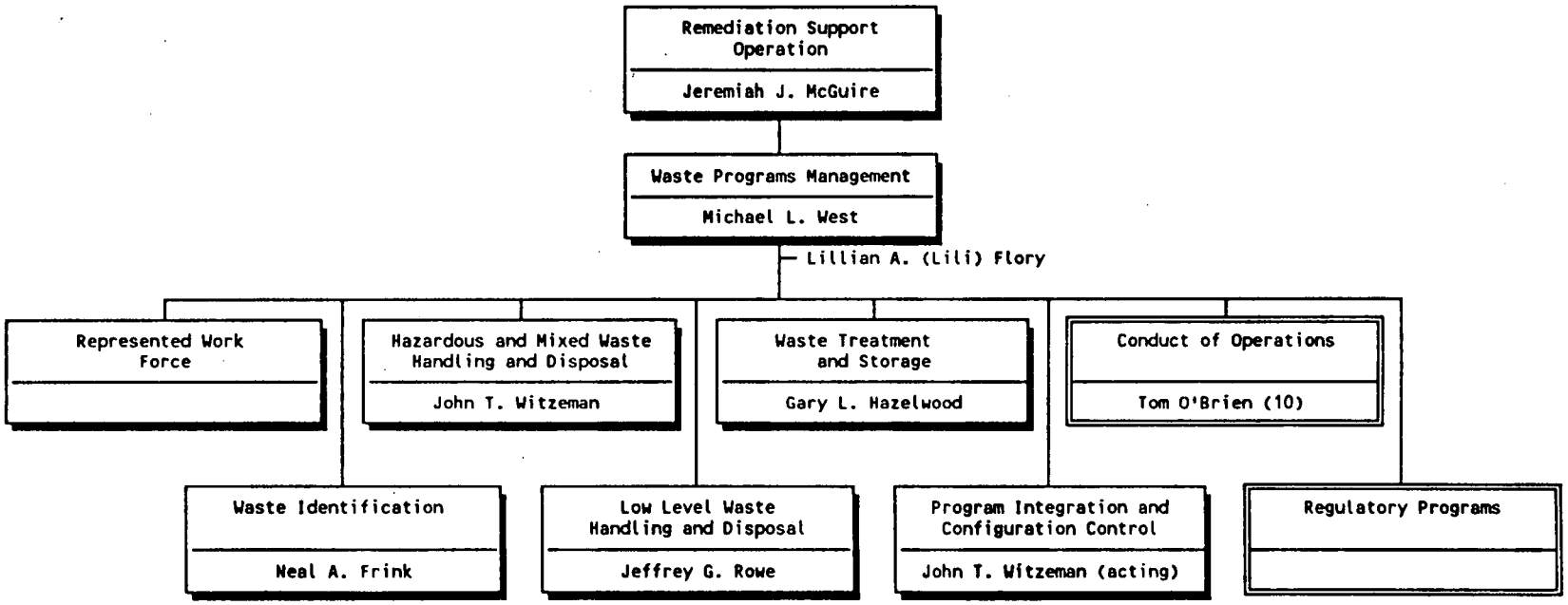
═ INDICATES MATRIXED OUT WITH DIVISION NUMBER
< > INDICATES MATRIXED IN WITH DIVISION NUMBER
(S) INDICATES TEMPORARY OR SUBCONTRACTOR

100203

UPDATED: 11/30/93

001033

FERNALD ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION
REMEDIATION SUPPORT OPERATION



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< > INDICATES MATRIXED IN WITH DIVISION NUMBER
(S) INDICATES TEMPORARY OR SUBCONTRACTOR
100600

UPDATED: 12/03/93

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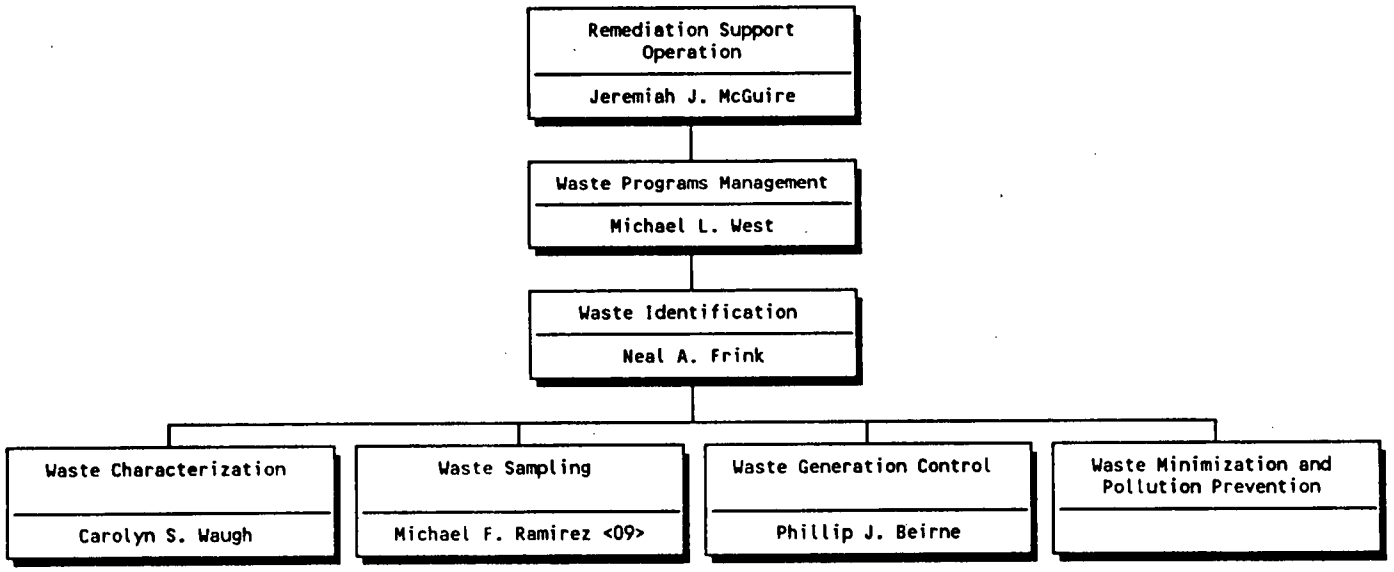
003034

FERNALD ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION
REMEDIATION SUPPORT OPERATION



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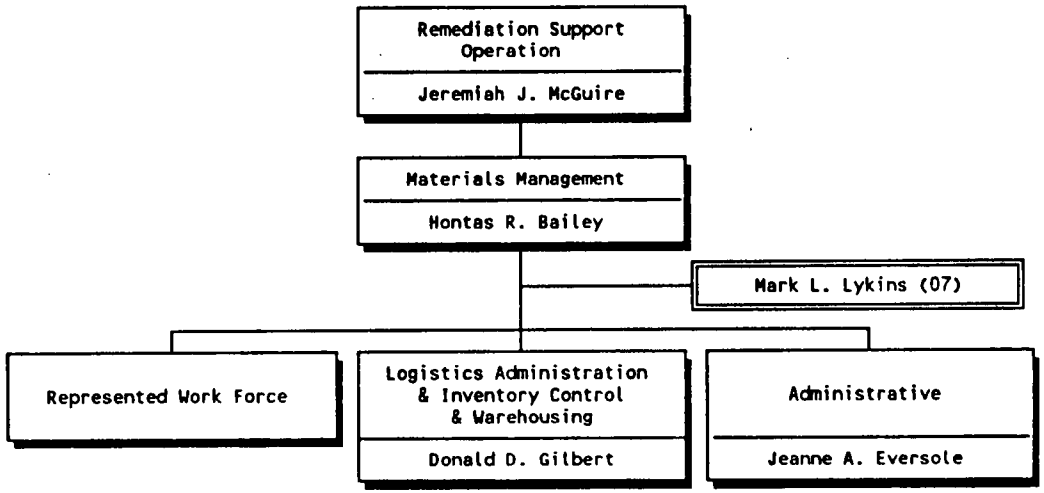
(S) INDICATES TEMPORARY OR SUBCONTRACTOR

100602

UPDATED: 11/15/93

001035

FERNALD ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION
REMEDIATION SUPPORT OPERATION



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(S) INDICATES TEMPORARY OR SUBCONTRACTOR

100700

UPDATED: 12/03/93

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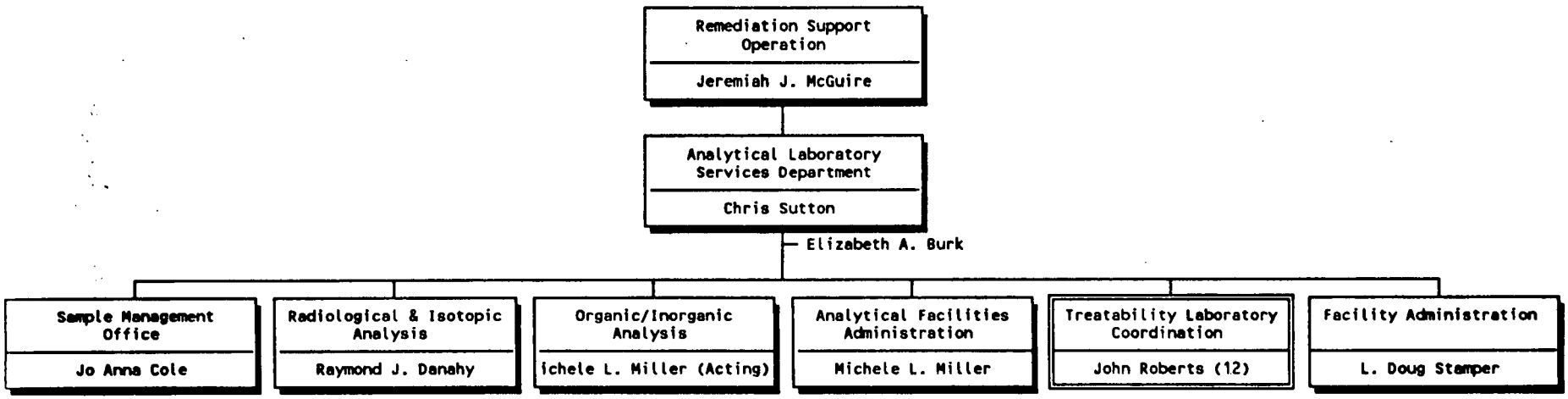
FERNALD ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION
REMEDIATION SUPPORT OPERATION



UPDATED: 11/30/93

═══ INDICATES MATRIXED OUT WITH DIVISION NUMBER
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(S) INDICATES TEMPORARY OR SUBCONTRACTOR
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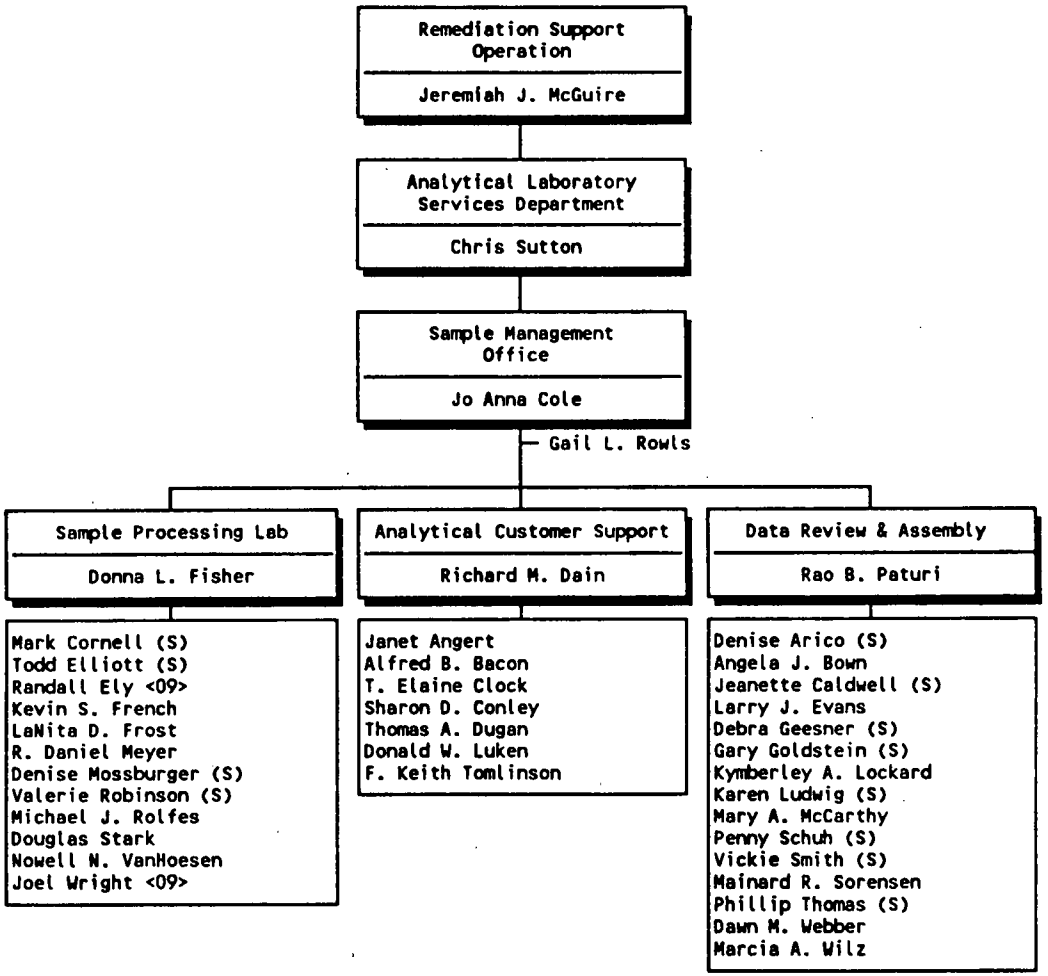
FERNALD ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION
REMEDIATION SUPPORT OPERATION



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< > INDICATES MATRIXED IN WITH DIVISION NUMBER
(S) INDICATES TEMPORARY OR SUBCONTRACTOR

100501

UPDATED: 11/30/93

001038

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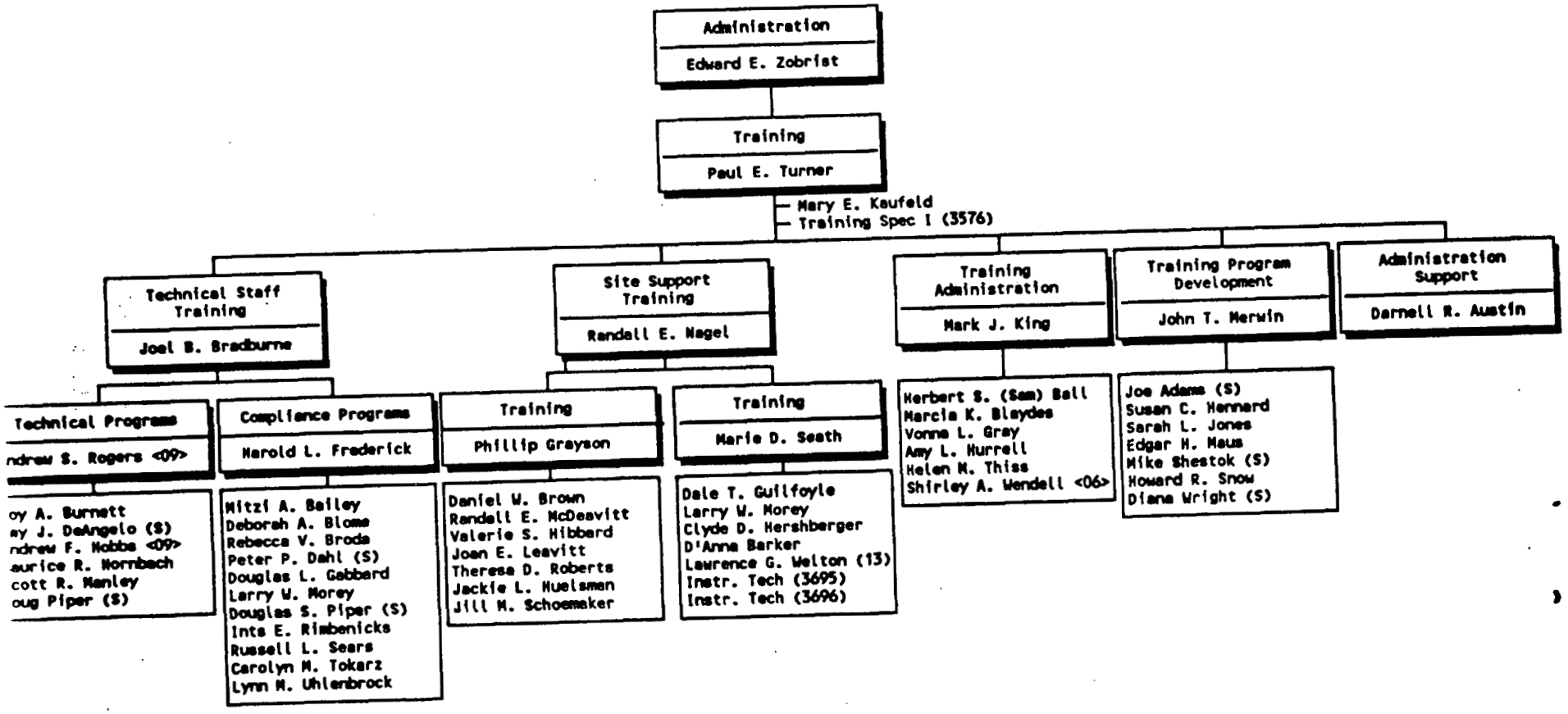
Page 62
Revision 7
Figure 1-9

FERNALD ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION
ADMINISTRATION



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(S) INDICATES TEMPORARY OR SUBCONTRACTOR

0803

UPDATED: 10/18/93

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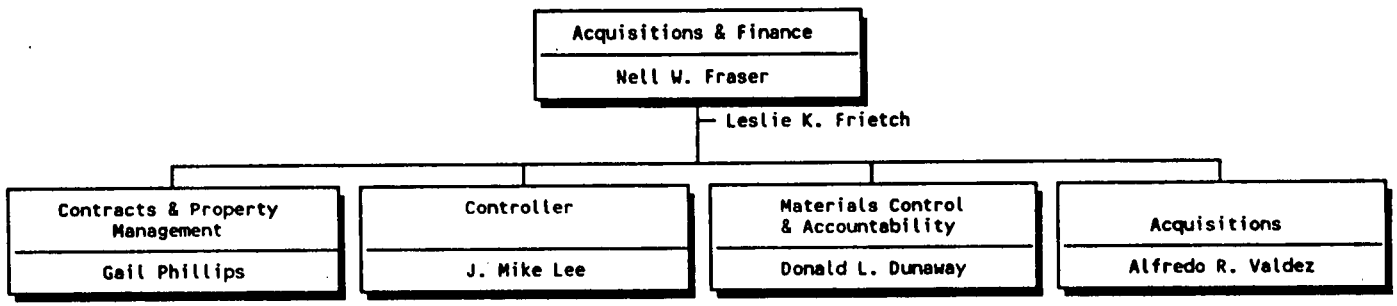
FERNALD ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION
ACQUISITIONS AND FINANCE



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< > INDICATES MATRIXED IN WITH DIVISION NUMBER
(S) INDICATES TEMPORARY OR SUBCONTRACTOR

