R-020-104.1

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APPLICATION TO SHIP WASTE TO THE NEVADA TEST SITE
REVISION 4.2 NOVEMBER 1992

11/01/92

WEMCO/DOE-FN
70
APPLICATION

Control Number: 08-1 WO1

4038

FEMP

Application To Ship Waste

To The

Nevada Test Site

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Westinghouse Environmental Management Company of Ohio

P. O. BOX 398704
CINCINNATI, OH 45239-8704

PREPARED FOR THE

U. S. Department of Energy
FERNALD FIELD OFFICE
UNDER CONTRACT DE-AC05-860621600

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

APPLICATION TO SHIP WASTE TO THE NEVADA TEST SITE

MAY 1989

Revision 4.2 November 1992

Prepared by
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Prepared for
U.S. DEPARTMENT OF ENERGY
FERNALD FIELD OFFICE
Contract DE-AC05-86OR21600

SIGNATURES BELOW ATTEST THAT THE INFORMATION CONTAINED IN THIS APPLICATION IS CORRECT AND THAT THE WASTE STREAMS TO BE SHIPPED WILL MEET THE NTS WASTE ACCEPTANCE CRITERIA:

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4038

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4	7/92
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3

APPLICATION TO SHIP WASTE

TABLE OF CONTENTS

I. GENERATOR INFORMATION 1
A. Signature Page 1
B. EPA Identification Number 1
C. Facility Name and Location 1
D. DOE Field/Area Office and Contacts 1
E. Contractors Name and Contacts 2
F. Waste Certification Official and Alternates 3
G. Justification for Shipment to Nevada Test Site 5
H. Waste Minimization Plant Statement 5
I. Funding Method 5

II. WASTE CHARACTERIZATION PROGRAM 6
A. Process Knowledge 8
B. Sampling Plan 9
C. Waste Analysis Requirements 9
D. Standard Data Reporting Forms 11
E. Waste Characterization Flow Diagram (Figure 1) 11
F. Waste Characterization Flow Diagram (Figure 2) 12

III. WASTE STREAM INFORMATION 13
A. Waste Stream Identification Number - ONLO-000000001 13
B. Waste Stream Identification Number - ONLO-000000002 25
C. Waste Stream Identification Number - ONLO-000000005 36
D. Waste Stream Identification Number - ONLO-000000006 48
E. Waste Stream Identification Number - ONLO-000000007 61
F. Waste Certification Flow Diagram 72
G. Shipping Containers and Codes 73
H. Three-Year Waste Shipments Forecast 74
I. Waste Security Information 80

IV. WASTE CERTIFICATION PROGRAM 80
A. Waste Certification Program Plan 80
B. Certification Related Procedures 80

V. EXEMPTION REQUEST 80
A. Exemption 80
B. Requested Duration 81
C. Plan for Correction Action 81

VI. PROCEDURES AND SUPPORTING DOCUMENTATION 81

I. GENERATOR INFORMATION

A. Signature Page

See cover page.

B. EPA Identification Number

OH6890008976

C. Facility Name and Location

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F. Waste Certification Officials and Alternates

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* Justification for additional alternate waste certification officials:

- The FEMP is a large volume shipper of low level waste, over 744,000 cubic feet in FY-1992.
- Services of Waste Certification Officials are required each day of the work week, and occasionally on weekends and other shifts.
- The physical layout of operations, and inflexible work schedules, require the services of a Waste Certification Official in several places at the same time.
- Availability of certification personnel is limited by increased training, vacations, and other assignments.

3.0 Waste Package Certifiers

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G. Justification for Shipment to Nevada Test Site

The FEMP proposes to ship waste streams consistent with those listed in Section III, Part A through Part E of this application in accordance with NVO-325, Revision 1 requirements. The waste streams will be processed (if necessary), packaged, transported, and disposed at the Nevada Test Site (NTS).

Since 1986, the FEMP has not been permitted to dispose of any Low Level Waste (LLW) on site. As a result, a backlog of low level waste, equal to approximately 9.5 million $ft.^3$ has accumulated at the FEMP.

In addition to the backlog waste, the FEMP continues to generate LLW from ongoing clean up activities required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), construction projects that are underway to refurbish the portions of the FEMP required to accomplish long term cleanup, and daily operational activities. The CERCLA cleanup activities and construction projects are expected to generate approximately 950,000 $ft.^3$ of LLW between 1991 and 1995. Daily operational activities currently generate approximately 740,000 $ft.^3$ of LLW per year.

Based upon the relatively small size of the Fernald Environmental Management Project (1,050 acres), its close proximity to densely populated areas, and its location over a major sole source aquifer, off-site disposal of this Low Level Waste is an essential part of the environmental remediation at the FEMP. The waste generated at the FEMP is **defense** waste and must be disposed of in accordance with DOE Order 5820.2A, III.2.c.

H. Waste Minimization Plan Statement

The FEMP employs waste minimization techniques to reduce the quantity and toxicity of wastes generated at the facility. These efforts are outlined in the FEMP "Waste Minimization and Pollution Prevention Awareness Plan." This document educates personnel and establishes programmatic goals for waste minimization at the FEMP. This plan meets regulatory requirements of the Resource Conservation And Recovery Act as well as satisfying DOE Orders 5400.1 and 5820.2A.

I. Funding Method

Funding shall be set up to prepay FEMP estimated waste volumes at least a fiscal quarter in advance. Purchase orders shall be prepared and addressed to Reynolds Electrical and Engineering Company (REECo), based upon the fiscal year estimated waste volume and consistent with the forecasts identified in this application and the current disposal charge per cubic foot. Upon receipt of an invoice from REECo, payment shall be expedited. FEMP shall adjust any quarterly forecast prior to the initiation of billing by REECo for that quarter.

This section of the application provides an overview of the FEMP Waste Characterization Program Plan. It defines the goals and objectives of the program, describes the characterization process, summarizes the evaluation criteria, and identifies the documentation system for the program.

The Waste Characterization Program at the FEMP has three primary goals: (1) support health and safety programs, (2) comply with the waste characterization requirements of regulatory programs and legal agreements, and (3) provide information required to ensure operational compliance for materials management (e.g., National Pollution Discharge Elimination System (NPDES) permit conditions, disposal facility Waste Acceptance Criteria (WAC), etc.).

There are several key objectives that assure the integrity of the program. These include the following:

- The **scope** of the program is identified.
- The **waste characterization process**, including roles and responsibilities, is well specified.
- The key questions to be answered are clearly stated. The **evaluation criteria** for answering each key question and the requirements for data quality and quantity are explicitly identified.
- There is a **documentation system** that supports all decision-making criteria and provides traceability to individual waste packages.

Waste characterization is required for all wastes generated or managed at the FEMP. Characterization is also required for environmental media (e.g., soils) that are managed as waste because they contain materials regulated under one or more of the material specific regulatory authorities. In addition, under legal agreement with the state of Ohio, certain materials stored on site that may not be classified as waste must be characterized. Waste characterization is required for both currently generated wastes and for backlogged wastes that have not been appropriately characterized.

Waste characterization requirements apply to those wastes that are generated under continuing operation and maintenance programs as well as to those wastes generated or managed under the CERCLA Removal Action Programs at the FEMP.

All LLW in the five waste streams identified in this application fall within the scope of the Waste Characterization Program. **However, it must be understood that for purposes of characterization, the FEMP definition of a Waste Stream is much more discrete than what is identified by the five waste streams provided in Section III (Waste Stream Identification) of this application. At the FEMP a waste stream could comprise a single 55-gallon container, or several hundred box containers depending on the method of generation and the time period during which the waste is generated. For purposes of characterization at the FEMP, a waste stream is identified by the documentation contained in a discrete, uniquely identifiable characterization file. For purposes of disposal at the NTS, a waste stream is identified as one of the five waste streams listed in Section III of this application. Therefore, there are multiple characterization files for each of the waste streams listed in Section III of this application.**

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. The basic process is depicted in Figures 1 and 2 (reference pages 11 and 12) with responsible organizations identified for each stage of the process. The organization with primary responsibility for characterization and maintenance of the characterization files is Facilities and Materials Evaluation (FME) group under the Environmental Management Department. There are two basic processes for completing work characterization.

The first process for obtaining waste characterization at the FEMP has been developed into a site procedure (SSOP 0002 - Completing the Material Evaluation Form). This process is depicted in Figure 1 with the responsible organizations identified for each stage in the process. The responsibilities of each group involved in waste stream characterization is explained in detail in SSOP-0002. The primary vehicle for completing the characterization is the two page material evaluation form (MEF) which is part of the site procedure. Waste characterization for construction projects is currently documented with RCRA characterization/ radiological determination letter or a MEF or checklist completed by the FME Group. The FEMP plans (target date, February 1993) to characterize all waste using the MEF process.

The first page of the MEF is the Generator's Section which summarizes information provided by the FEMP (internal) waste generator. It is similar to the waste profile sheets used by commercial treatment, storage, and disposal facilities (TSDFs) allowing for documentation of information regarding generator and waste stream identification, generation information, gross material characteristics, material composition, and health and safety precautions.

The second page of the MEF is the Evaluation Section, which summarizes the results of the waste characterization with respect to the evaluation criteria. It summarizes pertinent information from the evaluation process including material regulatory status, material management requirements, and health and safety precautions.

Supplementing the MEF are a series of worksheets which are completed with each MEF to establish other relevant criteria for disposal of the waste. One of these worksheets is titled "NTS Waste Acceptance Criteria." This completed worksheet and completed MEF are the process by which waste is characterized and the characterization documented to ensure that NVO-325, Revision 1 criteria are met.

A second process for completing characterization is used for project waste when the MEF process is not used. Site standard operating procedure, SSOP-0044 provides direction for completing this process. Under this process, all wastes from a given project (e.g., construction projects) identified by the project engineer are documented to the FME Group. FME reviews the wastes, completes a project walkdown, documents process knowledge, and determines required sampling and analysis needs to support waste characterization. When all supporting information (including sampling and analysis) are complete, FME issues a RCRA determination/radiological characterization letter for the project. This letter serves as documentation of the regulatory status of the generated waste material. The process for completing project waste characterization is documented in Figure 2.

A. Process Knowledge

The FEMP relies on process knowledge to complete characterization at the FEMP for certain waste streams that have sufficient process knowledge documentation and material controls measures (these include a large number of process waste streams). In joint guidance issued by DOE and EPA, process knowledge was identified as being **most appropriate** when one or more of three conditions exist (employee exposure concerns (ALARA), the matrix is not amenable to sampling or highly heterogenous waste final form). The NVO-325, Revision 1, WAC establish a higher standard for waste characterization stipulating that one or more of these conditions must be met in order for waste to be characterized by process knowledge alone.

Process knowledge includes the sum of all information that can be collected on a material, including information from operating procedures, manufacturing specifications, material safety data sheets (MSDS), spill reporting logs, visual inspections, and personnel affidavits. All process knowledge used for waste characterization is documented in the waste characterization file for each waste stream.

The RCRA regulations specifically provide that the waste generator may apply knowledge of the hazard characteristic of the waste in light of the material or processes used. The FEMP takes two basic approaches for evaluating waste using process knowledge. The first approach is to determine that the waste matrix (the material) can not exhibit a hazardous waste characteristic. For example a non-liquid waste, by definition, can not exhibit the characteristic of corrosivity. Likewise, bulk structural steel with virtually no absorptive capacity will never fail the Toxicity Characteristic (TC) provided any surface coatings have been appropriately addressed.

The second approach is to demonstrate that the generating process was well documented, controlled, and did not involve the introduction or generation of any material that could cause the waste to be regulated. For example, materials generated from a high temperature furnace with sufficient residence (e.g., a metals reduction furnace) and which had known feed materials (e.g., UF_4, Mg metal, and MgF_2) may be determined by process knowledge not to fail the TC for organics.

Process knowledge is only used at the FEMP when there is sufficient objective information to support the determination. This information is captured in the individual waste characterization files that support each individual determination such that the logic for reaching a conclusion can be reconstructed by an independent reviewer if necessary. Additional information on the use of process knowledge is provided in the FEMP Waste Characterization Plan.

The FEMP recognizes that DOE/NVO has established a standard higher than either the federal/state regulatory requirements or the DOE/EPA guidance and will comply with this higher standard in completing waste characterization to support shipment of waste to the NTS. The FEMP will complete confirmatory characterization sampling and analysis (S&A) to supplement process knowledge determinations for materials that fail to meet one of the three criteria. When these waste streams do not meet one or more of the three conditions specified in NVO-325, Revision 1 for use of process knowledge (e.g., unsampleable, high heterogeneity, or ALARA concerns) the FEMP completes confirmatory sampling to satisfy the requirements of NVO-325. The basis for characterizing waste for shipment to the NTS is identified for each waste stream in the waste stream information Section (III). Protocol for confirmatory sampling is provided in Section II. B.

B. Sampling Plan

When process knowledge is not sufficient to characterize the waste, sampling and analysis is completed. Sampling and analysis completed to support waste characterization is conducted in accordance with US EPA SW-846, "Test Methods for Evaluating Solid Waste," for RCRA waste characterization. Protocols required by other regulatory programs (e.g., polarized light microscopy (PLM) for identification of asbestos containing materials (ACM)) are used when applicable. All data required to support waste characterization by sampling and analysis are included in the waste characterization files. The files include the request for analysis, sampling plan, field sample log book, analytical data report, Quality Assurance/Quality Control (QA/QC) Report, chain-of-custody forms, and statistical treatment of analytical data. An individual sampling plan is written for each waste stream that must be sampled. The plans are written by personnel within WEMCO's Environmental Monitoring Section. Sampling plans are reviewed and signed by the author of the plan and the author's immediate supervisor. Sampling is then performed per the sampling plan.

For certain waste streams at the FEMP process knowledge alone is sufficient to meet all regulatory and waste management requirements at the FEMP. When these waste streams do not satisfy one or more of the conditions for use of process knowledge specified in NVO-325, Revision 1 (e.g., the waste form is amenable to sampling) confirmatory sampling is conducted to satisfy NVO-325, Revision 1 requirements. Confirmatory sampling is conducted in accordance with SW-846 (including all QA/QC requirements) but at a lower sampling rate than characterization sampling. Confirmatory sampling for containerized waste is completed in accordance with FMPC-2185 "Sampling Plan for Drummed Waste at the FMPC".

Confirmatory sampling essentially serves as a quality assurance check on process knowledge to ensure that materials meet the NVO-325, Revision 1, WAC for shipment to the NTS. If confirmatory sampling fails to substantiate the process knowledge determination, then the waste is re-evaluated and further sampling and analysis completed, if necessary. Additional information on the protocol for confirmatory sampling is provided in the FEMP Waste Characterization Plan (Section 13.1.2).

C. Waste Analysis Requirements

Materials characterized under the program fall into three general categories: (1) large volume scrap waste streams (Waste Stream ONLO-000000001), (2) project waste (Waste Stream ONLO-000000002), and (3) nonproject waste (Waste Streams ONLO-000000005, ONLO-000000006, and ONLO-000000007).

Large volume scrap waste (Contaminated Process Area Scrap Wastes) are defined as a limited number of waste streams that are not difficult to characterize in terms of regulatory status and conformance to the NVO-325, Revision 1 WAC. Currently these waste streams include scrap metal, scrap wood, and scrap vehicles. These wastes are not amenable to sampling. These waste streams have been evaluated under the MEF process and determined to be acceptable for shipment to the NTS under the NVO-325, Revision 1, WAC **provided** they meet certain specified criteria.

Each container filled with large volume scrap waste is evaluated to ensure that all materials placed in the container meet the specified criteria. The criteria have been incorporated into a checklist that provides traceability from the waste container to the appropriate scrap waste MEF. Use of the checklists is controlled by a standard operating procedure (SOP 20-C-625, Evaluating Low Level Radioactive Waste Bulk Waste Streams for Shipment). Wastes that fail to meet the specified criteria for large volume scrap waste are generally characterized as nonproject waste.

Project generated wastes (Contaminated Construction/Removal Action Wastes) may be generated from construction projects, removal actions, or other large planned activities. Waste characterization is completed for project generated waste prior to actual waste generation whenever possible (e.g., to minimize the volume of waste generated for disposal at the NTS, soils from an excavation area are sampled prior to excavation). This proactive waste characterization supports waste management and compliance issues.

Nonproject generated waste (Thorium Waste, Low/High Grade Residues, and Contaminated Trash) are wastes from activities at the FEMP that are not large enough or planned with enough lead time to fall into the project generated waste category. The preference for these waste streams is still to characterize them prior to generation, but this is not generally as feasible as with the project generated waste.

All documentation to support the waste characterization is contained in FME's Waste Characterization File System. The system is comprised of a physical file for each waste stream with its status summarized in the FME Waste Stream Database. Some elements of the waste stream file are mandatory (e.g., unique identification number), while others only contain information when applicable for the waste stream (e.g., sampling data). The FME 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.

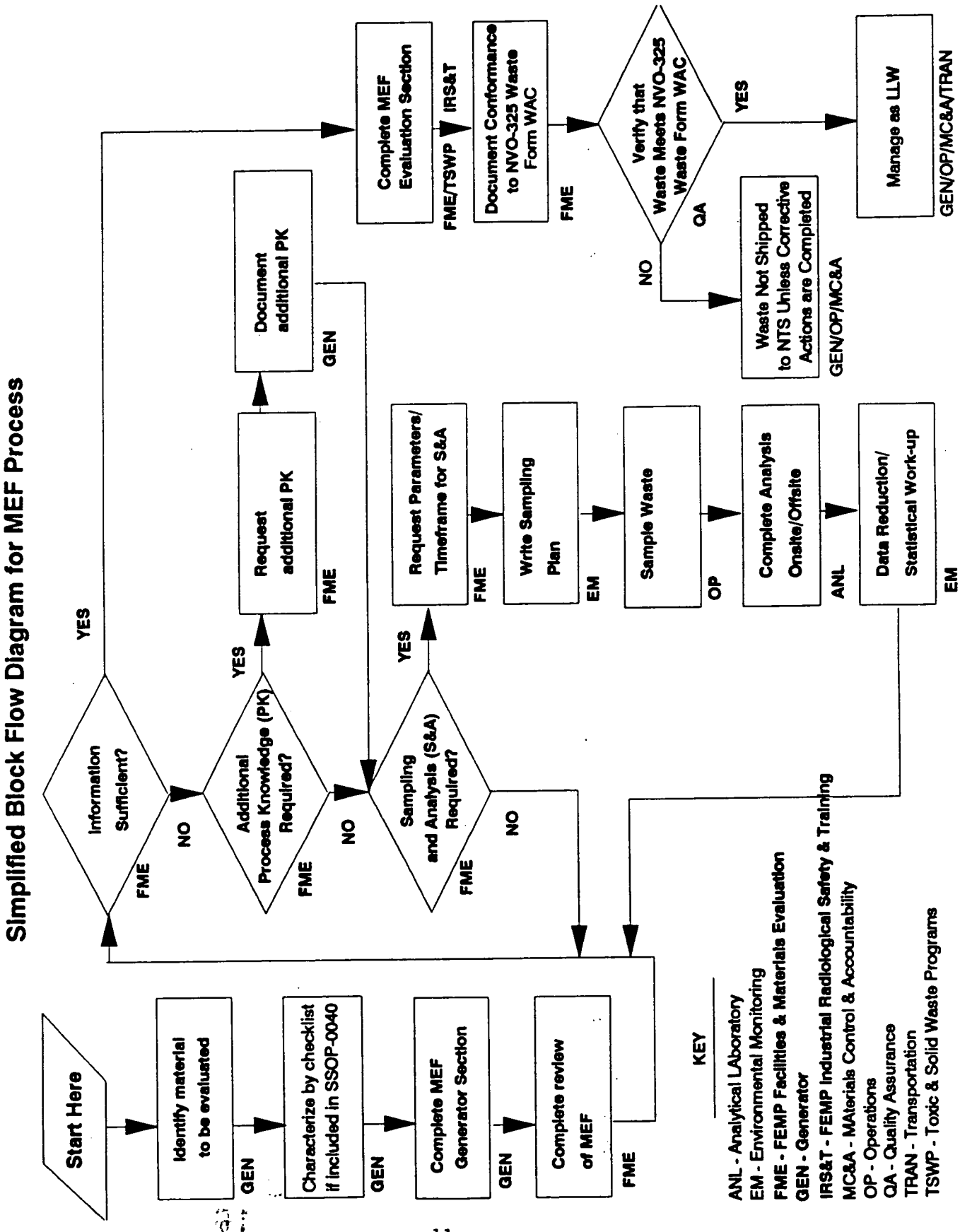
Access to the Waste Characterization File System is limited to FME personnel and persons assisted by FME personnel. Files removed from the trailer must be signed out. Duplicate copies of each element of the file are maintained at a separate location to provide backup documentation. The Waste Characterization System is maintained in a secured trailer with limited access.

D. Standardized Data Reporting Forms

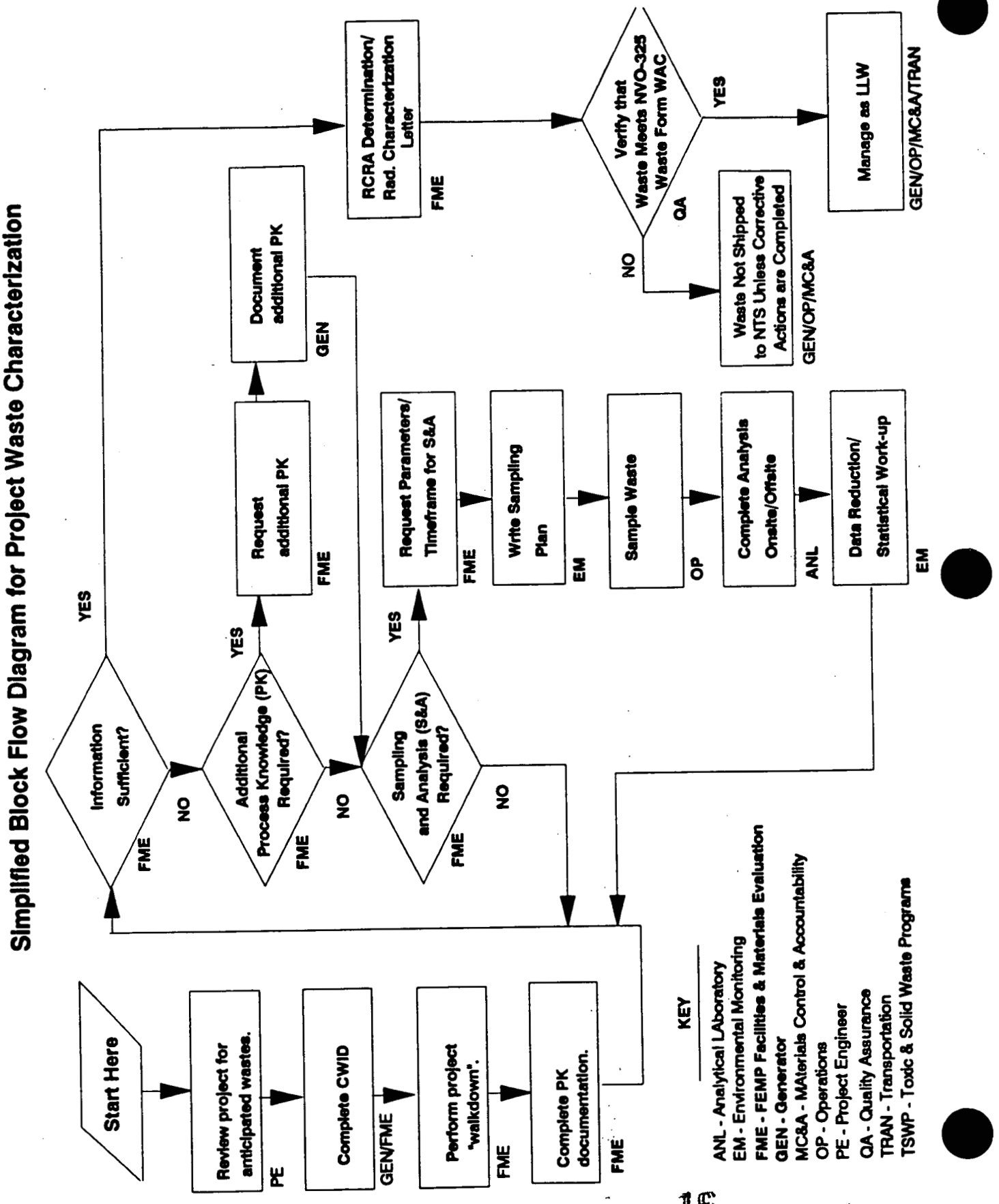
The FEMP has requested an exemption to this NVO-325, Revision 1 requirement. The exemption request is presented in Section V of this application.

4038

E. Waste Characterization Flow Diagram Figure 1



F. Waste Characterization Flow Diagram Figure 2



A. Waste Stream Identification Number

ONLO-000000001 Contaminated Process Area Scrap Wastes

1.0 Waste Type

Low Level Waste

2.0 Waste Description

A waste stream is defined as a waste which is categorized by similar characterization process and/or point of generation. The criteria used for evaluating candidate LLW for shipment to the NTS, excerpted from the FEMP Waste Characterization Plan (Draft), are described on the following pages.

2.1 Contaminated Process Area Scrap Wastes

Contaminated **process area** wastes are generated at the FEMP. These wastes are currently being shipped to the NTS and may include the following:

- Scrap metal
- Scrap vehicles
- Scrap wood

This waste is generated in the following ways:

Remediation activities at the FEMP involve dismantling of equipment and disposal of waste which has been stockpiled during FEMP operations. This remediation process generates scrap metal, scrap wood, and scrap vehicles which have become radioactively contaminated and must be disposed as low level waste. This material is evaluated by operations personnel using SOP 20-C-625, Evaluating Low Level Radioactive Waste Bulk Waste Streams for Shipment, which list specific criteria that must be met to ensure that NVO-325, Revision 1 criteria have been satisfied. No treatment of this waste is completed prior to packaging. If the waste does not meet disposal criteria as specified in the FEMP's Waste Characterization Program (SOP 20-C-625), the waste is not packaged for disposal. Scrap metal and scrap wood are the final forms of these wastes. Scrap metal and scrap wood are packaged in their existing form. Scrap vehicles are drained of all liquids prior to packaging. SOP 20-C-625 permits a small percentage of equipment, rubber, plastic, etc. to be included with the scrap metal and scrap wood waste. No special handling or disposal requirements exist for this waste.

2.1.1 Waste Stream Characterization Data Sheet

1. Waste Stream No.: O N L O - 0 0 0 0 0 0 0 0 1

2. Waste Description:

a. Physical Characteristics: Dry solid demolition materials from maintenance and remediation activities which generate scrap wood, scrap metal, and scrap vehicles. No treatment of this waste is performed prior to packaging.

b. Special Handling/Disposal Requirements: None
The average radiation levels on contact is .50 mrem/hr. with a range of <.50 mrem/hr to .90 mrem/hr.

3. Basis for Characterization:

a. Process Knowledge: ____ b. Analytical Knowledge: ____

c. Both: ✓

If B or C, provide Standard Data Reporting Forms as necessary.

4. Radioactive Characteristics:

a. Is Waste > NRC Class-C (see Title 10 CFR 61.55)?: No

b. WMIS Nuclide Category (circle): 1 (2) 3 4 5 NA 7 8

(Choose the highest predominate nuclide. The number 6 is not an option.)

c. Radioactive Constituents:

Specific Activity Range of Waste Stream

	Nuclide	Chemical Forms	Low	Mean	High	Units(Ci/kg)
(1)	U-238 (0.1% to 1.0% U)	*	3.36E-07	1.81E-06	3.29E-06	Ci/kg
(2)	U-235 (0.2% to 2.0% on a U basis)	*	4.76E-09	2.19E-07	4.34E-07	Ci/kg
(3)	U-234 (0.001% to 0.01% on a U basis)	*	1.38E-07	4.07E-06	8.01E-06	Ci/kg

* Uranium oxides and salts (typically UO_3, U_3O_8, and UF_4)

5. Hazardous Components (for MW): **NOT APPLICABLE**

   a. Basis for Identifying as MW (circle): (1) Ignitable

      (2) Reactive (3) Corrosive (4) TCLP (5) Listed Waste

   b. List the applicable EPA waste code, the chemical name, the treatment performed (if applicable) and the Regulatory/Treatment Standard. Attach Standardized Data Forms.

EPA Hazardous Waste No.	Chemical Name	Treatment Performed	Regulatory Threshold/Treatment Standard
(1)			
(2)			
(3)			
(4)			

NOTE: Waste characterization of materials included in this waste stream is predominantly completed using process knowledge because the material meets all the criteria of NVO-325, Revision 1, Section 4.1.1.A, B, and C. Administrative controls are also employed to maintain waste stream integrity (SOP 20-C-625, Evaluating Low Level Radioactive Waste Bulk Waste Stream for Shipment).

2.2 Waste Stream Specific Criteria

a. Low Level Waste: Only the contaminated process area scrap wastes defined as LLW per DOE Orders 5820.2A, 5400.1, and 5480.11 guidelines shall be shipped to the NTS. (NVO-325, Revision 1, 5.5.1).

Compliance Method: The DOE Performance Objective (Draft) 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. Further guidance on radioactive waste characterization is provided in the DOE Performance Objective (Draft). In accordance with the "Waste Minimization and Pollution Prevention Awareness Plan," the FEMP attempts to minimize waste generation whenever possible.

b. Transuranics: The contaminated process area scrap wastes shall have a TRU concentration less than 100 nCi/g (e.g.,, shall not be regulated as TRU waste). (NVO-325, Revision 1, 5.5.1.1(A)).

Compliance Method: 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). Because process area scrap wastes are bulk materials that have become radioactively contaminated they can not exceed these highest TRU concentrations recorded on site.

c. Hazardous Waste: All contaminated process area scrap wastes are evaluated for any characteristics of, or listed, hazardous waste as identified in Title 40 CFR 261, "Identification and Listing of Hazardous Waste," or state of generation hazardous waste regulations. (NVO-325, Revision 1, 5.5.1.1(B)).

Compliance Method: Process area scrap wastes are evaluated in accordance with SOP 20-C-625 "Evaluating Low Level Radioactive Waste Bulk Waste Streams for Shipment". This procedure provides a checklist which identifies the criteria that must be met in order for the waste to be identified as non-hazardous and acceptable for shipment to the NTS. The checklist criteria were developed based on a detailed review of the waste stream versus the criteria for identifying hazardous waste codified in the federal and state hazardous waste regulations. This comprehensive review of regulatory criteria is documented on an MEF for the waste stream on file in the FME Waste Characterization Files. All cases that could possibly cause a waste stream to be identified as a hazardous waste (or otherwise fail to meet NVO-325, Revision I, WAC) are specifically excluded under the checklist. For example, because free liquids are specifically prohibited, scrap wastes that meet checklist criteria could not possibly exhibit the hazardous waste characteristic of corrosivity. Other such required exclusions are incorporated into the checklist criteria as well to ensure that no characteristic or listed hazardous waste are packaged for shipment to the NTS.

d. Free Liquids: The contaminated process area scrap wastes 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% by volume of the external waste container and shall meet the following criteria (NVO-325, Revision 1, 5.5.1.1(C).

Compliance Method: Free liquids in process are scrap wastes may be evaluated based on process knowledge or waste testing to determine whether the waste stream meets this criteria. Determinations based on process knowledge generally include a visual inspection of the waste (e.g.,, during a visual inspection or sampling episode). 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. Free liquid 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. However, the PFLT is generally not required to make a determination because the waste matrix provides little effective absorbative capacity. Reference FEMP Waste Characterization Plan (Draft) - RCRA Section.

e. Particulates: Wastes containing fine particulate materials less-than-ten-micrometer-diameter and greater than 1 weight percent or 15 weight percent less-than-200 micrometer diameter particles will be immobilized or packaged in accordance with NVO-325, Revision 1, 5.5.1.1(D).

Compliance Method: Based on the waste matrix and checklist requirements, process area scrap wastes will always meet this NVO-325, Revision 1, WAC requirement. In no case will the scrap waste streams (metal, wood, and vehicles) be comprised of or contain any particulate matter. The checklist provides additional assurance for this by requiring that all residues be removed from the scrap waste before the waste may be packaged for disposal at the NTS.

f. Gases: Process area scrap waste streams are evaluated to determine if they contain any items that potentially produces pressure in the package greater than 1.5 atmospheres at 20° celsius. (NVO-325, Revision 1, 5.5.1.1(E))

Compliance Method: Process area scrap waste are evaluated for there potential to produce pressure in excess of 1.5 atmospheres at 20° C during the hazardous waste determination (SSOP-0002). The primary source of gases in this waste steam, 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.

g. Stabilization: Where practical, contaminated process area scrap waste shall be treated to reduce volume and provide a more structurally and chemically stable waste form. (NVO-325, Revision 1, 5.5.1.1(F))

Compliance Method: LLWP will identify wastes that are candidates for treatment to reduce volume and provide a structurally stable waste form. No treatment of this waste will be required to stabilize harmful gases or vapors. Free liquids will be drained per SOP 20-C-625. FME will identify all LLW streams that have potential to generate harmful gases, vapors, or liquids. Waste that fail this WAC will not be shipped to the NTS.

h. Etiologic Agents: Process area scrap wastes to be shipped to the NTS will not contain pathogens, infectious wastes, or other etiologic agents as defined in Title 49 CFR 173.386. (NVO-325, Revision 1, 5.5.1.1(G))

Compliance Method: 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 or 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 through 25) which includes 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. These administrative controls prevent etiologic agents from entering the process area scrap waste stream. Reference FEMP Waste Characterization Plan (Draft)- Infectious Waste Section for additional evaluation criteria.

i. Chelating Agents: If a waste is determined to contain chelating agents above the one percent by weight limit, the waste will not be approved for disposal at the NTS (NVO-325, Revision 1, 5.5.1.1(H).

Compliance Method: Process area scrap waste will always meet this NVO-325, Revision 1, WAC based on the waste matrix and compliance with the checklist requirements. None of materials which comprise the basic waste matrix (e.g., wood and metal) are considered chelating agents. In addition, the checklist requires that all residues be removed from the scrap waste before it may be packaged for disposal at the NTS.

j. Polychlorinated Biphenyls: PCB contaminated waste will not be shipped for disposal at the NTS in the contaminated process area scrap waste stream unless the PCB concentration meets the municipal solid waste disposal limits. See Title 40 CFR 761.60 for PCB disposal requirements. (NVO-325, Revision 1, 5.5.1.1(I))

Compliance Method: The FEMP samples wastes for PCB contamination when the waste matrix (e.g.,, oily material) or review of previous operations, manufacturers manuals, and previous sampling and analyses provides a reason to suspect PCB contamination. This determination is performed during the hazardous waste determination (SSOP-0002). Reference FEMP Waste Characterization Plan (Draft) - TSCA PCB Section for evaluation criteria.

k. Explosives and Pyrophorics: Contaminated process area scrap waste does not contain potentially explosive or pyrophoric material in a form that may spontaneously combustion if the container is breached. (NVO-325, Revision 1, 5.5.1.1(J))

Compliance Method: This WAC is evaluated during the hazardous waste characterization. This evaluation is performed in accordance with SSOP-0002, Completing the Material Evaluation Form and the FEMP Waste Characterization Plan (Draft). Any waste that potentially fails this WAC shall be identified by FME and the material will not be shipped to the NTS for disposal. None of the materials that comprise the basic waste matrix (e.g.,, wood and metal) of the process area scrap wastes are considered explosive or pyrophoric. The checklist requirements provide the additional controls necessary to ensure that in all cases this NVO-325, Revision 1, WAC is met. For example, scrap vehicles must have their fuel tanks removed and rendered non-explosive (e.g., through steam rinsing) before being packaged for disposal at the NTS.