0700

UPDATED: 11/24/93

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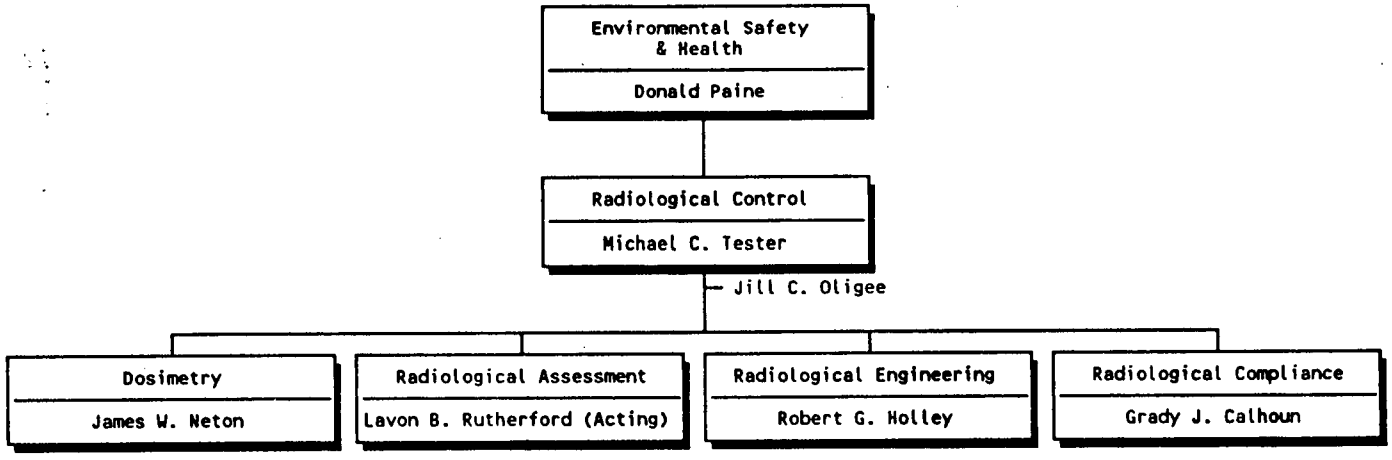
FERNALD ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION
ENVIRONMENTAL SAFETY AND HEALTH



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< > INDICATES MATRIXED IN WITH DIVISION NUMBER
(S) INDICATES TEMPORARY OR SUBCONTRACTOR
090100

UPDATED: 11/30/93

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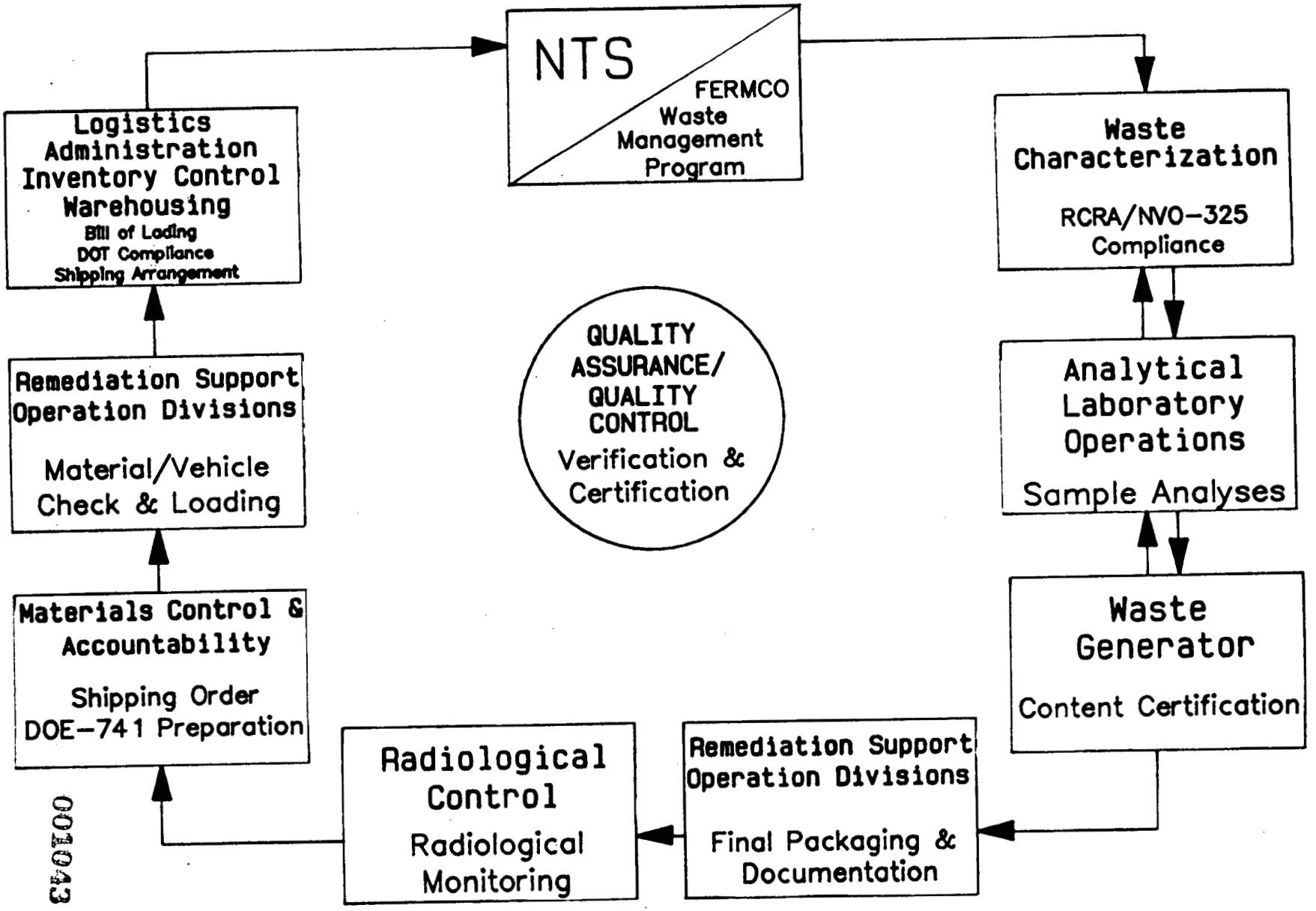
WASTE OWNER/GENERATOR					
Waste Stream	CRU[1]1	CRU2	CRU3	CRU4	CRU5
Contaminated Process Area Scrap ONL0000000001			X		
Construction/Removal Action ONL0000000002	X	X	X	X	X
Low/High Grade Residues ONL0000000006	X		X	X	
Contaminated Trash[2] ONL0000000007	X	X	X	X	X
Subcontracted Residues ONL0000000008			X		
Metal Melt ONL0000000009			X		
Contaminated Regulated Asbestos ONL0000000010	X		X		
Thorium Waste ONL0000000011			X		
Thorium Residues ONL0000000012			X		
Depleted Uranium Metal ONL0000000013			X		

[1] CERCLA/RCRA Unit

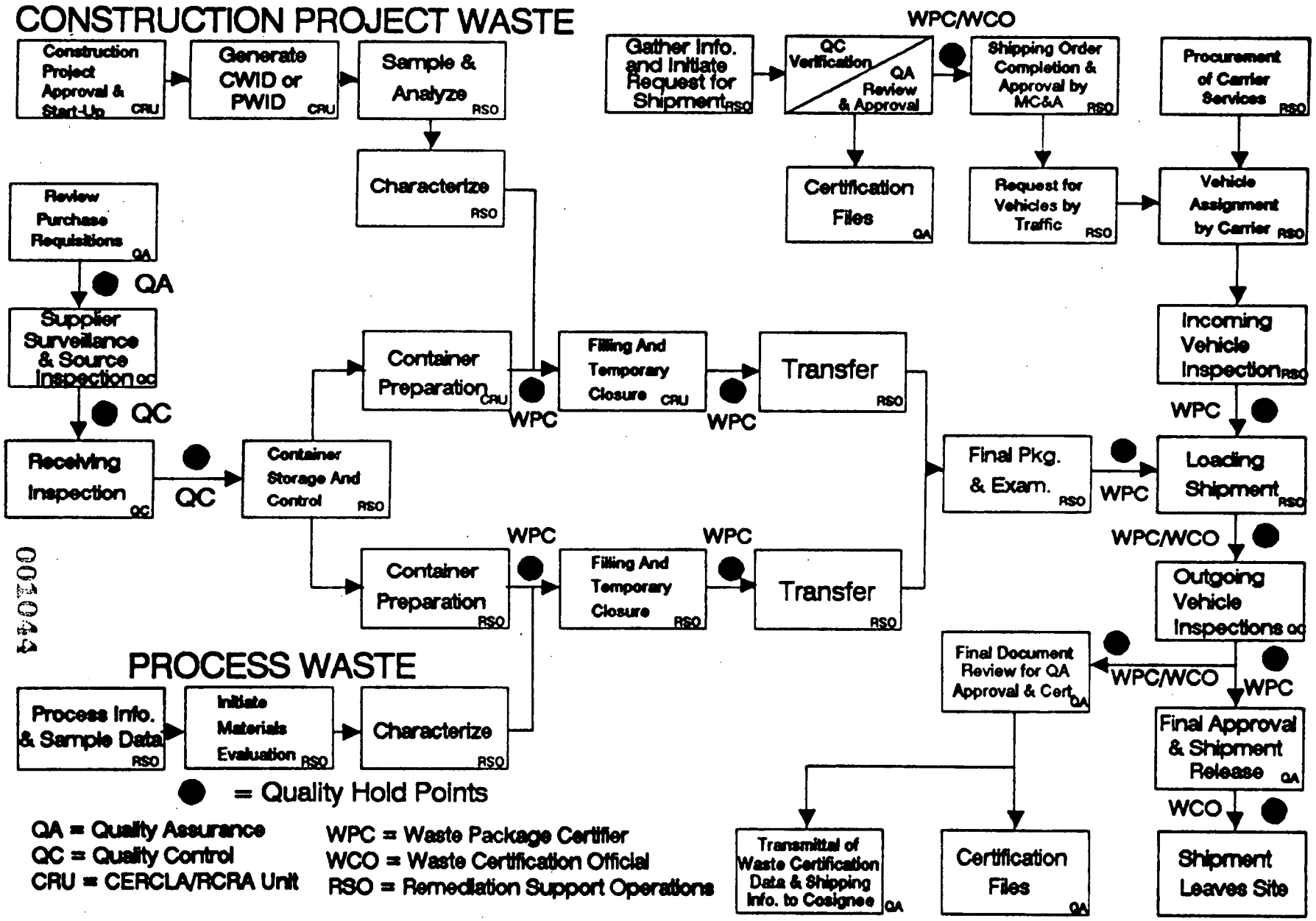
[2] Contaminated trash is also generated by support divisions

Waste Processing Interface



001043

LOW LEVEL WASTE FLOW DIAGRAM



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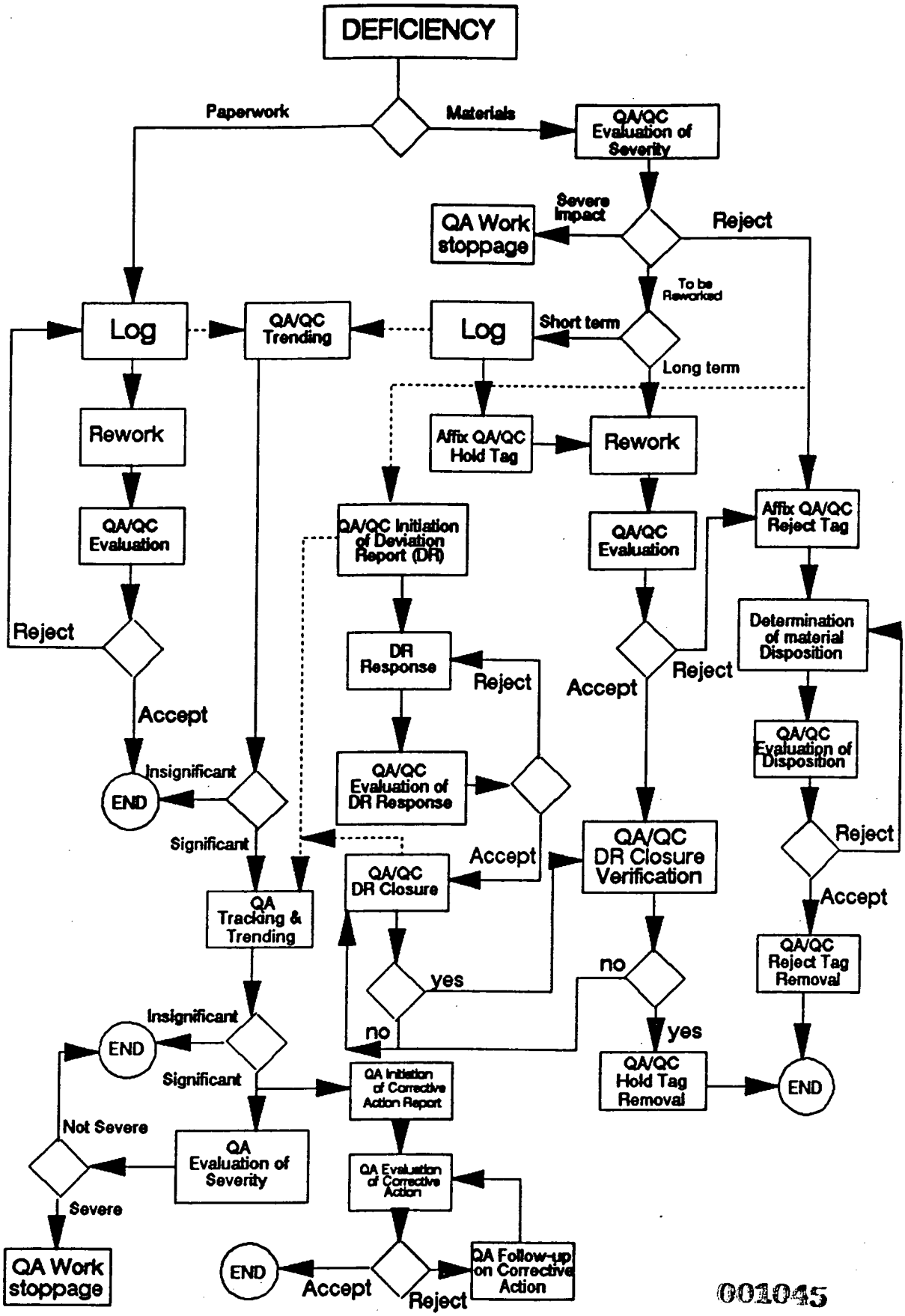
NONCONFORMANCE PROCESS FLOW



If Seal is broken or package damaged - check contents before signing receipt.

******** CHAIN-OF-CUSTODY ********

ANALYS_NUMBER :
CUSTOMER_NUMBER :
CUSTOMER :
DATE_SAMPLED :
SAMPLED_FROM :
MATL_DESCRIPTION :

COMPUTER GENERATED

FMPC-SAMPLE LABEL/RCRA MATERIAL-NORMAL

SAMPLING LOCATION	P.O. NO./ENRICHMENT
COLLECTOR	
TYPE OF MATERIAL	
TYPE OF SAMPLE	
LOT NUMBER OR IDENT	
DATE / TIME / NET WT.	

FMPC FORM 306 M-160 (2 20 91)

TYPICAL PREPRINTED

SAMPLE ID: 200024196

CRUD-BLD SA METALS PRODUCTION PLAN
SAMPLE ID: 200024196

DATE SAMPLED TIME SAMPLED

MATERIAL NAME / SAMPLE TYPE
CODE C: CONSTRUCTION MATERIAL
CODE C;TBL 35 TAL 2/08&3/90 INORGA

PRESERVATIVES
COOL, 4 DEG. C

CONTAINER TYPE GROSS WEIGHT
4 OZ GLASS

COLLECTORS INITLS TARE WEIGHT

CMT:
COC#:

SAMPLE ID: 200024196

FERNALD SITE
SITE SERVICES - ANALYTICAL

SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD

Form Number: ____ - ____ - ____

Page ____ of ____

PROJECT:

☐ PLAN NO.: OR ☐ PROJECT NO.:

PROJECT MANAGER/ENGINEER:

FOR SAMPLE RELATED PROBLEMS, CONTACT:
ORGANIZATION:
NAME: PHONE:

SAMPLER: PHONE:

SAMPLER REMARKS:

CHARGE NUMBER: LOT MARKING CODE:

SAMPLER SIGNATURE(S):

SEND RESULTS TO:

CHECK FOR: ☐ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

	SAMPLE NUMBER	CUSTOMER NUMBER	SAMPLE POINT	MATRIX CODE	COLLECTED DATE	COLLECTED TIME	CONTAINER/ VOLUME	COMPOSITE	GRAB	NO. OF CONTAINERS	ANALYTES CODE - (UNITS CODE)													REMARKS
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								

ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME	ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME

NO.	DISTRIBUTION OF COPIES
1	LABORATORY
2	REQUESTER
3	SAMPLER

FMPC-SS-2301 (7/10/91)

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000048

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Fernald
Environmental Restoration
Management Corporation

QUALITY
ACCEPTED

FS-F-2707 (REV. 6/11/93)

Side 1

Fernald
Environmental Restoration
Management Corporation

P.O. Number: _____

Receiving Report No.: _____

Inspection Report No.: _____

Date Inspected: _____

Badge No.: _____

QUALITY
ACCEPTED

FS-F-2707 (REV. 6/11/93)

Side 2

5690

Fernald
Environmental Restoration
Management Corporation

DR No.: _____

DATE: _____

QUALITY NONCONFORMANCE

TO BE REMOVED BY AUTHORIZED PERSONNEL ONLY

FS-F-2708 (REV. 6/11/93)

Side 1

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

FS-F-2708 (REV. 6/11/93)

Side 2

Fernald
Environmental Restoration
Management Corporation

QUALITY
HOLD FOR INSPECTION

TO BE REMOVED BY QUALITY PERSONNEL ONLY

FS-F-2709 (REV 6/11/93)

Side 1

Fernald
Environmental Restoration
Management Corporation

Date Received: _____
P. O. Number: _____
Receiving Report No.: _____
Date Tagged: _____
Badge No.: _____

QUALITY
HOLD FOR INSPECTION

TO BE REMOVED BY QUALITY PERSONNEL ONLY

FS-F-2709 (REV 6/11/93)

Side 2

Fernald Site
PRELIMINARY VISUAL TRAILER INSPECTION

CARRIER	TYPE TRAILER	TRAILER NUMBER

CHECKLIST			DISCREPANCIES—COMMENTS
1. Inspect the following on trailer prior to driver unhooking:			2. Discrepancies that need to be brought to the attention of the Garage Supervisor and FS&S:
ITEM	ACCEPT	REJECT	
Lights			
Cross Member			
U Bolts & Springs			
Torque Arms			
Rims & Nuts			
Brake Lines & Shoes			
Tires			
Wheel Seals			

Comments: _____

Signed: _____ Badge No.: _____ Date: _____

DISTRIBUTION: QA VERIFICATION
Facility Services & Support

FS-F-3344 (REV. 1/17/92)

FMPC
SECURITY, ACQUISITION & MATERIALS LOGISTICS DEPARTMENT - TRANSPORTATION SECTION

OFFSITE LOADING — TIE DOWN INSPECTION — VEHICLE INSPECTION

Date: _____

COMMODITY:	CARRIER:	TRAILER NO.:	SEAL NO.:
			FA-WMCO

BALE/BOX/DRUM/SEA LAND CONTAINER NUMBERS:

LSA _____
LSA-RQ _____
LQ _____
LQ-RQ _____
TOTAL _____

DISCREPANCIES DETECTED	CORRECTED		SHIPMENT REJECTED	
	YES	NO	YES	NO

Checked By _____
SIGNATURE - CHECKER

TIE-DOWN INSPECTION AND CHECK-OFF SHEET

INSPECTION ITEM	YES	NO
Wood shoring installed to prevent longitudinal or lateral movement		
Steel strapping around the cargo securing as a stable shipment		
When weight dictates, containers divided into two units, one front and one rear of trailer not exceeding approximately 20,000 pounds each		
1¼" steel strapping utilized (5460 lbs. minimum tensile strength)		
____ each anchor plates or "U" bolts fastened to underframe (____ each side of unit) placed and secured for ____ transverse bands over unit		
Four each brakeman plates or "U" bolts fastened to underframe (two for each band) placed under each unit and secured for two longitudinal bands, securing the boxes/skids into one tight unit, anchored to the floor of the trailer		
Two Signode seals No. 107 crimped whenever two bands are used on an end over end lap joint		
Anchor and brakeman plates secured with eight each 2" nails		
See Land Containers ..... 4 each nylon straps		
..... Chains		
..... 2 X 4s		

VEHICLE INSPECTION REPORT

CONDITION	PASS	FAIL	CONDITION	PASS	FAIL	CONDITION	YES	NO
Condition of Floor			Condition of Sides			Detected Sabotage Devices		
Condition of Interior			Condition of Exterior					
Condition of Roof			Condition of Rear Doors			Detected Evidence of Sabotage		

Overall appearance: _____

General Comments: _____

Accepted: _____ Rejected: _____

Checked By: _____
SIGNATURE - TRANSPORTATION SUPERVISOR

NO.	DISTRIBUTION OF COPIES
1	Transportation Section (RECORD COPY)

FMPC-SAML-2176 (REV. 4/5/89)

For Waste Generated Prior to April 1, 1993

CARD XX ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION 129545

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE	
PACKAGE SIZE	

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		

PLANT	PROD. MBA
PLANT TO	MBA TO

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FMPC-CONT-1945-XX (REV. 12/19/88)

*U.S. GPO: 1990-749-781

New Card Effective April 1, 1993

CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE	
PACKAGE SIZE	
PROJECT	

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		
OVERPACK		
REPACK		

PLANT	PROD. MBA	MEF NO.
DCAR	SURV. NO.	GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1945-1 (REV. 11/20/92)

☆U.S. GPO:1992-751-382

CERTIFICATION STATEMENT

LOW-LEVEL WASTE SHIPMENT FROM FEMP TO NEVADA TEST SITE

Bill of Lading No. _____	Seal Number(s) _____
Trailer No. _____	_____

I certify that the containers in Shipment No. WML _____ as listed on the attached Package Storage & Disposal Data report do not contain hazardous waste as defined in Title 40 CFR 261 or OAC 3745-54 hazardous waste regulations:

(1) according to the results of tests performed in accordance with the requirements as specified in Subpart C of Title 40 CFR 261; and/or

(2) according to the supporting documentation provided to me about the materials and processes that produced the waste.

To the best of my knowledge, I believe the information I have submitted is true, accurate, and complete.

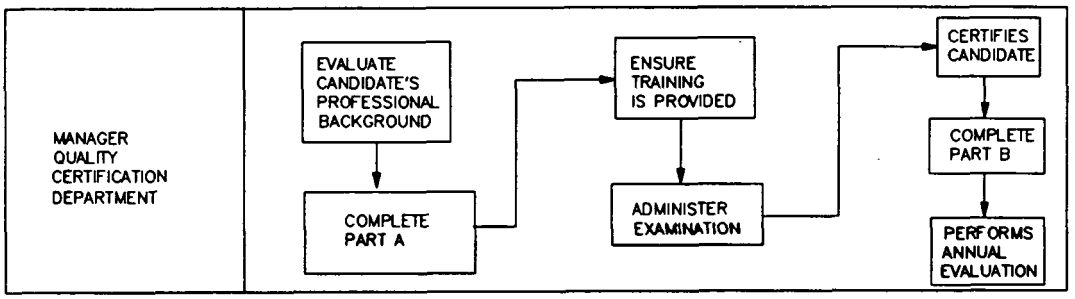
_____
FEMP Waste Certification Official

Date: _____

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION		DOCUMENT NUMBER: QP-6.04
QUALITY ASSURANCE PROCEDURE	SUBJECT: QUALIFICATION OF WASTE PACKAGE CERTIFIERS	REVISION: 1
		Page 1 of 7
	AUTHORIZED: (Manager, Quality Assurance) R. D. Rhemalthy	Effective Date: 12/22/93

1.0 SCOPE

To define the system utilized by the Fernald Environmental Restoration Management Corporation (FERMCO) for evaluating and documenting the certification of individuals as Waste Package Certifiers. This procedure covers FEMP personnel who certify that individual packages of radioactive, hazardous, and mixed waste which are consolidated to compose an off-site shipment, comply with all applicable requirements and meet the acceptance criteria of the receiver. Qualification to perform other specialized verification activities is also documented using this procedure.



2.0 PROCEDURE

2.1 General:

2.1.1 Certification of individuals under this procedure is accomplished through review and consideration of education, professional expertise, demonstrated skills, required training, and proficiency examination. This review will be conducted by the Manager, Quality Certification Department and documented on the "Waste Package Certifier Qualification Form Part A" (ATTACHMENT A).

2.1.2 "Waste Package Certifier Qualification Form Specific Certification Authority (Part B)" (ATTACHMENT B) is specific to waste package type, point of origin and repository or disposal facility. Only one Part A is completed per candidate. More than one Part B may be required for an individual.

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2.2 Evaluation of Candidate

MANAGER, QUALITY CERTIFICATION DEPARTMENT/DESIGNEE:

2.2.1 Evaluate the candidate's professional background to determine if it is sufficient to provide the general knowledge and experience required. Document this evaluation on Part A (ATTACHMENT A).

2.2.2 Utilize the following point system to evaluate the candidate in four areas: The prospective candidate shall have verifiable evidence that a minimum of five (5) points have been earned.

a. Education: (3 points maximum)

- Associate degree from an accredited institution - 1 point. If in engineering, physical science, QA or math - 2 points.

- Bachelors degree from an accredited institution - 2 points. If in engineering, physical science, QA or math - 3 points.

b. Experience (5 points maximum)

Technical experience in engineering, operations, or laboratory analysis: Score (one) 1 point for each full year to a maximum of three (3) points for this aspect of experience.

- If two (2) or more years of this experience have been in the nuclear field, score one (1) additional point; or

- If two (2) or more years of this experience have been in the radioactive or hazardous waste field, score two (2) additional points.

c. Special Training (2 points maximum)

Award up to two (2) points for special training/waste training courses applicable to waste operations.

d. Management Judgement (2 points maximum)

Award up to two (2) points for other performance factors applicable to waste operations which may not be explicitly called out in this section. Examples of these factors are leadership, sound judgement, maturity, analytical ability, tenacity, and past performance.

2.2.3 Performs an evaluation of a candidate's surveillance skills for observing waste packaging and loading operations, identifying nonconforming conditions and in achieving resolution to prevent recurrence.

2.2.4 Complete Part A (ATTACHMENT A).

2.3 Specific Certification Authority

2.3.1 General

a. In order to be certified for a waste package type the candidate must understand and be able to verify the requirements unique to that package type and the acceptance criteria unique to the repository, treatment, or disposal facility.

b. Specific verification skills include specialized areas of expertise, such as vehicle inspection. Understanding of applicable standards and FEMP requirements is necessary.

2.3.2 Required Training

MANAGER, QUALITY CERTIFICATION DEPARTMENT/DESIGNEE:

Ensure required training is consistent with the scope of authority. The following as applicable, will be covered as a minimum:

1. Receiver Waste Acceptance Criteria
2. Applicable SOP's
3. Applicable QP's

2.3.3 Specific Examination

MANAGER, QUALITY CERTIFICATION DEPARTMENT/DESIGNEE:

Administer a closed book, proctored exam to each prospective candidate prior to certification. The exam will consist of questions selected from the documents listed under the REQUIRED TRAINING section of Part B (ATTACHMENT B). A grade of 80% will be considered as passing.

2.3.4 Certification

MANAGER, QUALITY CERTIFICATION DEPARTMENT/DESIGNEE:

Certify candidate only after satisfactory completion of qualification requirements and examination by signing and dating the Certified by block of Part B (ATTACHMENT B).

2.4 Maintenance of Qualification

MANAGER, QUALITY CERTIFICATION DEPARTMENT/DESIGNEE:

2.4.1 Perform an annual reevaluation of each Package Certifier. Qualification may be extended, retraining may be required, or requalification may be necessary. This reevaluation shall consist of a review of the original certification documentation and additional supporting documentation accumulated during the annual period.

2.4.2 Document the annual reevaluation by initialing and dating the annual reevaluation block on Part B (ATTACHMENT B).

2.5 Maintenance of Certification Records

Manager, Quality Assurance/Designee

2.5.1 Maintain a file containing all pertinent records for each individual certified.

2.5.2 Submit a record of each individual's certification to the Training Department to be maintained in the centralized training files.

2.5.3 Promptly notify the Training Department in writing of any change in certification status so that centralized training files are kept current.

3.0 REFERENCES

3.1 QP-1.02, Abbreviations, Acronyms, and Definitions

4.0 ATTACHMENTS

4.1 ATTACHMENT A, Page 1 of 2 - Waste Package Certifier Qualification Form Part A

4.2 ATTACHMENT B, Page 2 of 2 - Waste Package Certifier Qualification Form Specific Certification Authority (Part B)

ATTACHMENT A
Page 1 of 1

WASTE PACKAGE CERTIFIER QUALIFICATION FORM PART A

WASTE PACKAGE CERTIFIER QUALIFICATION FORM
PART A

EMPLOYEE NAME:	BADGE NUMBER:

PROFESSIONAL		
EDUCATION		(3 POINTS MAX)
EXPERIENCE		(5 POINTS MAX)
SPECIAL TRAINING		(2 POINTS MAX)
MANAGEMENT JUDGEMENT		(2 POINTS MAX)
TOTAL POINTS	PACKAGE CERTIFIER MINIMUM - 5 POINTS	TOTAL POINTS

SURVEILLANCE SKILLS

EVALUATED BY:	NAME & TITLE:	DATE:

ATTACHMENT B
Page 1 of 1

WASTE PACKAGE CERTIFIER QUALIFICATION FORM
SPECIFIC CERTIFICATION AUTHORITY (PART B)

WASTE PACKAGE CERTIFIER QUALIFICATION FORM
SPECIFIC CERTIFICATION AUTHORITY (PART B)

EMPLOYEE NAME:	BADGE NUMBER:
PACKAGE TYPE:	
LOCATION(S): OR SPECIAL AREA EXPERTISE:	

REQUIRED TRAINING

TOPIC	DATE	TOPIC	DATE

SPECIFIC EXAMINATION

	NAME:	GRADE:	DATE:
ADMINISTERED BY:			

QUALIFICATION CERTIFIED

	NAME & TITLE:	DATE:
CERTIFIED BY:		

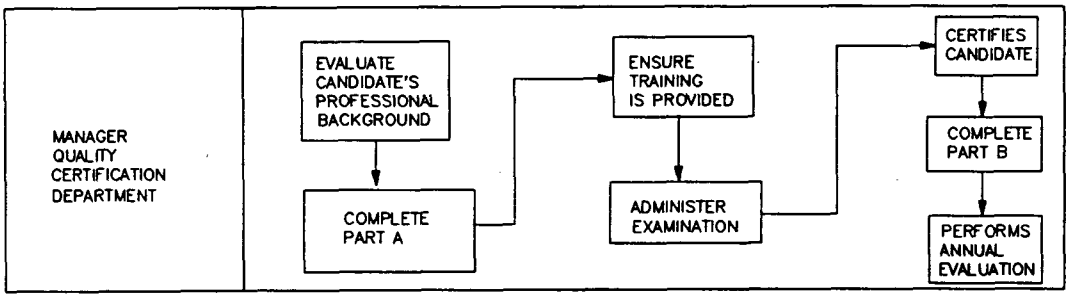
ANNUAL RE-EVALUATION

/ /		/ /		/ /	

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION		DOCUMENT NUMBER: QP-6.05
QUALITY ASSURANCE PROCEDURE	SUBJECT: QUALIFICATION OF WASTE CERTIFICATION OFFICIALS	REVISION: 1
		Page 1 of 7
	AUTHORIZED: (Manager, Quality Assurance) R. D. Alexander	Effective Date: 12/22/93

1.0 SCOPE

To define the system utilized by the Fernald Environmental Restoration Management Corporation (FERMCO) for evaluating and documenting the certification of individuals as Waste Certification Officials. This procedure covers FEMP personnel who certify that outgoing radioactive, hazardous, and mixed waste shipments comply with all applicable requirements and meet the acceptance criteria of the receiver.



2.0 PROCEDURE

2.1 General:

2.1.1 Certification of individuals under this procedure is accomplished through review and consideration of professional expertise, demonstrated skills, required training, and proficiency examination. This review will be conducted by the Manager, Quality Certification Department and documented on the "Waste Certification Official Qualification Form Part A" (ATTACHMENT A).

2.1.2 "Waste Certification Qualification Form Specific Certification Authority (Part B)" (ATTACHMENT B) is specific to waste type, point of origin and repository or disposal facility. Only one Part A is completed per candidate. More than one Part B may be required for an individual.

2.2 Evaluation of Candidate

MANAGER, QUALITY CERTIFICATION DEPARTMENT/ DESIGNEE:

2.2.1 Evaluates the candidate's professional background to determine if it is sufficient to provide the general knowledge and experience required and documents this evaluation on Part A (ATTACHMENT A).

2.2.2 Utilizes the below point system to evaluate the candidate in four areas: The prospective candidate shall have verifiable evidence that a minimum of ten (10) points for a Certification Official have been earned.

a. Education: (4 points maximum)

- Associate degree from an accredited institution - 1 point
  If in engineering, physical science, QA or math - 2 points

- Bachelors degree from an accredited institution - 2 points
  If in engineering, physical science, QA or math - 3 points

- Masters degree from accredited institution - 1 additional point

b. Experience (9 points maximum)

- Technical experience in engineering, operations, or laboratory analysis: Score (one) 1 point for each full year to a maximum of five (5) points for this aspect of experience.

- If two (2) or more years of this experience have been in the nuclear field, score one (1) additional point; or.

- If two (2) or more years of this experience have been in the nuclear waste field, score three (3) additional points; or.

- If two (2) or more years of this experience have been in the waste certification field (i.e. as a package certifier) score four (4) additional points.

c. Special Training (2 points maximum)

Award up to two (2) points for special training/waste training courses applicable to waste operations.

d. Rights of Management (2 points maximum)

Awards up to two (2) points for other performance factors applicable to waste operations which may not be explicitly called out in this section. Examples of these factors are leadership, sound judgement, maturity, analytical ability, tenacity, and past performance.

2.2.3 Performs an evaluation of a candidate's surveillance skills for observing waste packaging and loading operations, identifying nonconforming conditions and in achieving resolution to prevent recurrence.

2.2.4 Complete Part A (ATTACHMENT A).

2.3 Specific Certification Authority

2.3.1 General

In order to be certified as a Waste Certification Official the candidate must understand and be able to apply the requirements unique to the waste type and the acceptance criteria specific to the repository, treatment, or disposal facility.

2.3.2 Required Training

MANAGER, QUALITY CERTIFICATION DEPARTMENT/ DESIGNEE:

Ensure required training is consistent with the scope of authority. The following as applicable, will be covered as a minimum:

- Receiver Waste Acceptance Criteria
- Applicable QP's
- Applicable DOT Standards

2.3.3 Specific Examination

MANAGER, QUALITY CERTIFICATION DEPARTMENT/ DESIGNEE:

Administer a closed book, proctored exam to each candidate prior to certification. The exam will consist of questions selected from the documents listed under the REQUIRED TRAINING section of Part B (ATTACHMENT B). A grade of 80% will be considered as passing.

2.3.4 Certification

MANAGER, QUALITY CERTIFICATION DEPARTMENT/ DESIGNEE:

Certify candidate only after satisfactory completion of qualification requirements and examination by signing and dating the Certified by block of Part B (ATTACHMENT B).

2.4 Maintenance of Qualification

MANAGER, QUALITY CERTIFICATION DEPARTMENT/ DESIGNEE:

2.4.1 Perform an annual reevaluation of each Certifying Official. Qualification may be extended, retraining may be required, or requalification may be necessary. This reevaluation shall consist of a review of the original certification documentation and additional supporting documentation accumulated during the annual period.

2.4.2 Document the annual reevaluation by initialing and dating the annual reevaluation block on Part B (ATTACHMENT B).

2.5 Maintenance of Certification Records

MANAGER, QUALITY ASSURANCE/DESIGNEE

2.5.1 Maintain a file containing all pertinent records for each individual certified.

2.5.2 Submit a record of each individual's certification to the Training Department to be maintained in the centralized training files.

2.5.3 Promptly notify the Training Department in writing of any change in certification status so that centralized training files are kept current.