2.3 Waste Stream General Package Criteria

a. Design

Waste packaging criteria for contaminated process area scrap waste shipped to the NTS for disposal shall meet DOT Regulations, 49 CFR 173, Subpart I. Standard operating procedures listed in Table I of the Waste Certification Plan, concerning storage and off-site shipments, shall be used to assure that all shipments meet DOT requirements and NTS site-specific requirements.

b. Nuclear Safety

The quantity of radioactive materials in contaminated process area scrap waste shipped to the NTS shall be limited so that an infinite array of packages will remain subcritical. 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 and shall meet 49 CFR, Parts 173.453(c)(3) and 173.453(d). Process area scrap waste packages will not contain uranium enriched ^{235}U greater than one percent by weight and with a mass of ^{235}U greater than 800 grams per package. The total mass of plutonium and ^{233}U will not exceed one percent of the mass of ^{235}U in any package.

c. Nuclear Heating

In compliance with 49 CFR 173.442, Thermal Limitations, a Health Physics evaluation of waste packages of material to be shipped to the NTS from the FEMP show no evidence of a heating effect above NVO-325 limits from radiological decay. Calculations from these waste streams at the FEMP show the power output from either ^{233}U or ^{235}U at maximum potential concentration in any waste package will not exceed 0.1 Watt. These calculations are based on the total alpha energy from each isotope in the waste and its associated daughters during normal radioactive decay.

d. Radiation Levels

In compliance with 49 CFR 173.441, Radiation Levels, the radiation exposure rate at the surface and at 1 meter of each package of contaminated process area scrap waste shall be measured and recorded in the data package. Packages that exceed 200 millirem/hr on contact shall not be shipped to NTS.

e. External Contamination

In compliance with 49 CFR 173.443, the surface contamination of each container of contaminated process area scrap waste shall be measured using instruments calibrated by the IRS&T Dosimetry & Instrumentation Section and recorded in the data package. If these instruments indicate that the limits of 49 CFR 173.443 are exceeded, then the package shall be cleaned until it is within the limits or the contents shall be transferred to a clean container.

f. Activity Limits

The activity limits of Titles 49 CFR 173.421, "Limited Quantities of Radioactive Materials," and 49 CFR 173.425, "Transport Requirements for Low-Specific Activity Radioactive Materials" shall be met.

In compliance with Title 49 CFR 173.421 and 173.425, strong, tight containers used for shipping Limited Quantities (LQ) and Low-Specific Activity (LSA) LLW shall be constructed so they will not leak during normal transportation and handling conditions.

g. Multiple Hazards

Not applicable, the FEMP does not ship wastes with multiple hazards to the NTS.

2.4 Waste Stream Specific Package Criteria

a. Closure

All contaminated process area scrap waste package closures will be sturdy enough to assure the closures will not be breached under normal handling conditions and will not serve as weak points for package failure.

b. Strength

Contaminated process area scrap waste will be packaged in containers capable of supporting a uniformly distributed load of 4,000 lbs/ft^2, except for waste packaged in DOE NV approved containers (drums and ISO containers).

c. Handling

All contaminated process area scrap waste containers shall have permanently attached skids, cleats, offsets, rings, handles, or other auxiliary lifting devices to allow handling by means of forklifts, cranes, or similar handling equipment. Lifting rings and other auxiliary lifting devices shall be recessed, offset, or hinged in a manner that does not inhibit stacking the packages. The lifting devices shall be designed to meet a 5:1 safety factor based upon the ultimate strength of the material. All rigging devices that are not permanently attached to the waste package shall have a current load test based on 125 percent of the safe working load.

d. Size

The size of the containers used by the FEMP to package contaminated process area scrap wastes includes container codes: 109, 117, 119, 120 and 121 from Table I.

e. Weight

In addition to the weight limits set for specific packaging designs, a 9,000 lb. limit per box and a 1,200 lb. limit per 55-gallon drum shall be maintained. Containers of contaminated process area scrap waste exceeding the 9,000 lb. limit shall be shipped in removable-top trailers, or on flatbeds.

f. Loading

Contaminated process area scrap waste shall be packaged to ensure that the interior volume is as efficiently and compactly loaded as practical.

g. Nonstandard Type A Packaging

The FEMP is currently using a Type 7A Container as a strong, tight container. Used for this purpose, the container does not require a DOE Type A Certification. If a Type A Container is required to ship process area scrap waste, only containers with a DOE Type A Certification will be used.

h. Package Protection

Every FEMP contaminated process area scrap waste package shall be prepared for shipment so as to minimize damage during transit. The preshipment storage environment shall be controlled to avoid adverse influence from weather or other factors on the containment capability of the waste packaging during handling, storage, and transport. FEMP shall take all responsibility for preshipment storage and take all reasonable precautions to preclude the accumulation of moisture on or in packages prior to their arrival to the NTS. Tamper indicating devices are used to maintain control of the container contents once certification actions are completed.

The FEMP shall package all contaminated process area scrap waste for shipment to NTS in containers meeting DOT requirements (e.g., DOT Type 17H 55-gallon drums or other NTS approved containers). All containers shall be shipped to meet DOT requirements for interstate travel and shall meet the requirements of 49 CFR 173.411, 173.421, and 173.425.

i. Marking and Labeling

Contaminated process area scrap waste shipped to the NTS shall be marked and labeled as required in Title 49 CFR 172, Subparts D and E [with exceptions noted in Title 173.425 (b) and (c)]. Also, each waste container shall be marked with a unique six character container identification number and nine character shipment number per NVO-325, Revision 1, 5.5.1.3 (I,3) so that the container can be identified from another container within the shipment or from another set of containers. The approved 13 digit waste stream number (ONLO-000000001) will also be placed onto the waste container. Marking and labeling of the contaminated process area scrap waste packages shall be for radioactive material. The weight of the package will be marked in pounds and kilograms. Signed NV-211 labels will be attached to containers certified for shipment to the NTS.

j. Barcoding

Barcode labels will meet NVO-325, Revision 1 requirements and must be approved by DOE NV prior to use. Two barcode labels will be placed on each contaminated process area scrap waste package. The barcode labels will be placed near the top and on opposite sides of nonstandard containers. Barcode Labels on drums will be placed on the lid and one side near the top of the drum.

k. On-site Transfer

Only packaged contaminated process area scrap waste is shipped from the FEMP for disposal at the NTS. The FEMP will not provide any material which will require on-site transfer of unpackaged bulk materials by the NTS.

2.5 Additional Criteria for Mixed Waste

None of the waste streams listed in this application are mixed waste. The FEMP will not be disposing of mixed waste at the NTS.

2.6 Additional Criteria for Transuranic/Transuranic Mixed Waste

None of the waste streams listed in this application contain Transuranic or Transuranic Mixed waste. The FEMP will not be disposing of Transuranic or Transuranic Mixed waste at the NTS.

2.7 Additional Criteria for Bulk Waste

The FEMP is not currently and does not intend to ship mixed waste to the NTS for disposal. By default, the FEMP will not be shipping mixed waste as bulk waste or mixed waste for bulk disposal.

The FEMP does ship bulk waste to the NTS for disposal in the form of scrap material (metal, wood, vehicles) that is contaminated radioactively. This material is well below the 49 CFR 173.425(c) requirement of 0.001 millicurie per square centimeter when averaged over one square meter of the material. The type of container in which the FEMP ships bulk waste is identified in the sections relating to the NTS specific packaging criteria. Approval of this application will constitute approval of continued use of this container.

2.8 Additional Criteria for Case-by-Case Waste

2.8.1 Weight

The FEMP is currently shipping and intends to continue to ship waste in ISO (International Shipping Organization) containers generally referred to as Sea/Land containers. These containers routinely weigh greater than 9,000 pounds and require either a large fork truck or crane for removal from the transport vehicle. The FEMP ships these containers on flat bed trailers which require no top or side wall removal.

2.8.2 Activity Limits

All containers shipped from the FEMP for disposal at the NTS are within the activity limits specified in NVO-325, Revision 1, Section 5.5.1.2.F.

2.8.3 Radioactively Contaminated Asbestos

Friable asbestos will not be shipped to the NTS before securing DOE/NV approval. None of the waste streams included in this application contain radioactively contaminated friable asbestos.

2.8.4 DOE Comparable Greater-Than-Class-C As Defined in 10 CFR 61.55

This requirement is not applicable to the FEMP waste streams since no greater-than-Class-C waste is shipped from the FEMP for disposal at NTS.

2.8.5 Classified Waste Streams

This requirement is not applicable to the FEMP since no classified waste is shipped for disposal at the NTS.

2.8.6 Radioactive Animal Carcasses

This requirement is not applicable to the FEMP since no radioactive animal carcasses are included in the process area scrap waste stream.

2.8.7 Other Waste Forms

The FEMP will secure DOE-NV approval for any waste forms that do not meet NTS requirements before shipping to the NTS.

B. Waste Stream Identification Number

ONLO-000000002 Contaminated Construction/Removal Action Wastes

1.0 Waste Type

Low Level Waste

2.0 Waste Description

A waste stream is defined as a waste which is categorized by similar characterization process and/or point of generation. The criteria used for evaluating candidate LLW for shipment to the NTS, excerpted from the FEMP Waste Characterization Plan (Draft), are described on the following pages.

2.1 Contaminated Construction/Removal Action Wastes

Radioactively contaminated construction wastes are generated at the FEMP. These wastes are currently being shipped to NTS and may include the following:

- Soil
- Rocks, gravel
- Concrete
- Metal
- Wood
- Trash (plastic, cardboard, paper, etc.)
- Asphalt
- Glass

This waste is generated in the following ways:

During the demolition or excavation phase of a construction, maintenance, or removal action project, radioactively contaminated waste is produced. No treatment of this waste is completed prior to packaging. If the waste does not meet the disposal criteria in its existing form, the waste is not packaged for disposal. The final form of the waste is demolition waste typical of construction projects (e.g., crushed concrete, soil, broken pieces of wood). The waste is packaged directly into containers for disposal. No special handling or disposal requirements exist for this waste.

2.1.1 Waste Stream Characterization Data Sheet

1. Waste Stream No.: O N L O - 0 0 0 0 0 0 0 0 2

2. Waste Description:

   a. Physical Characteristics: Dry solid demolition materials from construction and/or removal action activities which generates soils, gravel, concrete, metal, wood, paper, plastic, glass, and asphalt. No treatment of this waste is performed prior to packaging.

   b. Special Handling/Disposal Requirements: None
   The average radiation levels on contact is .50 mrem/hr. with a range of <.50 mrem/hr. to 1.5 mrem/hr.

3. Basis for Characterization:

   a. Process Knowledge: ____ b. Analytical Knowledge: ____

   c. Both: ✓

   If B or C, provide Standard Data Reporting Forms as necessary.

4. Radioactive Characteristics:

   a. Is Waste > NRC Class-C (see Title 10 CFR 61.55)?: No

   b. WMIS Nuclide Category (circle): 1 (2) 3 4 5 NA 7 8

   (Choose the highest predominate nuclide. The number 6 is not an option.)

   c. Radioactive Constituents:

   Specific Activity Range of Waste Stream

	Nuclide	Chemical Forms	Low	Mean	High	Units(Ci/kg)
(1)	U-238 (0.1% to 1.0% U)	*	3.36E-07	1.68E-05	3.33E-05	Ci/kg
(2)	U-235 (0.2% to 1.0% on a U basis)	*	4.76E-09	1.08E-06	2.16E-06	Ci/kg
(3)	U-234 (0.001% to 0.01% on a U basis)	*	1.38E-07	2.15E-05	4.29E-05	Ci/kg

* Uranium oxides and salts (typically UO_3, U_3O_8, and UF_4)

340

Page 2 of Waste Stream Characterization Data Sheet

5. Hazardous Components (for MW): **NOT APPLICABLE**

   a. Basis for Identifying as MW (circle): (1) Ignitable

      (2) Reactive (3) Corrosive (4) TCLP (5) Listed Waste

   b. List the applicable EPA waste code, the chemical name, the treatment performed (if applicable) and the Regulatory/Treatment Standard. Attach Standardized Data Forms.

	EPA Hazardous Waste No.	Chemical Name	Treatment Performed	Regulatory Threshold/Treatment Standard
(1)				
(2)				
(3)				
(4)				

NOTE: Waste characterization of materials included in this waste stream is completed using a combination of sampling and analysis and process knowledge. Process knowledge is used when the material meets one or more of the criteria of NVO-325, Revision 1, Section 4.1.1.A, B, and C. (Examples of materials characterized by process knowledge includes metal, wood and other construction/demolition debris, equipment, etc.)

2.2 Waste Stream Specific Criteria

a. Low Level Waste: Only contaminated construction/removal action wastes defined as LLW per DOE Orders 5820.2A, 5400.1, and 5480.11 guidelines shall be shipped to the NTS. (NVO-325, Revision 1, 5.5.1).

   Compliance Method: The DOE Performance Objective (Draft) 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. Further guidance on radioactive waste characterization is provided in the DOE Performance Objective (Draft). In accordance with the "Waste Minimization and Pollution Prevention Awareness Plan," the FEMP attempts to minimize waste generation whenever possible.

b. Transuranics: Contaminated construction/removal action wastes shall have a TRU concentration less than 100 nCi/g (e.g.,, shall not be regulated as TRU waste). (NVO-325, Revision 1, 5.5.1.1(A)).

   Compliance Method: 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).

c. Hazardous Waste: All contaminated construction/removal action wastes are evaluated for any characteristics of, or listed, hazardous waste as identified in Title 40 CFR 261, "Identification and Listing of Hazardous Waste," or state of generation hazardous waste regulations. (NVO-325, Revision 1, 5.5.1.1(B)).

   Compliance Method: All construction/removal action wastes are evaluated by the FME Group to determine if they are regulated as hazardous waste. During the planning phases of the project, the project engineer identifies to FME all wastes to be generated from the project for evaluation. A project walkdown is conducted to collect information on the wastes to be generated and the generation process (e.g., excavated or dismantled). During the project walkdown initial decisions for sampling and analysis plan for wastes and parameters of concern. Using a combination of process knowledge and sampling and analysis FME evaluations the waste with respect to each of the criteria by which a waste can be identified as either a characterization or listed hazardous waste. The characterization is documented using either the General MEF or by issuing a RCRA Determination/ Radiological Characterization (RD/RC) letter.

d. Free Liquids: Contaminated construction/removal action wastes 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% by volume of the external waste container and shall meet the following criteria (NVO-325, Revision 1, 5.5.1.1(C).

Compliance Method: Free liquids in contaminated construction/removal action wastes may be evaluated based on process knowledge or waste testing to determine whether the waste stream meets this criteria. Determinations based on process knowledge generally include a visual inspection. 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. Free liquid 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. Reference FEMP Waste Characterization Plan (Draft) - RCRA Section.

e. Particulates: Wastes containing fine particulate materials less-than-ten-micrometer-diameter and greater than 1 weight percent or 15 weight percent less-than-200 micrometer diameter particles will be immobilized or packaged in accordance with NVO-325, Revision 1, 5.5.1.1(D).

Compliance Method: Some construction/removal action waste streams will categorically fail the particulates WAC while others may require testing to complete a rigorous evaluation. Dust collector residues (MTC 062) have been documented to have greater than one percent by weight of less-than-ten-micron-diameter particles. 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. Should the waste fail the criteria for particulates and immobilization is impractical, the waste packaging will be completed by overpacking, using steel drums with 6 mil plastic liners or steel boxes in accordance with NVO-325, Revision 1.

f. Gases: Contaminated construction/removal action waste streams are evaluated to determine if they contain any items that potentially produces pressure in the package greater than 1.5 atmospheres at 20° celsius. (NVO-325, Revision 1, 5.5.1.1(E))

Compliance Method: Contaminated construction/removal action wastes are evaluated for there potential to produce pressure in excess of 1.5 atmospheres at 20° C during the hazardous waste determination (SSOP-0002). The primary source of gases in this waste steam, 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.

g. Stabilization: Where practical, contaminated construction/removal action wastes shall be treated to reduce volume and provide a more structurally and chemically stable waste form. (NVO-325, Revision 1, 5.5.1.1(F))

Compliance Method: LLWP will identify wastes that are candidates for treatments to reduce volume and provide a structurally stable waste form. No treatment of this waste will be required to stabilize harmful gases or vapors. Free liquids will be drained per SOP 20-C-625. FME will identify all LLW streams that have potential to generate harmful gases, vapors, or liquids. Waste that fail this WAC will not be shipped to the NTS.

h. Etiologic Agents: All contaminated construction/removal action wastes to be shipped to the NTS will not contain pathogens, infectious wastes, or other etiologic agents as defined in Title 49 CFR 173.386. (NVO-325, Revision 1, 5.5.1.1(G)).

Compliance Method: 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 or 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 through 25) which includes 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. These administrative controls prevent etiologic agents from entering the contaminated construction/removal action wastes. Reference FEMP Waste Characterization Plan (Draft) - Infectious Waste Section for additional evaluation criteria.

i. Chelating Agents: If a waste is determined to contain chelating agents above the one percent by weight limit, the waste will not be approved for disposal at the NTS. (NVO-325, Revision 1, 5.5.1.1(H)).

Compliance Method: 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 also aminopolyacteic acids. Excess chemicals from the on-site laboratory are the primary potential source of materials that may be identified as true chelating agents. This determination will be accomplished through the use of the MEF or RD/RC letter which will designate the waste as containing above one percent by weight chelating agents. FME 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. The waste certification official is responsible for ensuring that this material containing chelating agents at concentrations greater than one percent by weight are not shipped from FEMP to the NTS for disposal is properly tagged as not meeting the criteria for shipment. This process prevents waste that does not meet the NTS WAC from being shipped for disposal.

j. Polychlorinated Biphenyls: PCB contaminated waste will not be shipped for disposal at NTS in the contaminated construction/removal action waste stream unless the PCB concentration meets the municipal solid waste disposal limits. See Title 40 CFR 761.60 for PCB disposal requirements. (NVO-325, Revision 1, 5.5.1.1(I)).

Compliance Method: The FEMP samples wastes for PCB contamination when the waste matrix (e.g.,, oily material) or review of previous operations, manufacturers manuals, and previous sampling and analyses provides a reason to suspect PCB contamination. This determination is performed during the waste characterization by FME. Reference FEMP Waste Characterization Plan (Draft) -TSCA PCB Section for evaluation criteria.

k. Explosives and Pyrophorics: Contaminated construction/removal action waste does not contain potentially explosive or pyrophoric material in a form that may spontaneously combustion if the container is breached. (NVO-325, Revision 1, 5.5.1.1(J)).

Compliance Method: This WAC is evaluated during the hazardous waste characterization and is also generally addressed in the health and safety plan for a project if there is any potential concern. This evaluation is performed in accordance with the FEMP Waste Characterization Plan (Draft). Any waste streams that potentially fails this WAC shall be identified by FME and the material will not be shipped to the NTS for disposal.

2.3 Waste Stream General Packaging Criteria

a. Design

Waste packaging criteria for contaminated construction/removal action waste shipped to the NTS for disposal shall meet DOT Regulations, 49 CFR 173, Subpart I. Standard operating procedures listed in Table I of the Waste Certification Plan, concerning storage and off-site shipments, shall be used to assure that all shipments meet DOT requirements and NTS site-specific requirements.

b. Nuclear Safety

The quantity of radioactive materials in contaminated construction/removal action wastes shipped to the NTS shall be limited so that an infinite array of packages will remain subcritical. 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 and shall meet 49 CFR, Parts 173.453(c)(3) and 173.453(d). Contaminated construction/removal action waste packages will not contain uranium enriched ^{235}U greater than one percent by weight and with a mass of ^{235}U greater than 800 grams per package. The total mass of plutonium and ^{233}U will not exceed one percent of the mass of ^{235}U in any package.

c. Nuclear Heating

In compliance with 49 CFR 173.442, Thermal Limitations, a Health Physics evaluation of waste packages of material to be shipped to the NTS from the FEMP show no evidence of a heating effect above NVO-325 limits from radiological decay. Calculations from these waste streams at the FEMP show the power output from either ^{233}U or ^{235}U at maximum potential concentration in any waste package will not exceed 0.1 Watt. These calculations are based on the total alpha energy from each isotope in the waste and its associated daughters during normal radioactive decay.

d. Radiation Levels

In compliance with 49 CFR 173.441, Radiation Levels, the radiation exposure rate at the surface and at 1 meter of each package of contaminated construction/removal action waste shall be measured and recorded in the data package. Contaminated construction/removal action waste packages that exceed 200 millirem/hr on contact shall not be shipped to NTS.

e. External Contamination

In compliance with 49 CFR 173.443, the surface contamination of each container of contaminated construction/removal action waste shall be measured using instruments calibrated by the IRS&T Dosimetry & Instrumentation Section and recorded in the data package. If these instruments indicate that the limits of 49 CFR 173.443 are exceeded, then the package shall be cleaned until it is within the limits or the contents shall be transferred to a clean container.

f. Activity Limits

The activity limits of Titles 49 CFR 173.421, "Limited Quantities of Radioactive Materials," and 49 CFR 173.425, "Transport Requirements for Low-Specific Activity Radioactive Materials" shall be met.

In compliance with Title 49 CFR 173.421 and 173.425, strong, tight containers used for shipping Limited Quantities (LQ) and Low-Specific Activity (LSA) LLW shall be constructed so they will not leak during normal transportation and handling conditions.

g. Multiple Hazards

Not applicable, the FEMP does not ship wastes with multiple hazards to the NTS.

2.4 Waste Stream Specific Package Criteria

a. Closure

All contaminated construction/removal action waste package closures will be sturdy enough to assure the closures will not be breached under normal handling conditions and will not serve as weak points for package failure.

b. Strength

Contaminated construction/removal action waste will be packaged in containers capable of supporting a uniformly distributed load of 4,000 lbs/ft^2, except for waste packaged in DOE NV approved containers (drums and ISO containers).

c. Handling

All contaminated construction/removal action waste containers shall have permanently attached skids, cleats, offsets, rings, handles, or other auxiliary lifting devices to allow handling by means of forklifts, cranes, or similar handling equipment. Lifting rings and other auxiliary lifting devices shall be recessed, offset, or hinged in a manner that does not inhibit stacking the packages. The lifting devices shall be designed to meet a 5:1 safety factor based upon the ultimate strength of the material. All rigging devices that are not permanently attached to the waste package shall have a current load test based on 125 percent of the safe working load.

d. Size

The size of the containers used by the FEMP to package contaminated construction/removal action waste includes container codes: 109, 117, 119, 102, and 121 from Table I.

e. Weight

In addition to the weight limits set for specific packaging designs, a 9,000 lb. limit per box and a 1,200 lb. limit per 55-gallon drum shall be maintained. Containers of contaminated construction/removal action waste exceeding the 9,000 lb. limit shall be shipped in removable-top trailers, or on flatbeds.

f. Loading

Contaminated construction/removal action waste shall be packaged to ensure that the interior volume is as efficiently and compactly loaded as practical.

g. Nonstandard Type A Packaging

The FEMP is currently using a Type 7A Container as a strong, tight container. Used for this purpose, the container does not require a DOE Type A Certification. If a Type A Container is required to ship contaminated construction/removal action waste, only containers with a DOE Type A Certification will be used.

h. Package Protection

Every FEMP contaminated construction/removal action waste package shall be prepared for shipment so as to minimize damage during transit. The preshipment storage environment shall be controlled to avoid adverse influence from weather or other factors on the containment capability of the waste packaging during handling, storage, and transport. FEMP shall take all responsibility for preshipment storage and take all reasonable precautions to preclude the accumulation of moisture on or in packages prior to their arrival to the NTS. Tamper indicating devices are used to maintain control of the container contents once certification actions are completed.

The FEMP shall package all contaminated construction/removal action waste for shipment to NTS in containers meeting DOT requirements (e.g., DOT Type 17H 55-gallon drums or other NTS approved containers). All containers shall be shipped to meet DOT requirements for interstate travel and shall meet the requirements of 49 CFR 173.411, 173.421, and 173.425.

i. Marking and Labeling

Contaminated construction/removal action waste shipped to the NTS shall be marked and labeled as required in Title 49 CFR 172, Subparts D and E [with exceptions noted in Title 173.425 (b) and (c)]. Also, each waste container shall be marked with a unique six character container identification number and nine character shipment number per NVO-325, Revision 1, 5.5.1.3(I,3) so that the container can be identified from another container within the shipment or from another set of containers. The approved 13 digit waste stream number (ONLO-000000002) will also be placed onto the waste container. Marking and labeling of the Construction/removal action waste packages shall be for radioactive material. The weight of the package will be marked in pounds and kilograms. Signed NV-211 labels will be attached to containers certified for shipment to the NTS.

j. Barcoding

Barcode labels will meet NVO-325, Revision 1 requirements and must be approved by DOE NV prior to use. Two barcode labels will be placed on each contaminated process area scrap waste package. The barcode labels will be placed near the top and on opposite sides of nonstandard containers. Barcode Labels on drums will be placed on the lid and one side near the top of the drum.

k. On-site Transfer

Only packaged contaminated construction/removal action waste is shipped from the FEMP for disposal at the NTS. The FEMP will not provide any material which will require on-site transfer of unpackaged bulk materials by the NTS.

2.5 Additional Criteria for Mixed Waste

None of the waste streams listed in this application are mixed waste. The FEMP will not be disposing of mixed waste at the NTS.

2.6 Additional Criteria for Transuranic/Transuranic Mixed Waste

None of the waste streams listed in this application contain Transuranic or Transuranic Mixed waste. The FEMP will not be disposing of Transuranic or Transuranic Mixed waste at the NTS.

2.7 Additional Criteria for Bulk Waste

The FEMP is not currently and does not intend to ship mixed waste to the NTS for disposal. By default, the FEMP will not be shipping mixed waste as bulk waste or mixed waste for bulk disposal.

The FEMP does ship bulk waste to the NTS for disposal in the form of scrap material (metal, wood, vehicles) that is contaminated radioactively. This material is well below the 49 CFR 173.425(c) requirement of 0.001 millicurie per square centimeter when averaged over one square meter of the material. The type of container in which the FEMP ships bulk waste is identified in the sections relating to the NTS specific packaging criteria. Approval of this application will constitute approval of continued use of this container.

2.8 Additional Criteria for Case-by-Case Waste

2.8.1 Weight

The FEMP is currently shipping and intends to continue to ship waste in ISO (International Shipping Organization) containers generally referred to as Sea/Land containers. These containers routinely weigh greater than 9,000 pounds and require either a large fork truck or crane for removal from the transport vehicle. The FEMP ships these containers on flat bed trailers which require no top or side wall removal.

2.8.2 Activity Limits

All containers shipped from the FEMP for disposal at the NTS are within the activity limits specified in NVO-325, Revision 1, Section 5.5.1.2.F.

2.8.3 Radioactively Contaminated Asbestos

Friable asbestos will not be shipped to the NTS before securing DOE/NV approval. None of the waste streams included in this application contain radioactively contaminated friable asbestos.

2.8.4 DOE Comparable Greater-Than-Class-C As Defined in 10 CFR 61.55

This requirement is not applicable to the FEMP waste streams since no greater-than-Class-C waste is shipped from the FEMP for disposal at NTS.

2.8.5 Classified Waste Streams

This requirement is not applicable to the FEMP since no classified waste is shipped for disposal at the NTS.

2.8.6 Radioactive Animal Carcasses

This requirement is not applicable to the FEMP since no radioactive animal carcasses are included in the contaminated construction/removal action waste stream.

2.8.7 Other Waste Forms

The FEMP will secure DOE-NV approval for any waste forms that do not meet NTS requirements before shipping to the NTS.

C. Waste Stream Identification Number

ONLO-000000005 Thorium Wastes

1.0 Waste Type

Low Level Waste

2.0 Waste Description

A waste stream is defined as a waste which is categorized by similar characterization process and/or point of generation. The criteria used for evaluating candidate LLW for shipment to the NTS, excerpted from the FEMP Waste Characterization Plan (Draft), are described on the following pages.

2.1 Thorium Wastes

Since 1972, the FEMP has served as the U.S. DOE storage repository for thorium. Approximately two-thirds of the thorium inventory stored at the FEMP was processed at the FEMP with the remaining one-third originating at other DOE facilities. The thorium at the FEMP is in the form of thorium metal, oxides, hydroxides, oxalates, and residues.

The thorium in this waste stream comprises 1,624 drums of material primarily consisting of thorium hydroxide and thorium oxide, with some thorium tetrafluoride, thorium oxalate and uranium. The waste was produced during thorium material production processes in the late 1960s and early 1970s. No treatment of this material was performed prior to packaging. The thorium residues included in this waste stream were packaged from one silo and two bins from Plant 8 Building in 1989. The final form of this material is dry thorium residues packaged in 48-gallon drums overpacked in 55-gallon drums. Three containers will be overpacked in 85-gallon containers.

Thorium Wastes:

- Thorium hydroxides, oxides, oxalates
- Thorium tetrafluoride, ThF_4

2.1.1 Waste Stream Characterization Data Sheet

1. Waste Stream No.: O N L O - 0 0 0 0 0 0 0 0 5

2. Waste Description:

   a. Physical Characteristics: Dry thorium oxides and hydroxides generated during thorium oxide production. No treatment of this material was performed prior to packaging.

   b. Special Handling/Disposal Requirements: This material has an average radioactive level on contact of 50 mrem/hr. with a range of 25 mrem/hr. to 105 mrem/hr. Time, distance, and shielding techniques should be employed to reduce exposure.

3. Basis for Characterization:

   a. Process Knowledge: ____ b. Analytical Knowledge: ____

   c. Both: ✓

   If B or C, provide Standard Data Reporting Forms as necessary.

4. Radioactive Characteristics:

   a. Is Waste > NRC Class-C (see Title 10 CFR 61.55)?: No

   b. WMIS Nuclide Category (circle): 1 (2) 3 4 5 NA 7 8

   (Choose the highest predominate nuclide. The number 6 is not an option.)

Page 2 of Waste Stream Characterization Data Sheet

c. Radioactive Constituents:

Specific Activity Range of Waste Stream

Nuclide	Chemical Forms	Low	Mean	High	Units(Ci/kg)
(1) Th-232 (0.1% to 100% Th)	*	1.09E-07	5.46E-05	1.09E-04	Ci/kg
(2) Th-228 Natural abundance	*	1.09E-07	5.46E-05	1.09E-04	Ci/kg
(3) Th-230 (Activity = 10% Th-232 activity)	*	1.09E-08	5.46E-06	1.09E-05	Ci/kg
(4) U-238 (0.1% to 2.0% Total U)	*	3.34E-07	3.51E-06	6.68E-06	Ci/kg
(5) U-235 Natural Abundance	*	1.43E-08	1.62E-07	3.10E-07	Ci/kg
(6) U-234 (0.006% on a U basis)	*	3.56E-07	3.74E-06	7.12E-06	Ci/kg

* Thorium oxides and hydroxides with traces of thorium oxalates and thorium tetrafluori ThF_4.

5. Hazardous Components (for MW): **NOT APPLICABLE**

a. Basis for Identifying as MW (circle): (1) Ignitable

(2) Reactive (3) Corrosive (4) TCLP (5) Listed Waste

b. List the applicable EPA waste code, the chemical name, the treatment performed (if applicable) and the Regulatory/Treatment Standard. Attach Standardized Data Forms.

EPA Hazardous Waste No.	Chemical Name	Treatment Performed	Regulatory Threshold/Treatment Standard
(1)			
(2)			
(3)			
(4)			

NOTE: Waste characterization of materials included in this waste stream is predominantl completed using process knowledge because the material meets the criteria of N 325, Revision 1, Section 4.1.1.B. The FEMP has conducted confirmatory analysis to support the process knowledge waste characterization for disposal at the NTS.

2.2 Waste Stream Specific Criteria

a. Low Level Waste: Only the thorium wastes defined as LLW per DOE Orders 5820.2A, 5400.1, and 5480.11 guidelines shall be shipped to the NTS. (NVO-325, Revision 1, 5.5.1).

Compliance Method: The DOE Performance Objective (Draft) 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. Further guidance on radioactive waste characterization is provided in the DOE Performance Objective (Draft). In accordance with the "Waste Minimization and Pollution Prevention Awareness Plan," the FEMP attempts to minimize waste generation whenever possible.

b. Transuranics: Thorium wastes shall have a TRU concentration less than 100 nCi/g (e.g.,, shall not be regulated as TRU waste). (NVO-325, Revision 1, 5.5.1.1(A)).

Compliance Method: 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).

c. Hazardous Waste: All thorium wastes are evaluated for any characteristics of, or listed, hazardous waste as identified in Title 40 CFR 261, "Identification and Listing of Hazardous Waste," or state of generation hazardous waste regulations. (NVO-325, Revision 1, 5.5.1.1(B)).

Compliance Method As waste is generated, the generator contacts the WEMCO organization responsible for waste characterization, FME, to determine if a hazardous waste evaluation for the waste has been made. If no evaluation exists and characterization is required, the generator completes Section I of the MEF and submits the form to FME for characterization. FME completes characterization by one of two methods, either process knowledge or sampling/analysis. If enough information is known about the process by which the waste was generated and FME is able to firmly establish that the waste would not exhibit hazardous waste characteristics or contain a listed hazardous waste, a process knowledge determination would be made that the waste is nonhazardous. If sufficient information about the generation process for the waste is not available, FME requires that sampling be completed on the waste. FME will specify the parameters to be sampled, a waste specific sampling plan will be written, and the waste will be sampled per an approved SOP 20-C-805. The sample will be submitted to an analytical laboratory following chain-of-custody procedures and analysis will be completed per SW-846 Methodology. A statistical analyses and quality assurance check will be completed on the analytical data. The data will be forwarded to FME where the final characterization will be completed and documented on the MEF. A copy of the MEF is returned to the generator. The generator will then package nonhazardous waste that meets the criteria of this application. Oversight of packaging is completed by WEMCO Quality Certification to ensure that only material specified in the MEF is packaged.

d. Free Liquids: Thorium wastes 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% by volume of the external waste container and shall meet the following criteria (NVO-325, Revision 1, 5.5.1.1(C).

Compliance Method Free liquids in thorium wastes may be evaluated based on process knowledge or waste testing to determine whether the waste stream meets this criteria. Determinations based on process knowledge generally include a visual inspection of at least 10% of a container population (e.g.,, during a visual inspection or sampling episode). Free liquid 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. Reference FEMP Waste Characterization Plan (Draft) - RCRA Section.

e. Particulates: Wastes containing fine particulate materials less-than-ten-micrometer-diameter and greater than 1 weight percent or 15 weight percent less-than-200 micrometer diameter particles will be immobilized or packaged in accordance with NVO-325, Revision 1, 5.5.1.1(D).

Compliance Method The thorium waste stream may categorically fail the particulates WAC. This material is packaged in steel drums with 6 mil plastic liners and overpacking exceeding NVO-325, Revision 1 requirements.

f. Gases: Radioactive gases shall be stabilized or absorbed so that pressure in the waste package does not exceed 1.5 atmospheres at 20° celsius. Compressed gases as defined by Title 49 CFR 173.300, including unpunctured aerosol cans, will not be shipped for disposal in the thorium waste stream. Aerosol cans shall have puncture disfigurements readily recognizable by real-time-radiography. Expended gas cylinders shall have the valve mechanism removed. (NVO-325, Revision 1, 5.5.1.1(E)).

Compliance Method The thorium waste packages were evaluated to determine if they contain any items that potentially fail this WAC. During the hazardous waste determination
(SSOP-0002).

g. Stabilization: Where practical, Thorium waste shall be treated to reduce volume and provide a more structurally and chemically stable waste form. (NVO-325, Revision 1, 5.5.1.1(F)).

Compliance Method FME reviewed the thorium waste stream during the hazardous waste evaluation for the potential to generate harmful gases, vapors, or liquids. No treatment of the thorium waste stream was required to meet the WAC for this waste stream.

h. Etiologic Agents: Thorium wastes to be shipped to the NTS will not contain pathogens, infectious wastes, or other etiologic agents as defined in Title 49 CFR 173.386. (NVO-325, Revision 1, 5.5.1.1(G)).

Compliance Method 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 or 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 through 25) which includes 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. These administrative controls prevent etiologic agents from entering the process area scrap waste stream. Reference FEMP Waste Characterization Plan (Draft) - Infectious Waste Section for additional evaluation criteria.

i. Chelating Agents: If a waste is determined to contain chelating agents above the one percent by weight limit, the waste will not be approved for disposal at the NTS. (NVO-325, Revision 1, 5.5.1.1(H)).

Compliance Method: 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 also aminopolyacteic acids. Excess chemicals from the on-site laboratory are the primary potential source of materials that may be identified as true chelating agents. This determination will be accomplished through the use of the MEF which will designate the waste as containing above one percent by weight chelating agents. FME 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. The MEF (example provided in this application) contains a specific section for denoting the presence of chelating agents. This information is provided to the waste certification official who is responsible for ensuring that material containing chelating agents at concentrations greater than one percent by weight are not shipped from FEMP to the NTS for disposal is properly tagged as not meeting the criteria for shipment. This process prevents waste that does not meet the NTS WAC from being shipped for disposal.

j. Polychlorinated Biphenyls: PCB contaminated waste will not be shipped for disposal at NTS in the thorium waste stream unless the PCB concentration meets the municipal solid waste disposal limits. See Title 40 CFR 761.60 for PCB disposal requirements. (NVO-325, Revision 1, 5.5.1.1(I)).