3.0 REFERENCES

3.1 QP-1.02, Abbreviations, Acronyms, and Definitions

4.0 ATTACHMENTS

4.1 ATTACHMENT A - Waste Certification Official Qualification Form Part A

4.2 ATTACHMENT B - Waste Certification Official Qualification Form Specific Certification Authority (Part B)

ATTACHMENT A
Page 1 of 1

WASTE CERTIFICATION OFFICIAL QUALIFICATION FORM PART A

WASTE CERTIFICATION OFFICIAL QUALIFICATION FORM PART A

EMPLOYEE NAME:		BADGE NUMBER:

PROFESSIONAL		
EDUCATION		(4 POINTS MAX)
EXPERIENCE		(9 POINTS MAX)
SPECIAL TRAINING		(2 POINTS MAX)
MANAGEMENT JUDGEMENT		(2 POINTS MAX)
TOTAL POINTS	CERTIFICATION OFFICIAL MINIMUM - 10 POINTS	TOTAL POINTS

SURVEILLANCE SKILLS

	NAME & TITLE.	DATE.
EVALUATED BY:		

ATTACHMENT B
Page 1 of 1

WASTE CERTIFICATION OFFICIAL QUALIFICATION FORM
SPECIFIC CERTIFICATION AUTHORITY (PART B)

WASTE CERTIFICATION OFFICIAL QUALIFICATION FORM
SPECIFIC CERTIFICATION AUTHORITY (PART B)

WASTE CERTIFICATION OFFICIAL QUALIFICATION FORM
SPECIFIC CERTIFICATION AUTHORITY (PART B)

EMPLOYEE NAME:	BADGE NUMBER
WASTE TYPE:	
DESTINATION:	

REQUIRED TRAINING

TOPIC	DATE	TOPIC	DATE

SPECIFIC EXAMINATION

	NAME:	GRADE:	DATE:
ADMINISTERED BY:			

QUALIFICATION CERTIFIED

	NAME & TITLE:	DATE:
CERTIFIED BY:		

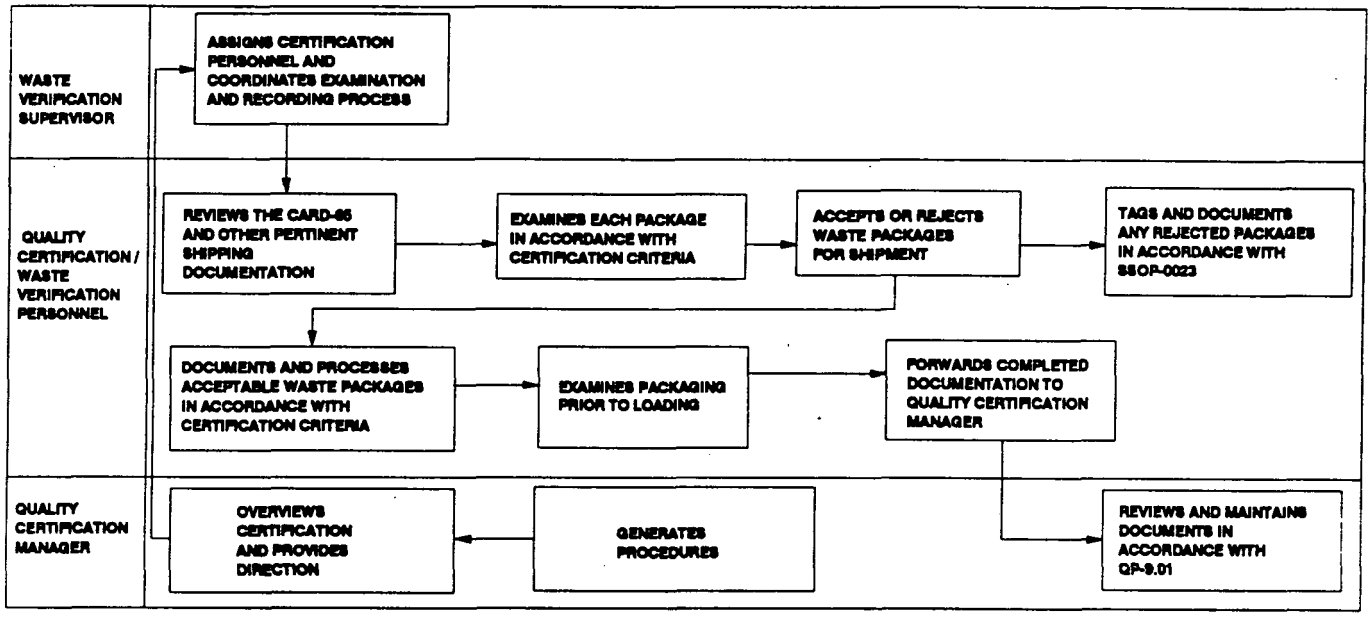
ANNUAL RE-EVALUATION

/ /		/ /		/ /	

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION		DOCUMENT NUMBER: QP-12.03
QUALITY ASSURANCE PROCEDURE	SUBJECT: CERTIFICATION OF WASTE PACKAGE EXAMINATION AND SEALING FOR OFF-SITE SHIPMENTS	REVISION: 0
		Page 1 of 29
	AUTHORIZED: (Manager, Quality Assurance) R. D. Abernathy	Effective Date: 12/01/93

1.0 SCOPE

This procedure outlines the method for the certification of waste materials at the Fernald Environmental Management Project (FEMP) prior to offsite shipment and is applicable to Low-Level Radioactive Waste (L-LRW) only.



2.0 PROCEDURE

2.1 Industrial Health and Safety Requirements

2.1.1 Leather palm gloves shall be worn by when handling sharp-edged or abrasive materials, containers, lids, and banding materials.

2.1.2 Safety glasses shall be worn by all personnel at all times in the process area, except when another type of eye protection equipment is specified.

2.1.3 A half-mask respirator equipped with radionuclide (purple) cartridges as specified by the Radiological Control (RC) Technician shall be available for each person working with waste material and shall be used at the direction of the RC Technician.

2.1.4 Protective clothing as prescribed by Radiological Control and posted at the entrance to controlled areas shall be worn.

2.1.5 Any circumstances of event 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 Control for evaluation. The involved personnel 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.

2.1.6 Spill incidents involving RCRA materials shall be reported to the Spill Reporting Advisor in Environmental Compliance in accordance with Site Procedure SSOP-0067, "FMPC Spill Incident Reporting and Cleanup."

2.2 General Requirements for Packaging L-LRW

2.2.1 Unless specifically stated, all Quality Certification personnel or Waste Verification personnel performing work to this procedure shall be trained and qualified on this procedure and the following;

- NVO-325 Rev. 1, "Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements"; and
- the Waste Certification Program Plan;
- and qualified in accordance with Quality Assurance Procedure EQP-6.04, "Qualification of Waste Package Certifiers," or on Quality Assurance Procedure EQP-6.05, "Qualification of Waste Certification Officials" as applicable.

2.2.2 Waste Certification Officials may perform activities assigned to Waste Package Certifiers by authority of NVO-325.

2.2.3 Ensure that materials prohibited by NVO-325 and listed on the Prohibited Materials List (ATTACHMENT A) are not packaged for shipment.

2.2.4 Ensure that only materials approved by the Nevada Test Site, Solid Waste Compliance and Waste Management are be shipped. The Quality Waste Certification Manager is responsible for making this information available to all personnel performing verification and certification work.

2.2.5 Ensure that only container designs approved for shipment by the Nevada Test Site meeting the requirements of NVO-325 are used. For the purpose of this procedure only those container types verified as acceptable by the Quality Certification Manager, or another Waste Certification Official, are to be used.

2.2.6 Ensure all packaging is strong, tight, and will not leak under normal transport and handling conditions, and that it meets the criteria of Title 49 CFR 173.431 and 173.425.

2.2.7 Marking and labeling shall be in accordance with Title 49 CFR 172, Subparts D & E, as follows:

- Container Number;
- Shipment Number;
- Gross Weight;
- Radioactive markings; and
- Other marking and labeling as required for the packaged material.

NOTE: The container number, shipment number, and gross weight may appear on the Bar Code Label rather than independent markings.

2.2.8 Packages certified and held for shipment (boxes and drums), with the exception of cargo containers, must be secure and protected from weather and other adverse conditions. Covered or enclosed storage are appropriate protective measures. If appropriate measures have not been taken, all packages concerned shall be reexamined after over night exposure by Quality Certification personnel and recertified on the basis of the reexamination results.

2.3 Examination of Metal Drums Prior to Filling

Metal drum examination by Quality Certification or Waste Verification prior to filling is not a routine requirement, but may be performed on an audit basis as follows:

- Physical Inspection -10% of lot
- CARD-65 comparison - 10% of lot
- CARD-65 check for completeness and accuracy - 100% of lot

Results of examination shall be documented with a "Surveillance Checklist" (ATTACHMENT B) and signed by Waste Verification or Quality Certification personnel performing the examination. Criteria for examination shall include as a minimum:

NOTE: Questions regarding the severity of any deformation should be addressed by a qualified Engineer.

2.3.1 Except for light rust, drum must be clean and empty.

2.3.2 Examine all surfaces of the drum and lid and reject for any of the following conditions.

- A breach (a hole, crack, gash, etc.);
- A dent or bulge which is creased, gouged, or may have otherwise significantly weakened the metal.
- A dent greater than 1" in depth or extending over 6" in any direction;

- A significant dent in the bottom rim. A significant dent is one that compromises the integrity of the container;
- A significant dent in a rolling hoop. Each deficiency is to be evaluated for affect on the integrity of the container;
- Rust causing exfoliation (scale), severe pitting, or other conditions having a detrimental effect on the serviceability of the waste container. (Small areas of exposed base metal, minor to moderate scratches, and slightly rusted spots are acceptable); or
- Any deformation or out-of-round condition affecting the integrity of the sealing surface.

2.4. Examination of Metal Drum Filling

The examination of filling of drums with low level radioactive waste materials shall not be a routine requirement, but may be performed on an audit basis as follows:

- Physical Inspection -10% of lot
- CARD-65 comparison - 10% of lot
- CARD-65 check for completeness and accuracy - 100% of lot

The filling of drums with low level radioactive waste materials shall be monitored by Waste Verification or Quality Certification personnel. The results of examination shall be documented on the "Waste Certification Examination Report - Drum Filling" checklist (ATTACHMENT C) and signed by those performing the examination. As a minimum, the examination shall include:

2.4.1 Visual verification that the materials packaged conform in appearance to the materials listed on the waste generator's certification record (currently the CARD-65, ATTACHMENT D).

2.4.2 If material is a respirable fine, verify that double containment is used in packaging.

2.4.2.1 Plant 8 residues may be packaged in 48-gallon jug head type lever lock drum, sealed with a sequentially numbered wire seal, and contained in a 55-gallon bolt closure type overpack drum.

2.4.2.2 Other miscellaneous materials may be overpacked with double containment, either overpacked or packaged in drum with 6 mil or greater sealed liner, provided neither container will leak in normal handling and transport.

NOTE: As of the date this procedure is issued, approval has not been received to resume shipment of asbestos to the Nevada Test Site. Also, there is no assurance that when and if shipment is resumed that asbestos in drums will be acceptable. Furthermore, asbestos has special packaging requirements.

2.4.3 Verify that bolt ring closure is used on outer drum, flange is in down position, and lid is secure. (If in doubt, grasp bolt ring with gloved hand and generate movement to determine if ring is tight.)

2.5 Examination of Filled Metal Drums Prior to Loading Trailers For Transfer to Plant 1

The surveillance of the filling of drums with low level radioactive waste materials shall not be a routine requirement, but may be performed on an audit basis as follows:

- Physical Inspection -10% of lot
- CARD-65 comparison - 10% of lot
- CARD-65 check for completeness and accuracy - 100% of lot

Examine packaged drums prior to loading on trailers for transfer to the Plant 1 Area. These drums are to be examined 100%, dependent on personnel availability on a best effort basis, and requirement shall not be waived without the approval of the Waste Verification Manager who shall notify Operations and Waste Management supervision of the decision to perform the examination. The results of examination shall be documented on the "Waste Certification Examination Report, 'Prior to Transfer'" (ATTACHMENT E).

2.5.1 Receives the "Item Production/Certification/ Identification" card, (CARD-65, ATTACHMENT D).

2.5.2 The lid shall be properly seated on the drum and held in place by a bolt ring closure. If bolt and flanges are not lower than rest of ring, then ring is positioned upside down.

2.5.3 Examine all surfaces of the drum and lid and reject for any of the following conditions:

NOTE: Questions regarding the severity of any deformation should be addressed by a qualified Engineer.

- A breach (a hole, crack, gash, etc.);
- A dent or bulge which has creased, gouged, or may have otherwise significantly weakened the metal;
- A dent greater than 1" in depth or extending over 6" in any direction;

- A significant dent or deformation in the bottom rim. A significant dent is one that compromises the integrity of the container;
- A significant dent or deformation in a rolling hoop which may affect the integrity of the container;
- Rust causing exfoliation (scale), sever pitting, or other conditions having a detrimental effect on the serviceability of the waste container. (Small areas of exposed base metal, minor to moderate scratches, and slightly rusted spots are acceptable); or
- Any deformation or out-of-round condition affecting the integrity of the sealing surface.

2.5.4 Complete the "Waste Certification Examination Report - Prior to Transfer" checklist (ATTACHMENT E).

2.5.5 File report in Quality Certification office.

2.6 <u>Examination of Metal Boxes Prior to Filling</u>

2.6.1 Metal box examination by Waste Verification or Quality Certification prior to filling is not required but should be performed on a monitoring basis.

Results of examination shall be documented with a "Surveillance Checklist" (ATTACHMENT B) and signed by Waste Verification or Quality Certification personnel performing the examination. Criteria for examination shall include as a minimum the following:

NOTE: Questions regarding the severity of any deformation should be addressed by a qualified Engineer.

- Containers must be clean and empty.
- The containers shall be free of holes, severe gouges, and significant deformations causing structural weakness or improper sealing.
- The containers shall be free of rust causing exfoliation (scale), severe pitting, or other conditions having a detrimental effect on the serviceability of the waste container.

2.6.2 Prior to filling, boxes to be used for concrete or other materials which may damage the bottom of the container when filled are to have wood skids in the bottom unless used to load soil or wood. Each box must have 1/2 to 1 inch of evenly spread diatomaceous earth.

2.7 Surveillance of Metal Boxes at Filling

Surveillances of the filling of metal boxes may be appropriate for specific projects. Surveillance checklists will be developed based on operating procedures or work plans for the specific project to be monitored. These checklists will be completed by Waste Verification or Quality Certification at the time the work is observed.

2.8 Examination of Metal Boxes at Closure After Filling

Metal box closure activities shall be monitored by Waste Verification or Quality Certification occasionally to verify compliance. Results of the monitoring shall be documented on a "Pre-Transfer Visual Exam of Filled Metal Boxes" checklist (ATTACHMENT F) shall be completed and shall verify the following:

NOTE: Questions regarding the severity of any deformation should be addressed by a qualified Engineer.

2.8.1 The containers shall be free of holes, severe gouges, and significant deformations causing structural weakness or improper sealing.

2.8.2 The containers shall be free of rust causing exfoliation (scale), severe pitting, or other conditions having a detrimental effect on the serviceability of the waste container.

2.8.3 For all box designs having drain plugs, verify that box has been checked for a drain plug, and if found the drain plug has been tightened.

- A red dot on the lower left hand front of the box shall indicate that the plug has been tightened.
- A black dot on the lower left hand front of the box shall indicate that there is no drain plug.
- Metal boxes shall have either a red or black dot marked.

2.8.4 If container has been observed during loading operation ensure that uncalcined diatomaceous earth is properly placed in and around the container so that all moisture is absorbed and no free liquid is visible.

2.8.5 If steel boxes are used as overpack containers for previously inspected containers, no additional inspection of the contents is required.

2.8.6 Examine container at closure as follows:

- Verify the CARD-65 (ATTACHMENT D) is completed accurately.
- Verify that "Radioactive material" markings (2 sides and top) and FEMP container number markings are present and legible.
- Verify that all unnecessary markings have been removed or covered.
- Verify that gross weight of containers does not exceed 8,000 lbs. Gross weight of other boxes may not exceed design limitations or 8,000 lbs whichever is less.
- Verify that a foam rubber or similar type gasket is on the sealing surface of the lid, or the lid is sealed with a durable sealant.
- Verify that lid is properly placed on the box.
- Verify the container is properly closed.

  1) For boxes secured with locking pins, verify locking pins required for the container are in place with the locking notches below the straps and fully engaged to full thickness of strap over entire locked surface edge of notch.
  2) If bolted retainer ring is on, verify all bolts are securely in place.
  3) For bolt closure boxes, verify that all bolts are in place and securely tightened.

2.9 <u>Examination of ISO Cargo Containers Prior to Filling</u>

2.9.1 ISO cargo container examination by Waste Verification or Quality Certification prior to filling is not required but should be performed on a monitoring basis or as dictated by SSOP-0078, "Packaging Low Level Radioactive Waste (LLRW) in ISO Containers for Off-site Shipment". Criteria for examination shall include as a minimum:

NOTE: Questions regarding the severity of any deformation should be addressed by a qualified Engineer.

- Containers must be clean, dry on the inside, and empty.
- The containers shall be free of holes, severe gouges, and significant deformations causing structural weakness or improper sealing.
- The containers shall be free of rust causing exfoliation (scale), severe pitting, or other conditions having a detrimental effect on the serviceability of the waste container.
- Verify a tare weight is marked on the container.

2.9.2 Verify the following for end loading ISO cargo container.

- Verify that a 1/4" minimum continuous bead of RTV Silicone adhesive sealant, or equivalent, has been applied on all seams and corners of the container interior.
- Verify that the container floors have been lined with two layers of blanket type absorbent, extending at least 2" up each wall.
- Verify that the absorbent fabric has been covered with a 0.006 mil thick plastic sheet that extends at least 36 inches up each side of the container.
- Verify that plywood has been placed on the container floor and up to four feet in height on all sides.

2.9.3 Verify the following for top loading oversized metal boxes.

- Verify the bottom of the container has been lined with wood skids.
- Verify there is a covering of dicalite (uncalcined diatomaceous earth) or wet-strength polypropylene/pulp super absorbent fabric.

2.9.4 Verify that all container outside unnecessary markings not related to the load have been removed.

2.9.5 Verify that a prohibited materials list has been attached to the container in a visible location or displayed in the loading area.

2.9.6 Verify that the ISO cargo container is not placed on the ground.

2.9.7 Complete the "Waste Certification ISO Examination Filling" checklist (ATTACHMENT G).

2.10 Examination of ISO Cargo Containers at Filling

2.10.1 Verify that a prohibited materials list has been attached to the container in a visible location.

2.10.2 Examine visible contents for "Prohibited Items".

2.10.3 Photograph the interior of the container when it is half loaded if notified, and when the container is completely filled.

NOTE: A photograph of a half filled container is not required. It is, however, an excellent source of documentation.

2.10.4 Complete the "Waste Certification ISO Examination Filling" checklist (ATTACHMENT G).

2.11 Examination of ISO Cargo Containers at Closure After Filling

2.11.1 Verify that the load inside the container has been secured with plywood or other similar type materials.

2.11.2 If the ISO cargo container has been observed during loading operation ensure that wet-strength polypropylene/pulp super absorbent fabric or uncalcined diatomaceous earth is properly placed in the container so that all moisture is absorbed and no free liquid is visible. There shall be a continuous segment of two thicknesses of absorbent pad inside the doorway.

2.11.3 The containers shall be free of holes, severe gouges, and significant deformations causing structural weakness or improper sealing.

2.11.4 The containers shall be free of rust causing exfoliation (scale), severe pitting, or other conditions having a detrimental effect on the serviceability of the waste container.

2.11.5 Examine end loading the ISO cargo containers at closure as follows:

- Verify the CARD-65 (ATTACHMENT D) is completed accurately.

NOTE: Add 350 lbs. to the tare weight of end loading ISO cargo containers to account for the shoring added to the container prior to filling.

- Verify that the appropriate checklists have been completed per SOP 20-C-625.
- Verify that all unnecessary markings have been removed or covered.

2.11.6 Verify that all doors and all sealing surfaces have been caulked with GE RTV silicone rubber adhesive sealant, or the equivalent.

2.11.7 Verify that the doors are closed and latched, the center bars are banded with two metal bands and clips, and each band is secured with double crimped clips.

2.11.8 If the cargo container is top loading, verify that a foam rubber or similar type gasket is on the sealing surface of the lid, or the lid is sealed with a sealant.

- Verify the CARD-65 (ATTACHMENT D) is completed accurately.
- Verify that the appropriate checklists have been completed per SOP 20-C-625.
- Verify that all unnecessary markings have been removed or covered.

2.11.9 Complete the "Waste Certification ISO Examination Filling" checklist (ATTACHMENT G).

2.12 <u>Examination of Trash at Baler</u>

2.12.1. Waste Package Certifier or Waste Certification Official shall examine bags of contaminated trash which represents 10% of trash baled for disposal each week. The results of those inspections and any resulting notification shall be documented on the "Quality Certification Pre-Baled Trash" form (ATTACHMENT H), for subsequent action per SSOP-0023.

NOTE: Any unlabeled (unidentified source) found outside the dumpsters shall be marked with a red X and must be internally inspected at the baler prior to the baling operation. Prohibited items must be segregated.