Compliance Method The FEMP samples wastes for PCB contamination when the waste matrix (e.g.,, oily material) or review of previous operations, manufacturers manuals, and previous sampling and analyses provides a reason to suspect PCB contamination. This waste stream contains no oily material and no additional process knowledge exists to provide any reason to suspect PCB contamination. This determination is performed during the hazardous waste determination (SSOP-0002). Reference FEMP Waste Characterization Plan (Draft) -TSCA PCB Section for evaluation criteria.

k. Explosives and Pyrophorics: Thorium waste does not contain potentially explosive or pyrophoric material in a form that may spontaneously combustion if the container is breached. (NVO-325, Revision 1, 5.5.1.1(J)).

Compliance Method This WAC is evaluated during the hazardous waste characterization. This evaluation is performed in accordance with SSOP-0002, Completing the Material Evaluation Form and FEMP Waste Characterization Plan (Draft). Any waste that potentially fails this WAC shall be identified by FME and the material will not be shipped to the NTS for disposal.

2.3 Waste Stream General Package Criteria

a. Design

Waste packaging criteria for thorium waste shipped to the NTS for disposal shall meet DOT Regulations, 49 CFR 173, Subpart I. Standard operating procedures listed in Table I of the Waste Certification Plan, concerning storage and off-site shipments, shall be used to assure that all shipments meet DOT requirements and NTS site-specific requirements.

b. Nuclear Safety

The quantity of radioactive materials in thorium waste shipped to the NTS shall be limited so that an infinite array of packages will remain subcritical. 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 and shall meet 49 CFR, Parts 173.453(c)(3) and 173.453(d). Thorium waste packages will not contain uranium enriched ^{235}U greater than one percent by weight and with a mass of ^{235}U greater than 800 grams per package. The total mass of plutonium and ^{233}U will not exceed one percent of the mass of ^{235}U in any package.

c. Nuclear Heating

In compliance with 49 CFR 173.442, Thermal Limitations, a Health Physics evaluation of waste packages of material to be shipped to the NTS from the FEMP show no evidence of a heating effect above NVO-325 limits from radiological decay. Calculations from these waste streams at the FEMP show the power output from either ^{232}Th at maximum potential concentration in any waste package will not exceed 0.1 Watt. These calculations are based on the total alpha energy from each isotope in the waste and its associated daughters during normal radioactive decay.

d. Radiation Levels

In compliance with 49 CFR 173.441, Radiation Levels, the radiation exposure rate at the surface and at 1 meter of each package of thorium waste shall be measured and recorded in the data package. Thorium waste packages that exceed 200 millirem/hr on contact shall not be shipped to NTS.

e. External Contamination

In compliance with 49 CFR 173.443, the surface contamination of each container of thorium waste shall be measured using instruments calibrated by the IRS&T Dosimetry & Instrumentation Section and recorded in the data package. If these instruments indicate that the limits of 49 CFR 173.443 are exceeded, then the package shall be cleaned until it is within the limits or the contents shall be transferred to a clean container.

f. Activity Limits

The activity limits of Titles 49 CFR 173.421, "Limited Quantities of Radioactive Materials," and 49 CFR 173.425, "Transport Requirements for Low-Specific Activity Radioactive Materials" shall be met.

In compliance with Title 49 CFR 173.421 and 173.425, strong, tight containers used for shipping Limited Quantities (LQ) and Low-Specific Activity (LSA) LLW shall be constructed so they will not leak during normal transportation and handling conditions.

g. Multiple Hazards

Not applicable, the FEMP does not ship wastes with multiple hazards to the NTS.

2.4 Waste Stream Specific Package Criteria

a. Closure

All thorium waste package closures will be sturdy enough to assure the closures will not be breached under normal handling conditions and will not serve as weak points for package failure.

b. Strength

Thorium waste will be packaged in containers capable of supporting a uniformly distributed load of 4,000 lbs/ft^2, except for waste packaged in DOE NV approved containers (drums).

c. Handling

All Thorium waste containers shall have permanently attached skids, cleats, offsets, rings, handles, or other auxiliary lifting devices to allow handling by means of forklifts, cranes, or similar handling equipment. Lifting rings and other auxiliary lifting devices shall be recessed, offset, or hinged in a manner that does not inhibit stacking the packages. The lifting devices shall be designed to meet a 5:1 safety factor based upon the ultimate strength of the material. All rigging devices that are not permanently attached to the waste package shall have a current load test based on 125 percent of the safe working load.

d. Size

FEMP thorium waste will be packaged in 55-gallon or 85-gallon drums.

e. Weight

Thorium waste will not exceed the 1,200 lb. per 55-gallon drum per NVO-325, Revision 1.

f. Loading

Thorium waste shall be packaged to ensure that the interior volume is as efficiently and compactly loaded as practical.

g. Nonstandard Type A Packaging

The FEMP is currently using a Type 7A Container as a strong, tight container. Used for this purpose, the container does not require a DOE Type A Certification. If a Type A Container is required to ship thorium waste, only containers with a DOE Type A Certification will be used.

h. Package Protection

Every FEMP thorium waste package shall be prepared for shipment so as to minimize damage during transit. The preshipment storage environment shall be controlled to avoid adverse influence from weather or other factors on the containment capability of the waste packaging during handling, storage, and transport. FEMP shall take all responsibility for preshipment storage and take all reasonable precautions to preclude the accumulation of moisture on or in packages prior to their arrival to the NTS. Tamper indicating devices are used to maintain control of the container contents once certification actions are completed.

The FEMP shall package all thorium waste for shipment to NTS in containers meeting DOT requirements (e.g., DOT Type 17H 55-gallon drums or other NTS approved containers). All containers shall be shipped to meet DOT requirements for interstate travel and shall meet the requirements of 49 CFR 173.411, 173.421, and 173.425.

i. Marking and Labeling

Thorium waste shipped to the NTS shall be marked and labeled as required in Title 49 CFR 172, Subparts D and E [with exceptions noted in Title 173.425 (b) and (c)]. Also, each waste container shall be marked with a unique six character container identification number and nine character shipment number per NVO-325, Revision 1, 5.5.1.3(I,3) so that the container can be identified from another container within the shipment or from another set of containers. The approved 13 digit waste stream number (ONLO-000000005) will also be placed onto the waste container. Marking and labeling of the thorium waste packages shall be for radioactive material. The weight of the package will be marked in pounds and kilograms. Signed NV-211 labels will be attached to containers certified for shipment to the NTS.

j. Barcoding

Barcode labels will meet NVO-325, Revision 1 requirements and must be approved by DOE NV prior to use. Two barcode labels will be placed on each thorium waste package. The barcode labels will be placed near the top and on opposite sides of nonstandard containers. Barcode Labels on drums will be placed on the lid and one side near the top of the drum.

k. On-site Transfer

Only packaged thorium waste is shipped from the FEMP for disposal at the NTS. The FEMP will not provide any material which will require on-site transfer of unpackaged bulk materials by the NTS.

2.5 Additional Criteria for Mixed Waste

None of the waste streams listed in this application are mixed waste. The FEMP will not be disposing of mixed waste at the NTS.

2.6 Additional Criteria for Transuranic/Transuranic Mixed Waste

None of the waste streams listed in this application contain Transuranic or Transuranic Mixed waste. The FEMP will not be disposing of Transuranic or Transuranic Mixed waste at the NTS.

2.7 Additional Criteria for Bulk Waste

The FEMP is not currently and does not intend to ship mixed waste to the NTS for disposal. By default, the FEMP will not be shipping mixed waste as bulk waste or mixed waste for bulk disposal.

The FEMP does ship bulk waste to the NTS for disposal in the form of scrap material (metal, wood, vehicles) that is contaminated radioactively. This material is well below the 49 CFR 173.425(c) requirement of 0.001 millicurie per square centimeter when averaged over one square meter of the material. The type of container in which the FEMP ships bulk waste is identified in the sections relating to the NTS specific packaging criteria. Approval of this application will constitute approval of continued use of this container.

2.8 Additional Criteria for Case-by-Case Waste

2.8.1 Weight

The FEMP is currently shipping thorium waste in 55-gallon and 85-gallon drums. No thorium containers will weigh greater than 9,000 pounds and require either a large fork truck or crane for removal from the transport vehicle.

2.8.2 Activity Limits

All containers shipped from the FEMP for disposal at the NTS are within the activity limits specified in NVO-325, Revision 1, Section 5.5.1.2.F.

2.8.3 Radioactively Contaminated Asbestos

Friable asbestos will not be shipped to the NTS before securing DOE/NV approval. None of the waste streams included in this application contain radioactively contaminated friable asbestos.

2.8.4 DOE Comparable Greater-Than-Class-C As Defined in 10 CFR 61.55

This requirement is not applicable to the FEMP waste streams since no greater-than-Class-C waste is shipped from the FEMP for disposal at NTS.

2.8.5 Classified Waste Streams

This requirement is not applicable to the FEMP since no classified waste is shipped for disposal at the NTS.

2.8.6 Radioactive Animal Carcasses

This requirement is not applicable to the FEMP since no radioactive animal carcasses are included in the thorium waste stream.

2.8.7 Other Waste Forms

The FEMP will secure DOE-NV approval for any waste forms that do not meet NTS requirements before shipping to the NTS.

D. Waste Stream Identification Number

ONLO-000000006 **Low/High Grade Residues**

1.0 Waste Type

Low Level Waste

2.0 Waste Description

A waste stream is defined as a waste which is categorized by similar characterization process and/or point of generation. The criteria used for evaluating candidate LLW for shipment to the NTS, excerpted from the FEMP Waste Characterization Plan (Draft), are described on the following pages.

2.1 Low/High Grade Residues

Residues are stored at the FEMP as a result of the production processes within the various FEMP plants or from other DOE facilities. These residues are divided into two subgroups: low grade and high grade residues.

Low grade residues generally contain between 1% to 20% ^{238}U by weight and 0.2% to 2.0% ^{235}U relative to total uranium. Low grade residues comprise approximately 70 percent of this waste stream.

Low Grade Uranium Residues:

- Discard process residues
- Trailer cakes
- Waste slurries (dried)
- Raffinate
- Sump cake
- Dust collector residues
- Filter cakes
- Magnesium fluoride, MgF_2

High grade residues are also generated or stored at the FEMP as a result of the production processes within the various plants or other DOE facilities. High grade residues generally contain between 20% to 88% ^{238}U by weight and 0.2% to 2.0% ^{235}U relative to total uranium. High grade residues comprise approximately 30 percent of this waste stream.

Many of the high grade residues are intermediate products in the uranium metal production process which do not meet the quality requirements to allow further processing and, therefore, are classified as LLW.

High Grade Uranium Residues:

- Uranium tetrafluoride, UF_4 (off-spec green salt)
- Scrap uranium oxide, U_3O_8 (black oxide)
- Reject uranium trioxide, UO_3 (orange oxide)

52

No chemical treatment of high or low grade wastes will be completed prior to shipment for disposal. Physical treatment will be completed as required to remove free liquids. FEMP SSOP-0024 (Packaging Low Level Radioactive Waste (LLRW) for off-site disposal) is used to ensure that no free liquids are present in residue waste packages. Size reduction may also be completed on the waste prior to shipment.

All residues will be overpacked into metal boxes or overpack drums meeting strong, tight container requirements to comply with NTS WAC. All low and high grade residue drums contain less than one percent by weight ^{235}U or if greater than one percent by ^{235}U the package will have less than 800 grams ^{235}U per package. Residue packages containing uranium enriched in ^{235}U greater than one percent by weight will be packaged to insure the mass of ^{235}U is less than 800 grams per package and the package is fissile exempt. This hazard classification is contingent on the fact that the total mass of plutonium and ^{233}U does not exceed one percent of the mass of the ^{235}U.

2.1.1 Waste Stream Characterization Data Sheet

1. Waste Stream No.: O N L O - 0 0 0 0 0 0 0 0 6

2. Waste Description:

   a. Physical Characteristics: Dry solid residues from uranium metal production which generated off-spec residues, slurries, sump cakes, filter cakes, dust collector residues, raffinate, and magnesium fluoride. Some decanting and absorbent addition (typically dicalite®) will be performed prior to packaging this material.

   b. Special Handling/Disposal Requirements: None
   The average radiation level on contact is 2.0 mrem/hr. with a range of <0.5 mrem/hr. to 10.0 mrem/hr.

3. Basis for Characterization:

   a. Process Knowledge: ____ b. Analytical Knowledge: ____ c. Both: ✓

   If B or C, provide Standard Data Reporting Forms as necessary.

4. Radioactive Characteristics:

   a. Is Waste > NRC Class-C (see Title 10 CFR 61.55)?: No

   b. WMIS Nuclide Category (circle): 1 (2) 3 4 5 NA 7 8

   (Choose the highest predominate nuclide. The number 6 is not an option.)

   c. Radioactive Constituents:

   Specific Activity Range of Waste Stream

Nuclide	Chemical Forms	Low	Mean	High	Units(Ci/kg)
(1)a U-238 (1% to 20% U) Low Grade	*	3.36E-06	3.46E-05	6.59E-05	Ci/kg
b U-238 (20% to 88% U) High G	*	6.71E-05	1.79E-04	2.90E-04	Ci/kg
(2) U-235 (0.2% to 2.0% on a U basis)	*	4.29E-08	1.90E-05	3.80E-05	Ci/kg
(3) U-234 (0.001% to 0.01% on a U basis)	*	1.37E-06	3.53E-04	7.05E-04	Ci/kg

* Uranium oxides and salts (typically UO_3, U_3O_8, and UF_4)

Page 2 of Waste Stream Characterization Data Sheet

5. Hazardous Components (for MW): **NOT APPLICABLE**

a. Basis for Identifying as MW (circle): (1) Ignitable

(2) Reactive (3) Corrosive (4) TCLP (5) Listed Waste

b. List the applicable EPA waste code, the chemical name, the treatment performed (if applicable) and the Regulatory/Treatment Standard. Attach Standardized Data Forms.

EPA Hazardous Waste No.	Chemical Name	Treatment Performed	Regulatory Threshold/Treatment Standard
(1)			
(2)			
(3)			
(4)			

NOTE: Waste characterization of materials included in this waste stream is completed using a combination of sampling and analysis and process knowledge. Process knowledge is used when the material meets one or more of the criteria of NVO-325, Revision 1, Section 4.1.1.A, B, and C or when process controls are well documented and controlled. (Examples of materials characterized by process knowledge includes residues generated from well controlled, well documented processes such as MgF_2). The FEMP will conduct confirmatory sampling of waste streams characterized by process knowledge before shipping for disposal at the NTS.

2.2 Waste Stream Specific Criteria

a. Low Level Waste: Only the low/high grade residues defined as LLW per DOE Orders 5820.2A, 5400.1, and 5480.11 guidelines shall be shipped to the NTS. (NVO-325, Revision 1, 5.5.1).

Compliance Method: The DOE Performance Objective (Draft) 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. Further guidance on radioactive waste characterization is provided in the DOE Performance Objective (Draft). In accordance with the "Waste Minimization and Pollution Prevention Awareness Plan," the FEMP attempts to minimize waste generation whenever possible.

b. Transuranic: The low/high grade residues shall have a TRU concentration less than 100 nCi/g (e.g.,, shall not be regulated as TRU waste). (NVO-325, Revision 1, 5.5.1.1(A)).

Compliance Method: 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).

c. Hazardous Waste: All low/high grade residues are evaluated for any characteristics of, or listed, hazardous waste as identified in Title 40 CFR 261, "Identification and Listing of Hazardous Waste," or state of generation hazardous waste regulations. (NVO-325, Revision 1, 5.5.1.1(B)).

Compliance Method: As waste is generated, the generator contacts the WEMCO organization responsible for waste characterization, FME, to determine if a hazardous waste evaluation for the waste has been made. If no evaluation exists and characterization is required, the generator completes Section I of the MEF and submits the form to FME for characterization. FME completes characterization by one of two methods, either process knowledge or sampling/analysis. If enough information is known about the process by which the waste was generated and FME is able to firmly establish that the waste would not exhibit hazardous waste characteristics or contain a listed hazardous waste, a process knowledge determination would be made that the waste is nonhazardous. If sufficient information about the generation process for the waste is not available, FME requires that sampling be completed on the waste. FME will specify the parameters to be sampled, a waste specific sampling plan will be written, and the waste will be sampled per an approved SOP (e.g., for drummed waste sampling, SOP 1-C-101). All FEMP SOPs are issued as site controlled documents after the SOP has been through a review and approval process. The WEMCO departments designated for review are determined by the SOP author based on the nature of the SOP. The sample will be submitted to an analytical laboratory following chain-of-custody procedures and analysis will be completed per SW-846 Methodology. A statistical analyses and quality assurance check will be completed on the analytical data. The data will be forwarded to FME where the final characterization will be completed and documented on the MEF. A copy of the MEF is returned to the generator. The generator will then package nonhazardous waste that meets the criteria of this application. Oversight of packaging is completed by WEMCO Quality Certification to ensure that only material specified in the MEF is packaged.

d. Free Liquids: The low/high grade residues 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% by volume of the external waste container and shall meet the following criteria (NVO-325, Revision 1, 5.5.1.1(C).

Compliance Method Low/high grade residues may be evaluated based on process knowledge or waste testing to determine whether the waste stream meets this criteria. Determinations based on process knowledge generally include a visual inspection. Free liquid 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. Reference FEMP Waste Characterization Plan (Draft) -RCRA Section.

e. Particulates: Wastes containing fine particulate materials less-than-ten-micrometer-diameter and greater than 1 weight percent or 15 weight percent less-than-200 micrometer diameter particles will be immobilized or packaged in accordance with NVO-325, Revision 1, 5.5.1.1(D).

Compliance Method Some residue waste streams will categorically fail the particulates WAC while others may require testing to complete a rigorous evaluation. Dust collector residues (MTC 062) have been documented to have greater than one percent by weight of less-than-ten-micron-diameter particles. In addition, depending on the moisture content, many of the residues 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. Should the waste fail the criteria for particulates and immobilization is impractical, the waste packaging will be completed by overpacking, using steel drums with 6 mil plastic liners or steel boxes in accordance with NVO-325, Revision 1.

f. Gases: Radioactive gases shall be stabilized or absorbed so that pressure in the waste package does not exceed 1.5 atmospheres at 20° celsius. Compressed gases as defined by Title 49 CFR 173.300, including unpunctured aerosol cans, will not be shipped for disposal in the low/high grade residues Waste Stream. Aerosol cans shall have puncture disfigurements readily recognizable by real-time-radiography. Expended gas cylinders shall have the valve mechanism removed. (NVO-325, Revision 1, 5.5.1.1(E)).

Compliance Method: Low/high grade residues are evaluated to determine if they contain any items that potentially fail this WAC during the hazardous waste determination (SSOP-0002). Residues that fails to meet this WAC will not be shipped to the NTS.

g. Stabilization: Where practical, low/high grade residues waste shall be treated to reduce volume and provide a more structurally and chemically stable waste form. (NVO-325, Revision 1, 5.5.1.1(F)).

Compliance Method: FME will identify all LLW streams that have potential to generate harmful gases, vapors, or liquids. In addition, FME will identify waste streams that are candidates for treatment to reduce volume or provide a structurally more stable waste form. Treatment of low/high grade residues is typically to remove free liquids. The compliance method for meeting this WAC is stated in Section 1.4.2.d.

h. Etiologic Agents: Low/high grades residues to be shipped to the NTS will not contain pathogens, infectious wastes, or other etiologic agents as defined in Title 49 CFR 173.386. (NVO-325, Revision 1, 5.5.1.1(G)).

Compliance Method: 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 or 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 through 25) which includes 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. These administrative controls prevent etiologic agents from entering the low/high grade residues waste stream. Reference FEMP Waste Characterization Plan (Draft) - Infectious Waste Section for additional evaluation criteria.

i. Chelating Agents: If a waste is determined to contain chelating agents above the one percent by weight limit, the waste will not be approved for disposal at the NTS. (NVO-325, Revision 1, 5.5.1.1(H)).

Compliance Method: 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 also aminopolyacteic acids. Excess chemicals from the on-site laboratory are the primary potential source of materials that may be identified as true chelating agents. This determination will be accomplished through the use of the MEF which will designate the waste as containing above one percent by weight chelating agents. FME 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. The MEF (example provided in this application) contains a specific section for denoting the presence of chelating agents. This information is provided to the waste certification official who is responsible for ensuring that material containing chelating agents at concentrations greater than one percent by weight are not shipped from FEMP to the NTS for disposal is properly tagged as not meeting the criteria for shipment. This process prevents waste that does not meet the NTS WAC from being shipped for disposal.

j. Polychlorinated Biphenyls: PCB contaminated waste will not be shipped for disposal at NTS in the low/high grade residues waste stream unless the PCB concentration meets the municipal solid waste disposal limits. See Title 40 CFR 761.60 for PCB disposal requirements. (NVO-325, Revision 1, 5.5.1.1(I)).

Compliance Method: The FEMP samples wastes for PCB contamination when the waste matrix (e.g.,, oily material) or review of previous operations, manufacturers manuals, and previous sampling and analyses provides a reason to suspect PCB contamination. This determination is performed during the hazardous waste determination (SSOP-0002). Reference FEMP Waste Characterization Plan (Draft) - TSCA PCB Section for evaluation criteria.

k. Explosives and Pyrophorics: Low/high grade residues do not contain potentially explosive or pyrophoric material in a form that may spontaneously combustion if the container is breached. (NVO-325, Revision 1, 5.5.1.1(J)).

Compliance Method: This WAC is evaluated during the hazardous waste characterization. This evaluation is performed in accordance with SSOP-0002, Completing the Material Evaluation Form and FEMP Waste Characterization Plan (Draft). Any waste that potentially fails this WAC shall be identified by FME and the material will not be shipped to the NTS for disposal.

2.3 Waste Stream General Package Criteria

a. Design

Waste packaging criteria for low/high grade residue containers with less than 50% U_{TOT} or less than 1% ^{235}U shipped to the NTS for disposal shall meet DOT Regulations, 49 CFR 173, Subpart I. High grade residues containing greater than 50% U_{TOT} and greater than 1% ^{235}U will be packaged according to 49 CFR 173.451 through 173.459. Standard operating procedures listed in Table I of the Waste Certification Plan, concerning storage and off-site shipments, shall be used to assure that all shipments meet DOT requirements and NTS site-specific requirements.

b. Nuclear Safety

The quantity of radioactive materials in low/high grade residue shipped to the NTS shall be limited so that an infinite array of packages will remain subcritical. 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 and shall meet 49 CFR, Parts 173.453(c)(3) and 173.453(d). Low/high grade residue packages will not contain uranium enriched ^{235}U greater than one percent by weight and with a mass of ^{235}U greater than 800 grams per package. The total mass of plutonium and ^{233}U will not exceed one percent of the mass of ^{235}U in any package.

c. Nuclear Heating

In compliance with 49 CFR 173.442, Thermal Limitations, a Health Physics evaluation of waste packages of material to be shipped to the NTS from the FEMP show no evidence of a heating effect above NVO-325 limits from radiological decay. Calculations from these waste streams at the FEMP show the power output from either ^{233}U or ^{235}U at maximum potential concentration in any waste package will not exceed 0.1 Watt. These calculations are based on the total alpha energy from each isotope in the waste and its associated daughters during normal radioactive decay.

d. Radiation Levels

In compliance with 49 CFR 173.441, Radiation Levels, the radiation exposure rate at the surface and at 1 meter of each package of shall be measured and recorded in the data package. Low/high grade residue packages that exceed 200 millirem/hr on contact shall not be shipped to NTS.

e. External Contamination

In compliance with 49 CFR 173.443, the surface contamination of each container of low/high grade residue shall be measured using instruments calibrated by the IRS&T Dosimetry & Instrumentation Section and recorded in the data package. If these instruments indicate that the limits of 49 CFR 173.443 are exceeded, then the package shall be cleaned until it is within the limits or the contents shall be transferred to a clean container.

f. Activity Limits

The activity limits of Titles 49 CFR 173.421, "Limited Quantities of Radioactive Materials," and 49 CFR 173.425, "Transport Requirements for Low-Specific Activity Radioactive Materials" shall be met.

In compliance with Title 49 CFR 173.421 and 173.425, strong, tight containers used for shipping Limited Quantities (LQ) and Low-Specific Activity (LSA) LLW shall be constructed so they will not leak during normal transportation and handling conditions.

g. Multiple Hazards

Not applicable, the FEMP does not ship wastes with multiple hazards to the NTS.

2.4 Waste Stream Specific Package Criteria

a. Closure

All low/high grade residue package closures will be sturdy enough to assure the closures will not be breached under normal handling conditions and will not serve as weak points for package failure.

b. Strength

Low/high grade residue will be packaged in containers capable of supporting a uniformly distributed load of 4,000 lbs/ft^2, except for waste packaged in DOE NV approved containers (drums and ISO containers).

c. Handling

All low/high grade residue containers shall have permanently attached skids, cleats, offsets, rings, handles, or other auxiliary lifting devices to allow handling by means of forklifts, cranes, or similar handling equipment. Lifting rings and other auxiliary lifting devices shall be recessed, offset, or hinged in a manner that does not inhibit stacking the packages. The lifting devices shall be designed to meet a 5:1 safety factor based upon the ultimate strength of the material. All rigging devices that are not permanently attached to the waste package shall have a current load test based on 125 percent of the safe working load.

d. Size

FEMP low/high grade residue will be packaged in 55-gallon drums, 85-gallon drums or the recommended 4'x4'x7' boxes including container codes: 117, and 119 from Table I.

e. Weight

In addition to the weight limits set for specific packaging designs, a 9,000 lb. limit per box and a 1,200 lb. limit per 55-gallon and 85-gallon drums shall be maintained. Low/high grade residue exceeding the 9,000 lb. limit shall be shipped in removable-top trailers, or on flatbeds.

f. Loading

Low/high grade residue shall be packaged to ensure that the interior volume is as efficiently and compactly loaded as practical.

g. Nonstandard Type A Packaging

The FEMP is currently using a Type 7A Container as a strong, tight container. Used for this purpose, the container does not require a DOE Type A Certification. If a Type A Container is required to ship low/high grade residues, only containers with a DOE Type A Certification will be used.

h. Package Protection

Every FEMP low/high grade residue package shall be prepared for shipment so as to minimize damage during transit. The preshipment storage environment shall be controlled to avoid adverse influence from weather or other factors on the containment capability of the waste packaging during handling, storage, and transport. FEMP shall take all responsibility for preshipment storage and take all reasonable precautions to preclude the accumulation of moisture on or in packages prior to their arrival to the NTS. Tamper indicating devices are used to maintain control of the container contents once certification actions are completed.

The FEMP shall package all low/high grade residue for shipment to NTS in containers meeting DOT requirements (e.g., DOT Type 17H 55-gallon drums or other NTS approved containers). All containers shall be shipped to meet DOT requirements for interstate travel and shall meet the requirements of 49 CFR 173.411, 173.421, and 173.425.

i. Marking and Labeling

Low/high grade residue shipped to the NTS shall be marked and labeled as required in Title 49 CFR 172, Subparts D and E [with exceptions noted in Title 173.425 (b) and (c)]. Also, each waste container shall be marked with a unique six character container identification number and nine character shipment number per NVO-325, Revision 1, 5.5.1.3(I,3) so that the container can be identified from another container within the shipment or from another set of containers. The approved 13 digit waste stream number (ONLO-000000006) will also be placed onto the waste container. Marking and labeling of the low/high grade residue packages shall be for radioactive material. The weight of the package will be marked in pounds and kilograms. Signed to containers certified for shipment to the NTS.

j. Barcoding

Barcode labels will meet NVO-325, Revision 1 requirements and must be approved by DOE NV prior to use. Two barcode labels will be placed on each low/high grade residue package. The barcode labels will be placed near the top and on opposite sides of nonstandard containers. Barcode Labels on drums will be placed on the lid and one side near the top of the drum.

k. On-site Transfer

Only packaged low/high grade residue is shipped from the FEMP for disposal at the NTS. The FEMP will not provide any material which will require on-site transfer of unpackaged bulk materials by the NTS.

2.5 Additional Criteria for Mixed Waste

None of the waste streams listed in this application are mixed waste. The FEMP will not be disposing of mixed waste at the NTS.

2.6 Additional Criteria for Transuranic/Transuranic Mixed Waste

None of the waste streams listed in this application contain Transuranic or Transuranic Mixed waste. The FEMP will not be disposing of Transuranic or Transuranic Mixed waste at the NTS.

2.7 Additional Criteria for Bulk Waste

The FEMP is not currently and does not intend to ship mixed waste to the NTS for disposal. By default, the FEMP will not be shipping mixed waste as bulk waste or mixed waste for bulk disposal.

The FEMP does ship bulk waste to the NTS for disposal in the form of scrap material (metal, wood, vehicles) that is contaminated radioactively. This material is well below the 49 CFR 173.425(c) requirement of 0.001 millicurie per square centimeter when averaged over one square meter of the material. The type of container in which the FEMP ships bulk waste is identified in the sections relating to the NTS specific packaging criteria. Approval of this application will constitute approval of continued use of this container.

2.8 Additional Criteria for Case-by-Case Waste

2.8.1 Weight

The FEMP is currently shipping and intends to continue to ship waste in ISO (International Shipping Organization) containers generally referred to as Sea/Land containers. These containers routinely weigh greater than 9,000 pounds and require either a large fork truck or crane for removal from the transport vehicle. The FEMP ships these containers on flat bed trailers which require no top or side wall removal.

2.8.2 Activity Limits

All containers shipped from the FEMP for disposal at the NTS are within the activity limits specified in NVO-325, Revision 1, Section 5.5.1.2.F.

2.8.3 Radioactively Contaminated Asbestos

Friable asbestos will not be shipped to the NTS before securing DOE/NV approval. None of the waste streams included in this application contain radioactively contaminated friable asbestos.

2.8.4 DOE Comparable Greater-Than-Class-C As Defined in 10 CFR 61.55

This requirement is not applicable to the FEMP waste streams since no greater-than-Class-C waste is shipped from the FEMP for disposal at NTS.

2.8.5 Classified Waste Streams

This requirement is not applicable to the FEMP since no classified waste is shipped for disposal at the NTS.

2.8.6 Radioactive Animal Carcasses

This requirement is not applicable to the FEMP since no radioactive animal carcasses are included in the low/high grade residues waste stream.

2.8.7 Other Waste Forms

The FEMP will secure DOE-NV approval for any waste forms that do not meet NTS requirements before shipping to the NTS.

E. Waste Stream Identification Number

ONLO-000000007 Contaminated Trash

1.0 Waste Type

Low Level Waste

2.0 Waste Description

A waste stream is defined as a waste which is categorized by similar characterization process and/or point of generation. The criteria used for evaluating candidate LLW for shipment to the NTS, excerpted from the FEMP Waste Characterization Plan (Draft), are described on the following pages.

2.1 Contaminated Trash

Contaminated trash is generated at the FEMP. This waste stream is currently being shipped to the NTS and may include the following:

- Trash (plastic, cardboard, paper, etc.)

This material is generated in the following way:

Daily office operations and material unpackaging operations generate plastic, cardboard and paper waste. No treatment of this waste is completed prior to packaging. Evaluation of this waste is accomplished administratively. Controls are in place (a prohibitive materials list and SOP 20-C-604, Control and Utilization of Contaminated Trash Dumpsters) to provide personnel with the knowledge and procedure for preventing waste which does not meet the NTS Waste Acceptance Criteria from entering this stream at the point of collection (trash dumpsters). The waste is then further evaluated with a second procedure (SOP 2-C-923, Trash Baler Operation) when it is compacted and baled to ensure that only waste which meets the NTS WAC is packaged for disposal. This waste is not treated prior to packaging. If the waste does not meet disposal criteria in its existing form, the waste is not packaged for disposal. The waste is size reduced in a compactor prior to packaging. The final form is a bale of trash which is packaged into a container for shipment. No special handling or disposal requirements exist for this waste.

2.1.1 Waste Stream Characterization Data Sheet

1. Waste Stream No.: O N L O - 0 0 0 0 0 0 0 0 7

2. Waste Description:

   a. Physical Characteristics: Dry solid paper, cardboard, plastic, etc. generated by daily office and unpackaging activities within radiological controlled areas. This material is baled (volume reduction) prior to packaging.

   b. Special Handling/Disposal Requirements: None
   The average radiation level on contact is .50 mrem/hr. with a range of <.50 mrem/hr. to 1.0 mrem/hr.

3. Basis for Characterization:

   a. Process Knowledge: ✓ b. Analytical Knowledge: ___

   c. Both: ___

   If B or C, provide Standard Data Reporting Forms as necessary.

4. Radioactive Characteristics:

   a. Is Waste > NRC Class-C (see Title 10 CFR 61.55)?: No

   b. WMIS Nuclide Category (circle): 1 (2) 3 4 5 NA 7 8

   (Choose the highest predominate nuclide. The number 6 is not an option.)

   c. Radioactive Constituents:

   Specific Activity Range of Waste Stream

	Nuclide	Chemical Forms	Low	Mean	High	Units(Ci/kg)
(1)	U-238 (0.1% to 1.0% U)	*	3.36E-07	1.81E-06	3.29E-06	Ci/kg
(2)	U-235 (0.2% to 2.0% on a U basis)	*	4.76E-09	2.19E-07	4.34E-07	Ci/kg
(3)	U-234 (0.001% to 0.01% on a U basis)	*	1.38E-07	4.07E-06	8.01E-06	Ci/kg

* Uranium oxides and salts (typically UO_3, U_3O_8, and UF_4)

Page 2 of Waste Stream Characterization Data Sheet

5. Hazardous Components (for MW): **NOT APPLICABLE**

a. Basis for Identifying as MW (circle): (1) Ignitable

(2) Reactive (3) Corrosive (4) TCLP (5) Listed Waste

b. List the applicable EPA waste code, the chemical name, the treatment performed (if applicable) and the Regulatory/Treatment Standard. Attach Standardized Data Forms.

EPA Hazardous Waste No.	Chemical Name	Treatment Performed	Regulatory Threshold/Treatment Standard
(1)			
(2)			
(3)			
(4)			

NOTE: Waste characterization of materials included in this waste stream is predominantly completed using process knowledge because the material meets all the criteria of NVO-325, Revision 1, Section 4.1.1.A, B, and C. Administrative controls are also employed to preserve waste stream integrity (SOP 2-C-923, Trash Baler Operation and SOP 20-C-604, Control and Utilization of Contaminated Trash Dumpsters).

2.2 Waste Stream Specific Criteria

a. Low Level Waste: Only the contaminated trash defined as LLW per DOE Orders 5820.2A, 5400.1, and 5480.11 guidelines shall be shipped to the NTS. (NVO-325, Revision 1, 5.5.1).

Compliance Method: The DOE Performance Objective (Draft) 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. Further guidance on radioactive waste characterization is provided in the DOE Performance Objective (Draft). In accordance with the "Waste Minimization and Pollution Prevention Awareness Plan," the FEMP attempts to minimize waste generation whenever possible.

b. Transuranic: The contaminated trash shall have a TRU concentration less than 100 nCi/g (e.g., shall not be regulated as TRU waste). (NVO-325, Revision 1, 5.5.1.1(A)).

Compliance Method: 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).

c. Hazardous Waste: All contaminated trash are evaluated for any characteristics of, or listed, hazardous waste as identified in Title 40 CFR 261, "Identification and Listing of Hazardous Waste," or state of generation hazardous waste regulations. (NVO-325, Revision 1, 5.5.1.1(B)).

Compliance Method: Through careful selection of the items to place on the prohibited materials lists wastes are excluded from the contaminated trash dumpsters that could possibly cause the contaminated trash to exhibit a hazardous waste characterization or be listed as a hazardous waste. Process area personnel are trained in their annual RCRA refresher to understand their responsibilities on following all waste management and waste characterization procedures (SOP 2-C-923 and SOP 20-C-604).

d. Free Liquids: Contaminated trash 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% by volume of the external waste container and shall meet the following criteria (NVO-325, Revision 1, 5.5.1.1(C):

Compliance Method Free liquids are prohibited from disposal in the contaminated trash dumpsters.

e. Particulates: Wastes containing fine particulate materials less-than-ten-micrometer-diameter and greater than 1 weight percent or 15 weight percent less-than-200 micrometer diameter particles will be immobilized or packaged in accordance with NVO-325, Revision 1, 5.5.1.1(D).

Compliance Method: The contaminated trash waste streams will not fail the particulates WAC because fine particulates are excluded from the waste stream by procedures SOP 2-C-923 and SOP 20-C-604.

f. Gases: Radioactive gases shall be stabilized or absorbed so that pressure in the waste package does not exceed 1.5 atmospheres at 20° celsius. Compressed gases as defined by Title 49 CFR 173.300, including unpunctured aerosol cans, will not be shipped for disposal in the contaminated trash waste stream. Aerosol cans shall have puncture disfigurements readily recognizable by real-time-radiography. Expended gas cylinders shall have the valve mechanism removed. (NVO-325, Revision 1, 5.5.1.1(E)).

Compliance Method: Specific items that could result in generation of harmful gases are specifically prohibited for inclusion in the contaminated trash waste stream. This is accomplished via implementation of procedures SOP 20-C-604 and SOP 2-C-923.

g. Stabilization: Where practical, contaminated trash shall be treated to reduce volume and provide a more structurally stable waste form. (NVO-325, Revision 1, 5.5.1.1(F)).

Compliance Method LLWP will identify waste streams that are candidates for treatment to reduce volume or provide a structurally more stable waste form. No contaminated trash will be shipped to the NTS that has the potential to fail this WAC.

h. Etiologic Agents: Contaminated trash to be shipped to the NTS will not contain pathogens, infectious wastes, or other etiologic agents as defined in Title 49 CFR 173.386. (NVO-325, Revision 1, 5.5.1.1(G)).

Compliance Method 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 or 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 through 25) which includes 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. These administrative controls prevent etiologic agents from entering the contaminated trash waste stream. Reference FEMP Waste Characterization Plan (Draft) - Infectious Waste Section for additional evaluation criteria.

i. Chelating Agents: If a waste is determined to contain chelating agents above the one percent by weight limit, the waste will not be approved for disposal at the NTS. (NVO-325, Revision 1, 5.5.1.1(H)).

Compliance Method: Chelating agents are excluded from the contaminated trash waste stream. Excess chemicals from the on-site laboratory are the primary potential source of materials that may be identified as true chelating agents. This determination will be accomplished through the use of the MEF which will designate the waste as containing above one percent by weight chelating agents. FME 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. Contaminated trash waste stream feed materials is controlled by procedures which require visual inspection of all trash. This process prevents waste that does not meet the NTS WAC from being shipped for disposal.

j. Polychlorinated Biphenyls: PCB contaminated waste will not be shipped for disposal at NTS in the contaminated trash waste stream unless the PCB concentration meets the municipal solid waste disposal limits. See Title 40 CFR 761.60 for PCB disposal requirements. (NVO-325, Revision 1, 5.5.1.1(I)).

Compliance Method: SOP 20-C-604 prohibits addition of any materials that may be suspected of being contaminated by PCBs.

k. Explosives and Pyrophorics: Contaminated trash does not contain potentially explosive or pyrophoric material in a form that may spontaneously combustion if the container is breached. (NVO-325, Revision 1, 5.5.1.1(J)).

Compliance Method This WAC is evaluated during the hazardous waste characterization. This evaluation is performed in accordance with SSOP-0002, Completing the Material Evaluation Form and FEMP Waste Characterization Plan (Draft). Any waste that potentially fails this WAC shall be identified by FME and the material will not be shipped to the NTS for disposal.

2.3 Waste Stream General Package Criteria

a. Design

Waste packaging criteria for contaminated trash shipped to the NTS for disposal shall meet DOT Regulations, 49 CFR 173, Subpart I. Standard operating procedures listed in Table I of the Waste Certification Plan, concerning storage and off-site shipments, shall be used to assure that all shipments meet DOT requirements and NTS site-specific requirements.

b. Nuclear Safety

The quantity of radioactive materials in contaminated trash shipped to the NTS shall be limited so that an infinite array of packages will remain subcritical. 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 and shall meet 49 CFR, Parts 173.453(c)(3) and 173.453(d). Contaminated trash packages will not contain uranium enriched ^{235}U greater than one percent by weight and with a mass of ^{235}U greater than 800 grams per package. The total mass of plutonium and ^{233}U will not exceed one percent of the mass of ^{235}U in any package.

c. Nuclear Heating

In compliance with 49 CFR 173.442, Thermal Limitations, a Health Physics evaluation of waste packages of material to be shipped to the NTS from the FEMP show no evidence of a heating effect above NVO-325 limits from radiological decay. Calculations from these waste streams at the FEMP show the power output from either ^{233}U or ^{235}U at maximum potential concentration in any waste package will not exceed 0.1 Watt. These calculations are based on the total alpha energy from each isotope in the waste and its associated daughters during normal radioactive decay.

d. Radiation Levels

In compliance with 49 CFR 173.441, Radiation Levels, the radiation exposure rate at the surface and at 1 meter of each package of shall be measured and recorded in the data package. Contaminated trash packages that exceed 200 millirem/hr on contact shall not be shipped to NTS.

e. External Contamination

In compliance with 49 CFR 173.443, the surface contamination of each container of contaminated trash shall be measured using instruments calibrated by the IRS&T Dosimetry & Instrumentation Section and recorded in the data package. If these instruments indicate that the limits of 49 CFR 173.443 are exceeded, then the package shall be cleaned until it is within the limits or the contents shall be transferred to a clean container.

f. Activity Limits

The activity limits of Titles 49 CFR 173.421, "Limited Quantities of Radioactive Materials," and 49 CFR 173.425, "Transport Requirements for Low-Specific Activity Radioactive Materials" shall be met.

In compliance with Title 49 CFR 173.421 and 173.425, strong, tight containers used for shipping Limited Quantities (LQ) and Low-Specific Activity (LSA) LLW shall be constructed so they will not leak during normal transportation and handling conditions.

g. Multiple Hazards

Not applicable, the FEMP does not ship wastes with multiple hazards to the NTS.

2.4 Waste Stream Specific Package Criteria

a. Closure

All contaminated trash package closures will be sturdy enough to assure the closures will not be breached under normal handling conditions and will not serve as weak points for package failure.

b. Strength

Contaminated trash will be packaged in containers capable of supporting a uniformly distributed load of 4,000 lbs/ft^2, except for waste packaged in DOE NV approved containers (drums and ISO containers).

c. Handling

All contaminated trash containers shall have permanently attached skids, cleats, offsets, rings, handles, or other auxiliary lifting devices to allow handling by means of forklifts, cranes, or similar handling equipment. Lifting rings and other auxiliary lifting devices shall be recessed, offset, or hinged in a manner that does not inhibit stacking the packages. The lifting devices shall be designed to meet a 5:1 safety factor based upon the ultimate strength of the material. All rigging devices that are not permanently attached to the waste package shall have a current load test based on 125 percent of the safe working load.

d. Size

FEMP contaminated trash will be packaged typically in ISO container codes: 109 from Table I. Small quantities may be packaged in 55-gallon drums or metal boxes including container codes: 117, and 119 from Table I.

e. Weight

In addition to the weight limits set for specific packaging designs, a 9,000 lb. limit per box and a 1,200 lb. limit per 55-gallon drum shall be maintained. Contaminated trash exceeding the 9,000 lb. limit shall be shipped in removable-top trailers, or on flatbeds.

f. Loading

Contaminated trash shall be packaged to ensure that the interior volume is as efficiently and compactly loaded as practical.

g. Nonstandard Type A Packaging

The FEMP is currently using a Type 7A Container as a strong, tight container. Used for this purpose, the container does not require a DOE Type A Certification. If a Type A Container is required to ship contaminated trash, only containers with a DOE Type A Certification will be used.

h. Package Protection

Every FEMP contaminated trash package shall be prepared for shipment so as to minimize damage during transit. The preshipment storage environment shall be controlled to avoid adverse influence from weather or other factors on the containment capability of the waste packaging during handling, storage, and transport. FEMP shall take all responsibility for preshipment storage and take all reasonable precautions to preclude the accumulation of moisture on or in packages prior to their arrival to the NTS. Tamper indicating devices are used to maintain control of the container contents once certification actions are completed.

The FEMP shall package all contaminated trash for shipment to NTS in containers meeting DOT requirements (e.g., DOT Type 17H 55-gallon drums or other NTS approved containers). All containers shall be shipped to meet DOT requirements for interstate travel and shall meet the requirements of 49 CFR 173.411, 173.421, and 173.425.

i. Marking and Labeling

Contaminated trash shipped to the NTS shall be marked and labeled as required in Title 49 CFR 172, Subparts D and E [with exceptions noted in Title 173.425 (b) and (c)]. Also, each waste container shall be marked with a unique six character container identification number and nine character shipment number per NVO-325, Revision 1, 5.5.1.3.(I,3) so that the container can be identified from another container within the shipment or from another set of containers. The approved 13 digit waste stream number (ONLO-000000007) will also be placed onto the waste container. Marking and labeling of the contaminated trash packages shall be for radioactive material. The weight of the package will be marked in pounds and kilograms. Signed NV-211 labels will be attached to containers certified for shipment to the NTS.

j. Barcoding

Barcode labels will meet NVO-325, Revision 1 requirements and must be approved by DOE NV prior to use. Two barcode labels will be placed on each contaminated trash package. The barcode labels will be placed near the top and on opposite sides of nonstandard containers. Barcode Labels on drums will be placed on the lid and one side near the top of the drum.

k. On-site Transfer

Only packaged contaminated trash is shipped from the FEMP for disposal at the NTS. The FEMP will not provide any material which will require on-site transfer of unpackaged bulk materials by the NTS.

2.5 Additional Criteria for Mixed Waste

None of the waste streams listed in this application are mixed waste. The FEMP will not be disposing of mixed waste at the NTS.

2.6 Additional Criteria for Transuranic/Transuranic Mixed Waste

None of the waste streams listed in this application contain Transuranic or Transuranic Mixed waste. The FEMP will not be disposing of Transuranic or Transuranic Mixed waste at the NTS.

2.7 Additional Criteria for Bulk Waste

The FEMP is not currently and does not intend to ship mixed waste to the NTS for disposal. By default, the FEMP will not be shipping mixed waste as bulk waste or mixed waste for bulk disposal.

The FEMP does ship bulk waste to the NTS for disposal in the form of scrap material (metal, wood, vehicles) that is contaminated radioactively. This material is well below the 49 CFR 173.425(c) requirement of 0.001 millicurie per square centimeter when averaged over one square meter of the material. The type of container in which the FEMP ships bulk waste is identified in the sections relating to the NTS specific packaging criteria. Approval of this application will constitute approval of continued use of this container.

2.8 Additional Criteria for Case-by-Case Waste

2.8.1 Weight

The FEMP is currently shipping and intends to continue to ship waste in ISO (International Shipping Organization) containers generally referred to as Sea/Land containers. These containers routinely weigh greater than 9,000 pounds and require either a large fork truck or crane for removal from the transport vehicle. The FEMP ships these containers on flat bed trailers which require no top or side wall removal.

2.8.2 Activity Limits

All containers shipped from the FEMP for disposal at the NTS are within the activity limits specified in NVO-325, Revision 1, Section 5.5.1.2.F.

2.8.3 Radioactively Contaminated Asbestos

Friable asbestos will not be shipped to the NTS before securing DOE/NV approval. None of the waste streams included in this application contain radioactively contaminated friable asbestos.

2.8.4 DOE Comparable Greater-Than-Class-C As Defined in 10 CFR 61.55

This requirement is not applicable to the FEMP waste streams since no greater-than-Class-C waste is shipped from the FEMP for disposal at NTS.

2.8.5 Classified Waste Streams

This requirement is not applicable to the FEMP since no classified waste is shipped for disposal at the NTS.

2.8.6 Radioactive Animal Carcasses

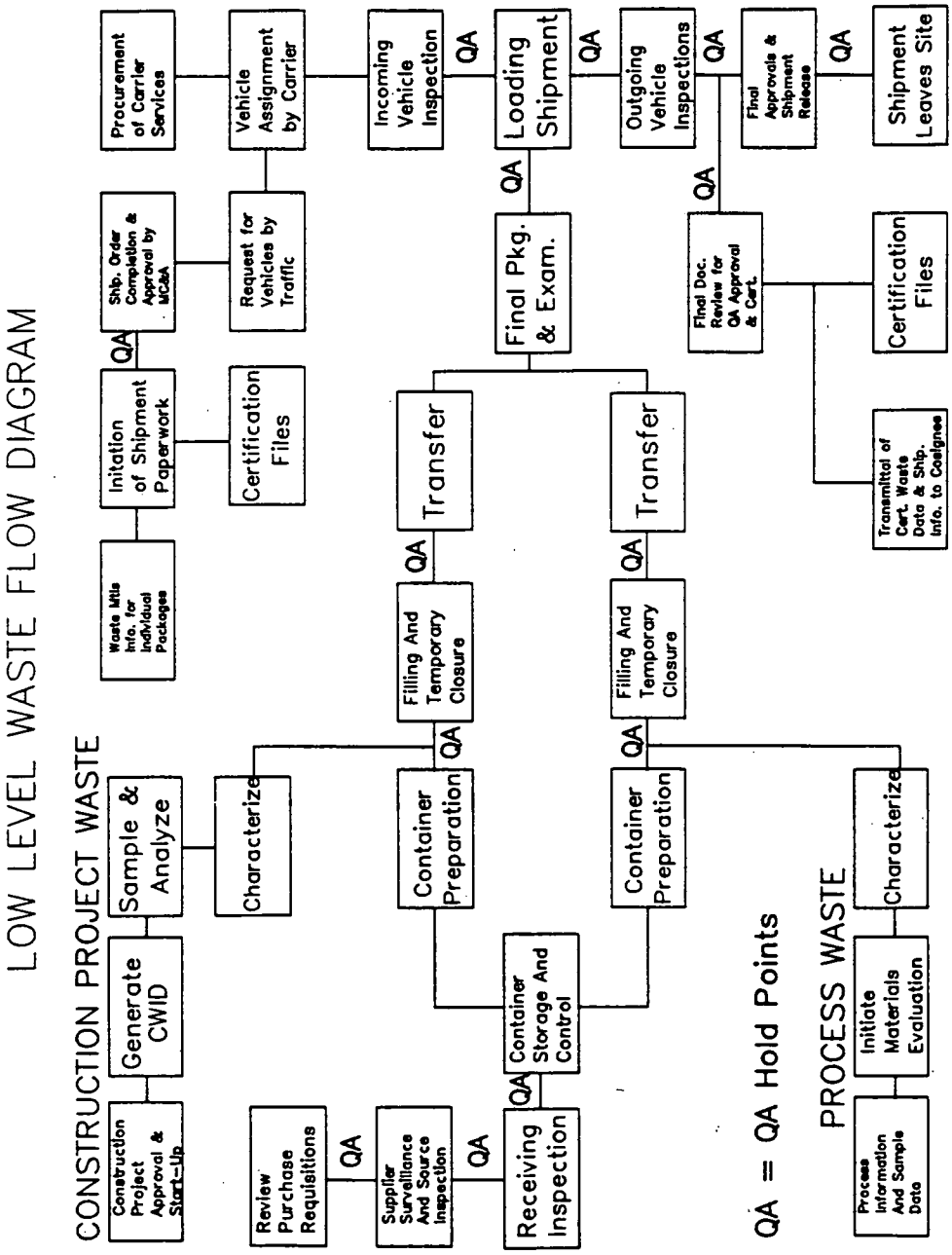
This requirement is not applicable to the FEMP since no radioactive animal carcasses are included in the contaminated trash waste stream.

2.8.7 Other Waste Forms

The FEMP will secure DOE-NV approval for any waste forms that do not meet NTS requirements before shipping to the NTS.

F. Waste Certification Flow Diagram

The waste certification flow diagram is provided here and in the Waste Certification Program Plan.



NOTE: Construction project waste, waste stream ONLO-000000002

Process waste, includes waste streams: ONLO-000000001, ONLO-000000005, ONLO-000000006, and ONLO-000000007

G. Shipping Containers and Codes

TABLE I

SHIPPING CONTAINERS

CONTAINER CODE	SHIPPING CONTAINER	TARE WEIGHT	BURIAL FEET
117	White Metal Box - Clip Type (Electropanel) No. 89DW000800, Rev. 1 41"H x 54"W x 78"L Exterior 37"H x 48"W x 72"L Interior	680	106
119	White Metal Box - Bolt Type No. C01-542-2-01 40.5"H x 57.25"W x 81.25"L Exterior 32"H x 52"W x 75"L Interior	850	109
109	ISO Container - Conventional (Sea/land®) 102"H x 95"W x 238"L Exterior 93"H x 94"W x 232"L Interior	Varied	1349
120	Top Load Container No. 40X-5500-M-00041, Rev. 1 89"H x 95"W x 240"L Exterior	Varied	1231
121	Top Load Container No. IS1272 94"H x 96"W x 240"L Exterior 88"H x 92"W x 236"L Interior	Varied	1253

H. Three-Year Waste Shipment Forecast

The FEMP estimated three-year waste shipment forecast for Fiscal Years 1993 through 1995 are provided on the following pages. These forecasts are subject to change due to budget impact and FEMP priorities. FEMP waste forecasts will be updated every six months and submitted to DOE/NV and REECo/DWMD by February 15 and August 15.

THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project **PREPARED BY:** J. G. Rowe **DATE:** 10/01/92

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters^3)
			TYPE	SIZE	NUMBER		
FY-1993 10/01-12/31	ONLO-000000001	LLW	Sea/Land	8'x 8'x 20'	12	9	436
01/01-03/31	ONLO-000000001	LLW	Sea/Land	8'x 8'x 20'	13	10	472
04/01-06/30	ONLO-000000001	LLW	Sea/Land	8'x 8'x 20'	21	18	762
07/01-09/30	ONLO-000000001	LLW	Sea/Land	8'x 8'x 20'	13	10	472
FY-1994	ONLO-000000001	LLW	Sea/Land	8'x 8'x 20'	41	28	1488
FY-1995	ONLO-000000001	LLW	Sea/Land	8'x 8'x 20'	50	40	1815

REMARKS:

THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project **PREPARED BY:** J. G. Rowe **DATE:** 10/01/92

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters^3)
			TYPE	SIZE	NUMBER		
FY-1993 10/01-12/31	ONLO-000000002	LLW	Sea/Land	8'x 8'x 20'	15	15	544
			Metal Box	4'x 4'x 7'	384	48	387
01/01-03/31	ONLO-000000002	LLW	Sea/Land	8'x 8'x 20'	25	25	908
			Metal Box	4'x 4'x 7'	702	87	2247
04/01-06/30	ONLO-000000002	LLW	Sea/Land	8'x 8'x 20'	30	30	1089
			Metal Box	4'x 4'x 7'	1126	140	3603
07/01-09/30	ONLO-000000002	LLW	Sea/Land	8'x 8'x 20'	20	20	726
			Metal Box	4'x 4'x 7'	560	70	1792
FY-1994	ONLO-000000002	LLW	Sea/Land	8'x 8'x 20'	63	63	2287
			Metal Box	4'x 4'x 7'	1020	127	3264
FY-1995	ONLO-000000002	LLW	Sea/Land	8'x 8'x 20'	60	60	2178
			Metal Box	4'x 4'x 7'	990	90	3168

REMARKS:

THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project **PREPARED BY:** J. G. Rowe **DATE:** 10/01/92

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters^3)
			TYPE	SIZE	NUMBER		
FY-1993 10/01-12/31	ONLO-000000005	LLW	Drums	85-Gallon	3	1	1
01/01-03/31	ONLO-000000005	LLW	Drums	85-Gallon	0	0	0
04/01-06/30	ONLO-000000005	LLW	Drums	85-Gallon	0	0	0
07/01-09/30	ONLO-000000005	LLW	Drums	85-Gallon	0	0	0
FY-1994	ONLO-000000005	LLW	Drums	85-Gallon	0	0	0
FY-1995	ONLO-000000005	LLW	Drums	85-Gallon	0	0	0

REMARKS: _____

THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project **PREPARED BY:** J. G. Rowe **DATE:** 10/01/92

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters^3)
			TYPE	SIZE	NUMBER		
FY-1993 10/01-12/31	ONLO-000000006	LLW	Drums	55-Gallon	0	0	0
			Metal Box	4'x 4'x 7'	0	0	0
01/01-03/31	ONLO-000000006	LLW	Drums	55-Gallon	0	0	0
			Metal Box	4'x 4'x 7'	0	0	0
04/01-06/30	ONLO-000000006	LLW	Drums	55-Gallon	320	4	64
			Metal Box	4'x 4'x 7'	18	2	58
07/01-09/30	ONLO-000000006	LLW	Drums	55-Gallon	540	6	108
			Metal Box	4'x 4'x 7'	27	3	86
FY-1994	ONLO-000000006	LLW	Drums	55-Gallon	0	0	0
			Metal Box	4'x 4'x 7'	200	22	640
FY-1995	ONLO-000000006	LLW	Drums	55-Gallon	0	0	0
			Metal Box	4'x 4'x 7'	150	17	480

REMARKS:

THREE - YEAR WASTE SHIPMENT FORECAST

GENERATOR: Fernald Environmental Management Project **PREPARED BY:** J. G. Rowe **DATE:** 10/01/92

FORECAST PERIOD	WASTE STREAM NUMBER	WASTE TYPE	CONTAINER			NUMBER OF SHIPMENTS	TOTAL VOLUME (meters^3)
			TYPE	SIZE	NUMBER		
FY-1993 10/01-12/31	ONLO-000000007	LLW	Sea/Land	8'x 8'x 20'	9	4	327
01/01-03/31	ONLO-000000007	LLW	Sea/Land	8'x 8'x 20'	9	5	327
04/01-06/30	ONLO-000000007	LLW	Sea/Land	8'x 8'x 20'	9	4	327
07/01-09/30	ONLO-000000007	LLW	Sea/Land	8'x 8'x 20'	9	5	327
FY-1994	ONLO-000000007	LLW	Sea/Land	8'x 8'x 20'	10	5	363
FY-1995	ONLO-000000007	LLW	Sea/Land	8'x 8'x 20'	7	4	254

REMARKS:

I. Waste Security Information

This section is not applicable to the FEMP since no classified waste is shipped for disposal at the NTS.

IV. WASTE CERTIFICATION PROGRAM

A. Waste Certification Program Plan

The FEMP WCPP is included as Appendix I of this application.

B. Certification Related Procedures

See Appendix I.

V. EXEMPTION REQUEST

A. Exemption

1.0 Standardized Data Reporting Forms are not available for the five FEMP waste streams. All LLW in the five waste streams identified in this application fall within the scope of the Waste Characterization Program. For purposes of characterization, the FEMP definition of a Waste Stream is much more discrete than what is identified by the five waste streams provided in Section III (Waste Stream Identification) of this application. At the FEMP, a waste stream is identified by an MEF in a discrete characterization file.

For purposes of disposal at the NTS, a waste stream is identified as one sub waste stream of the five waste streams listed in Section III of this application. Therefore, there are individual characterization files for each sub waste stream which comprises the five waste streams listed in Section III of this application.

Each individual sub waste stream is evaluated against the waste acceptance criteria of NVO-325, Revision 1 for the five waste streams listed in this application. All sub wastes streams meeting the waste stream specific criteria are grouped into one of the five streams listed in this application. Therefore, each of the five waste streams included in this application is comprised of a large amount of individual FEMP sub waste stream characterization data. The amount of analytical data generated for each waste stream in the application is quite voluminous.

The analysis completed under the former and current contracts with the laboratories did not require that analytical results be reported using standardized Data Reporting forms. The analytical results and equivalent quality assurance methods are provided by alternate means. These results could be transcribed on to standardized data reporting forms; however, the FEMP will reserve this action for specific requests from DOE/NV.

B. Requested Duration

1.0 The new contract currently being placed with subcontract laboratories requires the laboratories to submit results using standardized data reporting forms. This contract is targeted to be in effect by March 1993. Sample analysis results submitted after this date will be reported on the Standardized Data Reporting Forms. The Standardized Data Reporting Forms exemption is requested for all sample analysis completed prior to the initiation of the new laboratory contract. This exemption request will be reevaluated during the next DOE/NV Application Audit.

C. Plan for Corrective Action

1.0 The Standardized Data Reporting Forms will be required in future laboratory contracts. Analytical results completed prior to the initiation of the new contract could be transcribed on to standardized data reporting forms; however, the amount of data to be transcribed forces the FEMP to reserve this action for specific analytical results requests from DOE/NV. The exemption request will be reevaluated at the time of the next DOE/NV Application Audit.

VI. PROCEDURES AND SUPPORTING DOCUMENTATION

The procedures listed below have been provided in the SOP section of this application.

SSOP-0002 - Completing the Material Evaluation Form

SSOP-0024 - Packaging Low Level Radioactive Waste (LLRW) for Offsite Disposal

SOP 2-C-923 - Trash Baler Operation

SOP 20-C-604 - Control and Utilization of Contaminated Trash Dumpsters

SOP 20-C-625 - Evaluating Low Level Radioactive Waste Bulk Waste Streams for Shipment

SOP 20-C-805 - Sampling Drummed Waste for Hazardous Determinations

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1.0 PURPOSE

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

2.0 APPLICABILITY

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

3.0 RESPONSIBILITIES

3.1 The Material Generator shall be responsible for the following:

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

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

3.1.3 Determining if a prior MEF has been submitted.

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

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

3.2.1 Completing Section II of the MEF per this procedure.

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

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

3.2.4 Maintaining the original of the completed form on file.

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

3.3 Environmental Engineering shall be responsible for the following:

3.3.1 Completing Section III of the MEF per this procedure.

R - MATERIAL REVISED, ADDED, OR DELETED.

3.0 RESPONSIBILITIES (cont.)

3.3.2 Maintaining a record of the completed form.

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

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

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

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

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

3.5.1 Providing a Material Evaluation Number to generator upon request.

3.5.2 Maintaining a log of Material Evaluation Numbers.

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

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

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

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

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

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

3.7.2 Providing the DOT hazard class.

3.7.3 Specifying required labels.

3.7.4 Providing DOT identification No.

3.0 RESPONSIBILITIES (cont.)

3.7.5 Providing EPA waste No.

3.7.6 Providing applicable reactivity group codes.

3.7.7 Filling out Section IV of the MEF.

4.0 DEFINITIONS

4.1 Material Generator - a person at the originating facility who is authorized to prepare raw material, process material, and waste material for transfer.

4.2 Resource Conservation and Recovery Act (RCRA) - The congressional act which established safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control and proper management of hazardous waste.

4.3 Hazardous Waste - A discarded material which is listed in the Environmental Protection Agency Hazardous Waste List which exhibits characteristics of ignitability, corrosivity, or reactivity. Both "listed" and "characteristic" wastes are regulated under RCRA.

4.4 Ignitable - Liquid waste with closed-cup flash points < 60°C (140°F), or non-liquid waste capable of causing fire through friction, absorption of moisture, or spontaneous chemical changes.

4.5 Corrosive - Aqueous (water based) wastes with a pH $\leq$ 2 or $\geq$ 12.5.

4.6 Reactive - Waste that exhibits properties such as reacting violently, forming potentially explosive mixtures or generating toxic gases when mixed with water, generating toxic gases (cyanide or sulfied) at pH between 2 and 12.5, or detonating or exploding at standard temperature and pressure or when heated under confinement.

4.7 Authorized Personnel - Personnel who have successfully completed all training requirements to perform work related to this procedure and have been authorized by the Facility Owner to perform the work.

4.8 Controlled Holding Area - The area designated for holding uncharacterized material and staging characterized material (excluding backlog material and material generated from a soil boring activity) for a maximum period of 90 calendar days.

R - MATERIAL REVISED, ADDED, OR DELETED.

4.0 DEFINITIONS (cont.)

4.9 Fingerprint Analysis - An analytical process providing a brief description of material parameters as listed in Table 5.

4.10 Raw Material - A non-manufactured substance at the FEMP.

4.11 Process Material - A substance which has gone through a physical state of change.

4.12 Excess Material - A substance which has exceeded its recommended shelf life or intended use.

4.13 Waste Material - A substance which has expended its usefulness, non-recyclable and non-recoverable.

5.0 GENERAL

5.1 General Instructions for Completing the Material Evaluation

5.1.1 Fill in all items of each section. If an item cannot be answered, enter "NOT KNOWN".

5.1.1.1 If an item is not applicable to the material stream being evaluated, indicate as "N/A".

5.1.2 If there is not enough space on the form to record the required data, proceed as follows:

5.1.2.1 Prepare an attachment sheet with the MEF number (and Revision Number, if applicable) and date.

5.1.2.2 Enter the Item Number that corresponds to the Item Number on the MEF.

5.1.2.3 Enter the required data on the attachment sheet.

5.1.2.4 Sign the attachment sheet.

5.1.2.5 In the item block on the MEF, enter "See attachment".

5.1.2.6 Fasten the attachment sheet to the MEF.

5.1.3 Refer questions regarding the form to F&ME.

6.0 PROCEDURE

6.1 Identification of Material

MATERIAL GENERATOR

6.1.1 If no information is known on the material and the container has no identification, contact F&ME and IRS&T for direction.

6.1.2 Obtain a Material Evaluation Number from F&W.

6.1.3 Record the Material Evaluation Number at the top of each sheet of the Material Evaluation, Form FMPC-OPR-3252 (See Figure 1).

6.1.4 Complete Section I, Items 1 thru 16b, of the Material Evaluation Form per Table 1.

6.1.5 When Section I (Items 1 thru 16b) is completed, forward the form to IRS&T.

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

6.2 Establish Safety Requirements

IRS&T

6.2.1 Review the data provided in Section I of the MEF.

6.2.2 Determine potential health or safety concerns that may be encountered while sampling, handling, or processing the material.

6.2.3 In Item 16c specify protective gear that must be used while sampling, handling, or processing material (such as protective clothing, respirator, gloves).

6.2.4 Sign Item 16d and return the MEF to the Material Generator.

6.3 Identification of Material

MATERIAL GENERATOR

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

6.0 PROCEDURE (cont.)

6.4 Evaluation of Material

F&ME

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

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

6.4.3 When Section II is complete, proceed as follows:

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

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

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

6.5 Material Analysis/Disposition Determination

F&ME

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

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

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

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

6.0 PROCEDURE (cont.)

6.6 Establish Safety Requirements

IRS&T

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

6.6.2 Sign and forward the MEF to F&ME.

6.7 Additional Requirements

F&ME

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

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

6.7.2 When additional information is received, proceed as follows:

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

6.7.2.2 Ensure that Section II is complete.

6.7.2.3 Initial and date each revision of Section II.

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

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

6.8 Classified Material

ENVIRONMENTAL ENGINEERING

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

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

6.0 PROCEDURE (cont.)

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

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

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

6.8.2.1 Complete Section III per Table 3.

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

6.9 Material Identification

TSWP

NOTE: DELETED

6.9.1 Complete Section IV per Table 4.

6.9.2 Review section IV and confirm container information is correct.

6.9.3 Forward the MEF to FM&E.

6.10 Revising the Material Evaluation

MATERIAL GENERATOR, F&ME, OR ENVIRONMENTAL ENGINEERING

6.10.1 Determine a revision to the MEF is required.

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

MATERIAL GENERATOR

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

6.10.4 Obtain a revision number from Waste Management.

6.0 PROCEDURE (cont.)

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

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

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

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

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

7.0 APPLICABLE DOCUMENTS

7.1 Drivers

None

7.2 Reference Documents

None

8.0 APPLICABLE FORMS

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

R - MATERIAL REVISED, ADDED, OR DELETED.

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

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

[1] Attach a copy of the MSDS as applicable.

R - MATERIAL REVISED, ADDED, OR DELETED.

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

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

[2] Attach results if available. Identify source, such as a sample plan.

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

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

R - MATERIAL REVISED, ADDED, OR DELETED.

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

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

R - MATERIAL REVISED, ADDED, OR DELETED.

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

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

R - MATERIAL REVISED, ADDED, OR DELETED.

TABLE 5
FINGERPRINT ANALYSIS PARAMETERS

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

[1] These references are included for information, not for operational use.

Fernald Site
MATERIAL EVALUATION FORM

MEF NO.: _____

MEF REV. NO.: _____

SECTION I - MATERIAL GENERATOR

1. FEMP SRC. | MTC
2. PLANT AND/OR BULDING NO.
3. PROCESS AREA
4. EQUIPMENT NAME(S):
5. MEF NO DATE | MEF REV DATE
6. MATERIAL PHYSICAL STATE: ☐ Liquid ☐ Gas ☐ Wet Solid (Sludge) ☐ Dry Solid
7. APPROXIMATE NET WEIGHT OF FULL CONTAINER? ☐ <100 lbs. ☐ 100 to 1000 lbs ☐ >1000 lbs
8. DOES MATERIAL CONSIST OF MORE THAN ONE SUBSTANCE? ☐ YES ☐ NO
9. IS MATERIAL A WASTE? ☐ YES ☐ NO
10. COMMON NAMES
11. CHEMICAL NAMES
12. COMMON/CHEMICAL NAME SOURCE: ☐ Process Information ☐ MSDS ☐ Container Label ☐ FEMP Lot Code | OTHER
13. SIMILAR MATERIAL NAME
14. SIMILAR MATERIAL LOT CODE(S)
15. SUBSTANCES SUSPECTED

☐ Aerosols	☐ Cresol	☐ Endrine	☐ Methylene Chloride	☐ TBP/Kerosene
☐ Arsenic	☐ m-Cresol	☐ Heptachlor	☐ Motor/Engine Oil	☐ Tetrachloroethylene
☐ Barium	☐ o-Cresol	☐ Hexachlorobenzene	☐ Nitrobenzene	☐ 1,1,1-Trichloroethane
☐ Benzene	☐ p-Cresol	☐ Hexachloroethane	☐ Other Organics	☐ 2,4,5-TP (Silvex)
☐ Cadmium	☐ 2,4-D	☐ Hexachloro-1,3-butadiene	☐ Paint Stripper	☐ 2,4,5-Trichlorophenol
☐ Carbon Tetrachloride	☐ Degreaser	☐ Hydraulic Oil	☐ Paint Thinner/Mineral Spirits	☐ 2,4,6-Trichlorophenol
☐ Chlordane	☐ 1,4-Dichlorobenzene	☐ Ink	☐ Pentachlorophenol	☐ Toxaphene
☐ Chlorobenzene	☐ 1,2-Dichloroethane	☐ Lead	☐ Perchloroethylene	☐ Trichloroethylene
☐ Chloroform	☐ 1,1-Dichloroethylene	☐ Lindane	☐ Pyridine	☐ Unknown
☐ Chromium	☐ 2,4-Dinitrotoluene	☐ Mercury	☐ Selenium	☐ Vinyl Chloride
☐ Coolants	☐ Enamel	☐ Methoxychlor	☐ Silver	☐ Xylene
		☐ Methyl ethyl ketone	☐ Synthetic oil	☐ Oil

16. a. REASON FOR SUSPECTING ALL SUBSTANCES AND QUANTITY
16. b. SOURCE FOR REASON AND QUANTITY (Attach MSDS if Available)

☐ Personnel Interviews	☐ AEDO Log	☐ MSDS	☐ Prior Evaluation of Similar Material
☐ Historical Records	☐ Physical Evidence	☐ Container Label	What Material _____
☐ FEMP Lot Code	☐ Process Information	☐ Sump Report	
		☐ Spill Database	SRC _____ MTC _____

16. c. HEALTH AND SAFETY CONCERNS/REQUIREMENTS
16. d. SIGNATURE AND DATE
17. HAS THE "FINGERPRINT" VISUAL INSPECTION BEEN COMPLETED? ☐ YES ☐ NO
18. NUMBER OF PHASES
19. pH (IF KNOWN) (Attach Lab Results)
20. FLASH POINT (IF KNOWN) (Attach Lab Results)
21. HAS A PAINT FILTER TEST BEEN COMPLETED? ☐ YES ☐ NO
22. IS IT REACTIVE? ☐ YES ☐ NO | EXPLAIN
23. IS IT IGNITABLE? ☐ YES ☐ NO | EXPLAIN
24. OTHER INFORMATION (Example: Is the Material a Product or Waste?)
25. ADDITIONAL SOURCES OF INFORMATION
26. PRIMARY CONTACT INDIVIDUAL | EXTENSION | DATE COMPLETED

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

FS-F 3252 (REV 10-10-91) Sheet 1

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

R - MATERIAL REVISED, ADDED, OR DELETED.