2.12.2. Verify that the baler operator logs each bag and its generation source in the log book maintained at the baler.

2.12.3. Inspections will be performed in conjunction with the inspection of contaminated trash dumpsters. Copies of all inspections are to be sent to Quality Environmental Assurance who will track nonconformances and issue DR's to owners of contaminated trash dumpster who are identified as having three nonconformances during a month.

2.13 Examination of Bales prior to loading.

Waste Package Certifier or Waste Certification Official examine bales at the loading area prior to loading into ISO containers for shipment to NTS. Bales are to be examined at the baler (25%) and prior to loading (100%) by a Waste Package Certifier or Waste Certification Official. Results shall be documented on Bales Checklist (ATTACHMENT I) or a Surveillance Checklists (ATTACHMENT B).

2.13.1 Verify that each bale of trash is properly constructed:

- No prohibited materials are present;
- Trash is compacted;
- Each bale is wrapped with six metal bands or wires; and
- Bale is dry.

2.13.2 Verify that bales examined by the RTR (Real Time Radiography) have no evidence of prohibited materials. The results of the RTR evaluation will be attached to form EQP-910315-3 (ATTACHMENT H) prior to loading of the bales into the ISO cargo container.

NOTE: Any deficiency identified per shipment of twenty bales shall result in 100% RTR of all bales in this shipment. The Waste Management Supervisor will be notified of any nonconformances found and will provide further direction.

2.13.3 Each bale is inspected as it is rotated by fork truck driver so that all surfaces are visible prior to being loaded into an ISO cargo container which has been properly lined and inspected.

NOTE: If bale is designated wet (to be set aside for drying), initial the Card-65 but note that the bale is wet and unacceptable for shipment.

2.13.4 Wet bales will be recertified prior to packaging for shipment.

2.14 Packaging of Baled Trash into ISO Cargo Container

2.14.1 Examine the ISO cargo container to be sure all requirements of 2.10 and 2.11 are met.

2.14.2 Verify container is loaded to near capacity.

2.14.3 Complete the "Quality Certification ISO Examination-Baled Trash" checklist (ATTACHMENT I).

2.15 Documentation of Examinations and Deficiencies

The Waste Certification Official or a Waste Package Certifier assures that all examinations are properly documented on the applicable forms and/or checklists as required, and also ensures that deficiencies are documented and processed as follows:

2.15.1 Report all deficiencies on the appropriate checklist and/or form. Repetitive or uncorrected deficiencies are documented on the DR or CAR form in accordance with SSOP-0023.

NOTE: Uncorrected deviations on a Deviation Report must be resolved before Quality Assurance can provide a release of the shipment.

2.15.2 Any waste package rejected due to non-acceptable or non-authorized contents or physical damage to the containers shall have a "Hold Tag" attached to it as identification in accordance with SSOP-0023. Deficiencies shall be corrected prior to affixing an NV-211 label. Uncorrectable deficiencies or lack of prompt or appropriate action, or chronic and/or systematic errors must be documented on a Corrective Action Report in accordance with SSOP-0023. The rejected package

shall be separated from other packages or containers ready for shipment.

2.15.3 Any waste packages rejected due to improper labeling or identification shall be corrected prior to affixing an NV-211 label. If no acceptable solution can be defined, a "Hold Tag" shall be attached and a Deviation Report shall be issued in accordance with SSOP-0023.

NOTE: Disposal of any rejected containers, lids, bolt rings, or lever rings shall be the responsibility of the Waste Management or the generator of the package.

2.15.4 Forward completed documentation to the Waste Certification Manager who reviews and maintains documents in accordance with EQP-9.01.

3.0 REFERENCES

3.1 NVO-325 Rev. 1, Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements

3.2 EQP-1.02, Abbreviations, Acronyms, and Definitions

3.3 EQP-9.01, Designation, Preparation, Storage and Maintenance of Quality Documents

3.4 EQP-12.04, Certification of Loading and Shipment of Low-Level Radioactive Waste

3.5 SSOP-0023, Deviation and Corrective Action Reporting

3.6 SSOP-0067, FMPC Spill Incident Reporting and Cleanup

3.7 SSOP-0075, Packaging Low Level Radioactive Waste (LLRW) in Drums for Off-site Shipment

3.8 SSOP-0078, Packaging Low Level Radioactive Waste (LLRW) in ISO Containers for Off-site Shipment

3.9 SSOP-0079, Packaging Low Level Radioactive Waste (LLRW) in Metal Boxes for Off-site Shipment

3.10 SSOP-1020, QA/QC Tagging

3.11 SSOP-4006, Occurrence Reports

3.12 Title 49 CFR 172

3.13 Title 49 CFR 173

4.0 ATTACHMENTS

4.1 ATTACHMENT A - Prohibited Materials List

4.2 ATTACHMENT B - Surveillance Checklist

4.3 ATTACHMENT C - Waste Certification Examination Report, "Drum Filling", ECQ-881115-5, Rev. 1 (09/23/89)

4.4 ATTACHMENT D - Item Production/Certification/Identification Card-65, FS-F-1945-1 (Rev. 11/20/92)

4.5 ATTACHMENT E - Waste Certification Examination Report, "Prior to Transfer", ECQ-881115-3, Rev. 1 (08/31/89)

4.6 ATTACHMENT F - Pre-Transfer Visual Exam of Filled Metal Boxes, ECQ-910605-1, Rev. 2 (01/27/93)

4.7 ATTACHMENT G - Waste Certification ISO Examination Filling, ECQ-910315-1, Rev. 2 (4/13/93)

4.8 ATTACHMENT H - Quality Certification Pre-Baled Trash, ECQ 931022, Rev.0, (10/22/93)

4.9 ATTACHMENT I - Quality Certification ISO Examination Baled Trash, ECQ-910315-3, Rev. 4 (11/06/93)

PROHIBITED MATERIALS LIST

MATERIAL	LIMIT/EXPLANATION
Transuranics	Limit: <100 nanocuries/gram. Acceptability of waste stream determined during characterization.
Hazardous Waste	Limit: Per Title 40 CFR 261 and Ohio Administrative Code 3745-54. No corrosives (acids with pH ≤2 and caustic materials with Ph ≥12). No ignitables (e.g. metal powders). No reactive materials (metal fines, explosives). No toxic materials (e.g. pesticides, poisons, certain metals. No leachable listed metals (e.g. arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, and cyanide). **NOTES: Lead can be found in hammer heads, scale weights, flashing materials, and counter weights. Watch for barium as barium chloride salts or barium chloride contaminated materials. Only "Rayovac" dry cell batteries are acceptable (other batteries contain unacceptable quantities of metals such as cadmium, lead, & mercury). Mercury is frequently found in instruments, electrical switches (including thermostats), and fluorescent lamp tubes. Silver can be found in photographic developer fluids, solder, and electrical contacts.** No solvents. Some examples include WD-40, adhesives, liquid paints, paint thinners, paint removers, or materials contaminated with solvents (e.g. rags saturated with solvents). **NOTE: If a strong smell of solvents is present, call Health & Safety for verification.**

PROHIBITED MATERIALS LIST
(Continued)

MATERIAL	LIMIT/EXPLANATION
Free Liquids	Limit: Except for entrapped or residual liquids in well drained containers (0.5% of total volume maximum), no liquids including any that might separate from the waste under ambient temperature and pressure conditions (e.g. ice, excessive evaporation and condensation). Condensation in plastic bags and waste packages shall be considered entrapped liquids. Individual trash bales which are wet shall be excluded from shipment. Slightly soggy bales that occasionally drip should be limited to 30% to prevent excessive condensation within the container.
Particulates	Limit: Wastes packaged in unlined metal drums or ISO containers must contain no more than 1% weight of <10-micrometer particles or 15% weight of <200-micrometer particles. Some examples of fine particulates are black oxide, orange oxide, green salt, sump cakes, milled magnesium fluoride, dust collector residues, floor and pad sweepings, and soils.
Compressed gases	Limit: Defined by Title 49, CFR 173.300. However, all containers designed for compression, shall be assumed to exceed limit unless valve mechanism is removed, or in the case of aerosol cans, the can has an obvious puncture. Some examples of compressed gas containers include LP gas containers, oxygen containers, and aerosol cans. Typical aerosol cans may have containing paint, adhesives, cleaning and deodorizing agents, and personal care items.
Stabilization	Limit: Waste minimization shall be attained to the extent practicable by size reduction and efficient packaging.
Etiologic Agents	Limit: None allowed. Pathogens, infectious wastes or other etiologic agents. Potential source of this prohibited waste would be from Medical. Example include band aids, tongue blades, syringes, cotton balls or other materials stained with blood or other body materials, and outdated pharmaceuticals.

PROHIBITED MATERIALS LIST
(Continued)

MATERIAL	LIMIT/EXPLANATION
Chelating Agents:	Limit: No greater than 1% by weight. Chelating or complexing agents. Chelating agents form coordination compounds by offering two or more chemical bonds (through ligands) to a central metal ion. The most common chelating agent is EDTA. Other common chelating agents are aminopolyacteic acids. Excess chemicals from the on-site laboratory are the primary potential source. Wastes are to be evaluated for containment of chelating agents by Waste Characterization. Any exceeding the limit are identified on the MEF or RD/RC letter for exclusion from NTS shipments.
Polychlorinated Biphenyls	Limit: None allowed unless the concentration meets the municipal solid waste disposal limits. Reference 40 CFR 761.60. Commonly called PCB's. Frequently found in capacitors and transformers. Light ballasts that are PCB free will be marked as such. Materials contaminated with PCBs may show signs of an oily residue. If PCB's are suspected, contact Waste Characterization.
Explosives and pyrophorics	Limit: None allowed. Other than the commonly known explosives, laboratory hoods, bottles, and containers may contain small quantities of picric acid crystals which are highly explosive. Check labels on containers and RCRA evaluation results. Pyrophoric (self igniting) materials are commonly found in porous (spongy) uranium metals, and uranium fines such as fines from turnings and residue from grinding. Also prohibited are most all metal powders.

NOTE: This list was developed as an aid in identifying and recognizing prohibited materials. It is not to be used in lieu of NVO-325 waste acceptance criteria, or 40 CFR and 49 CFR requirements. Examples given are typical and are not intended to be all inclusive.

ATTACHMENT B
Page 1 of 1

SURVEILLANCE CHECKLIST
EXHIBIT

SURVEILLANCE CHECKLIST

Report No.: _____ Title: _____ Page ____ of ____

Date: _____ _____ Follow-Up to Survey No. (If Applicable): _____

Evaluator: _____ Organization: _____

ITEM	SURVEILLANCE CHARACTERISTIC	SATIS-FACTORY	UN-SATIS-FACTORY	REMARKS

ATTACHMENT C
Page 1 of 1

WASTE CERTIFICATION EXAMINATION REPORT
"DRUM FILLING"

WASTE CERTIFICATION
EXAMINATION REPORT
"DRUM FILLING"

DATE: _____ LOCATION: _____

CERTIFICATION SPECIALIST MATERIAL: _____

_____

LOT NO.: _____

DRUM #	INSIDE DRUM	OUTSIDE DRUM	NO LIQUIDS	I.S. LID	MTL. OK	SEAL OK .	W-65 COMP.	INITIAL ALL OK

Deviations Noted: Yes_____ No_____

Deviation Corrective Action Completed :

Production Supervisor: _____ Date: _____

Waste Certification Specialist: _____ Date: _____

QAC-881115-5, Rev.1 (09/23/89)

ATTACHMENT D
Page 1 of 1

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION CARD-65

CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DATE DAY	DATE YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE MONTH	SEAL DATE DAY	SEAL DATE YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE	
PACKAGE SIZE	
PROJECT	

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		
OVERPACK		
REPACK		

PLANT	PROD. MBA	MEF NO.
DCAR	SURV. NO.	GROSS WEIGHT
		TARE WEIGHT
		NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1945-1 (REV. 11/20/92)

☆U.S. GPO:1992-751-382

ATTACHMENT E
Page 1 of 1

WASTE CERTIFICATION EXAMINATION REPORT "PRIOR TO TRANSFER"

WASTE CERTIFICATION
EXAMINATION REPORT
"PRIOR TO TRANSFER"

(Rev. 8/31/88)

DATE:_____ LOCATION:_____

CERTIFICATION SPECIALIST MATERIAL:_____

_____

LOT NO.:_____

DRUM #	O.S. DRUM	O.S. LID	BOLT	RING	DRUM I.D.	WTS. OK .	W-65 (10%)	ALL OK

Deviations Noted: Yes_____ No_____

Deviation Corrective Action Completed :

Production Supervisor: _____ Date:_____

Waste Certification Specialist:_____ Date:_____

ATTACHMENT F
Page 1 of 1

PRE-TRANSFER VISUAL EXAM OF FILLED METAL BOXES

PRE-TRANSFER VISUAL EXAM OF FILLED METAL BOXES

CONTAINER S/N : _____ DATE: _____

GENERAL DESCRIPTION OF CONTENTS: _____

_____

_____

VERIFICATION ITEM	CHECK OFF
1. Verify that the container has no holes, tears or creases.	_____
2. Verify the container lid is not damaged (including the gasket).	_____
3. Verify that contents do not include prohibited materials. (If prohibited materials are suspected, or it is difficult to observe contents, the Boroscope may be useful in the examination.)	_____
4. Verify drain plug is installed, if applicable.	_____
5. Verify no free liquids are visible in the container other than minor quantities entrapped. (Entrapped liquids may not exceed 0.5% by volume.)	_____
6. If material packaged is damp, verify that a minimum of one bag of uncalcined diatomaceous earth or absorbent pad is placed on top of soil.	_____
7. Verify the data record (W-65 Card) has been initiated, is filled out correctly, and complete except for weights.	_____

Note: Any deviations noted on this checklist will require attachment of a Nonconformance Tag to the container. A Deviation Corrective Action Report shall be prepared if the nonconformance is not immediately correctable, or if the deviation involves prohibited materials. In either case, the deviation must be resolved prior to removal of the Nonconformance Tag.

Deviation Noted: No____ Yes____ If yes, provide information: _____

_____

_____

_____

I hereby certify that I have completed the above checklist and witness that the above items are correct to the best of my knowledge.

Signed : _____ Date : _____
(Quality Certification)

ECQ-910605-1, Rev. 2 (01/27/93)

WASTE CERTIFICATION ISO EXAMINATION FILLING

WASTE CERTIFICATION ISO EXAMINATION FILLING

INFORMATION

MTL. TYPE:_____ CONTAINER NO._____

REQUESTOR/GENERATOR:_____ LOCATION:_____

INITIAL TARE WEIGHT:_____ RCRA CHARACTERIZATION NO. ON FILE

EXAMINATION (WASTE CERTIFICATION)

	INITIALS
1. Verify condition of container (rust, dents, flaking paint, holes, water leaks).	_____
2. Verify container is properly lined and not placed directly on the ground per SSOP-0078.	_____
3. Verify correct materials are placed in ISO Cargo container where visible. (No PROHIBITED MATERIALS)	_____
4. No visual evidence of free liquids or seepage from SeaLand, nor is material in SeaLand saturated to the extent that seepage could be expected during handling and transport.	_____
5. Verify no visible evidence of RCRA material in materials loaded into SeaLand.	_____
6. Verify the data record (W-65 Card) has been initiated, is filled out correctly, and complete except for weights. Revision date on card must be 11/20/92.	_____
7. Verify weight is distributed equally.	_____

COMMENTS:_____

NOTE: any deviations from the checklist will require a deviation report to be issued and a nonconformance tag placed on the container. The deviation must be resolved prior to removal of the nonconformance tag.

DEVIATION NOTED OK_____ REJECT_____

TEMPORARY SEAL NUMBER_____ DATE ATTACHED _____ DATE REMOVED_____

I hereby certify that the above checklist has been completed and witness that the above items are correct to the best of my knowledge per SSOP-0078.

Signed: _____ Date:_____
(Waste Certification)

ATTACHMENT H
Page 1 of 1

QUALITY CERTIFICATION PRE-BALED TRASH

QUALITY CERTIFICATION PRE-BALED TRASH

Dump. #/ Location	# Bags	# of Bags Labeled	Prohibited Items (PI)	Disposition of PI Found	Dumpster Owner\ Date Notified	Date	QC Initials	Bale #

Signed:_____ Date:_____
Quality Control Personnel

* File and forward copies to WGC, QA and Dumpster Owners.

ECQ-931022, REV. 0 (10/22/93)

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ATTACHMENT I
Page 1 of 2

QUALITY CERTIFICATION ISO EXAMINATION - BALED TRASH

QUALITY CERTIFICATION ISO EXAMINATION
BALED TRASH

INFORMATION

MATERIAL TYPE:_____ CONTAINER NO. _____

REQUESTOR/GENERATOR:_____ LOCATION: _____

TARE WEIGHT: _____

Section 1

BALES VERIFIED BY REAL TIME RADIOGRAPHY

_____ Bale No. _____ Bale No.

	INITIALS
RTR Report attached	_____

Any deficiency in one bale out of a shipment of twenty will result in 100% RTR of the bales in that shipment.

Section 2

EXAMINATION/CERTIFICATION

BALE NO.	STATUS OF BALES TO LOAD	INITIALS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

QUALITY CERTIFICATION ISO EXAMINATION - BALED TRASH
(continued)

COMMENTS: _____

_____

_____

NOTE: Any deviations from the checklist will require a deviation report to be issued and a nonconformance tag placed on the container. The deviation must be resolved prior to removal of the nonconformance tag.

DEVIATION NOTED OK _____ REJECT _____

TEMPORARY SEAL NO. _____ DATE ATTACHED _____ DATE REMOVED _____

I hereby certify that the above checklist has been completed and witness that the above items are correct to the best of my knowledge per SSOP 0078.

Signed :_____ Date :_____
(Quality Certification Personnel)

CONTROL NO. UNCONTROLLED COPY
SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-0049
REVISION NO. 1

5690

FEMP QUALITY ASSURANCE AUDIT PROGRAM

SSOP-0049

Effective Date: 10-18-93

AUTHORIZED BY: N. C. Kaufman, President — Date: 10/6/93

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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

001099

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
08-31-92	0	Document describing the FEMP Audit Program per Request No. S92-062, initiated by J. Weissenberg.
10-18-93	1	Major Revision to update the FEMP Quality Assurance Audit Program, per Request No. S93-127 initiated by D. Ponke. Document supersedes SSOP-0049, dated 08-31-92, Rev. 0.

1.0 PURPOSE

This procedure describes the responsibilities and requirements for planning, conducting, documenting, and processing formal Quality Assurance (QA) audits of Fernald Environmental Management Project (FEMP) activities, suppliers, and services.

2.0 SCOPE

This procedure applies to the QA audit program, which generates audits at the FEMP as required by Department of Energy (DOE) Orders and Directives and all those who are audited.

3.0 DEFINITIONS

Assess - To inspect, test, review, or otherwise determine if items, actions, or services conform to specified requirements.

Audit - A planned and documented activity performed by investigation, examination, or evaluation of objective evidence to determine the adequacy and compliance with established procedures, instructions, drawings, and other applicable documents and the effectiveness of their implementation.

Audit Team Leader (Lead Auditor) - An individual qualified and certified to organize and direct an audit, report audit observations, and evaluate corrective actions. These individuals meet the Lead Auditor requirements of ANSI/ASME NQA-1 Basic requirement 2, Supplement 2.S-3 and Appendix 2A-3.