4098

Fernald Site
MATERIAL EVALUATION FORM
(Continued)

MEF NO _____

MEF REV NO _____

SECTION II - FACILITY AND MATERIALS EVALUATION

1. IS MATERIAL A WASTE? ☐ YES ☐ NO
2. IS IT EXCLUDED UNDER 261.4(a)? ☐ YES ☐ NO
3. IS IT EXCLUDED UNDER 261.4(b)? ☐ YES ☐ NO
4. DOES IT CONTAIN A LISTED WASTE AS PER 261 SUBPART D? ☐ F ___ ☐ P ___ ☐ U ___ ☐ not listed
5. DOES IT EXHIBIT ANY CHARACTERISTICS AS PER 261 SUBPART C? ☐ YES ☐ NO EXPLAIN
6. IS T & RQ HAZARDOUS SUBSTANCE? ☐ YES ☐ NO POUNDS
7. CLASSIFICATION AS A WASTE ☐ Needs Further Action (no sampling) ☐ RCRA Hazardous Waste ☐ Source Exempt ☐ Non-RCRA Waste ☐ Radioactive EXPLAIN:
8. PRIMARY BASIS FOR CLASSIFICATION ☐ Generator information ☐ Prior material evaluation WHAT MATERIAL? LOT NUMBER
9. IS IT SUBJECT TO LAND BAN RESTRICTIONS? ☐ NO ☐ YES Effective Date
10. DISTRIBUTE PER SECTION IV ITEM 9
11. OTHER INFORMATION SOURCES USED
12. PRIMARY CONTACT INDIVIDUAL — EXTENSION — DATE COMPLETED
13. IS SAMPLING REQUIRED? ☐ YES ☐ NO
14. IS TRANSFER TO CONTROLLED HOLDING AREA REQUIRED? ☐ YES ☐ NO — DATE
15. INFORMATION ACTION COMPLETION DATE
16. HEALTH AND SAFETY CONCERNS REQUIREMENTS
16. B. SIGNATURE AND DATE

SECTION III - ENVIRONMENTAL ENGINEERING

1. RECOMMENDED STORAGE CONTAINER MATERIAL ☐ Carbon Steel ☐ Stainless Steel ☐ Polyethylene ☐ Other
2. APPLICABLE REACTIVITY GROUP CODES ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐ H
3. OTHER INFORMATION SOURCES USED
4. PRIMARY CONTACT INDIVIDUAL — EXTENSION — DATE COMPLETED

SECTION IV - TOXIC AND SOLID WASTE PROGRAMS

1. PROPER D.O.T. SHIPPING NAME
2. D.O.T. HAZARD CLASS
3. REQUIRED LABELS
4. D.O.T. IDENTIFICATION NO ☐ UN ☐ NA — SUFFIX
5. EPA WASTE NO
6. APPLICABLE REACTIVITY GROUP CODES (COPY FROM SECTION III ITEM 2)
7. FEMP SRC AND MTC (COPY FROM SECTION I, ITEM 7) — SRC — MTC
8. IS A REVISION TO MEF REQUIRED? ☐ YES ☐ NO
9. DISTRIBUTION

MATERIAL GENERATOR	DATE
ENVIRONMENTAL ENGINEERING	DATE
ENVIRONMENTAL MONITORING	DATE
MC&A	DATE
IPS&T	DATE
FACILITIES AND WAREHOUSING	DATE
F&ME	DATE
CONTROLLED HOLDING AREA	DATE

10. PRIMARY CONTACT INDIVIDUAL — EXTENSION — DATE COMPLETED

FS-F-3252 REV 10-10-91, Sheet 2

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

R - MATERIAL REVISED, ADDED, OR DELETED.

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.

R - MATERIAL REVISED, ADDED, OR DELETED.

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		SITE STANDARD OPERATING PROCEDURE Page 1 of 29
Title: PACKAGING LOW LEVEL RADIOACTIVE WASTE (LLRW) FOR OFFSITE DISPOSAL		DOCUMENT NO: SSOP-0024 REVISION NO. 0
Authorization: (SOF) W. H. Britton, President	Supersedes: SOP 20-C-601, Dated 7-12-90, Rev. 1	Issue Date: 10-14-91

4038

NON-CONTROLLED COPY

1.0 PURPOSE

This document provides the procedure for packaging low level radioactive waste (LLRW) for offsite disposal.

2.0 APPLICABILITY

This procedure is applicable to the packaging methods required for shipping LLRW off site at packaging areas.

3.0 RESPONSIBILITIES

3.1 The waste generator/packager shall be responsible for complying with this procedure.

3.2 The supervisor of the waste generation area or packager shall be responsible for the following:

3.2.1 Specifying applicable scale check procedures and standard tare weight of packages.

3.2.2 Ensuring packaging materials are available for operators.

3.2.3 Ensuring that trained personnel package waste material.

3.2.4 Determining disposition of material identified in this procedure.

3.2.5 Ensuring that personnel package waste for shipment to meet applicable NTS, DOT, and EPA regulations.

3.2.6 Contacting Industrial Hygiene or Radiological Safety to determine the appropriate respiratory protection for the process being performed.

3.2.7 Providing operators with the required respiratory protection.

3.2.8 Ensuring the lid on an unfilled waste container is secured when no packaging is occurring to prevent additions of unknown materials.

3.2.9 Ensuring waste packages are weather-protected before, during, and after use to prevent moisture build-up.

3.2.10 Contacting Radiological Safety prior to opening any drum of radioactive or unknown material.

3.2.11 Contacting Industrial Hygiene prior to opening any container suspected of containing asbestos.

3.0 RESPONSIBILITIES (cont.)

3.3 Traffic shall be responsible for specifying the required waste container, transporting packaged waste to the applicable storage area, and weighing sea/land containers.

3.4 Materials Control and Accountability (MC&A) shall be responsible for completing a tally sheet for drums of non-RCRA wet and dried residues.

4.0 DEFINITIONS

4.1 Low Level Radioactive Waste (LLRW) - Waste the contains radioactivity and is not classified as high level waste, transuranic waste, or spent nuclear fuel or 11e(2) byproduct material as defined by DOE Order 5820.2A. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentration of transuranic is less than 100 n Ci/g.

4.2 Waste Generator - Organization (point of generation) at which waste is originated.

4.3 Overpack - A container into which one or more smaller containers are placed.

4.4 Waste Container - A container which meets DOT requirements and NTS acceptance criteria.

4.5 RCRA (Resource Conservation and Recovery Act) - The Congressional Act which established safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control and proper management of hazardous wastes.

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

5.0 GENERAL

5.1 The waste generator/packager shall package waste material in a container specified for disposal by Traffic.

5.2 Stencilling shall be 1-1/2 inch (minimum) legible block letters using waterproof ink/paint unless otherwise specified.

FEMP
SITE DOCUMENT SYSTEM

SDC No. SC92-005	
Effective Date:	04-29-92
Expiration Date:	10-29-92

SITE DOCUMENT CHANGE

1. AFFECTED DOCUMENT NUMBER SSOP-0024	2. AFFECTED DOCUMENT PAGE NUMBER 2

3. TITLE OR SUBJECT:
Packaging Low Level Radioactive Waste (LLRW) for Offsite Disposal

4. OPERATION AND AREA AFFECTED:
Waste Packaging/Disposal

5. SAFETY SYSTEM INVOLVED: YES [ ] NO [X]

6. APPROVAL: S. J. Dechter DEPARTMENT: Site Services

. CHANGE:

1) Item 4.7 is added to 4.0 DEFINITIONS section as follows:

4.7 Fine Particulates - Waste classified as containing greater than one weight percent of less than ten micrometer diameter particles or greater than 15 weight percent of less than 200 micrometer diameter particles.

8. DOCUMENTATION CONTROL REQUIRED DOCUMENT ACTION

[ ] No Procedure Action

[X] Revise affected procedure/specification per this document.

FILING INSTRUCTIONS: File facing page 2 , Document No. SSOP-0024
(Effective Date: 10-14-91 , Revision No. 0)

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Safety glasses with side shields shall be worn unless other eye protection is specified.

6.3 Respiratory protection provided by the supervisor shall be worn when required.

6.4 Leather-palm gloves shall be worn when handling drums/boxes/ containers, operating equipment, and when handling rough, sharp-edged, or contaminated material.

6.5 HEPA type filter vacuum cleaners or a vacuum system approved by IRS&T with a current DOP test label properly affixed to vacuum shall be used for cleaning.

6.6 Only trained personnel shall handle asbestos-containing materials.

6.7 Adequate ventilation must be provided when using silicone adhesive sealant.

6.8 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion or absorption shall immediately be reported to a supervisor. The supervisor shall immediately report the circumstance or possible radioactive materials intake to IRS&T Radiological Safety Section for evaluation. The involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form FMPC-ES&H-1458), and submit a urine sample. The involved employees shall also report to the Urine Sampling Station at the start of their next shift to submit a followup urine sample. Employees are responsible for complying with additional requirements as specified by the Radiological Safety Section.

NOTE: WARNINGS, CAUTIONS, and NOTES precede the step/item to which they apply.

7.0 PROCEDURE

WARNING: A RADIOLOGICAL SAFETY TECHNICIAN SHALL BE PRESENT PRIOR TO OPENING ANY CONTAINER OF UNKNOWN RADIOACTIVE MATERIAL.

WARNING: AN INDUSTRIAL HYGIENE REPRESENTATIVE SHALL BE PRESENT PRIOR TO OPENING ANY DRUM SUSPECTED OF CONTAINING ASBESTOS.

CAUTION: PRIOR TO PERFORMING THE PACKAGING OPERATION, EACH CONTAINER SHALL BE INSPECTED BY THE WASTE GENERATOR/PACKAGER TO ENSURE THE CONTAINER IS EMPTY.

NOTE: Items 7.1 through 7.3 shall be performed prior to the packaging of any waste.

7.1 Prohibited Material Check

WASTE GENERATOR/PACKAGER

7.1.1 Check that a "Prohibited Materials List" (Figure 1) is displayed in the loading area or on the container.

7.1.1.1 If the list is not posted, notify the supervisor.

WASTE GENERATOR AND QUALITY ASSURANCE

7.1.2 Ensure the waste to be packaged is not on the "Prohibited Materials List".

7.1.2.1 If the waste is listed on the "Prohibited Materials List", do not package this waste. Notify the supervisor for disposition.

SUPERVISOR

7.1.2.2 Dispose of the waste on a case by case basis.

7.0 PROCEDURE (cont.)

7.2 Waste Characterization

WASTE GENERATOR/PACKAGER

7.2.1 Ensure a Material Evaluation Form (MEF), FMPC-OPR-3252 has been completed determining the material as RCRA/Non-RCRA and additional documentation from Environmental Compliance is provided specifying evaluation results for LLRW.

NOTE: A sample of the waste for TCLP may be required as requested by Operable Unit 3 (OU3) Compliance.

7.2.1.1 If an MEF has not been generated, obtain a numbered MEF from Waste Management Records and initiate a "Material Evaluation" per SSOP-0002.

NOTE: RCRA waste shall not be shipped.

7.2.1.2 If the waste is determined to be RCRA, notify the supervisor for disposition.

7.2.1.3 If the waste is determined to be non-RCRA, proceed to 7.2.2.

7.2.2 If notified by the supervisor a sample is required for major radionuclides and other suspected nuclides, obtain a sample of the waste per SOP 1-C-101.

7.3 Waste Inspection

WASTE GENERATOR/PACKAGER

7.3.1 Check waste for free liquid.

7.3.1.1 If free liquid is present which exceeds 0.5% of the material volume, notify supervisor.

7.3.1.2 If free liquid exists which does not exceed 0.5% of the material volume, proceed to the applicable packaging section of this SSOP.

7.3.2 When weather drops below 32°F, carefully inspect waste for ice.

7.3.2.1 If ice is present in waste, notify supervisor.

7.0 PROCEDURE (cont.)

7.4 Filling 55 and 85 Gallon Drums

WASTE GENERATOR/PACKAGER

7.4.1 Inspect the empty drum for damage, such as corrosion, dents, holes or other defects (Refer to Tables 1 and 2).

7.4.1.1 If damaged, mark the lids or side of the damaged drums with a red "X" and refer to Tables 1 and 2 for corrective action, as applicable.

7.4.2 Stencil on the drum the lot and drum number in accordance with the FEMP Lot Marking and Color-Coding System, RM-0005 or apply designated preprinted label (See Figure 2).

7.4.3 Weigh the empty drum per substeps 7.4.3.1 through 7.4.3.5.

SUPERVISOR

7.4.3.1 Specify the scale and the method of transporting the drum to the scale.

WASTE GENERATOR/PACKAGER

NOTE: The scale shall be inspected and operated in accordance with the SOP applicable to the area.

7.4.3.2 Inspect the scale to be used.

7.4.3.3 Move the drum on to the scale.

7.4.3.4 Obtain the tare weight.

7.4.3.5 Remove the drum from the scale and move to the loading area.

7.4.4 Stencil the tare weight on the drum (See Figure 2).

7.4.5 Record the data from the drum on to "Item Production/ Certification/Identification" XX Card, Form FMPC-CONT-1945-XX.

4038

7.0 PROCEDURE (cont.)

WASTE GENERATOR/PACKAGER

7.4.6 Remove the drum lock ring and lid.

CAUTION: DO NOT FILL THE DRUM ABOVE THREE INCHES FROM THE TOP.

NOTE: Because density varies according to material type, the volume of material to be packed will vary.

7.4.7 By estimation, fill the 55 gallon drum to a maximum of 1,200 pounds (plus tare weight) and the 85 gallon drum to 1,000 pound maximum (plus tare weight).

7.4.8 Place a lid on the drum.

7.4.9 Secure the drum lid by installing a bolt-type lock ring and tighten the bolt.

7.4.10 Weigh drum per Item 7.5.

7.4.11 Mark the drum with the gross weight and net weight using two inch (minimum) letters.

WASTE GENERATOR/PACKAGER

7.4.12 Complete the "Item Production/Certification/Identification" XX Card, Form FMPC-CONT-1945-XX by entering the gross and net weights and transmit card to MC&A.

7.4.13 If the drum contains respirable fines, overpack per SOP 20-C-600.

7.4.14 Using the hoist/crane and barrel grab or equipment specified by supervisor, place the drum with bolt of lock ring facing outward on a pallet.

TRAFFIC

7.4.15 Strap the drum(s) and move the pallet(s) to the storage area designated by the supervisor.

WASTE GENERATOR/PACKAGER

7.4.16 When the operation is complete and all pallets are stored, notify the supervisor that the drums are ready to be moved to the designated waste staging area.

7.0 PROCEDURE (cont.)

7.5 Weighing Singlepack/Overpack Drums

SUPERVISOR

7.5.1 Specify the scale and the method of transporting the drum.

WASTE GENERATOR/PACKAGER

NOTE: The scale shall be inspected and operated in accordance with the SOP applicable to the area.

7.5.2 If not already completed, inspect the scale to be used as specified by the supervisor.

7.5.3 Notify supervisor the drum is ready to be moved to scale.

SUPERVISOR

7.5.4 As applicable, notify Traffic that a Motor Vehicle Operator (MVO) is required.

MVO/PACKAGER

7.5.5 Move the drum onto the scale.

WASTE GENERATOR/PACKAGER

7.5.6 Obtain the gross weight of the drum.

> WARNING: MAXIMUM WEIGHT OF DRUMS SHALL BE 700 POUNDS FOR A 30 GALLON OVERPACK AND 1,200 POUNDS FOR 55 GALLON OVERPACKS, 55 GALLON SINGLEPACKS, AND 85 GALLON OVERPACKS. MAXIMUM WEIGHT OF 85 GALLON SINGLEPACKS SHALL BE 1,000 POUNDS.

7.5.7 If the drum is over the specified weight limit, proceed as follows:

7.5.7.1 Remove lock ring(s) and lid(s) from the drums.

NOTE: The removed material may be included in an underweight drum of the same lot or packaged in another drum of the same lot.

CONTROL NO. 44-144C

FEMP
SITE DOCUMENT SYSTEM

SDC No. SC92-007
Effective Date: 04-29-92
Expiration Date: 10-29-92

SITE DOCUMENT CHANGE

1. AFFECTED DOCUMENT NUMBER SSOP-0024	2. AFFECTED DOCUMENT PAGE NUMBER 9

3. TITLE OR SUBJECT:
Packaging Low Level Radioactive Waste (LLRW) for Offsite Disposal

4. OPERATION AND AREA AFFECTED:
Waste Packaging/Disposal

5. SAFETY SYSTEM INVOLVED: YES [ ] NO [X]

6. APPROVAL: S. J. Dechter DEPARTMENT: Site Services

7. CHANGE:

1) Step 7.5.9 is revised to read as follows:

7.5.9 If the drum contains fine particulates, install lever lock ring or bolt with a wire seal, record the seal number and date on Form FMPC-CONT-1945-XX, and overpack per SOP 20-C-600.

8. DOCUMENTATION CONTROL REQUIRED DOCUMENT ACTION

[ ] No Procedure Action

[X] Revise affected procedure/specification per this document.

FILING INSTRUCTIONS: File facing page 9 , Document No. SSOP-0024
(Effective Date: 10-14-91 , Revision No. 0)

7.0 PROCEDURE (cont.)

WASTE GENERATOR/PACKAGER

7.5.7.2 Remove material from the drum until the drum is within limit. Place the removed material in an approved container.

7.5.7.3 Place lid securely on the drum.

MVO/PACKAGER

7.5.8 Remove the drum from the scale.

WASTE GENERATOR/PACKAGER

7.5.9 If the drum contains respirable fines, install lever lock ring or bolt with a wire seal, record the seal number and date on Form FMPC-CONT-1945-XX, and overpack per SOP 20-C-600.

7.6 Filling Metal Boxes With Loose Material

WASTE GENERATOR/PACKAGER

7.6.1 Visually inspect boxes for rust, dents, or holes, including the bottom per Tables 1 and 2.

7.6.1.1 If damaged, mark side of box with a red "X" and complete corrective action per Tables 1 and 2.

7.6.2 If the bottom of the box has a drain plug, ensure plug is securely in place.

SUPERVISOR

7.6.3 Specify the scale and the method of transporting the box.

WASTE GENERATOR/PACKAGER

7.6.4 Move the empty metal box to the staging area.

7.6.5 Remove banding and cardboard packing material from the metal box and place in a designated container.

7.0 PROCEDURE (cont.)

WASTE GENERATOR/PACKAGER

7.6.6 Tare weigh each twentieth box to verify standard tare weight as follows:

NOTE: The scale shall be inspected and operated in accordance with the SOP applicable to the area.

7.6.6.1 If scale to be used as specified by the supervisor has not been checked, inspect scale.

7.6.6.2 Place box on the scale, obtain tare weight.

7.6.7 Record the weight on a "Box Tare Weight Check", Form FMPC-PRO-2867.

7.6.8 Remove box from the scale.

7.6.9 Remove lid and place in a designated location to prevent damage.

7.6.10 Add one fifty-pound bag of uncalcined diatomaceous earth spread evenly or sheets of wet-strength polypropylene pulp, super-absorbent fabric in the bottom of the box.

7.6.11 Place a clean, used skid over dicalite or fabric in the bottom of the box.

CAUTION: MATERIAL SHALL NOT BE LOADED IN BOX ABOVE THREE INCHES FROM THE TOP.

7.6.12 Load loose materials in box as tightly as possible.

7.6.13 When box is full, place lid on box and notify supervisor box is loaded.

SUPERVISOR

7.6.14 Specify the scale to be used and the method of transporting the box to the scale.

7.0 PROCEDURE (cont.)

WASTE GENERATOR/PACKAGER

NOTE: The scale shall be inspected and operated in accordance with the applicable scale procedure for the area of the packaging operation.

7.6.15 If not already completed, perform scale check according to the applicable SOP in the area of the packaging operation.

7.6.16 Move the box on to the scale.

7.6.17 Weigh the box including box pins and other hardware to ensure gross weight does not exceed 6000 lbs.

7.6.18 Remove the box from the scale.

7.6.19 Mark the side of the box with the gross weight and content description in 1-1/2 inch (minimum) block letters (See Figure 4).

7.6.20 Affix a Hazardous Waste Label (See Figure 3) on the box as shown in Figure 4.

7.6.21 Notify QA the box is ready for certification.

QUALITY ASSURANCE

7.6.22 Certify the box per applicable department procedures.

7.6.22.1 If the box does not meet certification requirements, complete a DCAR per SSOP-0023, tag the box for correction, and notify the generator.

WASTE GENERATOR/PACKAGER

7.6.23 Fill out an "Item Production/Certification/Identification card, Form FMPC-CONT-1945-XX, including standard tare weight specified by the supervisor, and the content description and transmit to MC&A.

7.6.24 Using fabric strapping or closure bolts, secure lid on the box for interplant shipment.

7.6.25 Notify the supervisor that boxes are ready to be moved to the Waste Management staging area.

7.0 PROCEDURE (cont.)

7.7 Loading Drums in Metal Boxes

WASTE GENERATOR/PACKAGER

7.7.1 Prior to completing Item 7.7, proceed to 7.10 or 7.11 (as applicable) for drum inspection.

7.7.2 Visually inspect boxes for corrosion, holes, or dents per Tables 1 and 2.

7.7.2.1 If damage is found, mark side of box with a red "X" and complete corrective action per Tables 1 and 2.

7.7.3 Place empty metal box in staging area.

7.7.4 Remove the banding and cardboard packing material from box and place in designated container.

7.7.5 Tare weigh each twentieth box per 7.6.6.1 through 7.6.6.2.

7.7.6 Record the weight on a "Box Tare Weight Check", Form FMPC-PRO-2867.

7.7.7 Remove lid from metal boxes.

7.7.8 Add a 50 lb bag of uncalcined diatomaceous earth or sheet(s) of wet-strength polypropylene pulp, super-absorbent fabric to the floor of the box.

7.7.9 Using a forklift, move box to a designated location to prevent damage.

7.7.10 Check drums to ensure that lever lock rings are closed.

7.7.10.1 If the drum contains respirable fines, install wire seal through lever lock ring.

7.7.11 Complete an "Item Production/Certification/Identification Card", Form FMPC-CONT-1945-XX per drum and insert the drum lot number and tare weight on the card and transmit to MC&A.

NOTE: Inspect and operate the hoist/crane in accordance with the applicable SOP for the area.

7.7.12 Ensure that the hoist/crane to be used has been inspected.

CONTROL NO. 99-12924038

FEMP
SITE DOCUMENT SYSTEM

SDC No. SC92-008	
Effective Date:	04-29-92
Expiration Date:	10-29-92

SITE DOCUMENT CHANGE

1. AFFECTED DOCUMENT NUMBER SSOP-0024	2. AFFECTED DOCUMENT PAGE NUMBER 12

3. TITLE OR SUBJECT:
Packaging Low Level Radioactive Waste (LLRW) for Offsite Disposal

4. OPERATION AND AREA AFFECTED:
Waste Packaging/Disposal

5. SAFETY SYSTEM INVOLVED: YES [ ] NO [X]

6. APPROVAL: S. J. Dechter S J Dechter DEPARTMENT: Site Services

7. CHANGE:

1) Step 7.7.10.1 is revised to read as follows:

7.7.10.1 If the drum contains fine particulates, install wire seal through lever lock ring.

8. DOCUMENTATION CONTROL REQUIRED DOCUMENT ACTION

[ ] No Procedure Action

[X] Revise affected procedure/specification per this document.

FILING INSTRUCTIONS: File facing page 12, Document No. SSOP-0024 (Effective Date: 10-14-91 , Revision No. 0)

4038

7.0 PROCEDURE (cont.)

WASTE GENERATOR/PACKAGER

7.7.13 Place barrel grab over drum.

7.7.14 Attach the lifting device specified by the supervisor on each side of the drum ring.

7.7.15 Position drum over the top of the box.

7.7.16 Lower drum into box and remove the lifting device.

CAUTION: DO NOT EXCEED A MAXIMUM GROSS WEIGHT OF 6,000 POUNDS.

7.7.17 Ensuring the weight does not exceed 6,000 pounds, repeat steps 7.7.1 through 7.7.16 until enough drums are loaded to fill a box.

7.7.18 When the box is filled, add a fifty-pound bag of uncalcined diatomaceous earth or sheets of wet-strength polypropylene pulp, super-absorbent fabric to the top of drums if condensation/frost is present or could develop on exterior of drums.

7.7.19 Place the lid on the box.

7.7.20 Obtain tabulated tare weight of box and contents. Record the tabulated tare box weight, contents, and gross weight on the FMPC-CONT-1945 card.

7.7.21 Stencil on the box the shipment log number, box identification, and gross weight (See Figure 4).

7.7.22 Affix a Hazardous Material Warning Label (See Figure 3) as shown in Figure 4.

7.7.23 Notify QA the box is ready for certification.

QUALITY ASSURANCE

7.7.24 Certify the box per the applicable department procedure.

7.7.24.1 If the box is not certified, complete a DCAR per SSOP-0023, tag the box for correction, and notify the generator.

7.0 PROCEDURE (cont.)

WASTE GENERATOR/PACKAGER

7.7.25 Using fabric strapping, secure lid on the box for interplant shipment.

7.7.26 Notify the supervisor that boxes are ready to be moved to the Waste Management staging area.

7.8 Loading Asbestos in Boxes

WASTE GENERATOR/PACKAGER

> WARNING: ONLY CERTIFIED PERSONNEL SHALL HANDLE AND LOAD ASBESTOS-CONTAINING MATERIAL.

7.8.1 Visually inspect boxes for rust, holes, or dents.

7.8.1.1 If damage is found, mark the side of the box with a red "X".

7.8.1.2 Notify the supervisor of damaged box condition and request instructions.

7.8.1.3 Move damaged boxes to designated area.

7.8.2 Move the empty box to the staging area.

7.8.3 Remove banding and cardboard packing material and place in a designated container.

7.8.4 Tare weigh each twentieth box per 7.6.6.1 through 7.6.6.2.

7.8.5 Record the weight on a "Box Tare Weight Check", Form FMPC-PRO-2867.

7.8.6 Remove and place box lid in a designated location to prevent damage.

7.8.7 Stencil lot number per FEMP Lot Marking and Color Coding System or content description on the box (See Figure 4).

7.8.8 Affix a Hazardous Material Warning Label (See Figure 3) to box in location shown in Figure 4.

7.8.9 Add a minimum of one fifty-pound bag of uncalcined diatomaceous earth spread evenly in the bottom of the box.

7.0 PROCEDURE (cont.)

WASTE GENERATOR/PACKAGER

7.8.10 Adhere "Danger-Asbestos" stickers on two sides and lid of box.

7.8.11 Check to ensure that asbestos is double-bagged in labeled asbestos disposal bags.

7.8.12 Load asbestos in box ensuring not to exceed maximum gross weight.

CAUTION: DO NOT EXCEED MAXIMUM GROSS WEIGHT OF 6,000 POUNDS FOR METAL BOXES/5,000 POUNDS FOR WOODEN BOXES.

7.8.13 Place lid on the box.

7.8.14 Using fabric strapping, secure lid on the box for interplant shipment.

7.8.15 Perform scale check per the applicable SOP in the area of the packaging operation.

7.8.16 As directed by the supervisor, move box to scale.

7.8.17 Weigh the box.

7.8.18 Fill out an "Item Production/Certification/Identification" card, Form FMPC-CONT-1945-XX and transmit to MC&A.

7.8.19 Notify the supervisor that boxes are ready to be moved to the Waste Management staging area.

7.9 Packaging Material into Sea/Land Containers

WASTE GENERATOR/PACKAGER

NOTE: Do not place containers directly on ground.

7.9.1 Check the container for damage such as structurally affecting dents, stress cracks, flaking paint, rust, holes, and water leaks.

7.9.1.1 If container is damaged, mark a red "X" on the side of the container, notify supervisor of damage and request disposition of damaged container. Move unacceptable container to area designated by Waste Shipping.

7.9.1.2 If the container is free from damage, proceed to 7.9.2.

7.0 PROCEDURE (cont.)

WASTE GENERATOR/PACKAGER

7.9.2 Notify Waste Shipping that the container is ready for shipping preparation.

7.9.3 Attach a Prohibited Materials List (See Figure 1) to the container in a visible location.

WARNING: VAPOR FROM SILICONE ADHESIVE IS HAZARDOUS.

NOTE: Adhesive shall be applied to the farthest inside section first and outward from container to minimize inhalation of vapor.

NOTE: The bead of sealant shall be a minimum of 1/4 inch.

7.9.4 In a well ventilated area, apply a continuous bead of GE RTV SILICONE RUBBER ADHESIVE SEALANT, or equivalent, on all seams and corners of the container interior.

7.9.5 Check to ensure all vents are closed and sealed.

7.9.6 Line the container floor with wet-strength polypropylene/pulp super-absorbent fabric, blotter paper, or uncalcined diatomaceous earth.

7.9.7 Cover the absorbent fabric, blotter paper or uncalcined diatomaceous earth with a 0.006 inch thick plastic sheet that extends at least 36 inches up each side of the container.

7.9.8 Place plywood on the container floor and up to approximately four feet in height on all sides.

7.9.9 Remove all container outside markings not related to load (See Figure 5).

CAUTION: THE GROSS WEIGHT OF THE CONTAINER SHALL NOT EXCEED 42,000 LBS.

CAUTION: AN UNSEALED CONTAINER SHALL BE LOCKED OR TEMPORARILY SEALED WHEN NOT ATTENDED.

7.9.10 Load the container. Use all the space in the container.

7.0 PROCEDURE (cont.)

WASTE GENERATOR/PACKAGER

7.9.11 After the container has been filled, clean the back ledge of the container.

7.9.12 Add a roll of wet-strength polypropylene/pulp super absorbent fabric extending width of container on base of lid/door.

7.9.12.1 If moisture is still present, add additional uncalcined diatomaceous earth or sheets of wet-strength polypropylene, super-absorbent fabric as needed.

7.9.13 Shut the container doors.

7.9.14 Complete applicable sections of the "Item Production/ Certification/Identification" card, Form FMPC-CONT-1945-XX and transmit to MC&A.

7.9.15 Notify the supervisor that sea/land containers are ready to be weighed.

WASTE GENERATOR SUPERVISOR

7.9.16 Notify Traffic to transport containers to Waste Management staging area.

TRAFFIC (HEAVY EQUIPMENT)

7.9.17 Move containers to Waste Management staging area per applicable department procedures.

7.9.18 Weigh the containers per applicable department procedure.

7.9.19 Deliver weigh ticket to Waste Shipping Coordinator.

7.10 Inspecting Drums Containing Non-RCRA Dried Residues

WASTE GENERATOR/PACKAGER

7.10.1 For a drum not in an overpack, proceed to step 7.10.3.

7.10.2 For an overpacked drum, complete the following:

7.10.2.1 Inspect the hoist/crane to be used if not previously completed.

7.0 PROCEDURE (cont.)

WASTE GENERATOR/PACKAGER

NOTE: The supervisor shall specify the hoist/crane to be used.

NOTE: Hoists/cranes shall be inspected and operated in accordance with the SOP applicable to the area.

7.10.2.2 Remove overpack lid.

7.10.2.3 Install a barrel grab over the drum in the overpack.

7.10.2.4 Attach the barrel grab to the hoist/crane, lift the drum from overpack, and lower on to the floor.

7.10.2.5 Remove barrel grab from the drum.

7.10.3 Notify MC&A the drum(s) are ready for inspection and re-packaging.

MC&A

7.10.4 Complete a MC&A tally sheet for the drum(s).

WASTE GENERATOR/PACKAGER

7.10.5 Remove lid from the drum and inspect drum interior for free-standing liquid.

7.10.5.1 If free-standing liquid is present at the top of the drum, pump liquid from the drum or drain the liquid from the drum using a drainage lid into the facilities sump system.

7.10.6 Replace lid on the drum.

7.10.7 Using a forklift, move drum to the scale specified by the supervisor.

7.10.7.1 If not already completed, perform scale check according to the applicable SOP in the area of the packaging operation.

NOTE: The scale shall be inspected and operated in accordance with the applicable scale procedure for the area of the packaging operation.

7.10.8 Weigh the drum and compare this weight to the weight stencilled on the drum.

4038

7.0 PROCEDURE (cont.)

WASTE GENERATOR/PACKAGER

7.10.8.1 If the drum weighs more than the stencilled weight, remove drum lid and add one pound of Dicalite for every two pounds above the weight.

7.10.8.2 If the drum weighs less than the stenciled weight, proceed to 7.10.9.

7.10.9 Place lid on the drum and secure lever/lock rings onto the drum.

7.10.10 Using forklift, remove drum from scale and load drum into metal box per 7.7.

NOTE: A packager assigned to handle non-RCRA wet residues shall perform the procedural steps in the Plant 1 Mill Area.

7.11 Inspecting Drums Containing Non-RCRA Wet Residues

SUPERVISOR

7.11.1 Contact Traffic to transport drum(s) to Plant 1 Mill Area for inspection.

TRAFFIC

7.11.2 Deliver transport drum(s) to Plant 1 Mill Area per applicable department procedure.

PACKAGER

7.11.3 After delivery of drums to Plant 1 Mill Area, notify MC&A the drum(s) are ready for inspection and re-packaging.

MC&A

7.11.4 Complete a MC&A tally sheet for the drum(s).

PACKAGER

7.11.5 Remove the lid from drum and inspect for free-standing liquid.

7.11.5.1 If the drum contains oil, use a forklift and move drum to designated area. Notify supervisor for disposition of drum.

7.0 PROCEDURE (cont.)

PACKAGER

7.11.5.2 If the drum contains other free-standing liquids, complete steps 7.11.6 through 7.11.12.

7.11.5.3 If no free-standing liquid is present in the drum, proceed to 7.11.12.

7.11.6 Obtain a drainage lid and place on the drum.

7.11.7 Using forklift, rotate drum approximately at a 45 degree angle, drain liquid from drum into the Plant 1 Sump System until no liquid flows from drainage lid, and lower drum to floor.

7.11.8 Inspect and drain the remaining drums per steps 7.11.5 through 7.11.7.

7.11.9 After draining the drums, inspect each drum for damage.

7.11.9.1 If drum is damaged, complete 7.11.10 and then using a forklift, move damaged drum to holding area, as specified by supervisor, for disposal.

7.11.9.2 If drum is not damaged, proceed to 7.11.10.

7.11.10 Using a forklift, transfer the drained material into another drum of drained material filling the drum approximately six inches from the top.

NOTE: Steps 7.11.11 through 7.11.12 are applicable to filled and partially filled drums of drained material.

7.11.11 Add a minimum of one inch of dicalite to each drum.

7.11.12 Replace lid on the drum, close lever lock/bolt ring, and load the drum into a metal box per Item 7.8.

7.11.13 Using a forklift, move any empty drums to holding area for disposal.

8.0 REFERENCE DOCUMENTS

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

8.2 SSOP-0023, "Deviation and Corrective Action Reporting"

4038

8.0 REFERENCE DOCUMENTS (cont.)

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

8.4 20-C-600, "Overpacking Defective Containers"

9.0 APPLICABLE FORMS

9.1 FMPC-CONT-1945-XX, "Item Production/Certification/Identification"

9.2 FMPC-PRO-2867, "Box Tare Weight Check"

9.3 FMPC-OPR-3252, "Material Evaluation"

10.0 FIGURES

10.1 Figure 1, "Prohibited Materials List"

10.2 Figure 2, Diagram of LLRW Drum Labeling

10.3 Figure 3, Diagram of Hazardous Waste Label

10.4 Figure 4, Diagram of Metal Box Identification

10.5 Figure 5, Diagram of Sea/Land Identification

TABLE 1
CORROSION INSPECTION CATEGORIES

CATEGORY	CHARACTERISTIC	COULD CAUSE LOSS OF DRUM INTEGRITY		CORRECTIVE ACTION
		YES	NO	
A	Severe corrosion with deep pitting and/or metal flaking	X		1. Notify supervisor. NOTE: The drum requires disposition as directed by supervision within 24 hours.
B	Corrosion with shallow pitting and/or mild metal flaking		X	1. Proceed as directed by the supervisor. NOTE: Disposition shall be determined by the supervisor following review of completed inspection form.
C	Surface rust with no pitting and mild paint flaking which exposes bare metal		X	1. Proceed as directed by the supervisor. Repainting shall be scheduled by supervisor.

4038

TABLE 2
LLRW CONTAINER INSPECTION

INSPECTION ITEM	INSPECTION CRITERIA	CORRECTIVE ACTION REQUIRED
Hole	An opening in the container including breach, gouge, puncture or leak.	Notify supervisor of condition and request disposition instructions.
Dent	A crease, depression of hollow made by blow or pressure; a concave distortion which jeopardizes the integrity of the container. A dent in the top or bottom rim.	Notify supervisor of condition and request disposition instructions.
Bulge	A swollen area, a convex distortion, an outward bend which jeopardizes the integrity of the container.	Notify supervisor of condition and request disposition instructions.

PACKAGING GUIDELINES
FOR
WASTE GENERATOR

PACKAGE HAS BEEN PROPERLY PREPARED FOR CLOSING:

- NO LIQUIDS OF ANY KIND HAVE BEEN PLACED IN CONTAINER
- HEAVY/BULKY ITEMS HAVE BEEN SECURED WITHIN CONTAINER
- ALL AVAILABLE SPACE HAS BEEN UTILIZED EFFICIENTLY
- PROHIBITED MATERIALS HAVE BEEN EXCLUDED (SEE BELOW)
- PACKAGING HAS NOT BEEN DAMAGED DURING LOADING
- LINER IS IN PLACE AND PROPERLY LAPPED AND SEALED

PROHIBITED MATERIALS

COMPRESSED GASES
(UNPUNCTURED AEROSOL CANS INCLUDED)

EXPLOSIVES

FREE LIQUIDS

FINE PARTICULATES (RESPIRABLE FINES)

HAZARDOUS WASTE
(SUSPECT RCRA MATERIALS INCLUDED)

CORROSIVE MATERIALS

ETIOLOGIC AGENTS

PROHIBITED MATERIALS LIST
Figure 1

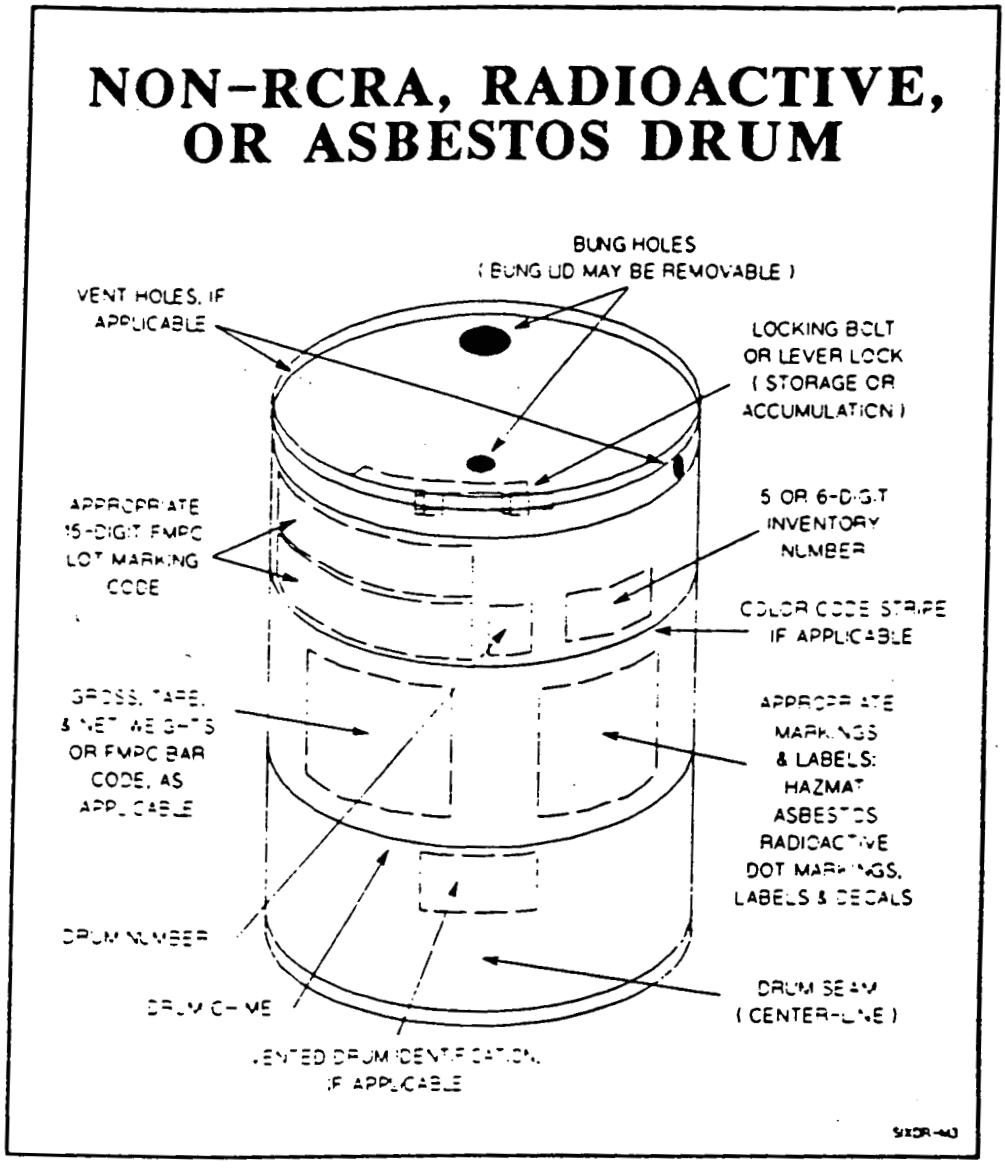


DIAGRAM OF LLRW DRUM LABELING
Figure 2

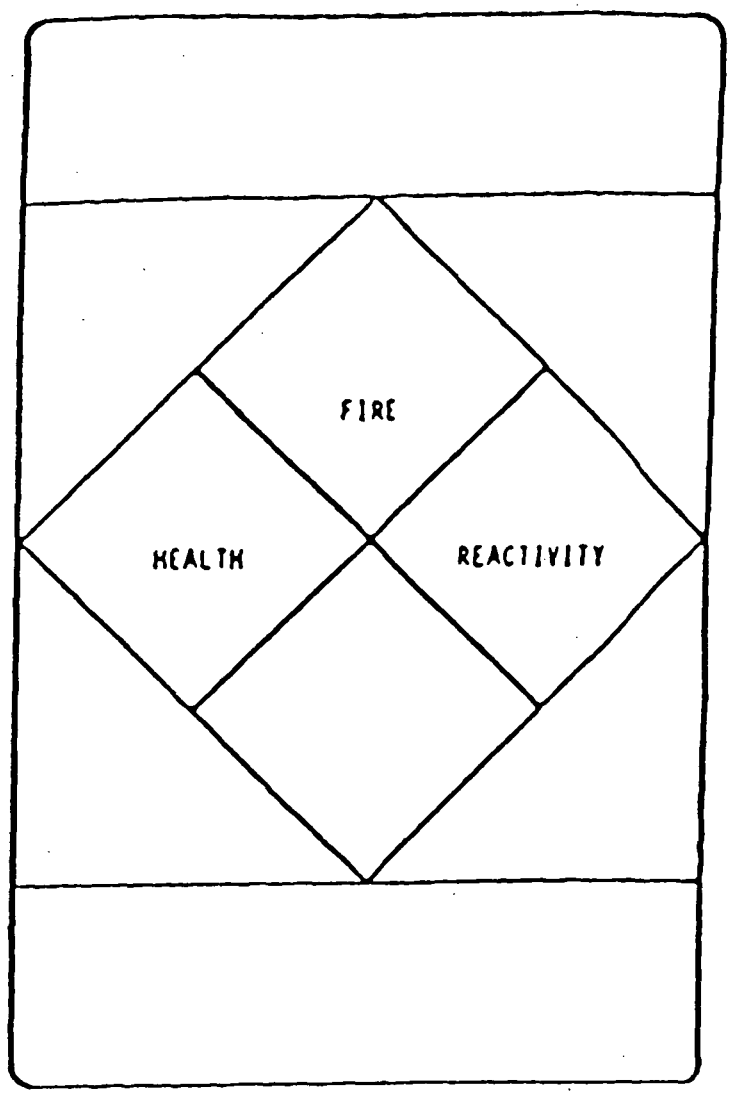


DIAGRAM OF HAZARDOUS WASTE LABEL
Figure 3

4038

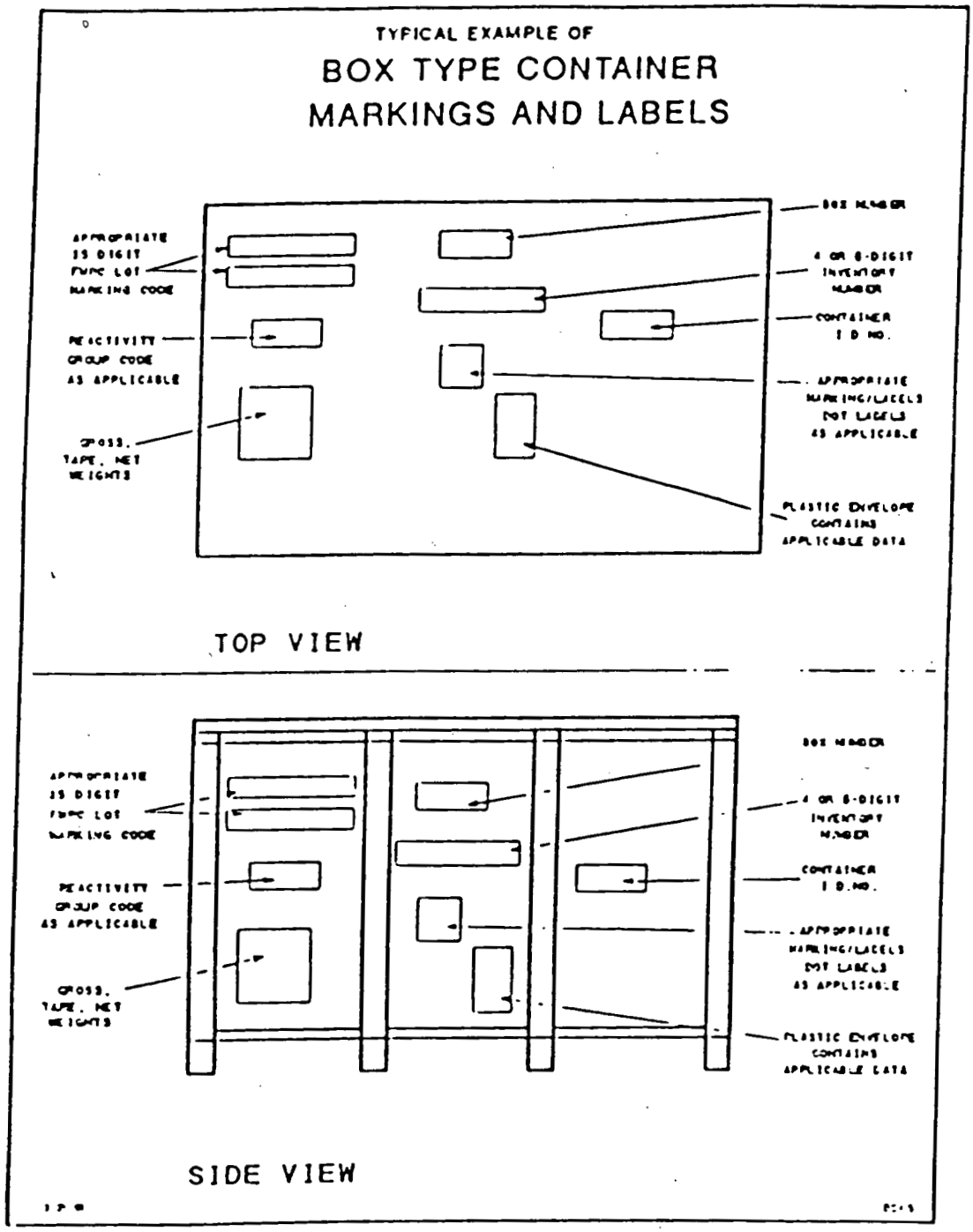


DIAGRAM OF METAL BOX IDENTIFICATION
Figure 4

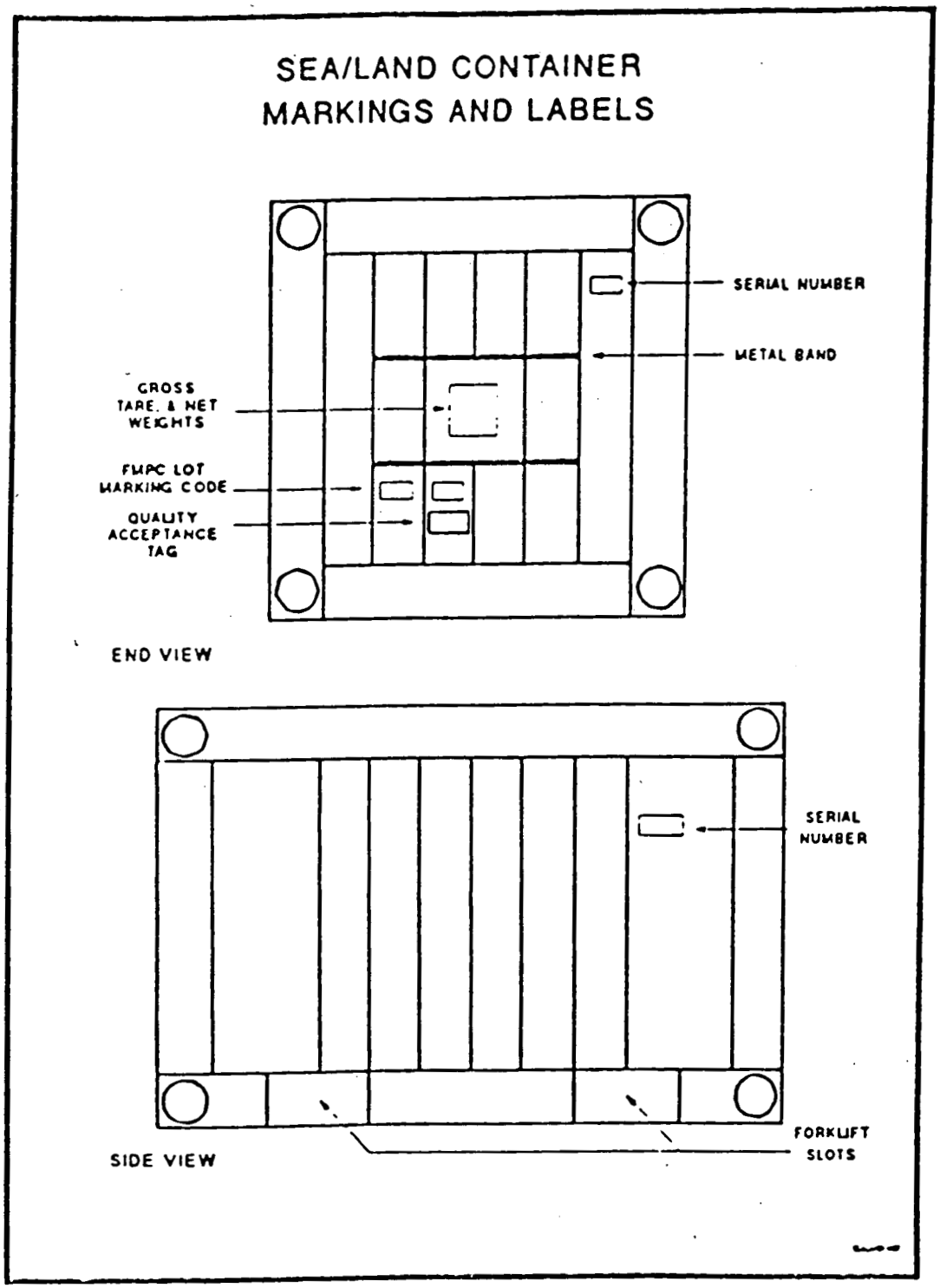


DIAGRAM OF SEA/LAND IDENTIFICATION
Figure 5

4038

RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
10-14-91	0	New site procedure required to replace SOP 20-C-601 per Request No. P91-196, initiated by S. Brown.

SITE SERVICES PROCEDURE	TRASH BALER OPERATION	SOP 2-C-923 AREA: Plant 2/3
Authorization: R. L. Gardner, Facilities and Warehousing	Supersedes: None	Issue Date: 10-14-91

NON-CONTROLLED COPY
MAY 1992

1.0 PURPOSE

The purpose of this document is to establish the procedure for baling contaminated trash for off-site disposal.

2.0 APPLICABILITY

This procedure applies to the SELCON Trash Baler in the Incinerator Bldg.

3.0 RESPONSIBILITIES

3.1 The supervisor shall be responsible for the following:

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

3.1.2 Contacting Industrial Hygiene or Radiological Safety to determine the appropriate respiratory protection for the process being performed.

3.1.3 Providing operators with the required respiratory protection.

3.2 Operators shall be responsible for complying with this SOP.

4.0 DEFINITIONS

4.1 Platen - Pressure plate of the baler.

5.0 REFERENCES

5.2 PP-FMPC-719, "Energy Control (Lockout and Tagout)"

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Safety glasses with side shields shall be worn at all times unless other protection is specified by the supervisor, IRS&T, or posted signs.

6.3 Leather-palm gloves shall be worn when loading or conveying trash.

6.4 When making adjustments or cleaning the baler, personnel shall comply with the "Energy Control (Lockout and Tagout)", procedure PP-FMPC-719.

6.5 Respiratory protection provided by the supervisor shall be worn when specified by IRS&T, the supervisor, or posted signs.

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.6 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion or absorption shall immediately be reported to a supervisor. The supervisor shall immediately report the circumstance of possible radioactive materials intake to IRS&T Radiological Safety Section for evaluation. The involved personnel shall report to the Urine Sampling Station at the end of their shift to complete a Incident Investigation Report (IIR) (Form FMPC-ES&H-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a followup urine sample. Employees are responsible for complying with additional requirements as specified by the Radiological Safety Section.

7.0 PROCEDURE

7.1 Trash Receiving

7.1.1 Move away from the incinerator bin and conveyor while the Transportation Driver is emptying material from the dumpster.

7.1.2 Check dumpster while bottom is open to ensure that all trash has been deposited in the bin.

7.1.2.1 If trash remains inside the dumpster, use a rake and pull the material from the dumpster.

7.1.3 Complete a "Trash Baler Operation Log", Form FMPC-PRO-2887.

7.1.4 Visually inspect the trash to determine if prohibited items or categories of waste (Refer to Table 1) are contained in the trash.

7.1.4.1 If prohibited items are found, remove the items from the trash.

NOTE

Prohibited waste types shall be separated by container (such as paint cans in one, glass in another).

7.1.4.2 Segregate each item in a container or plastic bag designated for that type of waste.

7.1.4.3 Label each bag/container with the waste description.

Effective Date: 04-28-92
Expiration Date: 10-28-92

4038

CHANGE IN OPERATION

SITE SERVICES DEPARTMENT

DOCUMENT NO.: 2-C-923	AFFECTED DOCUMENT PAGE NO.: 2	DEPARTMENT: Site Services
OPERATION & AREA AFFECTED: Safety/Plant 2/3		AUTHORIZATION: R.L. Gardner, Facilities & Warehousing

TITLE:
Trash Baler Operation

CHANGE:

1) Step 7.1.4.1 is revised to read as follows:

> WARNING: APPROPRIATE PROTECTIVE CLOTHING SHALL BE WORN WHILE REMOVING ITEMS.

7.1.4.1 If prohibitive items are found, remove the items from the trash.

FILING INSTRUCTIONS: File facing page 2 of SOP 2-C-923 (Issue Date: 10-14-91, Revision No. 0)

7.0 PROCEDURE (cont.)

TABLE 1
WASTE PROHIBITED FROM CONTAMINATED TRASH DUMPSTERS

Item No.	DESCRIPTION
1	Any liquid
2	Non-radioactive materials
3	Pressurized containers/spray cans
4	Explosive materials
5	Gaseous radioactive materials
6	High-level radioactive waste
7	Pyrophoric materials
8	Hazardous waste materials
9	Flammable substances
10	Alkaline metals
11	Reactive or oxidizing materials
12	Ashes, dry powders, or dusts
13	Immobilized or ionized waste with pH less than 4
14	Asbestos containing materials
15	Glass
16	Heavy metal objects
17	Soft drink/juice cans

7.0 PROCEDURE (cont.)

NOTE

Supervisor shall notify the Facility Owner and Waste Operations of prohibited items found.

NOTE

Prohibited items shall be returned to the area where the items were picked up.

7.1.4.3 Notify the supervisor of prohibited items found.

NOTE

The Trash Baler supervisor and operator, as generator, shall sign the 1945-XX Card.

7.1.5 Complete and sign an "Item Production/Certification/Identification card", Form FMPC-CONT-1945-XX.

7.1.6 Ensure that the bale removal chain at the rear of the baler is unhooked from the platen (See Figure 1).

NOTE

Trash Baler will not operate in the automatic mode unless the door is positioned against limit switches and latched.

7.1.7 Ensure that the bale removal door is closed and securely latched.

7.1.8 Check the scaffold to be used to ensure the platform is free of loose items.

7.1.9 Position the scaffold platform against the bale removal door.

7.1.10 Lock the scaffold wheels in place.

7.1.11 Latch scaffolding chain locks onto the baler frame.

7.1.12 Place moveable walkway between the scaffolding and the platform.

7.1.13 Position the south swinging gate between the angle iron and scaffolding.

7.1.14 Chain and lock the north swinging gate to the scaffolding.

7.0 PROCEDURE (cont.)

7.2 Baler Operation (See Figure 1)

7.2.1 Raise the safety gate.

7.2.2 Cover the bale chamber floor with a large sheet of trash cardboard.

7.2.3 Place trash bags in the bale chamber.

NOTE

Automatic operation of baler is not possible unless the safety gate is latched closed.

7.2.4 Pull down the safety gate until the gate is latched.

NOTE

The baler will automatically compact the contents, then return to the UP position, when the DOWN button is pressed.

7.2.5 At the control panel, press the DOWN button.

7.2.6 Repeat steps 7.2.1 thru 7.2.5 until the bale is nearly complete.

7.2.7 Before compaction is complete, add a large cardboard sheet to top of bale.

NOTE

When bale is completed, the indicator at the control panel will light and the baler automatically shut off in the DOWN position.

7.2.8 Repeat steps 7.2.1 thru 7.2.5 and complete the bale.

7.2.9 Record the bale number on the "Trash Baler Operation Log", Form FMPC-PRO-2887.

7.3 Bale Removal

7.3.1 Check the scaffold to ensure that loose items have been removed from the platform.

7.3.2 Unlock scaffold platform wheels.

7.3.3 Move the platform away from the bale removal door.

7.0 PROCEDURE (cont.)

7.3.4 Open the bale removal door using the gradual tension release latch.

7.3.5 Insert four or more wires through the slots in the floor of the baling chamber.

7.3.6 Wrap the wires around bale and then back through the slots in the ram of the baler.

7.3.7 Insert the end of each wire through the end loop.

7.3.8 Wrap each end of the wire at least four times above the end loop.

7.3.9 At the rear of the baler, hook bale removal chains onto the platen.

7.3.10 Operate the hand stacker or forklift to be used without a load to ensure safe conditions.

7.3.11 Complete "Operator Checklist," Form FMPC-ADMS-2414 or "Electric Truck Operator's Daily Checklist," Form FMPC-ADMS-2415 as applicable.

7.3.12 Using the hand stacker or forklift, position a wood skid at bale removal door.

7.3.13 Ensure that the baler safety gate is in the closed position.

NOTE

Only one bale shall be placed on a skid.

7.3.14 On the control panel, press and hold the UP button until bale rolls out onto the skid.

7.3.15 Using the hand stacker or forklift, move the skid away from the baler.

NOTE

Use bale number "W050-240-P-027-XXXX." The last four numbers shall be in sequence, starting with 0001.

7.3.16 Mark the bale with the date and bale number.

7.3.17 Record the bale number on the log sheet.

7.3.18 On the baler, close and latch the bale removal door.

7.0 PROCEDURE (cont.)

7.3.19 At control panel, press and hold the DOWN button.

7.3.20 When the baler platen reaches the lowest position, ensure that bale removal chains automatically unhook from rear of platen.

7.3.21 If chains fail to unhook proceed as follows:

7.3.21.1 Release the DOWN button.

7.3.21.2 Press the EMERGENCY STOP button at the control panel.

7.3.21.3 Manually unhook the chains.

7.3.21.4 Turn the EMERGENCY STOP button head.

7.3.21.5 Ensure that the baler cycle completes with the baler ram in the UP position.

7.2.22 Release the down button and ensure that baler returns to the UP position.

7.2.23 Move completed bale to the designated storage area.

7.4 Monthly Inspection

7.4.1 At the start of the first day shift each month, inspect contaminated trash dumpsters per the "Contaminated Trash Dumpster Monthly Checksheet", Form FMPC-OPR-3258.

NOTE

The supervisor shall report problems to the facility owner of the building where the dumpster is located.

7.4.2 Notify the supervisor of discrepancies.

7.4.3 Turn in the completed checksheet to the supervisor.

7.0 PROCEDURE (cont.)

7.5 Trouble Shooting (Refer to Table 2)

TABLE 2
Baler Trouble Shooting

Problem	Cause	Corrective Action
1. Baler will not start.	A. Bale removal door/latch open.	A. Close removal door and latch.
	B. Safety Gate Open	B. Close safety gate.
	C. EMERGENCY STOP Switch activated.	C. Turn EMERGENCY STOP push button head to release the locking device.
2. Baler Shuts Down	A. Safety gate raised faster than ram.	A. Allow ram to move up before activating safety gate.
	B. Releasing the UP push button during the ejection cycle.	B. Press and hold the UP button.

8.0 APPLICABLE FORMS

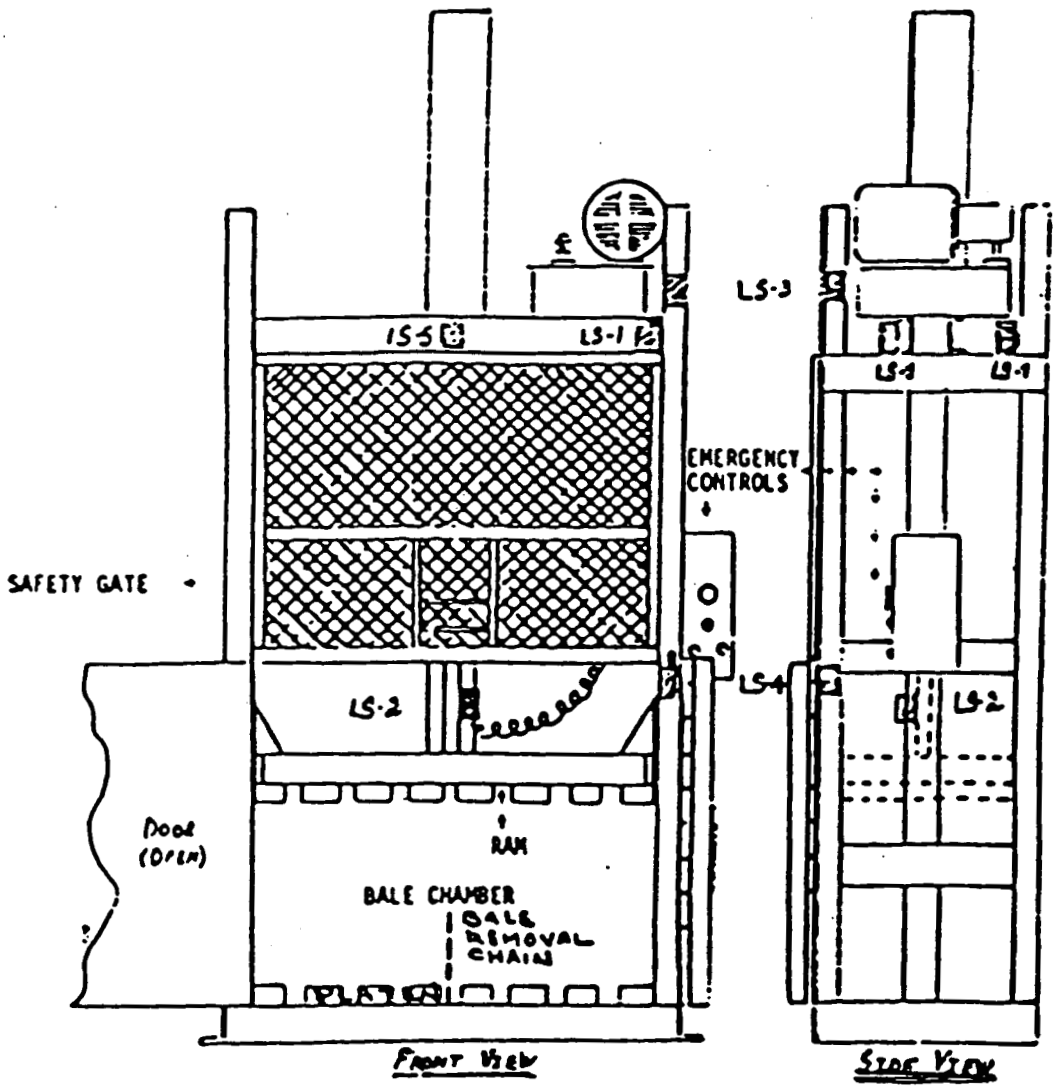
8.1 FMPC-PRO-2887, "Trash Baler Operation Log"

8.2 FMPC-CONT-1945-XX, "Item Production/Certification/Identification"

8.3 FMPC-ADMS-2414, "Gas, LPG or Diesel Fueled Equipment Operator's Checklist"

8.4 FMPC-ADMS-2415, "Electric Truck Operator's Daily Checklist"

8.5 FMPC-OPR-3258, "Contaminated Dumpster Monthly Checksheet"



LS-1 - UP STOP
LS-2 - GATE-PLATEN INTERLOCK
LS-3 - GATE CLOSE
LS-4 - BALE CHAMBER DOOR
LS-5 - BALE SIZE

TRASH BALER CONFIGURATION
Figure 1

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).

SITE SERVICES PROCEDURE	CONTROL AND UTILIZATION OF CONTAMINATED TRASH DUMPSTERS	SOP 20-C-604 AREA: As Applicable
Authorization: R. L. Gardner, Facilities & Warehousing Manager	Supersedes: None	Issue Date: 05-24-88

NON-CONTROLLED COPY

1.0 PURPOSE/DESCRIPTION

The purpose of this document is to provide procedures for filling dumpsters with contaminated trash.

2.0 APPLICABILITY

This procedure is applicable to contaminated trash dumpsters.

3.0 RESPONSIBILITIES

3.1 **Site Services** shall be responsible for the following:

3.1.1 Providing personnel with training or training material on controlling contaminated trash dumpsters.

3.1.2 Ensuring that designated contaminated trash dumpster access doors remain locked when not in use.

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

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

3.2.2 Maintaining training records of personnel who are using the dumpsters.

3.2.3 Providing training records to Waste Operations.

3.2.4 Contacting Industrial Hygiene or Radiological Safety to determine the appropriate respiratory protection for handling contaminated trash.

3.2.5 Providing operators with the required respiratory protection.

3.3 **Waste Generators** shall be responsible for the following:

3.3.1 Ensuring that prohibited items are not placed into contaminated trash dumpsters.

3.3.2 Ensuring that contaminated trash is bagged in plastic prior to being placed in the dumpster.

3.4 **Facility Owners** shall be responsible for ensuring that designated contaminated trash dumpster access doors remain locked when not in use.

4.0 DEFINITIONS

4.1 Contaminated Waste Dumpster - Secured container for the collection of contaminated trash.

4.2 Contaminated Waste Generator - Person filling the contaminated trash dumpster

5.0 REFERENCES

None

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Safety glasses with side shields shall be worn unless other eye protection is specified by IRS&T or posted signs.

6.3 Respiratory protection provided by the supervisor shall be worn when required by IRS&T.

6.4 Leather-palm gloves shall be worn when handling rough and/or contaminated material.

6.5 Contaminated trash shall not be allowed to accumulate around the dumpsters.

6.6 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion or absorption shall immediately be reported to a supervisor. The supervisor shall immediately report the circumstance of possible radioactive materials intake to IRS&T Radiological Safety Section for evaluation. The involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form FMPC-ES&H-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a followup urine sample. Employees are responsible for complying with additional requirements as specified by the Radiological Safety Section.

NOTE: Warnings, cautions, and notes precede the Item or Step to which they apply.

7.0 PROCEDURE

7.1 Inspection

7.1.1 Examine the trash for prohibited items or categories of waste (Refer to Figure 1).

7.0 PROCEDURE (cont.)

7.1.1.1 If a suspect item is located and determination is impossible, remove the item.

7.1.1.2 Contact the supervisor and request instructions.

7.1.2 Remove prohibited items from the trash as instructed by supervision.

7.2 Filling Dumpsters

7.2.1 Dispose of small or loose items as follows:

7.2.1.1 Place the small/loose material in clear plastic bags.

7.2.1.2 Gather or twist the open end of the bag until the opening is closed.

7.2.1.3 Using tape, secure the bag.

7.2.2 Contact the person responsible for the dumpster to obtain approval and the door keys.

7.2.3 Unlock dumpster.

7.2.4 Place bulky items (such as oversize pieces of cardboard) directly into the dumpster.

7.2.5 Inspect the trash in the secured clear plastic bag to ensure there are no prohibited items.

NOTE: Do not place unsecured bags or damaged bags into the dumpster.

7.2.6 Inspect the bags for damage.

7.2.6.1 Place damaged bags into undamaged bags.

CAUTION: **PIPING AND PIECES OF WOOD OVER TWO FEET IN LENGTH SHALL NOT BE PLACED IN THE DUMPSTER.**

7.2.7 Place identified contaminated trash excluding items in Figure 1 into the dumpster.

7.2.8 Lock dumpster.

7.2.9 Return the door key to the responsible person.

8.0 APPLICABLE FORMS

None

LIST OF WASTE TYPES PROHIBITED FROM THE CONTAMINATED TRASH DUMPSTERS

* Any kind of liquid
* Non-radioactive materials
* Pressurized containers/spray cans
* Explosive materials
* Gaseous radioactive materials
* High-level radioactive waste
* Pyrophoric materials
* Hazardous materials
* Flammable substances
* Alkaline metals
* Reactive or oxidizing materials
* Ashes, dry powders, or dusts
* Immobolized or ionized waste with pH less than 4.
* Mixed waste

R * Glass

WARNING: IF THERE IS ANY QUESTION ABOUT WHETHER OR NOT THE TRASH FALLS INTO ANY OF THE CATEGORIES ABOVE, CONTACT THE AREA SUPERVISOR OR SITE SERVICES.

PROHIBITED WASTE
Figure 1

SITE SERVICES PROCEDURE	CONTROL AND UTILIZATION OF CONTAMINATED TRASH DUMPSTERS	SOP 20-C-604 AREA: As Applicable
Authorization: R. L. Gardner, Facilities & Warehousing Manager	Supersedes: None	Issue Date: 05-24-88

LIST OF ISSUE/REVISION

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 P90-255.
01-28-91	2	Revised to incorporate CIO C91-061 per Request No. P92-015.

SITE SERVICES PROCEDURE	EVALUATING LOW LEVEL RADIOACTIVE WASTE (LLRW) BULK WASTE STREAMS FOR SHIPMENT	SOP 20-C-625 Area: As Applicable

Authorization: Signature On File R. L. Gardner Facilities & Warehousing Manager	Supersedes: None	Issue Date: 06-26-92

NON-CONTROLLED COPY

1.0 PURPOSE

The purpose of this procedure is to allow waste generators to evaluate bulk waste streams designated as Low Level Radioactive Waste (LLRW). The waste streams must be evaluated to ensure the material is properly characterized as non hazardous (as defined by the Resource Conservation and Recovery Act) prior to packaging and shipment for disposal.

2.0 APPLICABILITY

This document is applicable to scrap wood, scrap metal, light/medium duty vehicles and forklifts waste streams being packaged (excluding wastes associated with a Hazardous Waste Management Unit) for disposal as low level radioactive waste.

3.0 RESPONSIBILITIES

3.1 Supervisors shall be responsible for the following:

3.1.1 Ensuring that only trained personnel perform this procedure.

3.1.2 Contacting Industrial Hygiene or Radiological Safety to determine the appropriate respiratory protection requirements.

3.1.3 Providing waste generator with the required respiratory protection.

3.2 Waste generators shall be responsible for complying with this procedure.

3.3 Logistics Administration shall be responsible for transporting material to the packaging area upon request.

3.4 Centralized Training shall be responsible for training personnel to this procedure and maintaining a record of trained personnel.

4.0 DEFINITIONS

4.1 Low Level Radioactive Waste - Radioactive waste that is not classified as high level waste, transuranic waste, spent nuclear fuel, or by product material as defined by DOE order 5820.2A. However, test specimens of fissionable material irradiated for research and development purposes only, and not for the production of power or plutonium, may be classified as low level radioactive waste provided the activity of transuranic material is less than 100 nCi/g.

4.2 Waste Generator - Organization (point of generation) at which waste originates.

4.0 DEFINITIONS (cont.)

4.3 RCRA (Resource Conservation Recovery Act) - The federal statute which established safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control and proper management of solid and hazardous wastes

4.4 Entrapped Liquids - Collected fluids that have accumulated by exposure to elements.

4.5 Internal Fluids - Liquid within equipment which functioned as a working component of the equipment.

4.6 Waste Streams - For the purpose of this procedure, this term is defined as wood, metal, light/medium duty vehicles or fork lifts designated as Low Level Radioactive Waste.

4.7 Hazardous Waste Management Unit - Any unit/facility where hazardous waste is currently controlled or an empty unit which held hazardous waste (e.g. treatment, storage or disposal).