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

Deviation Report (DR) - A form used to document the identification, disposition, verification of resolution, and closure of a specific deviation.

Internal Independent Audit - A formal examination and evaluation of a FERMCO organization's activities by the FERMCO QA Division.

Supplier Audit - A formal examination and evaluation by QA of the fabrication of items or performance of services provided to the FEMP by contracted vendors.

4.0 RESPONSIBILITIES

Quality Assurance Audits and Appraisals (A&A) Manager

- Plans and directs a comprehensive audit schedule.
- Ensures departmental procedures are prepared for the audit program.
- Provides for the training of auditors and audit team leaders.

Division Manager

- Ensures their division procedures comply with appropriate DOE Orders, governmental regulations, and departmental procedures with scheduled self-assessments.
- When requested by the auditing organization, reviews and concurs with audit plans and schedules; provides technical representatives and auditors for audit teams; and ensures timely, approved implementation of deviation dispositions, corrective action plans, and schedules.
- Cooperates with and responds to audit teams.

Audit Team Leader

- Plans, directs, and leads assigned audit to assess the adequacy, implementation, and effectiveness of work control systems.
- Reports the results of the audit to the manager of the audited organization and the QA A&A Manager identifying work practices and procedures that require corrective action, improvement, and commendation.

5.0 GENERAL

- FEMP QA Division audits shall be planned, scheduled, and conducted by A&A with the support and participation of other FERMCO divisions.
- Audit team members shall have access to all records, personnel, and facilities relevant to the performance of audits.
- Organizations shall develop their own procedures for implementing and internally assessing their established responsibilities.
- Divisions shall provide A&A with an overview of their respective self-assessment programs to assist in audits, avoid duplication, refine inter-relationships, and strengthen program performance.

6.0 PREREQUISITES

6.1 INDUSTRIAL SAFETY AND HEALTH REQUIREMENTS

Ascertain the status of the work area before an audit. If the work area is a controlled, regulated, contaminated, or radioactive area, it must comply with the requirements of existing Radiation Work Permits (RWPs), or the auditor must request a RWP from Radiation Compliance.

6.2 PERSONNEL REQUIREMENTS

Audit Team Leaders shall assess the training requirements for the areas to be audited and ensure audit team members are properly trained.

6.3 TOOLS AND MATERIALS REQUIRED

None

7.0 PROCEDURE

7.1 PLANNING AN AUDIT

QUALITY ASSURANCE AUDITS AND APPRAISALS MANAGER

1. Develop a comprehensive schedule for audits on a near-term (quarterly) and long-term (annual) basis.

2. Assign certified Audit Team Leaders; trained and qualified team members; and trained, qualified, and certified specialists all independent of the activities being audited.

7.2 CONDUCTING AN AUDIT

QUALITY ASSURANCE AUDITS AND APPRAISALS MANAGER

1. Organize audit teams:

   a. Provide team members.

   b. Request team members and/or specialists from other departments.

OTHER DEPARTMENT MANAGERS

2. Provide audit team members (as requested).

7.2 CONDUCTING AN AUDIT (cont.)

TEAM LEADER

3. Prepare individual audit plan (including definition of the scope and expected duration) for applicable site and division procedures applicable to the activity being audited.

4. Obtain approval of the audit plan from QA A&A Manager.

QUALITY ASSURANCE AUDITS AND APPRAISALS MANAGER

5. Approve and issue plan to the organization to be audited.

TEAM LEADER

6. Coordinate audits with the manager of the organization to be audited (FERMCO or the appropriate contract personnel) in accordance with QA Division procedures:

   a. Conduct a pre-audit meeting with the organization to be audited.

   b. Direct the team in conducting the audit.

   c. Conduct a post-audit meeting with the organization audited.

7. Record each identified deviating condition on a Deviation Report (DR) or a Corrective Action Report (CAR) per SSOP-0023, "Deviation and Corrective Action Reporting."

8. Prepare the audit report.

9. Submit the report with applicable DRs and/or CARs to the QA A&A Manager.

QUALITY ASSURANCE AUDITS AND APPRAISALS MANAGER

10. Issue DRs and/or CARs in accordance with SSOP-0023, "Deviation and Corrective Action Reporting."

11. Issue the audit report to responsible management within 30 days of audit completion, requesting corrective action.

7.3 CLOSING OUT AN AUDIT

AUDITED ORGANIZATION MANAGER

1. Respond to each DR and/or CAR in accordance with SSOP-0023, "Deviation and Corrective Action Reporting."

QUALITY ASSURANCE AUDITS AND APPRAISALS MANAGER

2. Evaluate response to DR and/or CAR in accordance with SSOP-0023, "Deviation and Corrective Action Reporting."

3. Issue a letter to the affected manager closing the audit when all deviations and/or corrective actions have been completed and closed.

4. Issue a bimonthly status report of open audit CARs to the President, the division managers, and all others responsible for corrective actions.

7.4 REPORTING STATUS OF THE AUDIT PROGRAM

QUALITY ASSURANCE SYSTEMS MANAGER

1. Prepare an annual report showing the status, adequacy, and effectiveness of the FEMP operations revealed by the audits and their solutions.

2. Submit the report to the FERMCO President.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- DOE Order 5700.6C, "Quality Assurance"
- RM-0012, "Quality Assurance Program Description"

8.2 REFERENCES

- SSOP-0023, "Deviation and Corrective Action Reporting"
- ANSI/ASME NQA-1, "Quality Assurance Program for Nuclear Facilities"

Bob

5690

PL-3009
Supersedes
PL-FMPC-3009
dated April 1991

WASTE MINIMIZATION AND POLLUTION PREVENTION AWARENESS PLAN

Fernald Environmental Management Project

March 1994

Fernald Environmental Restoration Management Corporation

P.O. Box 398704

Cincinnati, Ohio 45239-8704

001107

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I. INTRODUCTION/BACKGROUND

A. Purpose of the Plan

The Waste Minimization/Pollution Prevention (WM/PP) Awareness Plan specifies those activities and methods which will be employed by the Fernald Environmental Restoration Management Corporation (FERMCO) to reduce the quantity and toxicity of wastes generated at the Fernald Environmental Management Project (FEMP). The plan will also serve to educate FEMP personnel, set WM/PP goals, and plan WM/PP actions. It is intended to satisfy the WM/PP Department of Energy (DOE) Order 5400.1, and the WM/PP requirements established by the Pollution Prevention Act (PPA), Resource Conservation and Recovery Act (RCRA), Superfund Amendments and Reauthorization Act (SARA), and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

B. Scope of the Plan

The Waste Minimization/Pollution Prevention Program reflects the goals and policies for waste minimization at the FEMP and represents an ongoing effort to make waste minimization/ pollution prevention an integral part of the site's operating philosophy.

Waste minimization will be accomplished by eliminating or minimizing the generation of waste through source reduction. Those potential waste materials that cannot be eliminated or minimized will be recycled. Waste that cannot be minimized through source reduction or recycling will be treated to reduce volume, toxicity, or mobility before storage or disposal.

This plan has been written with the intended purpose of educating personnel on waste minimization principles, methods, and strategies. Education of all personnel will assist in the incorporation of waste minimization principles into management's operating philosophy.

This plan is a guidance document for all FEMP personnel. It applies to all site routine operations and remediation activities and associated support operations. It contains the WM/PP policy, objectives, and strategy. As required by DOE Order 5400.1, it will be reviewed annually and updated at least every 3 years.

C. **Background/Requirements**

DOE Orders 5400.1, 5400.3, and 5820.2A mandate that the management of radioactive wastes and other pollutants shall be accomplished in a manner that minimizes the generation of waste. In addition, RCRA, PPA, CERCLA, Emergency Planning and Community Right-to-Know Act (EPCRA), and Executive Orders 12856 and 12780 are just some of the regulations that include waste minimization requirements.

RCRA requires hazardous waste generators to certify that they have a waste minimization "program in place." A definition of "program in place" was further clarified in interim final guidance published in the 5/28/93 Federal Register. The FR describes the elements of a good waste minimization program which includes top management support, characterization of waste generation and waste management costs, periodic waste assessments, appropriate cost allocation, encouragement of technology transfer, and waste minimization program implementation and evaluation.

In addition, RCRA Section 6002 requires Federal agencies to purchase products from recovered materials. Specifically, the products included in this section include paper and paper products, cement with flyash, building insulation products, retreaded tires, and lubricating oils. Executive Order 12780 (Federal Agency Recycling and the Council on Federal Recycling and Procurement Policy) further emphasizes the importance of cost-effective waste reduction and recycling activities and affirmative procurement practices to encourage the development of economically efficient markets for products manufactured with recycled materials.

The PPA establishes a national policy that chemical pollution should be prevented or eliminated at the source, recycled when prevention is not feasible, and disposed only as a last resort. In addition, each owner or operator of a facility that is required to file an annual toxic chemical release form under Section 313 of SARA shall include reports which quantify the effect of source reduction, recycling, and treatment in reducing environmental releases of reported chemicals.

DOE Order 5400.1, General Environmental Protection Program, requires that each DOE facility develop and implement a waste minimization program that will contain goals and objectives for waste minimization and pollution prevention. These goals shall be achieved through identification of strategies and time tables for attaining them. It also provides the overall framework for the design and implementation of a Waste Minimization and Pollution Prevention Awareness Program.

DOE Order 5400.3, Hazardous and Radioactive Mixed Waste Program, establishes DOE hazardous and radioactive mixed waste policies and requirements. The Order implements the requirements of RCRA within the framework of the environmental programs established under DOE Order 5400.1.

DOE Order 5820.2A, Radioactive Waste Management, establishes policies, guidelines, and minimum requirements by which DOE manages its radioactive waste. The Order states that the "generation, treatment, storage, transportation, and/or disposal of radioactive wastes, and the other pollutants or hazardous substances they contain, shall be accomplished in a manner that minimizes the generation of such wastes across program office functions and complies with all applicable federal, state, and local environmental, safety, and health laws and regulations and DOE requirements." The Order also requires the preparation of a Waste Management Plan for each site that generates, treats, stores, or disposes of radioactive, mixed, or hazardous waste.

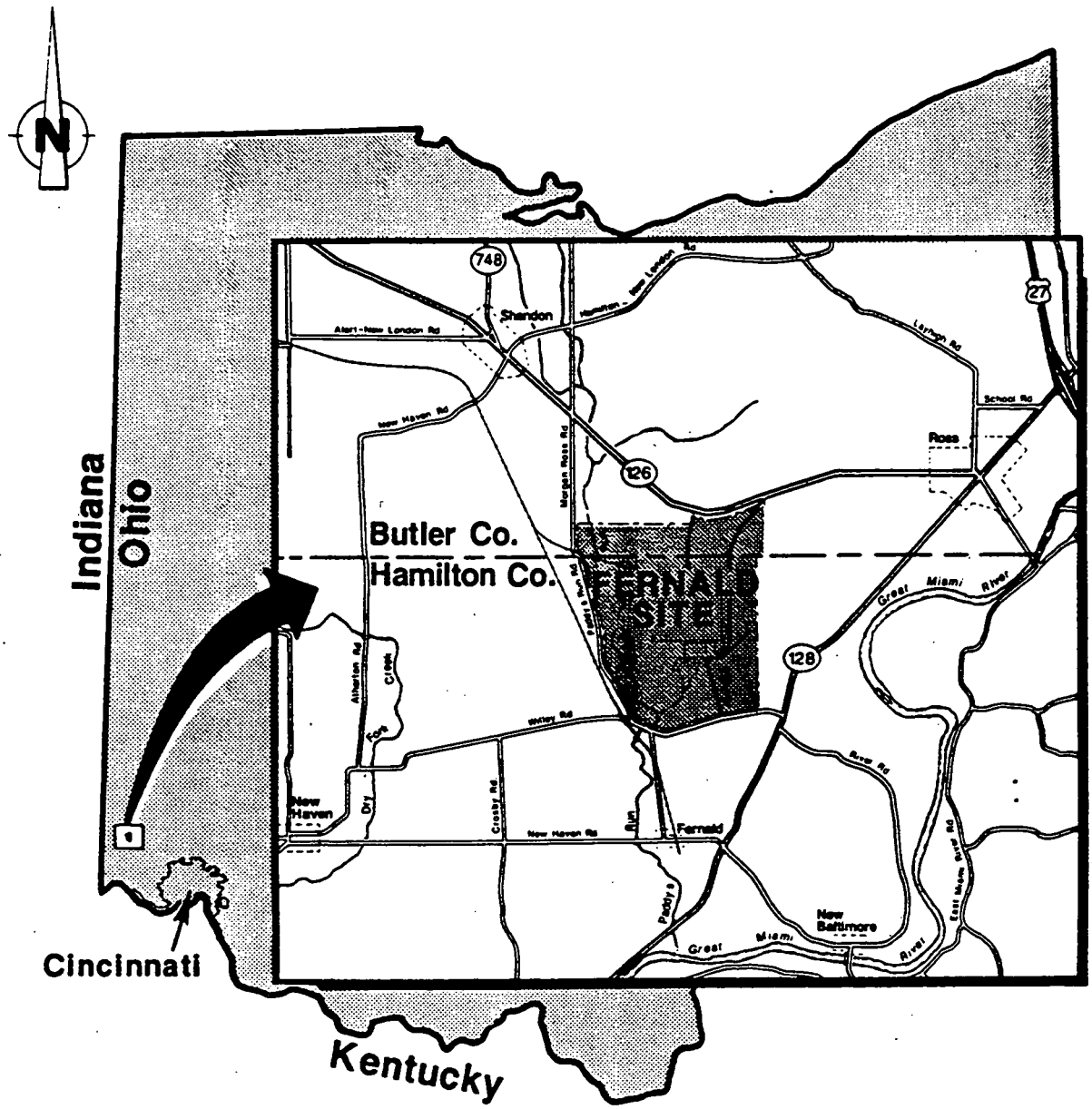
DOE's "Waste Reduction Policy Statement" consolidates the requirements of DOE Orders 5400.1, 5400.3, and 5820.2A. The statement requires all DOE Program Offices and Field Operations to institute a waste reduction policy to reduce the total amount of waste that is generated and disposed of by DOE facilities through waste minimization (source reduction and recycling) and waste treatment.

D. Site Description

The FEMP is owned by the U.S. Department of Energy (DOE) and is operated under an Environmental Restoration Management Contract (ERMC). The ERMC was awarded in August 1992 to a team led by Fluor Daniel, Jacobs Engineering, NUS, and Nuclear Fuel Services. This is the first contractor at the site selected specifically for environmental restoration. Prior to the award of the ERMC, Fernald was operated under a Management and Operating contract managed from 1986-1992 by Westinghouse Environmental Management Company of Ohio (WEMCO). Fernald Environmental Restoration Management Corporation (FERMCO), a wholly-owned subsidiary of Fluor Daniel, assumed full contractual responsibility for the Fernald site in December 1992 under a 5-year contract.

The FEMP is a 1050 acre site located in southwestern Ohio, 18 miles northwest of downtown Cincinnati, Ohio (see **Figure 1**). The FEMP is bounded by Ohio Route 126 to the north, a dairy farm to the east, Wiley Road to the south, and Paddy's Run Road to the west (see **Figure 2**). The former production area covers approximately 136 acres near the center of the FEMP.

Figure 1: Fernald Site and Vicinity



The Fernald Site covers about 425 hectares (1,050 acres).

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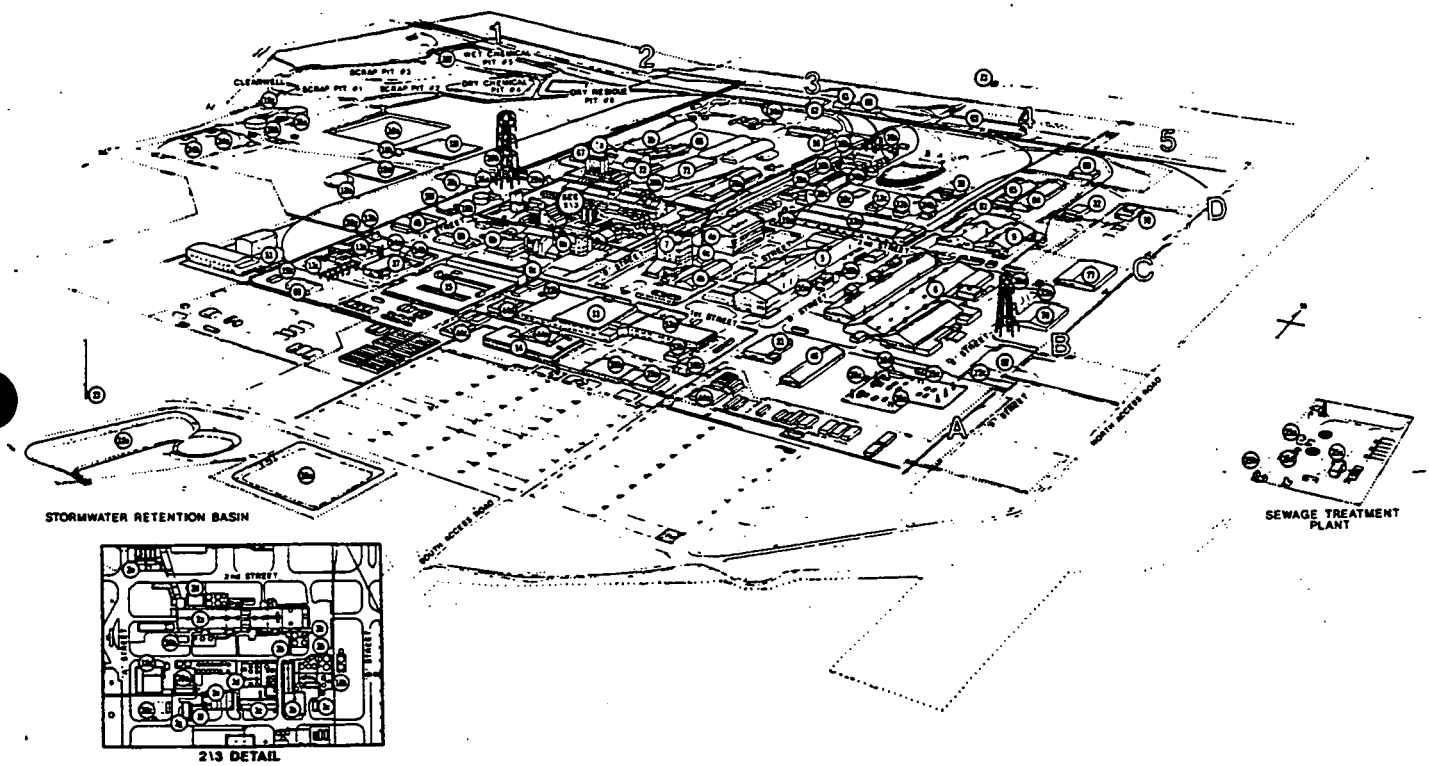
Figure 2: Fernald Site Perspective



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E. **Site Mission**

The historic mission of the FEMP, formerly referred to as the Feed Materials Production Center (FMPC), was the conversion of uranium-containing residues and uranium compounds to high purity uranium metal for use as feed in U.S. defense programs.

Production processes generated solid waste that was grouped into four main categories: low level waste, hazardous waste, mixed waste, and conventional industrial waste. In 1989, the FEMP mission changed to environmental restoration and waste management.