5.0 GENERAL

5.1 Drivers

5.1.1 DOE 5820.2A, "Radioactive Waste Treatment"

5.2 References

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

5.2.2 SOP 20-C-605, "Establishment and Control of Satellite Accumulation Areas"

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 Safety glasses with side shields shall be worn unless other eye protection is specified by IRS&T.

6.2 Respiratory protection provided by the supervisor shall be worn when required by IRS&T.

6.3 Leather-palmed gloves shall be worn to protect hands from rough material and contamination.

6.4 HEPA type filter vacuum cleaners or an IRS&T approved vacuum shall be used for cleaning.

6.5 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion or absorption shall immediately be reported to a supervisor. The supervisor shall immediately report the circumstance of possible radioactive materials intake to IRS&T Radiological Safety Section for evaluation. The involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form FMPC-ES&H-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow-up urine sample. Employees are responsible for complying with additional requirements as specified by the Radiological Safety Section.

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.6 Use proper lifting techniques when manually lifting wood or metal material. Heavy objects shall be lifted with mechanical lifting devices.

6.7 Do not work under a suspended load unless load has been blocked or supported with jack stands.

7.0 PROCEDURE

7.1 General

7.1.1 Warning, Cautions, and Notes in this procedure precede the step to which they apply.

7.1.2 Generators shall inspect/prepare and evaluate scrap wood per Step 7.2 using checklist FS-F-3465, scrap metal per Step 7.3 using checklist FS-F-3464, and light/medium duty vehicles and forklifts per Step 7.4 using checklist FS-F-3472.

7.2 Evaluating Scrap Wood Waste Stream

7.2.1 Every item to be packaged for disposal must be visually inspected and evaluated using the criteria of Section I of Materials Evaluation and Container Information-Wood, Form No. FS-F-3465 (See Figure 1).

7.2.2 The "Yes," "No," and "N/A" boxes must be checked as appropriate for all criteria listed in Section I. If one answer to items 1 through 5 is "No", the item being evaluated must be set aside - not packaged - and a material evaluation form completed for that item. A "No" to one of items 1 through 5 checked on a form causes rejection of the package for shipment by quality assurance.

7.2.3 Complete Section II of Form No. FS-F-3465 as material is packaged.

7.2.3.1 The material origin/description block (block 1) of Section II should list the type of material packaged into the container and the material origin as determined by the packager.

7.2.3.2 The MEF number block (block 8) of Section II should list the Material Evaluation Form (MEF) number of any material placed into the package that was not evaluated using Section I of the Form No. FS-F-3465, but is approved for shipment based on an existing and approved MEF.

7.2.4 The completed form FS-F-3465 must be signed by the waste packager, then packager's supervisor and then sent to quality assurance for approval.

7.2.5 Distribute form as required by distribution block provided in lower left corner of each form.

7.3 Evaluating Scrap Metal Waste Stream

7.3.1 Every item to be packaged for disposal must be evaluated using the criteria of Section I of Materials Evaluation and Container Information - Metal, Form No. FS-F-3464 (See Figure 2).

7.0 PROCEDURE (cont.)

7.3.2 The "Yes," "No," and "N/A" boxes must be checked as appropriate for all criteria listed in Section I. If one answer to items 1 through 5 is "No", the item being evaluated must be set aside - not packaged - and a material evaluation form completed for that item. A "No" checked on items 1 through 5 of a form causes rejection of the package for shipment by quality assurance.

7.3.3 Complete Section II of Form No. FS-F-3464 as material is packaged.

7.3.3.1 The material origin/description block (block 1) of Section II should list the type of material packaged into the container and the material origin as determined by the packager.

7.3.3.2 The MEF number block (block 8) of Section II should list the Material Evaluation Form (MEF) number of any material placed into the package that was not evaluated using Section I of Form No. FS-F-3464, but is approved for shipment based on an existing and approved MEF.

7.3.4 The completed Form No. FS-F-3464 must be signed by the waste packager, then packager's supervisor and then sent to quality assurance for approval.

7.3.5 Distribute form as required by distribution block provided in lower left corner of each form.

7.4 Evaluating Light/Medium Duty Vehicles and Forklifts Waste Stream

NOTE: Only light/medium duty vehicles and forklifts are to be evaluated per this procedure. This document is not applicable to heavy equipment.

7.4.1 Every vehicle to be packaged for disposal must be evaluated using the criteria of Section I of Evaluation and Container Information - Light Duty Vehicle, Form No. FS-F-3472 (See Figure 3).

7.4.2 The "Yes," "Unknown," "No," and "N/A" boxes must be checked as appropriate for all criteria listed in Section I. If the appropriate answer to the criteria is "No", the vehicle being evaluated cannot be packaged and a material evaluation form must be completed for that vehicle. A "No" checked on a form causes rejection of the package for shipment by quality assurance.

7.4.3 Complete Section II of Form No. FS-F-3472 as material is packaged.

7.4.3.1 The material origin/description block (block 1) of Section II should list the type of material packaged into the container and the material origin as determined by the packager.

7.4.3.2 The MEF number block (block 8) of Section II should list the Material Evaluation Form (MEF) number of any material placed into the package that was not evaluated using Section I of Form No. FS-F-3472, but is approved for shipment based on an existing and approved MEF.

7.4.4 The completed Form No. FS-F-3472 must be signed by the waste packager's supervisor.

7.0 **PROCEDURE** (cont.)

7.4.5 Distribute form as required by distribution block provided in lower left corner of each form.

8.0 **APPLICABLE FORMS**

8.1 FS-F-3465, "Materials Evaluation and Container Information - Wood"

8.2 FS-F-3464, "Materials Evaluation and Container Information - Metal"

8.3 FS-F-3472, "Evaluation and Container Information - Light Duty Vehicle"

FEMP
LOW-LEVEL RADIOACTIVE WASTE

Reference MEF # 905

MATERIALS EVALUATION AND CONTAINER INFORMATION - WOOD

SECTION I

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

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION:

2. PACKAGING START DATE | PACKAGING FINISH DATE

3. OPERATOR(S) SIGNATURE: | DATE:

4. CONTAINER NUMBER.

5. CONTAINER TYPE ☐ S/L ☐ WHITE METAL BOX

6. 65 CARD NUMBER.

7. LOCATION PACKAGED:

8. * MEF NUMBER:

9. % COMBUSTIBLE.

APPROVED BY: SUPERVISOR(S) SIGNATURE/DATE

APPROVED BY: 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)

LLRW WOOD MATERIALS EVALUATION
Form FS-F-3465
Figure 1

4038

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

Reference MEF # 1088

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: a. 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: a. Constitutes more than 20% by volume (If yes, then wood checklist (FS-F-3465) 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
6. 65 CARD NUMBER	7. LOCATION PACKAGED:
8. * MEF NUMBER	9. % COMBUSTIBLE
APPROVED BY: SUPERVISOR(S) SIGNATURE/DATE	APPROVED BY: 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-3464 (REV 4/7/92)

LLRW METAL MATERIALS EVALUATION
Form FS-F-3464
Figure 2

Fernald Site
LOW-LEVEL RADIOACTIVE WASTE

Reference MEF # 1230

EVALUATION AND CONTAINER INFORMATION - LIGHT-DUTY VEHICLE

SECTION I

WASTE EVALUATION	YES	UNKNOWN	NO	N/A
1. Free from the following fluids: a. Anti-freeze				
b. Brake fluid				
c. Gasoline				
d. Transmission fluid				
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 removed				
10. Oil filter drained				
11. Oil filter replaced in vehicle or discarded and oil line capped				
12. Batteries removed				

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

6. 65 CARD NUMBER

7. LOCATION PACKAGED

8. * MEF NUMBER

9. % COMBUSTIBLE

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

APPROVED BY

SUPERVISOR'S 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

FS-F-3472 (12/12/91)

LLRW LIGHT-DUTY VEHICLE EVALUATION
Form FS-F-3472
Figure 3

4038

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.

SITE SERVICES PROCEDURE	SAMPLING DRUMMED WASTE FOR HAZARD IDENTIFICATION	SOP 20-C-805 Area: As Applicable
Authorization: R. L. Gardner, Facilities & Warehousing Manager	Supersedes: None	Issue Date: 04-10-92

NON-CONTROLLED COPY

OCT 1992

1.0 PURPOSE

The purpose of this document is to establish the procedure for sampling drummed waste.

2.0 APPLICABILITY

This procedure is applicable to taking samples of drummed waste material at drum sampling locations and Resource Conservation and Recovery Act (RCRA) facilities.

3.0 RESPONSIBILITIES

3.1 Supervisors shall be responsible for the following:

3.1.1 Contacting Industrial Hygiene and/or Radiological Safety to determine the appropriate respiratory protection for the process being performed.

3.1.2 Providing operators with the required respiratory protection.

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

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

3.1.5 Obtaining and posting a "Radiation Work Permit."

3.1.6 Obtaining and posting a "Hazardous Material Permit."

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

3.1.8 Notifying Materials Control & Accountability (MC&A) prior to moving drums.

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

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

3.2 Operators and Supervisors shall be responsible for complying with this procedure.

3.0 RESPONSIBILITIES (Cont.)

3.3 Environmental Management (EM) shall be responsible for the following:

3.3.1 Preparing "Sampling Request" forms for RCRA or suspect RCRA materials.

3.3.2 Performing statistical analysis on data received from on-site and off-site laboratories.

3.3.3 Performing hazardous waste determination.

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

3.4.1 Assigning a representative to areas where drums are being moved.

3.4.2 Furnishing material identification data.

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

3.5.1 Monitoring vehicles and drums entering and exiting Radiological Zones.

3.5.2 Issuing Radiation Work Permits.

4.0 DEFINITIONS

4.1 Equipment Blank Sample - Specimens of analyte-free media poured over previously cleaned sample equipment and accompanies the actual samples to the laboratory.

4.2 Composite Sample - Specimen derived by combining equal numbers of random samples obtained from the same waste stream.

4.3 Multi-Phase - A material consisting of liquid and a solid in any combination of 2 or more.

4.4 Random Sample - A representative sample of waste material taken from a drum chosen from a group of drums that had equal probability of being selected.

4.5 Trip Blank - A specimen of deionized water that accompanies the sample to the laboratory.

4.0 DEFINITIONS (cont.)

4.6 Wash Water Blank Sample - A specimen of clean rinseate water that accompanies actual samples to the laboratory.

4.7 Contact Waste - Unwanted material that has come into contact with a RCRA Waste or Suspect RCRA Waste during sampling.

5.0 REFERENCES

5.1 SOP 20-C-605, "Establishment and Control of Satellite Accumulation Areas"

5.2 SOP 20-C-909, "Portable Ventilation Unit Operation"

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

5.4 SSOP-0018, "Processing Site Wide Analysis Request/Custody Record for Sample Control"

5.5 SSOP-0024, "Packaging of Low Level Radioactive Waste (L-LRW) for Off-Site Disposal"

6.0 INDUSTRIAL HEALTH & SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Portable ventilation devices shall be used per SOP 20-C-909 when collecting samples from drums containing dry materials or volatile compounds.

6.3 Operators shall wear respiratory protection provided by the supervisor.

6.4 Leather-palm gloves shall be worn when handling drums, locking rings, lids, sharp or abrasive material, or when using tools.

6.5 Safety glasses shall be worn unless a full face respirator is used.

6.6 Face shields, neoprene gloves, aprons, and chemical cover goggles shall be worn when taking samples of caustic material, acid slurries, or liquids.

6.7 Gloves shall be leaked checked by water immersion prior to use. Leaking gloves or gloves contaminated on the inside shall be discarded.

6.8 Employees shall have reviewed, and be familiar with, the information contained in the MSDS for the chemical/hazardous materials that may be used or encountered.

6.0 INDUSTRIAL HEALTH & SAFETY REQUIREMENTS (cont.)

6.9 Specified personal protective equipment (PPE) (including booties), which are specified on Work Permits and this procedure, shall be worn before entering a sample area.

6.10 Personnel shall have access to communications devices and emergency response equipment.

6.11 Industrial Hygiene shall be contacted to measure volatile organic compounds for all drums classified as containing organic liquids. Results of monitoring along with personal protective equipment requirements shall be communicated to supervision on a "Hazardous Chemical Work Permit".

6.12 Fire and Safety Inspectors shall be contacted to check for flammable vapors from all drums classified as containing organic liquids. Flammable liquids identified by Fire and Safety shall only be sampled at the flammable liquid sampling line using explosion proof electrical equipment and non-sparking tools.

6.13 All persons will remain clear of aisle-ways while forklifts and handstackers are in use.

6.14 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a supervisor. The supervisor shall immediately report the circumstance of possible radioactive materials intake to IRS&T Radiological Safety Section for evaluation. The involved personnel shall report to the Urine Sampling Station at the end of their shift to complete a Incident Investigation Report (IIR) (Form FMPC-ES&H-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a followup urine sample.

7.0 PROCEDURE

7.1 General

7.1.1 Warnings, cautions, and notes precede the Item or Step to which they apply.

7.1.2 Any deviation from the Sampling Plan shall be noted in the "Sampling Log Book."

7.1.3 To prevent contamination, only one drum per sampling line shall be opened, unless a composite sample is required.

7.0 PROCEDURE (cont.)

7.1.4 Volatile organic compounds (VOC) and combustible materials being sampled or staged shall be segregated from other materials. See Item 6.11 for identification and sampling of flammable liquids.

7.1.5 When samples are requested for volatile organic analysis, the samples shall be taken and the sample container and drum closed and sealed as quickly as possible.

7.2 Preparation for Sampling

NOTE: Contact supervisor if there are questions pertaining to the Sampling Request Form.

7.2.1 Obtain the "Sampling Request Form" from the supervisor.

7.2.1.1 Take Sampling Request Form to Material Control and Accountability where a lot number and location will be placed on the form.

7.2.1.2 Obtain the Lot Marking System Number for rinseate and trash cans containing contact waste from MC&A.

7.2.2 Check that a "Radiation Work Permit" and/or "Hazardous Material Permit" are posted and current with each new Sample Request Form.

7.2.2.1 If no permit(s) is/are posted, notify the supervisor.

NOTE: Scales shall be checked at the start of each operating shift or before the first use each day.

7.2.3 If not already completed, check the scales to be used per SOP 20-C-912.

NOTE: VOC and flammable/combustible material shall be moved to respectively designated area identified by the supervisor.

7.2.4 Using a handstacker, move skids of material into the designated sampling or staging areas.

NOTE: Two five gallon containers shall be used unless a composite sample is to be prepared and then three containers are required.

7.2.5 Prepare containers (for cleaning sampling equipment and disposal of trash) as follows:

7.0 PROCEDURE (cont.)

7.2.5.1 Tare weigh the empty, clean, color-coded 5-gallon containers.

7.2.5.2 Stencil the containers with the tare weight and the Lot Marking System Number according to RM-0005, Lot Marking and Color Coding System.

7.2.5.3 Install plastic liners in the five gallon containers.

NOTE: The equipment to be used for sampling is identified in the Sample Request Form.

7.2.6 Obtain sampling equipment that has a "Clean Equipment" tag attached.

7.2.6.1 If clean equipment is not available, obtain dirty equipment and clean per Item 7.8.

7.2.7 Obtain a box of clean, lidded sampling jars.

7.2.7.1 If the box of jars was not labeled, "Clean," process the jars per Item 7.8.

7.2.8 Tare weigh each sample jar (with lid).

7.2.8.1 Mark the tare weight on a piece of marking tape and place on the jar.

7.2.9 Complete the Sample Label, mark the tare weight on the Sample Label, Form 144, M-145, or M-160 to be used (Refer to Figure 1).

7.2.10 Fill out the applicable portions of a "Solid Waste Analysis Request/Custody Request" (SWAR/CR) form per SSOP-0018.

7.2.11 Place an absorbent pad that is applicable for material to be sampled (water/oil) under the sample jars(s).

7.2.12 Using the Log Book Stamps, imprint the "Sampling Log Book."

7.2.13 Fill out the log book with the information required by the stamp.

7.0 PROCEDURE (cont.)

7.3 SAMPLING

CAUTION: ONLY NON-SPARKING TOOLS AND EXPLOSION-PROOF EQUIPMENT SHALL BE USED IN THE VICINITY OF FLAMMABLE OR COMBUSTIBLE MATERIAL SAMPLING LINES.

7.3.1 Remove the locking ring and drum lid from the drum to be sampled.

7.3.2 Visually inspect the waste material to be sampled to determine the physical characteristics (liquid, solid, dry, or moist).

NOTE: HEPA ventilation devices shall have current DOP Test Labels. DOP Test Labels must be unbroken and legible.

7.3.2.1 If the material is dry, install a HEPA filtered ventilation system per SOP 20-C-602.

7.3.3 Check that the drum contents corresponds with the Material Type Code (MTC) on the drum and the Sample Request Form.

NOTE: The supervisor shall inform Site Media Sampling.

7.3.3.1 If the material does not match the form, notify the supervisor.

7.3.4 If a drum contains solid and liquid phases, proceed as follows:

7.3.4.1 Measure the amount of liquid (in inches) in the drum using a COLIWASA.

7.3.4.2 Measure the amount of solid (in inches) using an Auger or Pipe Sampler.

7.3.4.3 Record the percent liquid and solid in the "Sampling Log Book."

NOTE 1: If the liquid or solid phase is less than five percent of the total volume of the material in the drum, the material is considered single phase and the phase that constitutes less than five percent does not require sampling.

NOTE 2: When each phase is equal to or greater than five percent of the total volume of material in the drum, the drum content is considered multi-phase. Both phases shall be sampled individually.

7.3.4.4 Using a clean COLIWASA, sample the liquid per Item 7.6.

7.0 PROCEDURE (cont.)

7.3.4.5 Deposit the sample into a collection jar or can.

7.3.4.6 If the "Sampling Request" form specifies Volatile Organic Analysis, perform Item 7.10.

7.3.4.7 Transfer collection jar with sample to ventilation enclosure.

7.3.4.8 Fill sample jars from material in the collection jar or can.

7.3.4.9 Dispose of excess sample material in the container from which the sample was taken.

7.3.4.10 Place the lid on sample jar.

7.3.4.11 After the required samples have been taken, clean the exterior of the filled sample jars with either a dry or wet cloth and dispose of the cloth per Item 7.8.7.1.

7.3.4.12 Affix the label(s) to sample jar(s).

7.3.4.13 Seal the jar lid with a "Tamper Proof Seal" (Refer to Figure 2).

7.3.4.14 Using a Pipe Sampler or Auger, take a sample of the solid material per Item 7.4 or 7.5.

7.3.4.15 Deposit the sample into a collection jar or can.

7.3.4.16 Transfer the collection jar with sample to ventilation enclosure.

7.3.4.17 Fill sample jars from material in the collection jar or can.

7.3.4.18 Dispose of excess sample material in the container from which the sample was taken.

7.3.4.19 Place the lid on sample jar.

7.3.4.20 After the required samples have been taken, clean the exterior of the filled sample jars.

7.3.4.21 Affix the label(s) to sample jar(s).

7.3.4.22 Seal the jar lid with a "Tamper Proof Seal" (Refer to Figure 2).

7.3.4.23 Clean samples per Item 7.8.

7.0 PROCEDURE (cont.)

7.3.5 If the waste material is a single solid phase, proceed as follows:

7.3.5.1 Using an Auger Sampler or Pipe Sampler, take a sample per Item 7.4 or 7.5.

7.3.5.2 Deposit the sample into a collection jar or can.

7.3.5.3 Transfer the collection jar with sample to ventilation enclosure.

7.3.5.4 Fill sample jars from material in the collection jar or can.

7.3.5.5 Dispose of excess sample material in the container from which the sample was taken.

7.3.5.6 Place the lid on sample jar.

7.3.5.7 After the required samples have been taken, clean the exterior of the filled sample jars.

7.3.5.8 Affix the label(s) to sample jar(s).

7.3.5.9 Seal the jar lid with a "Tamper Proof Seal" (See Figure 2).

7.3.5.10 Clean the sampler per Item 7.8.

7.3.6 If the waste material is a single liquid phase, proceed as follows:

7.3.6.1 Using a clean COLIWASA, take a sample per Item 7.6.

7.3.6.2 If the "Sampling Request Form" specifies Volatile Organic Analysis, perform 7.10.

7.3.6.3 Deposit the sample into a collection jar or can.

7.3.6.4 Transfer collection jar with sample to ventilation enclosure.

7.3.6.5 Fill sample jars from material in the collection jar or can.

7.3.6.6 Dispose of excess sample material in the container from which the sample was taken.

7.3.6.7 Place the lid on sample jar.

7.3.6.8 After the required samples have been taken, clean the exterior of the filled sample jars.

7.0 PROCEDURE (cont.)

7.3.6.9 Affix the label(s) to sample jar(s).

7.3.6.10 Seal the jar lid with a "Tamper Proof Seal" (See Figure 2).

7.3.6.11 Clean the sampler per Item 7.8.

7.3.7 If a composite sample is to be taken from drums of multi-phase material, record the Lot Marking System Numbers of the drums making up the composite in the Log Book and proceed as follows:

7.3.7.1 Notify the supervisor.

7.3.7.2 Obtain drums that are color coded and identified the same as the drum to be sampled.

7.3.7.3 Using a clean portable pump, transfer the liquid to the empty drum(s).

7.3.7.4 Using an clean Auger Sampler or Pipe Sampler, take samples of the solid material in the drums per Item 7.4 or 7.5.

7.3.7.5 If there is not enough material to fill the samples, take a second sample from each drum.

7.3.7.6 Using a clean stainless steel spatula, mix the contents of the sample can to blend the sample material.

7.3.7.7 Using a scoop, take a sample of the blended composite.

7.3.7.8 Deposit the sample into a collection jar or can.

7.3.7.9 Transfer collection jar with sample to ventilation enclosure.

7.3.7.10 Fill sample jars from material in the collection jar or can.

7.3.7.11 Dispose of excess sample material in the container from which the sample was taken.

7.3.7.12 Place the lid on sample jar.

7.3.7.13 After the required samples have been taken, clean the exterior of the filled sample jars.

7.3.7.14 Affix the label(s) to sample jar(s).

7.0 PROCEDURE (cont.)

7.3.7.15 Seal the jar lid with a "Tamper Proof Seal" (See Figure 2).

7.3.7.16 Lid the composite sample can.

7.3.7.17 Mark the can with the same Material Type and Source Code as the drums that were sampled.

7.3.7.18 Clean the sampler per Item 7.8.

7.3.7.19 Using a COLIWASA, sample the liquid from the drums per Item 7.6.

7.3.7.20 If the "Sampling Request Form" specifies Volatile Organic Analysis, perform 7.10.

7.3.7.21 Deposit the sample into a collection jar or can.

7.3.7.22 Transfer collection jar with sample to ventilation enclosure.

7.3.7.23 Fill sample jars from material in the collection jar or can.

7.3.7.24 Dispose of excess sample material in the container from which the sample was taken.

7.3.7.25 Place the lid on sample jar.

7.3.7.26 After the required samples have been taken, clean the exterior of the filled sample jars.

7.3.7.27 Affix the label(s) to sample jar(s).

7.3.7.28 Seal the jar lid with a "Tamper Proof Seal" (See Figure 2).

7.3.7.29 Mark the can with the same Material Type and Source Code as the drums that were sampled.

7.3.7.30 Clean the sampler per Item 7.8.

7.3.7.31 Prepare the appropriate blank per Item 7.7.

7.3.8 If a composite sample is to be taken from drums of single phase solid material, perform Steps 7.3.7.4 thru 7.3.7.18.

7.3.9 If a composite sample is to be taken from drums of single phase liquid material, perform Steps 7.3.7.19 thru 7.3.7.31.

7.0 PROCEDURE (cont.)

7.3.10 Place the sample jars and blanks in the lockable refrigerator.

7.3.11 Contact MC&A for storage of the drums, Composite Sample Cans, and Trash Containers.

7.3.12 Complete a "Chain-of-Custody Record," Form FMPC-SS-3361 (see Figure 3).

7.3.12.1 If the samples will remain in the area overnight, place the custody record form in the top drawer of the sampling area desk.

7.3.12.2 Lock the desk drawer containing the custody record form.

7.3.13 Lock the refrigerator.

NOTE 1: The supervisor shall arrange to have the samples and "Chain-of-Custody Record" form delivered to the laboratory.

NOTE 2: All sample containers and trash bags shall be surveyed by a Radiation Technician prior to exiting a regulated area.

7.3.14 At the end of the shift, or when sampling is complete, notify the supervisor that samples and blanks require delivery to the Analytical Laboratory.

7.3.15 Ensure that the custody record form accompanies samples being transferred.

7.4 Using the Auger Sampler

7.4.1 Insert the sampler into the material being sampled.

7.4.2 Press down and rotate the sampler T-handle.

7.4.3 Withdraw the sampler from the drum of material.

7.4.4 Check that a complete core sample was taken.

7.4.4.1 If a complete core was not taken, empty the sampler into the drum the material was taken from and return to Step 7.4.1.

7.4.5 Using a clean spatula, push the sample out of the sampler and into a collection jar or can.

7.0 PROCEDURE (cont.)

7.5 Using the Pipe Sampler

NOTE: The pipe sampler shall be long enough to reach the bottom of the container being sampled.

7.5.1 Insert the pipe sampler diagonally through the contents of the drum.

7.5.2 Rotate the pipe sampler once or twice to cut a core of material.

7.5.3 Ensure that the slot is face up.

7.5.4 Slowly withdraw the pipe sampler from the drum.

7.5.5 Check that the entire length of pipe contains material.

7.5.6 If part of the pipe is empty, proceed as follows:

7.5.6.1 Empty the sampler into the drum the material was taken from.

7.5.6.2 Repeat Steps 7.5.1. thru 7.5.5 until a representative sample is obtained.

7.6 Using a COLIWASA SAMPLER

7.6.1 Check to ensure that the inner tubing and the outer sheath are not cracked.

7.6.1.1 If the sampler is cracked, obtain a new, clean, intact sampler.

7.6.2 Insert the inner tubing inside the sheath.

7.6.3 Raise the ground glass end of tube several inches above the hole in the bottom of the sheath.

NOTE: The COLIWASA shall be lowered so that the levels of liquid inside and outside the sampler tube remain even. If the liquid level in the sampler tube is lower than the level outside the sampler, the rate is too fast and will result in a nonrepresentative sample.

7.6.4 Slowly lower the COLIWASA vertically into the drum, keeping the ground glass end away from the hole in the bottom of the sheath.

7.6.5 When the sheath hits the bottom of the drum, push the inner tube downward so that the ground glass end seals the sheath.

7.0 PROCEDURE (cont.)

NOTE: The ground glass end shall seal the tube bottom.

7.6.6 Slowly withdraw the COLIWASA sampler with one hand while wiping the outside of the sampler with a clean disposable cloth.

7.6.7 Place the disposable cloth in a plastic bag that is labelled for the type of material being sampled.

7.6.8 Dispose of trash bags containing non-RCRA waste per SOP 20-C-601.

7.6.9 Dispose of trash bags containing RCRA, or suspected RCRA, waste per SOP 20-C-605.

NOTE: The analyses listed on the "Sampling Request" form should also be performed on blank samples.

7.7 Taking Blanks

NOTE: Wash Water Blanks are taken weekly, alternating with Equipment Blanks and Trip Blanks.

7.7.1 Wash Water Blanks

7.7.1.1 Using a clean (per item 7.8) pressurized hand pump, decant the clean rinseate from the Wash Water Container into the appropriate numbered sample jars.

NOTE: Taken on alternating weeks with Wash Water and Trip Blanks and Equipment Blanks.

7.7.2 Equipment Blank

7.7.2.1 Using a clean (per Item 7.8) pressurized hand pump and deionized water, rinse the clean sampling equipment.

7.7.2.2 Collect the rinseate in a clean (per Item 7.8) one-gallon sample container.

7.7.2.3 Transfer the water from the container into clean sample jars.

7.7.3 Lid the sample jars.

7.0 PROCEDURE (cont.)

NOTE: Trip Blanks are prepared by Site Media Sampling.

NOTE: Trip Blanks shall only be obtained when volatile organic analysis is required for the material being sampled.

NOTE: Trip Blanks are used to measure cross-contamination of volatile organics during transport, and are taken on alternating weeks with Wash Water and Equipment Blanks.

7.7.4 Trip Blanks

7.7.4.1 Contact Site Media Sampling to obtain blanks.

7.7.5 Complete the applicable "Sample Label" (Refer to Step 7.2.9).

7.7.6 Affix the label(s) to the sample jar(s).

7.8 Cleaning Sampling Equipment

NOTE: Cleaning and rinsing shall be performed over the five-gallon container marked with the appropriate 15-digit FEMP Lot Markings (Refer to Step 7.2.5).

7.8.1 Position the five gallon container in the area where cleaning will be performed.

NOTE: A bottle brush shall be used as necessary to remove particulate matter, films, or other dirt.

NOTE: ALQUINOX or LIQUINOX (or equivalent) may be used as the cleaning detergent.

7.8.2 Using a phosphate free liquid detergent solution, wash the sampling equipment thoroughly.

7.8.3 Rinse the sampling equipment with water.

7.8.4 Drain excess water off the sampling equipment.

NOTE: Pesticide grade isopropanol is below laboratory grade isopropanol.

7.8.5 Rinse the sampling equipment with pesticide grade isopropanol and, if necessary, dry with a clean dry cloth.

7.0 PROCEDURE (cont.)

CAUTION: THE LID SHALL BE KEPT ON THE CONTAINER OF USED WASH AND/OR RINSE SOLUTION WHEN NOT IN USE.

7.8.6 Lid the container of used wash/rinse solution.

7.8.7 If the sampler will not be used immediately, proceed as follows:

7.8.7.1 Place the clean sampler in a clean plastic bag or wrap with a plastic sheet.

7.8.7.2 Complete a "Clean Equipment" tag, Form FMPC-PRO-3128, (See Figure 6).

7.8.7.3 Attach the tag to the clean equipment.

7.8.7.4 Store the sampler per Item 7.9.

7.8.8 When the wash/rinse container is full, process the contents as RCRA waste per SOP 20-C-605.

7.8.9 Dispose of absorbent cloths or trash bags which have not come in contact with RCRA waste or suspected RCRA waste per SSOP-0024.

7.9 Storing Sampling Equipment

7.9.1 Seal the plastic bag with tape.

7.9.2 Place the samplers in a clean, protected area.

7.10 Liquid Organic Analysis Sampling

7.10.1 Obtain a septum bottle.

NOTE: The liquid shall reach slightly above the lip of the bottle.

7.10.2 Carefully fill the septum bottle with the sample liquid.

7.10.3 Place the teflon septum (with teflon side down) on top of the bottle.

7.10.4 Screw the plastic lid on the bottle.

7.10.5 Check the liquid for air bubbles by turning the bottle upside down.

7.0 PROCEDURE (cont.)

NOTE: Organic analysis requires that no air bubbles be present in the septum bottle.

7.10.6 If air bubbles are present, empty the bottle and repeat Steps 7.10.2 through 7.10.5 until no air bubbles are present.

7.10.7 Label the septum bottle.

8.0 APPLICABLE FORMS

8.1 M-144, M-145, M-160, "Sample Label"

8.2 No Form Number, "Tamper Proof Seal"

8.3 FMPC-SS-3361, "Chain of Custody Record"

8.4 FMPC-PRO-3128, "Clean Equipment Tag"

Green on White
For Enrichment
Less Than 0.71

FMPC-SAMPLE LABEL/RCRA MATERIAL-DEPLETED

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-144 (REV 11-29-89)

Red on White
For Enrichment
Greater Than
0.71

FMPC-SAMPLE LABEL/RCRA MATERIAL-ENRICHED

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-145 (REV 11-29-89)

(Grams) Gross: Tare:

Black on Yellow
For Enrichment
Equal to 0.71

FMPC-SAMPLE LABEL/RCRA MATERIAL-NORMAL

SAMPLING LOCATION
P.O. NO./ENRICHMENT
COLLECTOR
TYPE OF MATERIAL
TYPE OF SAMPLE
LOT NUMBER OR IDENT
DATE | TIME | NET WT

FMPC-FORM-306 M-160 (REV 11-29-89)

SAMPLE LABELS
M-144, M-145, M-160
Figure 1

If Seal is broken or package damaged check contents before signing receipt.

TAMPER PROOF SEAL
Figure 2

FMPC
PRODUCTION OPERATIONS
CHAIN-OF-CUSTODY RECORD

Request No _____

Company's Name and Address _____ Phone No _____ Carrier Way Bill No _____ Lab Destination _____

Name of Sampler(s) _____ Phone No _____ Badge No _____

SAMPLE NUMBER	SAMPLE LOCATION AND DESCRIPTION (Waste Type)	SAMPLED DATE	SAMPLED TIME	SAMPLE TYPE	CONTAINER TYPE	ANALYSES REQUESTED (please refer to last column)						SAMPLE COND ON RECEIPT	TYPES OF ANALYSES
													1 Complete Analysis 2 Total U 3 Total Th 4 EP Toxicity 5 Isotopic 6 Th-230 7 Th-232 8 Ra-226 9 UnCorr Sample (U Calculated) 10 TnCorr Sample (Th Calculated) 11 _____ 12 _____ 13 _____ 14 _____ 15 _____

Field Information _____

Possible Sample Hazards _____

SIGNATURES:

1 Relinquished By _____ (SIGNATURE / TITLE / COMPANY / INCLUSIVE DATES) Received By _____

2 Relinquished By _____ (SIGNATURE / TITLE / COMPANY / INCLUSIVE DATES) Received By _____

3 Relinquished By _____ (SIGNATURE / TITLE / COMPANY / INCLUSIVE DATES) Received By _____

4 Relinquished By _____ (SIGNATURE / TITLE / COMPANY / INCLUSIVE DATES) Received By _____

NO.	DISTRIBUTION OF COPIES
1	To Accompany Samples
2	Field Copy

CHAIN OF CUSTODY
FMPC-SS-3361
Figure 3

CLEANED BY: _____

DATE: _____

Cleaned according to sop : _____

FMPC-OPR-3128 (6/22/89)

CLEAN EQUIPMENT
FMPC-PRO-3128
Figure 4

RECORD OF ISSUE/REVISION

DATE	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.