The site generates a variety of waste materials from environmental restoration activities. These materials are carefully controlled during site operations and regulated by the Federal, State, and local governments. The FEMP generates several major categories of waste including low level waste (LLW), hazardous waste (RCRA), mixed waste, sanitary waste, asbestos, and PCBs. The intent of this plan is to respond to and comply with the Department's policy and guidelines concerning the need for waste minimization and pollution prevention.

F. **FERMCO Mission**

Together DOE and FERMCO are committed to the safe, least-cost, earliest, final cleanup of the Fernald site, within applicable DOE Orders, regulations, and commitments and in a manner which addresses stakeholder concerns.

II. POLICY

A. **Statement of Management Support and Commitment**

DOE and FERMCO management are committed to minimizing the generation of waste, consistent with the FERMCO mission, by giving preference to source reduction, material substitution, and recycling over treatment and disposal of wastes. Top management will take appropriate action to provide adequate personnel, budget, training, and materials on a continuing basis to ensure that the objectives of the Waste Minimization and Pollution Prevention Awareness Program are met.

B. **Waste Minimization Policy Statement**

A FEMP Waste Minimization and Pollution Prevention Policy (PO-1013) became effective on 10-14-93 (Appendix I). It sets forth FERMCO's commitment to protecting the environment through waste minimization and pollution prevention efforts

at the FEMP. It directly supports the FERMCO Mission and highlights FERMCO's leadership role in environmental restoration. It also emphasizes that all employees are responsible for implementation of the policy by participating in recycling programs, conserving energy, reusing equipment and supplies, adhering to policies and procedures promoting waste minimization and pollution prevention, and identifying areas where improvements to current practices can be made.

III. RESOURCES

A. Program Budget

The Waste Minimization Program budget is a part of the T/S/D Facilities Activity Data Sheet (ADS). Available funds in the T/S/D Facilities ADS support a multitude of programs at the FEMP, including programs within the Waste Programs Management Department and other departments.

The total Waste Minimization Programs budget is $1,225,000 for FY-94, and it includes waste minimization planning, implementation, and waste generation control activities. The following table itemizes the funds allocated for Waste Minimization Programs.

WASTE MINIMIZATION PROGRAMS FUNDING ($K PER YEAR)

ACTIVITY	FY-94	FY-95	FY-96	FY-97	FY-98	TOTAL
Waste Minimization Planning	130	135	140	144	148	697
Waste Minimization Implementation	170*	53	57	60	65	405
Waste Generation Control	925	706	730	450	470	3281
TOTAL	1225	894	927	654	683	4383

*includes $120,000 DOE grant from EM-352

B. Personnel

The number of full-time and part-time employees assigned to Waste Minimization Programs includes five full-time employees and one part-time employee. Of this number, one full-time and one part-time employee are located in the Waste

Minimization and Pollution Prevention Program, with expansion to one additional full-time employee within calendar year 1994. The Waste Generation Control Program currently has four full-time employees, with expansion to two additional full-time employees in 1994.

C. Cost Accounting

The FEMP operating budget is authorized as one Major Systems Acquisition (MSA). This MSA is divided into multiple Activity Data Sheets (ADS). Waste Minimization Programs is funded and budgeted from ADS 16-C3, entitled "T/S/D Facilities." ADS 16-C3 is divided into five subelements: (1) Integrated T/S/D Facilities; (2) Waste Management Program; (3) Recycle Technology; (4) Backlog Waste Disposition; and, (5) T/S/D Facility Management. Funds and budget for planning activities associated with WM Programs are supported by the "Waste Management Program" subelement. Funds and budget for implementation of waste minimization activities are supported by the "Backlog Waste Disposition" subelement.

D. Planning/Scheduling

The WM/PP Program will define work to be performed in the next fiscal year and will develop technical work scopes for these activities. Resource requirements will be identified and estimated for each specific activity and a budget will be established based upon these requirements. This information will be used to develop detailed plans and schedules for the next fiscal year and will be the basis for determining the WM/PP goals provided to DOE-FN on October 1 of each year. This process enables the WM/PP Program to provide accurate, detailed planning information to the Project Control System for inclusion in the Site Baseline. Pre-planning and scheduling also provides the necessary information to make sound program management decisions.

IV. STRATEGY, OBJECTIVES, ACCOMPLISHMENTS, AND GOALS

A. Strategy

The Waste Minimization and Pollution Prevention Awareness Program strategy is to obtain top management commitment, set overall goals for the program, and perform waste assessments. Accurate and current information on waste stream generation and waste management costs will be obtained, which will provide the basis for waste assessments and the implementation of specific waste minimization techniques and technologies. The essential elements of the FEMP strategy include the following:

* Establish WM/PP as a FEMP goal and obtain management commitment.

* Set acceptable, measurable, motivational, and achievable goals.

* Prioritize waste streams for waste assessments.

* Conduct assessments and perform feasibility analysis of options.

* Implement waste minimization actions.

* Document and evaluate waste minimization progress.

B. Program Objectives

The overall objective of the WM/PP Program is to reduce the amount and toxicity of wastes generated at the FEMP. Additional program objectives include:

* Foster a philosophy to conserve resources and create a minimum of waste and pollution in achieving site strategic objectives.

* Promote the use of nonhazardous materials in daily operations and site remediation activities to minimize the potential risks to human health and the environment.

* Reduce or eliminate the generation of waste materials through source reduction, materials substitution, technology innovations, recycling, volume reduction, segregation, and inventory control to achieve minimal adverse effects on the environment.

* Enhance communication of waste minimization objectives, goals, and ideas among CERCLA/RCRA Units (CRUs), DOE, Waste Programs Management, Recycling and Technology Programs, Estimating Services, and other site organizations.

* Promote integration and coordination of waste minimization matters among waste generators and waste managers.

* Create incentives for pollution prevention.

* Exchange waste minimization information through technology transfer, outreach, and educational networks.

* Enhance employee awareness of pollution prevention goals, objectives, and methods.

Specific objectives will be defined in quantitative terms with target dates in the annual addendum to this Plan.

C. **Accomplishments**

WM/PP accomplishments will be reported to DOE-FN yearly in the Annual Report on Waste Generation and Waste Minimization Progress.

D. **Goals**

The goals for the waste minimization program will be updated yearly as an addendum to this plan and submitted to the Waste Minimization Manager of DOE-FN on October 1 of each year. Goals will include the following areas: source reduction, recycling/reuse, segregation, decontamination, volume reduction, and toxicity reduction.

V. ORGANIZATION AND STAFF RESPONSIBILITIES

The Waste Minimization Program is located within the Waste Programs Management Department of the Remedial Site Operations (RSO) Division (see Figure 3). Waste Minimization Programs is a group within the Waste Identification Section (see Figure 4 for organizational chart).

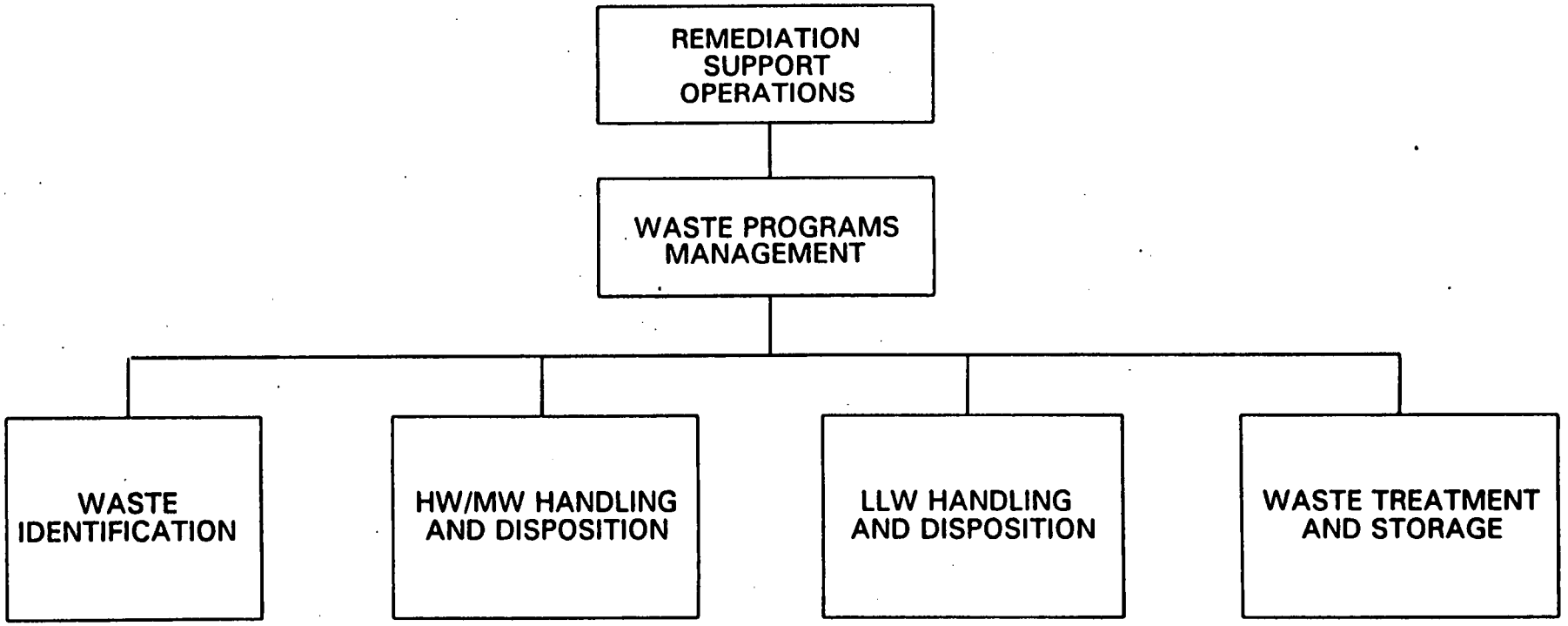
A. **Site Manager**

The Site Manager is responsible for ensuring the facility's commitment to a successful waste minimization program. The Site Manager approves plans, policies, goals, and milestones and is responsible for ensuring that all employees are trained in waste minimization and pollution prevention awareness.

B. **Waste Programs Management Department (WPM)**

WPM is responsible for characterization, storage, treatment, and disposal of FEMP wastes in a safe, cost effective, and compliant manner consistent with DOE requirements and stakeholder concerns. The program is committed to implementing waste minimization, ALARA, and project management concepts to support disposition of legacy and remediation wastes.

WASTE PROGRAMS MANAGEMENT



Waste Min/Pollution Prev.
Waste Generation Control
Waste Characterization
Waste Sampling

HW/MW disposition planning
HW/MW disposition
FFCA planning/integration
Hazardous Debris-capacity variance
Combustibles
Treatability

LLW disposition planning
LLW packaging
LLW shipping

Containerized storage
Bulk waste storage
Sampling facilities
Processing/treatment dev.
Processing/treatment op.

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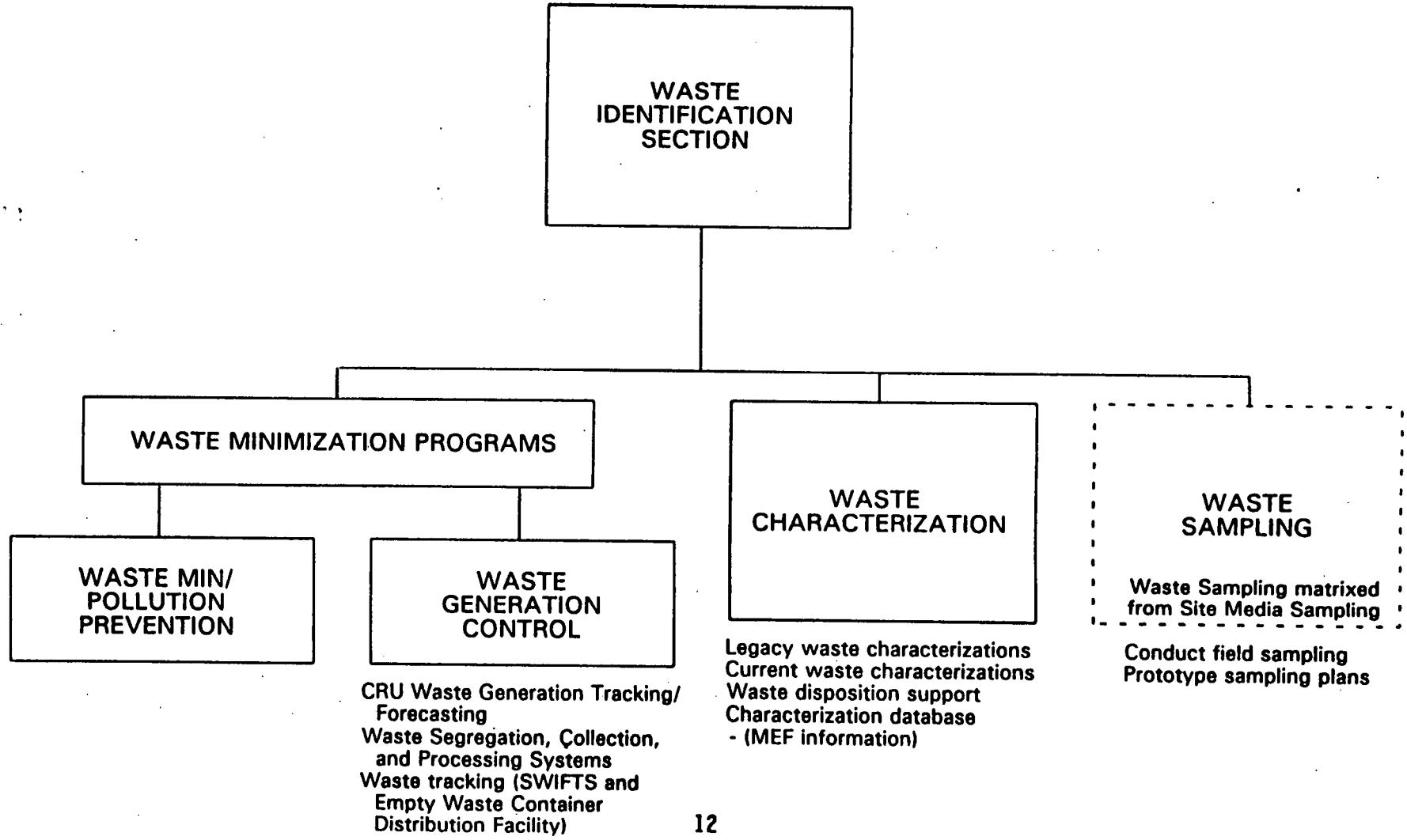
WASTE IDENTIFICATION SECTION



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C. Waste Identification Section

The Waste Identification Section ensures that wastes managed at the FEMP have the optimal physical configuration and information required for subsequent waste management steps. Waste volumes and toxicity shall be minimized to the extent practicable through execution of waste minimization and pollution prevention initiatives. Waste segregation and collection systems shall be utilized, from the point of generation, to ensure that those wastes which must be generated have the optimal physical configurations. Waste characterization shall be completed, prior to waste generation where possible, to provide the information required to manage wastes from storage and treatment steps through ultimate disposition.

The Waste Identification Section is comprised of 3 groups: Waste Minimization/Pollution Prevention Programs, Waste Characterization, and Waste Sampling. The functions of each of these groups are discussed briefly.

C1. Waste Minimization Programs

Waste Minimization Programs is comprised of two groups: Waste Minimization/Pollution Prevention (WM/PP) and Waste Generation Control.

WM/PP is responsible for supporting CRU waste minimization activities and reporting on the FEMP WM/PP program and its accomplishments in documents required by DOE and other regulatory agencies. It is also responsible for performing process waste assessments, educating and increasing the awareness of employees on waste minimization and pollution prevention principles, supporting procurement review to ensure that toxic substances are not purchased needlessly and that safer substitutes will be used, and coordinating the waste minimization/life cycle costing employee education program.

Waste Generation Control supports CRU waste generation tracking, waste forecasting through the development of the SWIFTS database, prepares the Waste Management Plan, coordinates segregation of contaminated and non-contaminated trash, develops waste segregation, collection, and processing systems, and performs waste assessments in conjunction with the WM/PP program. Waste Generation Control is also responsible for the development and operation of the Empty Waste Container Distribution Facility, which will be a central area at the FEMP to receive, inspect, store, identify, prepare, track, and distribute all empty waste containers for site operations, such as removal actions and other activities.

C2. Waste Characterization

The Waste Characterization program is designed to support health and safety programs, comply with the waste characterization requirements of regulatory programs and legal agreements, and to provide information required to support waste management objectives. Waste characterization is required for all wastes generated or managed at the FEMP. Characterization is also required for environmental media, such as soil, that must be managed as waste due to its content of materials regulated under one or more of the material specific regulatory authorities. Waste characterization is conducted for both currently generated waste and legacy waste.

The wastes generated at the FEMP fall into four categories: backlogged waste, newly-generated waste, large volume/low hazard waste, and project-generated waste. Waste characterization also supports the waste dispositioning process.

C3. Waste Sampling

Waste Sampling is responsible for conducting field sampling activities for site operations, tracking sample plan requests, providing technical support to drum sample lines, and conducting sampling of containers containing waste. This group also develops site media sampling procedures and prototype sampling plans and provides statistical reports of results of sampling activities.

D. Coordination of Waste Minimization Activities

Waste Minimization Programs coordinates with many other programs onsite to successfully achieve waste minimization goals. Coordination occurs between:

-CERCLA/RCRA Units (CRUs or Operable Units)
-CRUs and Waste Programs Management
-CRUs, WPM, and Estimating Services (see Section VIII.A)
-CRUs and Recycling and Technology Programs (see Section XII)
-WPM, RSO, and Radiological Control (see Section VII.A)
-DOE and DOE Complex activities.

RSO, Construction, and the CRUs are the primary generators of waste at the FEMP. Coordination and interaction with these groups is essential to reduce the amount of waste generated during remediation activities, and to identify materials which can be recycled. Waste Minimization Programs supports these activities by providing life-cycle cost analysis

training to CRUs for use as an evaluation tool and by reporting WM/PP successes to the WM/PP Program in order to publicize and document cost-effective waste management decisions.

Recycling Programs and Waste Programs Management support the activities of the waste generators through the identification of disposition options for low-level waste, mixed waste, TSCA waste, hazardous, and sanitary waste.

It is also the responsibility of every employee to support the WM/PP program through identification of waste minimization opportunities, participation in employee recycling programs, and adherence to site policies and procedures involving waste minimization.

VI. WASTE ASSESSMENTS

Waste assessments will be conducted periodically as part of an ongoing program to identify, screen, and analyze options to reduce the generation of waste. A waste assessment determines the amount of material generated from a specific operation that is disposed of as waste. It provides a summary of hazardous materials usage and waste generation and identifies those processes and operations that need to be improved or replaced to promote waste minimization.

The Manager of Waste Identification will determine the order and areas of site operations to be assessed. Each assessment will include the development of a process flow diagram, material balances, process or operation descriptions, and waste stream characterizations for the assigned assessment area.

Waste minimization opportunities identified during the assessment will be evaluated and identified with specific projects, which when implemented will reduce the volume and toxicity of the waste streams. The WM/PP group will evaluate and rank for technical and economic feasibility the waste minimization opportunities identified during the waste assessment. The highest priority generally will be given to projects that offer, on balance, the greatest cost effective reduction of FEMP wastes in line with remediation objectives. Projects that reduce waste at the source will generally be prioritized over those that involve recycling, all else being equal. The results of the evaluation and ranking will be summarized in a report provided to the Division Manager for final approval.

VII. WASTE MINIMIZATION TECHNIQUES

Waste minimization includes those activities that minimize or eliminate the generation of waste and recycling processes that use, reuse, or reclaim a material from a waste stream.

The real challenge at Fernald is to minimize generation of additional waste while remediation activities are underway to address the waste and environmental contamination left from years of processing uranium. Planning and analyzing pollution prevention and waste minimization opportunities during the early stages of project development is essential to meet this goal. The pre-project planning techniques are discussed in Section VIII.

Some activities that are not considered waste minimization according to the strict definition in DOE and EPA guidance, such as volume reduction, will still be reported by Waste Minimization Programs. The reason for this inclusion is that these activities are, in many cases, good waste management techniques and also use fewer natural resources for storage, handling, treatment, transportation, and other waste management activities. Therefore, because of the nature of a remediation site, where much of the waste has already been generated and is currently being stored for disposal, volume reduction and other techniques will be used to create less of an environmental impact.

Source reduction and recycling are the two waste minimization techniques which will be given the highest priority for waste management options whenever feasible at the FEMP.

A. Source Reduction

Source reduction reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal. Source reduction reduces the hazards to the public health and the environment associated with the release of such substances, pollutants, or contaminants. Source reduction is always the first waste management option.

Source reduction activities at the FEMP may include segregation of radiologically from non-radiologically contaminated substances, inventory control and material substitution (to ensure that the least toxic substances are purchased), modification of operational procedures where possible, reducing raw material usage, and decontamination.

The DOE Radiological Control Manual describes a radioactive waste minimization program which is required at each DOE facility. The program goal is to reduce generation of radioactive waste and spread of contamination. It is being formalized into a Radiological Waste Minimization Procedure. The program goal can be achieved through segregation of materials, reuse, and prevention of contamination of tools, clothing, and equipment.

B. Recycling

The recovery of wastes through recycling will be used as a second option in the waste minimization program after first considering reducing the amount of waste generated at the source. Opportunities for reclamation and reuse of waste materials are numerous during dismantling and decommissioning activities and will be explored whenever feasible. Decontamination of tools, equipment, and materials for reuse or recycle will be used to the extent practicable to minimize the amount of waste for disposal. Refer to Section XII for a description of the Recycling Department.

VIII. TRAINING, AWARENESS, AND INCENTIVES

One of the most important elements of the Waste Minimization and Pollution Prevention Awareness program is training. The goal of this training is to make each employee aware of waste generation, its impact on the site and the environment, and ways waste can be reduced and pollution prevented. Training is also utilized as a method to routinely integrate WM/PP principles into every activity performed at the FEMP, much in the same way that quality and safety principles are applied. Several training courses have been developed to ensure that waste minimization concepts are incorporated into each phase of an operating procedure or design consideration.

A. Waste Minimization and Life Cycle Costing

FERMCO has developed a Waste Minimization and Life Cycle Costing education program. The objective of the training is to train all FEMP personnel who make waste management decisions to utilize life cycle cost analysis to determine the most environmentally sound, and cost-effective waste minimization and pollution prevention practices. This program is designed to define and enhance the priority of practicing waste generation control, which is key in reducing waste management costs. This program will also emphasize the application of waste minimization principles throughout the decision-making process, particularly at the early stages of project development. All project and design engineers will receive this training.

B. General Employee Training (GET)

All employees attend GET to obtain non-escorted, limited access in non-hazardous and non-radiological locations at the FEMP. GET is a 4-hour course which covers topics such as the history and background of the FEMP, site policies and procedures, emergency procedures and alarms, industrial safety and health plan, and general employee radiological training.

GET also contains a description of the waste minimization program, its functions, and objectives. The training emphasizes the responsibility of the employee to participate in employee recycling programs, and identify and alert management of areas where waste minimization can be achieved.

C. Awareness

The Pollution Prevention Awareness Program is required by DOE Order 5400.1 and has been incorporated into the Waste Minimization program. The purpose of the Pollution Prevention Awareness Program is to foster the philosophy that prevention is superior to remediation. The goal of the program is to incorporate pollution prevention into the decision-making process at every level throughout the organization.

The Waste Minimization Program promotes WM/PP through bulletin boards, site communication media (Focus, Employee Updates), site specific WM/PP videos and video-conferencing, employee programs (such as Reuse Day and Earth Day activities), suggestion boxes, presentations to outside organizations, and through coordination with the employee Recycling Team.

The Recycling Team is a group of volunteers who initiate new employee recycling efforts and help to improve upon the mature employee recycling programs. The Team is involved in helping to promote recycling efforts at the FEMP. Waste Minimization Programs is involved with the efforts of the Recycling Team to provide support and promote employee awareness of recycling programs. Currently, mature employee recycling efforts include all types of paper, glass, aluminum cans, plastics, laser jet toner cartridges, and cardboard.

IX. TRACKING AND REPORTING SYSTEMS

A. SWIFTS

The Sitewide Waste Information and Tracking System (SWIFTS) is being designed to integrate existing waste management databases so that they are accessible to all concerned organizations. SWIFTS will accurately inventory and forecast waste volumes. The management and tracking capabilities of SWIFTS will include:

* Reporting of actual waste streams/volumes currently existing (containerized or loose);

* Estimating future waste streams/volumes to be generated and their associated treatment schedules/storage/transportation requirements; and

* Planning and resource guide capabilities which will provide for the prediction of future waste container requirements, the control of waste storage facility requirements, and the generation of required tracking/shipping documentation.

B. **HAZTRAC**

HAZTRAC is a database designed to track chemicals from the time they are ordered until they are distributed, used, and become waste. At that point, the waste will be tracked by the SWIFTS system. HAZTRAC Coordinators have been identified and trained to enter and utilize the information in HAZTRAC.

HAZTRAC will provide a mechanism for identifying chemical usage for the purpose of assessment for waste minimization opportunities, such as elimination, substitution, or reduction in use.

C. **Recycle Database**

A Recycle Database has been developed to track amounts of waste being recycled through employee recycling programs (aluminum cans, comingled trash, laser jet cartridges).

X. QUALITY ASSURANCE

Guidance implementing DOE Order 5820.2A stresses the requirement and need for quality assurance in conducting waste reduction activities. It indicates that waste reduction programs are required to "retain an appropriate level of documentation and accountability. The documentation of these programs should be designed to satisfy all requirements of the Waste Operations Quality Assurance Program at each field office."

The Quality Assurance Project Plan (QAPP) addresses the need to provide usable, valid data of known quality so that use across programs is possible and the level of uncertainty associated with such use is understood. The Sitewide CERCLA Quality Assurance Project Plan (SCQ) is used to establish minimum standards of performance for operational and analytical activities and to ensure that standards are followed. The WM/PP program and associated activities are a part of this program.

XI. INFORMATION EXCHANGE AND OUTREACH

All program staff are encouraged to use the PIES--U.S. EPA Pollution Prevention Electronic Information Exchange System database. Waste Minimization Programs will foster participation in business, education, and government forums that are designed to provide technical assistance and exchange waste minimization information. Waste Minimization and Pollution Prevention staff will attend the semiannual DOE Workshop on Waste Minimization and the Annual DOE Pollution Prevention Conference and present technical papers when appropriate.

Waste Minimization Programs will interact with other groups onsite to exchange information, provide support, collect data, and help with regulatory reporting. Some of these groups include the Ozone Depleting Substances Program, Recycling and Technology Programs, the SARA 313 Reporting group, and Radiological Compliance.

XII. RECYCLING AND TECHNOLOGY PROGRAMS

The Recycling and Technology Programs Division works with DOE to ensure that FERMCO and DOE consider the proper recycling and technology options as part of site cleanup.

A. Recycling Programs

The Recycling Programs Department is the principle advocate for recycling and beneficial reuse of waste and scrap material at Fernald. This department performs these 5 major services:

* establishes criteria for selecting recycling versus disposal;
* establishes criteria for material release;
* establishes commercial channels for the release of material to be recycled;
* establishes the procedures necessary to make recycling a reality; and,
* identifies and manages all liability issues associated with the release of scrap material.

B. Technology Programs

The FERMCO Technology Programs office seeks out and gathers advantaged technologies to promote the application of better, less costly, and less waste generating technologies for use in remediating the FEMP. The Technology program sponsors an outreach program to universities, industries, and government agencies, including DOE laboratories, to support demonstration of promising technologies. Opportunities for transfer of technologies specific to waste minimization

programs will develop from information exchange systems, workshops, or topical conferences sponsored by Technology Programs.

XIII. PROGRAM EVALUATION

The Waste Minimization and Pollution Prevention Awareness Program will be evaluated annually. All major activities will be reviewed. The evaluation will document program achievements and identify potential areas for improvement.

The following success criteria will be used to demonstrate the effectiveness of waste minimization efforts:

1. Reduced amounts of waste
2. Reduced waste management costs
3. Improved regulatory compliance
4. Reduced health risks
5. Reduced accident risk
6. Improved public relations.

These criteria will be used to evaluate the success of recycling efforts and changes in waste management practices to achieve waste volume and toxicity reductions. Based on this evaluation, an annual update of waste minimization goals and program objectives will be prepared for submittal to DOE-FN.

XIV. REFERENCES

DOE Order 5820.2A, "Radioactive Waste Management"

DOE Order 5400.1, "General Environmental Protection Program"

DOE Order 5400.3, "Hazardous and Radioactive Mixed Waste Program"

DOE Model Waste Minimization and Pollution Prevention Awareness Plan (2-1-91)

Executive Order 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements."

DOE Radiological Control Manual, June 1992.

DOE Memorandum and Attachment, February 18, 1994, from Kent Hancock, Director, Waste Minimization Division, "Guidance for Preparation of Site Waste Minimization and Pollution Prevention Awareness Plans."

CONTROL NO. FER-00 03
POLICY
DOCUMENT NO. PO-1013
REVISION NO. 0

APPENDIX I

5690

WASTE MINIMIZATION AND POLLUTION PREVENTION POLICY

PO-1013

Effective Date: 10-14-93

AUTHORIZED BY: _____ 10/6/93
N. C. Kaufman, President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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

Fernald Environmental FERMCO Restoration Management Corporation	Title: WASTE MINIMIZATION AND POLLUTION PREVENTION POLICY	
	DOCUMENT NO: PO-1013 REVISION NO: 0	5690
	Effective Date: 10-14-93	Page 1 of 4

RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
10-14-93	0	New Document describing FERMCO's Waste Minimization policy per Request No. S93-186, initiated by A. Pfahles-Hutchens.

1.0 OBJECTIVE

This policy sets forth FERMCO's commitment to protecting the environment through waste minimization and pollution prevention efforts at the FEMP. The policy was written in response to several federal regulations and orders including, but not limited to DOE Orders 5820.2A, 5400.1, and 5400.3, the Federal Pollution Prevention Act of 1990, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the Resource Conservation and Recovery Act (RCRA). This policy directly supports the FERMCO Mission and highlights FERMCO's leadership role in environmental restoration.

2.0 SCOPE

This policy applies to waste generated by daily operations and remediation activities. It is applicable to all FERMCO employees, including subcontractors, working onsite and offsite.

3.0 DEFINITIONS

FERMCO Mission - Together DOE and FERMCO are committed to safe, least-cost, earliest, final clean-up of the Fernald site, within applicable DOE Orders, regulations, and commitments and in a manner which addresses stake holder concerns.

Pollution Prevention* - The use of materials, processes, or practices that reduce or eliminate the creation of pollutants or wastes at the source, including practices that reduce the use of hazardous materials, energy, water, or other resources, and practices that protect natural resources through conservation or more efficient use.

Recycling* - Reusing or reclaiming materials/waste including processes that regenerate a material or recover a usable product.

Source reduction* - As defined in the Federal Pollution Prevention Act - any practice that: (1) reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and (2) reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

Treatment* - Involves end-of-pipe destruction or detoxification of wastes from various separation/concentration processes into harmless or less toxic substances.

Waste Minimization* - Source reduction and the following types of recycling: 1) beneficial use/reuse, and 2) reclamation. Waste minimization does not include recycling activities whose uses involve disposal and burning for energy recovery.

* as defined by the U.S. Environmental Protection Agency

4.0 ELEMENTS

Through the development and implementation of this policy, FERMCO will, whenever feasible, apply waste minimization and pollution prevention principles to operations at the FEMP. Source reduction of waste generated will receive highest priority in waste minimization and pollution prevention efforts. However, when the generation of waste cannot be avoided, FERMCO will strive to recycle, segregate, treat, reasonably reduce volume and dispose of the waste, using techniques that will not adversely affect the environment, conserve disposal capacity, and conserve energy.

By successfully incorporating waste minimization and pollution prevention principles into the operation of the FEMP, cost savings, increased operational efficiencies, improved community relations, improved quality of FERMCO services, maintenance of a safe and healthy workplace for employees, and protection of the environment can be achieved. FERMCO is committed to identifying and implementing waste minimization and pollution prevention opportunities by encouraging and involving all employees.

The disposition of waste (recycling and reuse, treatment, and disposal) shall be employed in ways that will minimize adverse impacts on air, land, and water.

4.1 SOURCE REDUCTION

The reduction of materials used in an activity will lessen the amount of waste produced by that project. FERMCO will develop and implement a strategy to promote source reduction whenever feasible. This strategy will implement sound management practices and reflect technology development and technology changes and improvements. It also includes material substitution, and improved operating practices, including waste segregation, material handling improvements, and inventory control.

4.2 RECYCLING AND REUSE

When waste cannot be reduced at its source, FERMCO shall investigate recycling waste and other materials in an environmentally safe manner. Recycling includes reuse and reclamation of wastes and other materials. The act of recycling reduces the amount of waste which must be taken to a disposal facility.

Materials and equipment should be used for multiple jobs when feasible. This action will reduce the need for purchasing excess supplies. The reuse of materials and equipment should always be done in a manner that assures worker safety, environment safety, and effectiveness.

4.0 **ELEMENTS** (cont.)

4.3 TREATMENT

If waste cannot be reduced at the source or recycled, FERMCO shall investigate treatment opportunities to reduce the toxicity or to eliminate or reduce the amount of pollutant requiring disposal. Some examples of waste treatment methods include detoxification, incineration, decomposition, stabilization, and solidification or encapsulation. It should be noted that occasionally a waste requires treatment (e.g., radiological decontamination) before it can be recycled.

4.4 DISPOSAL

When no other waste management option is available, waste shall be disposed of at a permitted facility in an environmentally sound manner.

5.0 **IMPLEMENTATION**

All employees are responsible for implementing the Waste Minimization and Pollution Prevention Policy. It is the duty of each employee to participate in the established recycling programs, conserve energy when possible, reuse equipment and materials when feasible, adhere to policies and procedures promoting waste minimization and pollution prevention principles, and identify areas where improvements to current practices can be made.

The Waste Management Section is responsible for the coordination of waste minimization and pollution prevention activities. Waste Management shall assist all FEMP employees in exploring waste reduction methods and recycling and shall ensure the implementation of these methods. Waste Management shall also promote waste minimization through employee education and incentives.

ADDENDUM

FERNALD SITE WASTE MINIMIZATION GOALS
APRIL 1st TO SEPTEMBER 30th 1994

Source Reduction

1. Perform a pollution prevention opportunity assessment (PPOA) on the wastewater treatment system. The assessment will focus on the usage of methanol, a toxic substance currently reported yearly on the SARA 313 Report to EPA, and will identify options for the elimination or reduction in usage of the methanol. This assessment and goal is consistent with reducing toxic chemicals as required by Executive Order 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements". June 30, 1994.

2. Compile mixed waste generation data and rates from routine activities in 1993 and make mixed waste generation projections for the next five years. The data will include the amounts generated from particular areas and processes and the date the waste was generated. The projections will form the basis for performing waste assessments on processes which generate mixed waste. Opportunities will then be identified for reducing and/or eliminating the waste generated. April 30, 1994.

3. Perform PPOAs on the laboratory or garage processes. The area/process which generates the highest volume of hazardous and/or mixed waste, based upon the above mentioned calculations of current generation rates, will be assessed for opportunities to eliminate or reduce the amount of hazardous materials used in the process. September 30, 1994.

4. Evaluate the HAZ-TRAC chemical inventory system to ensure chemical reviews are being performed and recommendations are being made for chemical substitutes or reduction in inventory. The HAZ-TRAC system tracks newly purchased chemicals from procurement to the point of dispositioning. September 30, 1994.

5. Evaluate the feasibility of extending the frequency between oil changes of site vehicles from every 3,000 miles to every 7,500 miles. Reducing the frequency of oil changes will reduce the amount of new oil purchased, reduce maintenance labor/costs, and reduce the amount of waste oil generated. September 30, 1994.

Recycle/Reuse

1. Increase by 25% the amount of aluminum cans, paper/co-mingled, and printer cartridges recycled by Fernald employees. September 30, 1994.

2. Develop a program/procedure which will expand the successful pilot project at Receiving in which incoming boxes are repackaged into reusable containers and the cardboard/polystyrene is recycled. The goal includes documenting the volume of material that is diverted by recycling and/or sanitary disposal. This program will decrease the amount of material entering the controlled area and will reduce the amount of LLW shipped to the Nevada Test Site. September 30, 1994.

3. Formalize the mechanism for the sitewide awareness and utilization of the Excess Property List. The Excess Property List contains reusable items such as computers, equipment, and supplies and should be reviewed prior to all procurements. The mechanism being proposed is the LAN Communications System which will display the list as a bulletin board for all employees to review. December 31, 1994.

Segregation/Decontamination

1. Increase by 25% the volume of dry compactible waste segregated and collected from the Controlled Area and diverted to a sanitary landfill instead of shipping to NTS as LLW. This will be achieved by including Building 45 office trash and by identifying additional office areas in the Controlled Area which could be included in the current program. September 30, 1994.

2. Segregate and decontaminate 200 tons of metallic material by processing through the Material Release Facility - MRF (new D and D building). This will be a pilot project to test the effectiveness of the MRF system and to evaluate the feasibility of expanding the process to include more aggressive decontamination equipment. This process will increase the amount of material available for excess property resale/reuse and decrease dependance on NTS. July 31, 1994.

3. Change policies/procedures to ensure that light ballasts (both PCB and non-PCB) are managed properly and are not stored in the controlled area as a radiologically contaminated waste. All non-contaminated, non-leaking light ballasts and light bulbs will be recycled. September 30, 1994.

Programmatic

1. Develop a system for the transfer of information on waste minimization and pollution prevention projects and/or successes from the CRUs, RSO, Construction and other site organizations. This will include revived bi-weekly P2 meetings and more integration with site organizations via newsletters and network communication systems. May 31, 1994.

2. Continue the Waste Minimization Applications and Life-Cycle Cost Analysis Training for project and design engineers and expand the training to include subcontracting personnel. The ultimate goal is to reach all engineers and personnel involved with waste management issues. September 30, 1994.

3. Implement a process whereby all employees are informed about the WM/PP suggestion program and have access to suggestion forms/procedures. Develop a system for informing employees of the status of their suggestion and for rewarding implementable ideas. September 30, 1994.

4. Establish an interface between the All Materials Inventory and Tracking System and the Material Evaluation Form (MEF) database. These two systems are now manually reconciled and this interface will allow an electronic reconciliation to be performed. This is the first step towards the implementation of the Sitewide Waste Information, Forecasting and Tracking System (SWIFTS). September 30, 1994.

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