WASTE CERTIFICATION PROGRAM PLAN

FOR

LOW LEVEL WASTE CHARACTERIZATION AND CERTIFICATION

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO

P. O. Box 398704

Cincinnati, Ohio 45239-8704

Revision 6 11-20-92

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4038

RECORD OF REVISIONS

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

WASTE CERTIFICATION PROGRAM PLAN
CONTENTS

SECTION		PAGE NUMBER
LIST OF FIGURES		4
LIST OF TABLES		5
PURPOSE OF PLAN		6
1.0	ORGANIZATION	7
1.1	FEMP Management Organization	7
1.2	Waste Certification Organization Independence	11
1.3	Specific Waste Certification Program Responsibilities	12
1.4	Waste Process and Certification Interface Description	13
2.0	WASTE CERTIFICATION PROGRAM	17
2.1	Quality Assurance Policy Statement - Responsibilities	17
2.2	Statement of Independence - Interface Control	18
2.3	Waste Certification Program Description	18
2.4	Qualification of Waste Certification Officials	19
2.5	Qualification of Waste Package Certifiers	20
2.6	General Requirements for Certification/Verification Personnel	20
3.0	DESIGN CONTROL	20
3.1	Design of Waste Certification Process	20
3.2	Waste Form Processing for Compliance	21
3.3	Waste Packaging Processing for Compliance	21
4.0	PROCUREMENT DOCUMENT CONTROL	22
5.0	INSTRUCTIONS, PROCEDURES & DRAWINGS	22
5.1	Procedures for Waste Generation, Segregation, Packaging & Shipping	22
5.2	Analytical Procedures	23
5.3	Sample Custody	24
5.4	Drawings - Facilities, Process Equipment & Forms Control	24
5.5	Inspection & Certification Procedures	25
5.6	Procedures For Keeping Pertinent Regulations Up-To-Date	25
6.0	DOCUMENT CONTROL	25
6.1	Waste Certification Program Plan	25
6.2	Document Preparation, Review, Approval & Issuance	25
7.0	CONTROL OF PURCHASED ITEMS & SERVICES	26
7.1	Receipt Inspection	26
7.2	Contract Review	26
7.3	Purchase Requisitions, Purchase Orders & Invoices	26
7.4	Source Inspections	27
8.0	IDENTIFICATION & CONTROL OF MATERIALS, PARTS & COMPONENTS	27
8.1	Containers & Packaging Materials	27
8.2	FEMP Materials Lot Marking System	28
8.3	Analytical Calibration Standards	30

4038

9.0 CONTROL OF PROCESS 30
9.1 Sample For Waste Analysis 30
9.2 Control of Processes 30
9.3 Nuclear Safety 30
9.4 Storage and Shipment 31
9.5 Certification Process 31
9.6 Shipping Process - Manifest, Labeling, Placarding, Weighing, and Loading 33

10.0 INSPECTION 33
10.1 Waste Package Receiving Inspections 33
10.2 In-Process Inspections 33
10.3 Define Waste Certifying Function 34

11.0 TEST CONTROLS 34
11.1 Definition of Test 34
11.2 Analytical Test Controls 34
11.3 Traceability of Calibration Sources 35
11.4 Operational Package Weight 35

12.0 CONTROL OF MEASURING & TEST EQUIPMENT 36
12.1 Calibration Schedules & Stickers 36
12.2 Environmental Controls For Measuring Equipment 37

13.0 HANDLING, STORAGE & SHIPPING 38
13.1 Not Adverse To Certification 38
13.2 Security 38
13.3 Fire Safety 38
13.4 ALARA 38
13.5 Compliance With Title 49 of the CFR and NVO-325 Shipping Requirements 39

14.0 INSPECTION, TEST & OPERATIONAL STATUS 40
14.1 Calibration Sources 40
14.2 Preventative Maintenance 40

15.0 CONTROL OF NONCONFORMING ITEMS 40
15.1 Control and Disposition of NonConformances 40
15.2 Special Tags & Labels 40
15.3 Segregation and/or Removal From Operating Status 41
15.4 Documentation 41

16.0 CORRECTIVE ACTIONS 41
16.1 On NonConformance Items 41
16.2 Findings/Recommendations 41
16.3 Exceptions Approval from the DOE/NV Manager 41

17.0 QUALITY ASSURANCE RECORDS 42

18.0 AUDITS/WASTE CERTIFICATION 42
18.1 External 42
18.2 Internal 42

19.0 TRAINING 42
19.1 Training Program 43
19.2 Training Requirements 43
19.3 Training Responsibilities 43

LIST OF FIGURES

Figure Number	Title of Figure	Page Number
1	FEMP Management and Waste Certification Organizations	53-60
2	Waste Processing Interface	61
3	Waste Certification Packaging Flow Chart	62
4	Waste Processing Flow Chart Primary Material Flow, Analysis, Reports & Samples	63
5	Waste Processing Flow Chart - Record Keeping & QA Surveillance	64
6	Sample Seal	65
7	Sample Label	66
8	Site-Wide Analysis Request/Custody Record	67
9	Quality Tag - Accepted	68
10	Quality Tag - NonConformance	69
11	Quality Tag - Hold for Inspection	70
12	OffSite Loading - Tie Down Inspection - Vehicle Inspection	71
13	Preliminary Visual Trailer Inspection	72
14	Item Production/Certification/Identification Card	73

LIST OF TABLES

Table Number	Title of Table	Page Number
I	Master Plans, Manuals and Procedures	44-47
II	Archival Documents	48
III	Quality Assurance Records	49
IV	Measuring & Test Equipment Calibration	50
V	Material Requiring Procurement Control	51
VI	Specifications	52

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 Westinghouse Environmental Management Company of Ohio 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 Westinghouse Environmental Management Company of Ohio (WEMCO) 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 and Waste Package Certifiers 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

1.0 ORGANIZATION

1.1 FEMP Management Organization

The Fernald Environmental Management Project (FEMP) is managed by WEMCO under contract to DOE. An overall WEMCO 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 Low Level Waste Program

Low Level Waste Program Section manages the waste management functions. This section 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 Low Level Waste Program 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 by other qualified organizations.

1.1.2 On-site Waste Generators (All Organizations)

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 Facilities and Materials Evaluation (FME). An exception to this is construction projects, where an information package without an MEF is developed for each project and submitted to FME for characterization. Waste characterization for construction projects is documented with a RCRA Characterization/Radiological Determination (RD/RC) letter or a completed MEF or checklist issued from the FME Group and covering all waste streams. The flow diagram (Figure 2 in the Application) reflects the process whereby construction project wastes are characterized. In the near future (target date of February 1, 1993) all waste streams generated at the FEMP will be assigned an MEF number and reviewed 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 for each waste package, which is traceable to the container either by the container serial number, or the FEMP lot number and assigned container number in combination. The waste generator is responsible for communicating the ongoing status of packaging operations to QA to ensure that all necessary QA examinations can be performed and documented in a timely manner.

1.1.3 Facilities and Materials Evaluation

The FME Section has responsibility for evaluating, characterization, and maintenance of the characterization files. 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 Materials Control & Accountability

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 (FEMP-CONT-558-3) which authorizes each individual shipment. They also perform other nuclear materials 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 have the responsibility 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 Logistics Administration (Traffic)

Logistics Administration contracts with carriers for services that meet DOE requirements for transportation. This organization prepares paperwork for each shipment, overviews supporting documentation for conformance to DOT requirements, 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. Logistics Administration exercises review approval of all packaging, loading configuration, shoring, and securing of materials in each shipment.

1.1.6 Transportation and Support Services

Transportation and Support Services 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 Maintenance Garage

The Maintenance Garage 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 13).

1.1.8 Waste Shipping

Waste Shipping is a subgroup in the Waste Shipment & Mixed Waste Storage Group under the Facilities & Warehousing Section of the Site Services Department. Waste Shipping, which is also a significant waste generator, is responsible for 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 Waste Shipping Coordinator

The Waste Shipping Coordinator generates the initial paperwork for each shipment that is submitted to Quality Certification for approval. The shipment paperwork package contains the Reynolds Electrical & Engineering Company, Inc. (REECo) 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 Centralized Training

Centralized Training is a service organization that reports to the Vice President of Industrial, Radiological Safety and Training. The overall purpose of the section is to assure needed training is identified, developed, implemented, and administered effectively. The Centralized Training Section maintains training records for the FEMP.

1.1.11 Analytical Laboratories

Analytical Laboratories is a section of the Environmental Management Department which performs analyses on site. These analyses include radioactive assay determinations, chemical analyses, and determination of physical properties. The Analytical Laboratories Section includes a Quality Control subsection that administers a formal quality control program for the individual laboratories.

1.1.12 Environmental Monitoring

Environmental Monitoring prepares sampling and analysis plans used in the characterization of low level waste.

1.1.13 Sampling & Analysis Management

Sampling & Analysis Management has responsibility for on-site analytical laboratory quality control and for oversight of contracted laboratory services. The Project Planning Group within this organization has responsibility for preparation of laboratory quality control samples and conduct of laboratory quality control checks and reviews. A Site Sample Management group has responsibility for receipt and shipment of samples, placement and oversight of the laboratory services contract, review of sampling plans, and coordination of site sampling collection activities.

1.1.14 Radiological Safety

Radiological Safety performs radiological surveys of all packages and vehicles involved in the transportation of LLW. This section also maintains an instrumentation laboratory for maintenance and calibration of instruments used in making the surveys.

1.1.15 Environmental Quality Assurance

Environmental Quality Assurance, a section of the Self-Assessment and Continuous Improvement Improvement Processess and Quality Assurance Departments, is comprised of three subsections. Each contributes to ensuring the integrity of waste shipments.

The Audits subsection schedules, plans, and conducts audits to ensure operating organizations (including those involved in waste operations and characterization activities) are in compliance with the FEMP QA Program (Site Document No. RM-0012).

The Regulatory Assurance subsection ensures compliance with all environmental transportation and site requirements. The activity of particular importance to the waste shipping programs includes overview of the entire waste characterization process to ensure that sampling, packaging, analysis, and supporting documentation meet site and regulatory requirements.

The third subsection, Environmental Assurance, maintains full time overview of on-site laboratory activities, and ensures that only qualified contract laboratories are sent samples for analysis. This group also performs surveillance activities of waste storage areas, radiological controls, and other activities which support the waste shipping process.

1.1.16 Sitewide Quality Assurance

Sitewide QA of the Self Assessment, Continuous Improvement Processes, and Quality Assusrance Department is divided into two subsections.

The Quality Certification subsection is responsible for certification of packages and shipments of LLW to the NTS. Activities include verification that packaging, package contents, labeling, marking, placarding, transport vehicle condition, and related paperwork and activities conform to NVO-325 requirements. (Responsibilities and activities of Quality Certification are further delineated in Items 1.2 through 1.4.18, and 2.2 through 2.5 of this WCPP.)

The Quality Verification subsection administers a procurement quality program, which includes the procurement of waste packaging for the LLW shipments. This subsection also provides quality verification of contracted construction work, which includes LLW packaging from the construction projects. When verifying packaging of LLW, respective personnel within this subsection are accountable to the Quality Certification subsection manager, who is also the Chief Certification Official.

1.2 Waste Certification Organization Independence

The independence of the Waste Certification Organization (Quality Certification) is assured by the following organizational hierarchy.

The President of WEMCO retains the authority and responsibility for the overall QA Program of WEMCO, and has approved this WCPP as an appendix to the application to ship LLW to the NTS. Also, by approval of the Quality Assurance Program Description (RM-0012), the President of WEMCO has given the QA portion of the Self Assessment, Continuous Improvement Processes, and Quality Assurance Department (SA,CIP&QA) freedom and authority to assure that the QA Program is implemented throughout WEMCO, and to stop work or control further operations where significant conditions adverse to quality are identified.

The Manager of SA,CIP&QA is responsible for developing the QA Program, with input from all senior managers, monitors its implementation and effectiveness and coordinates the WEMCO Organizations' QA functions. The Manager of SA,CIP&QA reports directly to the President.

The Low Level Waste Program Manager defines the management system to be used to assure the quality of the desired results for waste certification activities.

The Manager of Quality Certification, a subsection of the SA,CIP&QA Department, has full access to the office of the President to resolve certification issues as indicated by a dotted line on the organization chart. This manager, who is also the Chief Certification Official, has authority over the Waste Certification Officials and Waste Package Certifiers, and has responsibility to ensure that all legitimate certification issues are duly addressed. Since all Certification Officials and Waste Package Certifiers are members of the SA,CIP&QA Department, they are also provided independence and protection as provided by the QA Program Description (RM-0012).

1.3 Specific Waste Certification Program Responsibilities

1.3.1 The President of WEMCO retains the authority and responsibility for the overall QA Program of WEMCO.

1.3.2 The Manager of SA,CIP&QA is responsible for monitoring the implementation and effectiveness of the QA Program, and coordinating QA functions.

1.3.3 Low Level Waste Program Manager shall define a management system to be used to assure the quality of the desired results for waste certification activities. The Low Level Waste Program 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 Chief Waste Certification Official (CWCO) at WEMCO is the Manager of Quality Certification, a subsection of the Sitewide QA Section of the SA,CIP&QA Departments. There are four alternate Waste Certification Officials and five Waste Package Certifiers. These individuals are responsible to the CWCO in the performance of certification activities.

In accordance with NVO-325, Waste Certification Officials are assigned the following responsibilities:

The Chief Waste Certification Official shall:

- Sign the WEMCO 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 Waste Certification Officials and Waste Package Certifiers are properly trained and qualified to the requirements of NTS Defense WAC and Certification requirements (NVO-325).

Waste Certification Officials shall:

- Verify and document compliance with NVO-325 requirements for shipment of LLW.
- For each waste shipment certified, 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 the Nuclear Materials Shipping Order to acknowledge QA release of each individual waste shipment.
- Sign the LLW certification statement for each shipment.

Waste Package Certifiers shall:

- Verify and document compliance with NVO-325 requirements for shipment of LLW.
- Sign and affix NV-211 stickers to packages of waste they have personally examined for shipment to the NTS.

1.4 Waste Process and Certification Interface Description

1.4.1 Responsibility for specific operations for LLW generation rests primarily with Low Level Waste Program, Facilities & Materials Evaluation, Analytical Laboratories, Waste Shipping, Radiological Safety, Materials Control & Accountability, Shipping & Support Services, and Logistics Administration (Traffic), and Quality Assurance. Figure 2 shows the waste processing interface, and Figure 3 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, Low Level Waste Program 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 WEMCO Low Level Waste Program 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 Low Level Waste Program 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 FME section of Environmental Management Department 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 Low Level Waste Program and accepted by the FEMP Procurement Quality process. 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 FME. 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). The card and other information from packaging is processed by MC&A in the transfer of the container to Waste Shipping.

1.4.7 In accordance with procedure, Sitewide QA 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. Quality Verification personnel verify waste generated from construction contracts, whereas, Quality Certification personnel verify packaging of waste generated from the process areas. For waste generated from construction contract projects, Quality Verification approves the corresponding Item Production/Certification/ Identification Cards (W-65 cards) prior to the waste leaving the construction site. This evidence eventually becomes part of the paperwork package documentation used by Quality Certification to certify the waste for shipment. When quality verification personnel, who may also be qualified as a waste certification official, signs a W-65 card, that individual will not be permitted to certify that package for disposal at the NTS.

1.4.8 At the waste generator's request, MC&A personnel arrange for Transportation and Support Services 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 Waste Shipping 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 Safety 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 delivered to Quality Certification for 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 FME, 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 the Manager of Logistics Administration 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 Garage 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 Waste Package Certifier (WPC) or a Waste Certification Official (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 (PS&D) 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&D Report was signed by a WCO. The WCO's approval signature on the PS&D 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 Certification 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.

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 Certification Official for 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 Quality Certification personnel. 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 Logistics Administration. Based on Traffic requirements, the Logistics Administration, 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 WEMCO 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 WEMCO. Members of the President's staff are responsible for implementing the program in their organizations. The responsibility for establishing, executing, and evaluating the overall Quality Assurance Program is assigned to the Manager, SA,CIP&QA. As required by NVO-325, The Manager of Low Level Waste Program 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 Chief Waste Certification Official is responsible for coordinating and managing 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.

Organizations with the FEMP shall provide support as necessary to certify LLW for disposal at the Nevada Test Site. 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 Waste Package Certifier, or a Waste Certification Official, 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.

2.2 Statement of Independence - Interface Control

Both Waste Package Certifiers and Waste Certification Officials shall be trained and qualified in accordance with approved procedures to provide the necessary skills to make independent judgement decisions regarding certification of low level waste. This WCPP protects their rights of independence in performing this work, as ensured by the WEMCO Quality Assurance Program Description Requirements Manual (RM-0012).

Waste packages and shipments are certified by trained and qualified personnel in the Sitewide Quality Assurance Group, which is organizationally independent from groups directly involved in the actual packaging and shipping of waste. The Manager of Sitewide QA, SA,CIP&QA Departments, or his delegate, certifies that personnel are properly trained and qualified to certify waste packages and shipments. (Reference Appendix I, Section B, FEMP Department Procedures EQP-6.05 and 6.06, for specific training requirements.)

The Quality Certification Manager, as Chief Waste Certification Official, directly supports the implementation of the certification program. Up to four alternate Waste Certification Officials and five Waste Package Certifiers work under his/her direction. Other individuals may perform certification verification work provided they are properly trained for the work performed, as determined by the Chief Waste Certification Official. However, only Waste Certification Officials are authorized to sign certification statements, and only Waste Certification Officials and Waste Package Certifiers are authorized to sign the NV-211 package certification stickers.

The Waste Certification Official and Waste Package Certifiers are not involved in the actual packaging of waste. The Waste Certification Officials and Waste Package Certifiers are part of the SA,CIP&QA Departments. The Manager of SA,CIP&QA reports directly to the President of WEMCO.

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 WEMCO Facilities & Materials Evaluation 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 are responsible for verifying that all waste packages are in compliance with all applicable requirements. The Certifier 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 reporting system 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 and Shipment of Low level 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 established checklists or by approved inspection plans.

Prior to initiating shipment of waste, Quality Certification checks the documentation supporting 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 a shipment, verification is made that all packages (packaging and contents) meet DOT, EPA, and NVO-325 requirements. The verification is based on visual examination of the packages and review of previous verification documentation. Once completed, an NV-211 sticker, signed by the Waste Package Certifier or a Waste Certification Official, is affixed to each package.

Documents prepared for transport of waste to NTS, and loading and placarding of transport vehicles are verified to be in compliance with DOT and NVO-325 requirements prior to release of shipments.

2.4 Qualification of Waste Certification Officials

Waste Certification Officials are qualified per procedure EQP-6.05, Qualification of Waste Certification Officials. Qualification is based on education, experience, surveillance skills, and rights of management. 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. 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

Waste Package Certifiers 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 includes attending Shipping & Support Services, Waste Shipping, Solid Waste Compliance, and Quality procedures training courses that are offered by WEMCO. Based upon need and application to work performed, attendance at selected training seminars is required.

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.

To assure waste determination, each generator must initiate an "Item Production/Certification/Identification" (see Figure 14). 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.

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.

A performance-based in-house training program shall be utilized to train personnel involved in waste processing. This ensures that supervision and operation staffs have the necessary skills to prepare waste for shipment.

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 WEMCO 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.

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.

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 QA, Safety, and Procurement 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.

Quality Assurance provides Procurement 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 QA 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 performed by Shipping and Support Services. 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-003 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 Commitment and Documentation Control Section of the Resource Planning, Scheduling, and Integration (RSP&I) Department. 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 Safety). These procedures are approved by the responsible department 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 1-C-101, entitled "Sampling Residues and Waste Materials."

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. 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 7 & 8).

5.3 Sample Custody

Routine samples of process waste collected, while packaging, are accompanied by an "Analytical Laboratory Sample Seal," "Analytical Laboratory Sample Label," and a "Chain-of-Custody Record," FMPC-PRO-3112, (Figures 6, 7, and 8). 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. Figure 4 shows a flow chart of analysis reports and samples.

Sample determinations for hazardous materials following EPA (SW-846) protocols require chain-of-custody documentation to accompany the samples. Figures 7 and 8 show these FEMP forms.

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 FMPC-2185, Sampling Plan for Drummed Waste at the FMPC.

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 procedure in which inspection and certification activities are documented.

5.6 Procedures For Keeping Pertinent Regulations Up-To-Date

Compliance documents, federal and state regulations are ordered annually by subscription through the FEMP Library with approval by DOE. [Procedure for Obtaining New Library Materials (TS:RHG:88-003)]. Current regulations are maintained in the library and the Code of Federal Regulations are maintained in the Legal Library. Other WEMCO 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 Chief Waste Certification Official, and are kept up to date for use by Waste Certification Officials and Waste Package Certifiers 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 Low Level Waste Program, 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 PP-0103, 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 Commitment and Documentation Control Section in the Resource Planning, Scheduling, and Integration Department. 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 Library, 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 WEMCO for visible damage and completeness of the shipping orders. Sitewide QA is responsible for overviewing 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 (Figures 9, 10, and 11). Items found to be nonconforming are tagged and a nonconformance report issued (see Section 15.0). In addition, inspections of containers are reviewed by Sitewide QA at the supplier facility prior to shipment to WEMCO.

7.2 Contract Review

Review of contract and supplier submittal is performed by QA, the requisitioner, and Procurement and Contracts Sections. 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 WEMCO approval. The requisitioner, Procurement and Contracts, and QA 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 Procurement for processing.

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 FMPC-711. 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.

The approved requisition package is Procurement's authority to initiate the procurement process. Procurement 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, Procurement issues a purchase order to the selected supplier. The purchase order is the contract agreement between FEMP Procurement and the supplier.

Procurement maintains a database for purchase order information. Receiving information is entered into the Procurement purchase order database direct by FEMP Receiving personnel. Receiving 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 Facilities and Warehousing.

7.4 Source Inspections

Supplier inspection of containers, assay systems, and instruments are witnessed by QA 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, and copies are sent to the Chief Certification Official for informal review.

8.0 IDENTIFICATION & CONTROL OF MATERIALS, PARTS & COMPONENTS

8.1 Containers & Packaging Materials

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).

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.

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.

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.

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 National Institute of Standards & Technology (NIST). Preparation of secondary standards within the Analytical Lab 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 calculates an assay factor to estimate percent uranium on waste for whi samples are not obtained. A chain of custody for laboratory samples presently being used (Figures 7 & 8). Figure 4 shows the flow of samples and analysis reports.

9.2 Control of Processes

Waste acceptance criteria (WAC) are incorporated by each organization (e.g. Waste Shipping, QA, Radiological Safety, Shipping and Support Services, etc.) 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. How the FEMP meets the WAC is illustrated in Figures 3, 4 and 5 of this plan.

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 3 shows a flow chart of the process and QA hold points.

9.5.2 Waste certification begins with the generator, who is responsible for the waste until the container is transferred to Waste Shipping. The generator's signature on an FMPC-ES&H-1945-XX form, "Item Production/Certification/Identification" card (see Figure 14) provides documented verification that the waste is as described and contains no prohibited materials.

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 Sitewide Quality Assurance Section periodically witness container filling in accordance with procedures, which requires full-time attention in some areas. The Quality Verification Group of Sitewide QA provides routine verification of waste packaged at subcontract projects on site.

9.5.3 The Quality Certification Group, Sitewide Quality Assurance, obtains information for certification from several sources. Considerable reliance is placed on Facilities and Materials Evaluation for characterization of waste; Analytical for analytical results of materials characterized and shipped; and Materials Control and Accountability 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, which upon shipment becomes part of the official certification file. Once completed, the generator notifies Materials Control and Accountability (MC&A) who then requests transfer by Shipping and Support Services. The filled containers are then moved to Waste Shipping 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 Waste Shipping 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 Waste Package Certifiers and/or Waste Certification Officials 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 Waste Package Certifier or Waste Certification Official 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 Shipping and Support Services is monitored by Quality Certification to ensure that no damage occurs between certification and shipment. Transport vehicles are examined by Quality Certification prior to and after loading. Shipping and Support Services 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 Date 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, Logistics Administration 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 and Corrective Action Reports document disposition of nonconformances, including technical justification of acceptance. Disposition requires independent evaluation and approval by a QA evaluator. Nonconformances that do not meet requirements for shipment are unacceptable.

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 Policy and Procedure PP-0314.

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 Sitewide Quality Assurance. 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
- 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 Quality Certification function is to certify that wastes shipped to the NTS meet NVO-325, DOE, EPA, and DOT requirements. In accordance with procedures, regulations, and official directives developed by Waste Management Projects, Waste Shipping, Environmental Compliance and Quality Assurance, Radiological Safety, and Environmental Engineering, Quality Certification is responsible for verifying the acceptability of the labeling and marking, the condition, the content of each waste package, and the use of approved packaging materials and techniques prior to loading each shipment. Also, an overview is performed of the loading and placarding of each vehicle (to ensure compliance with DOT regulations). Shipping documentation is reviewed for accuracy and completeness prior to final release for shipment. Included in the certification function is the collecting, processing, documenting, and distributing of information used to certify shipment of waste to the NTS. A responsibility also exists for monitoring in areas of waste generation.

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 Quality Control/Data Management prepares and distributes quality control samples for the analytical lab. The individual laboratories analyze these quality control samples in the normal lab sample stream. Quality control samples make up approximately 10 percent of the total samples analyzed. The following Analytical Laboratory controls are:

- An internal lab 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 lab or field in order to duplicate a routine sample excepting the absence of the analyte. Analysis of blank samples provides a date 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 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 Quality Control/Data Management supervisor has the responsibility to monitor the lab 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-0024 and SOP-TRF-46-C-110. Most process waste is weighed and packaged at the point of generation, except for sea/land containers which are weighed at the central truck scale. Shipping and Support Services weighs construction waste to verify and record the package weight prior to transfer to Waste Shipping. 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.

12.0 CONTROL OF MEASURING & TEST EQUIPMENT

12.1 Calibration Schedules & Stickers

Each WEMCO 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 accurracy 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 test instruments are calibrated using standards traceable to National Institute of Standards and Technology (NIST), or an other recognized source.

Analytical laboratory equipment and instrumentation, and field equipment and instrumentation, shall be calibrated in accordance with the FEMP Sitewide CERCLA Quality Assurance Project Plan (FD-1000). Requirements are that measuring and test equipment used in the field and the laboratory be controlled by formally procscribed calibration requirememts. Equipment shall be of the type, range, accuracy, and precision necessary to provide data compatible with the proscribed Analytical Supprt 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 National Institute of Standards and Technology (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.

Responsibility for ensuring the analytical laboratory equipment and instrumentation calibration requirements are met rests with the laboratory manager, whether on-site or a subcontractor. The assigned FEMP project manager or designee is responsible for ensuring that field equipment and instrumentation calibration requirements are met.

Quality Assurance inspection equipment is either checked internally, or is serviced by contract. Procurement of these services is made per the WEMCO procurement control system.

Nuclear material scales are checked by the Maintenance and Support Services Department using standards traceable to standards obtained from NIST.

Maintenance and calibration of laboratory balances is contracted using services procured through the WEMCO 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 closed and/or locked to prevent tampering. Containers awaiting shipment must be placed in temporary storage. Immediately prior to loading, containers are rechecked per SOPs and checklists to verify the original certification. A new radiation smear is required for shipment, if a container has been exposed in a radiological regulated area for more than 48 hours. However, if a container is protected from exposure to radiological contamination (e.g., enclosure in a van), there is no limit on the duration of the smear result. Smear results for containers stored in controlled radiological areas (non-regulated) expire after seven days (168 hours).

13.2 Security

The FEMP, where LLW activities are conducted, is a fenced and secured area. The Safeguards and Security Section 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 the Fire and Safety Group. A report is completed and forwarded to the facility owner. Special work practices, which may require additional monitoring by Fire and Safety Group, 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, storing, and shipping are detailed in Site Procedure SSOP-0024 and Department Procedure SOP-TRF-46-C-110. Preparation of packages for shipment is detailed in SOP 1-C-602. Shipping and Support Services and Quality Certification verifies by informal inspection that the enclosure and loading surfaces of vehicles are acceptable for use prior to loading. Quality Certification verifies 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.

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

The Manager of Logistics Administration, 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 Waste Certification Official's signature on the Nuclear Materials Shipping Order and certification statement(s) required by NVO-325. The Waste Certification Official 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 WEMCO each day so that WEMCO 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 suitable needs.

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 anlytical 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 preventive maintenance for some major instrument systems to ensure performance and to minimize downtime. Process Area scales are maintained by the Maintenance and Support Services.

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 Site Procedures FMPC-703, Unusual Occurrence Reporting System, and FMPC-704, Minor Event Reporting System. 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 Reporting. The systems 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 are utilized FMPC-Q-2708 (Figure 10) for nonconformances, and FMPC-QA-2709 (Figure 11) for hold for inspection, and FS-F-2707 for quality accepted (Figure 9).

15.3 Segregation and/or Removal From Operating Status

Where practicable, non-conforming 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. Non-conforming conditions that are not easily and promptly reworked, or require corrective action of the root cause, are processed.

16.0 CORRECTIVE ACTIONS

16.1 NonConformance Items

Corrective actions on nonconforming items are part of the Deviation and Corrective Action Reporting (DCAR) 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

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 DCAR system, are required.

16.3 Exceptions Approval from the DOE/NV Manager

Exceptions Approval from the DOE/NV Manager to the criteria specified in NVO-325 will be obtained as needed. A safety analysis will accompany the request for exception when the fissile loading is increased or when other compliance criteria is significantly affected. All exceptions will be requested by DOE/FEMP and approval received by the DOE/NV manager prior to shipment. A copy of the Exception Approval will be sent to the Radioactive Waste Management Project of REECo Environmental Sciences Department.

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 WEMCO 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 5. Surveillances are conducted on a periodic basis of real time activities as described in standard operating procedures. These surveillances, conducted by QA, are documented on a surveillance report addressed to responsible management for resolution of observations and findings. All nonconformances are documented on Deviation and Corrective Action Reports. All accepted corrective action responses (as agreed to by QA) are verified to be complete by QA 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. All audits are conducted by a team using written checklists. Results of all audits are documented in an audit report addressed to responsible management for written corrective action responses to findings. All nonconformances are documented on Deviation and Corrective Action Reports. Verification of completion of all accepted corrective responses are documented 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 biannually, and available for inspection by any auditing official.

19.1 Training Program

A Centralized Training Program Manual RM-FMPC-002 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 NQA-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 a biannual evaluation of the effectiveness of the training program. Permanent training records are maintained by the Centralized Training Section of the Industrial, Radiological Safety and Training Department.

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.

Waste Certification Officials and Waste Package Certifiers 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 Site Services Department conducts training for personnel directly involved with off-site shipments. Also, there is a training program for safe operation of powered industrial trucks. Site Services' training program is administered by their Training Coordinator 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 Centralized Training. QA validation of training shall be in the form of surveillances and audits.

TABLE I

MASTER PLANS, MANUALS, AND PROCEDURES

FEMP DEPARTMENT PROCEDURES

Environmental Compliance & Quality Assurance

*	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- 7.01	Administration and Conduct of Surveillance
	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-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	Verification of Waste Packaging
	EQP-14.01	Receiving Inspection

* These documents have been provided as part of the WCPP: all other documents will be provided upon request.

Industrial, Radiological Safety and Training

SP-P-35-009	Radioactive Material Shipping & Receiving
SP-P-35-020	Radiological Survey of Vehicles Entering and Exiting the Controlled Areas of the FEMP

Project Engineering

PMP-425	Construction Waste Handling

TABLE I
(CONTINUED)

MASTER PLANS, MANUALS, AND PROCEDURES (CONT.)

FEMP DEPARTMENT PROCEDURES (CONT.)

Transportation and Support Services

M-102	Transportation Requirements Manual
POD-035	Shipment of Low Level Radioactive Waste (LLRW) Requirements

Site Services

1-C-305	Baling Scrap Metal Drums
1-C-306	Crushing Metal Drums
1-C-602	Low-Level Radioactive Waste (L-LRW) 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
4-C-804	Mobile Hopper Discharge Station Operation and Packaging Depleted UF4
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 Bulk Streams for Shipment
20-C-805	Sampling Drummed Waste for Hazard Identification
20-C-912	Checking Scale Operation
PO-D-006	Calculation of Drum Equivalents for FMPC Waste Volumes
PO-S-01-001	Storage and Handling of Empty L-LRW Containers
PO-S-01-002	Internal Audit Program

TABLE I
(CONTINUED)

MASTER PLANS, MANUALS, AND PROCEDURES (CONT.)

FEMP DEPARTMENT PROCEDURES (CONT.)

FEMP SITE PROCEDURES

FMPC-0102	Training
PP-0103	Site Document System
FMPC-0302	Request for Purchase
FMPC-0307	Control and Accountability of Nuclear Materials
PP-0314	Packaging, On-Site Movement and Off-Site Shipment of Material
FMPC-0702	Development and Control of Design
FMPC-0707	Audit Program
FMPC-0708	Personnel Certification
PP-0709	Conduct of Independent Surveillance Activity
PP-0710	Quality Assurance Plans
FMPC-0711	Quality Levels
FMPC-0716	Control of Processes
FMPC-0717	Inspection
FMPC-0718	Measuring and Test Equipment Calibration and Control
PP-0721	Test Authorization
PP-FMPC-5010	Management of Low-Level Waste (LLW)
PP-5030	Change Proposal Procedure

FEMP MANUALS

OM-0003	Test Authorization
RM-0005	FEMP Lot Marking and Color Coding System
RM-0009	Radiological Controls
RM-0012	Quality Assurance Program Description
SM-0001	Risk Assessment and Management (RAM) System Manual

TABLE I
(CONTINUED)

MASTER PLANS, MANUALS, AND PROCEDURES (CONT.)

FEMP PLANS

ANL-SP-1001	Analytical Laboratory Quality Assurance Plan
FD-1000	FEMP Sitewide CERCLA Quality Assurance Project Plan
FMPC-2040	FMPC Waste Management Plan
FMPC-2114	Environmental, Safety, Health and Waste Management Plan
FMPC-2133	FMPC Waste Minimization Plan
FMPC-2185	Sampling Plan for Drummed Waste at the FMPC
PL-FMPC-3006	Materials Control and Accountability Plan
PL-FMPC-3009	Waste Minimization & Pollution Prevention Awareness Plan

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 Reporting
SSOP-0024	Packaging Low Level Radioactive Waste (LLRW) for Off-Site Disposal
SSOP-0027	Control of Box-Type Containers
SSOP-0036	Quality Assurance Project Plans
SSOP-0044	Management of Soil, Debris, and Waste from a Project

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 Authorizations and Reports

Quality Assurance Plans

Radiolgical 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 Reports

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 actions 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.

TABLE V

WASTE PACKAGING MATERIALS REQUIRING PROCUREMENT CONTROL

MATERIAL DESCRIPTION	DRAWING/SPECIFICATION
48-gallon Metal Drum ("Jug Head" Type)	WMCO 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-H1
83/85-gallon drums	N/A
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	WMCO Dwg. 40X-5500-M-00011
Metal Box Shipping Container 43" H x 53" W x 77" L Clip type closure	WEMCO Dwg. 30A-5500-M-00059
Metal Box Shipping Container 8' H x 8' W x 20' L Top Load Clip type closure	WEMCO 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.

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."

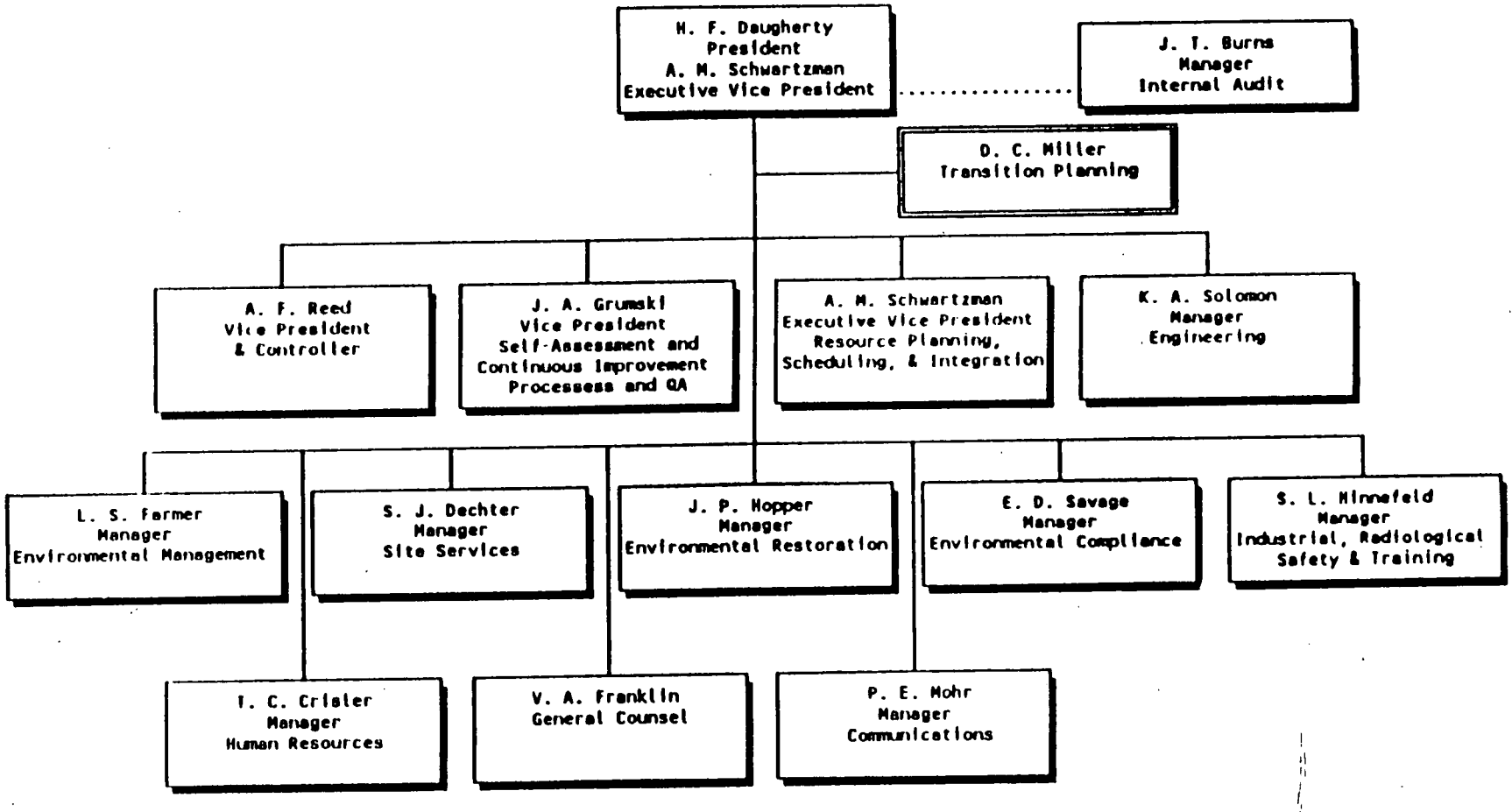
U. S. Department of Energy, ORO 5480.11, "Radiation Protection for Occupational Workers."

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."

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT
COMPANY OF OHIO
OFFICE OF THE PRESIDENT



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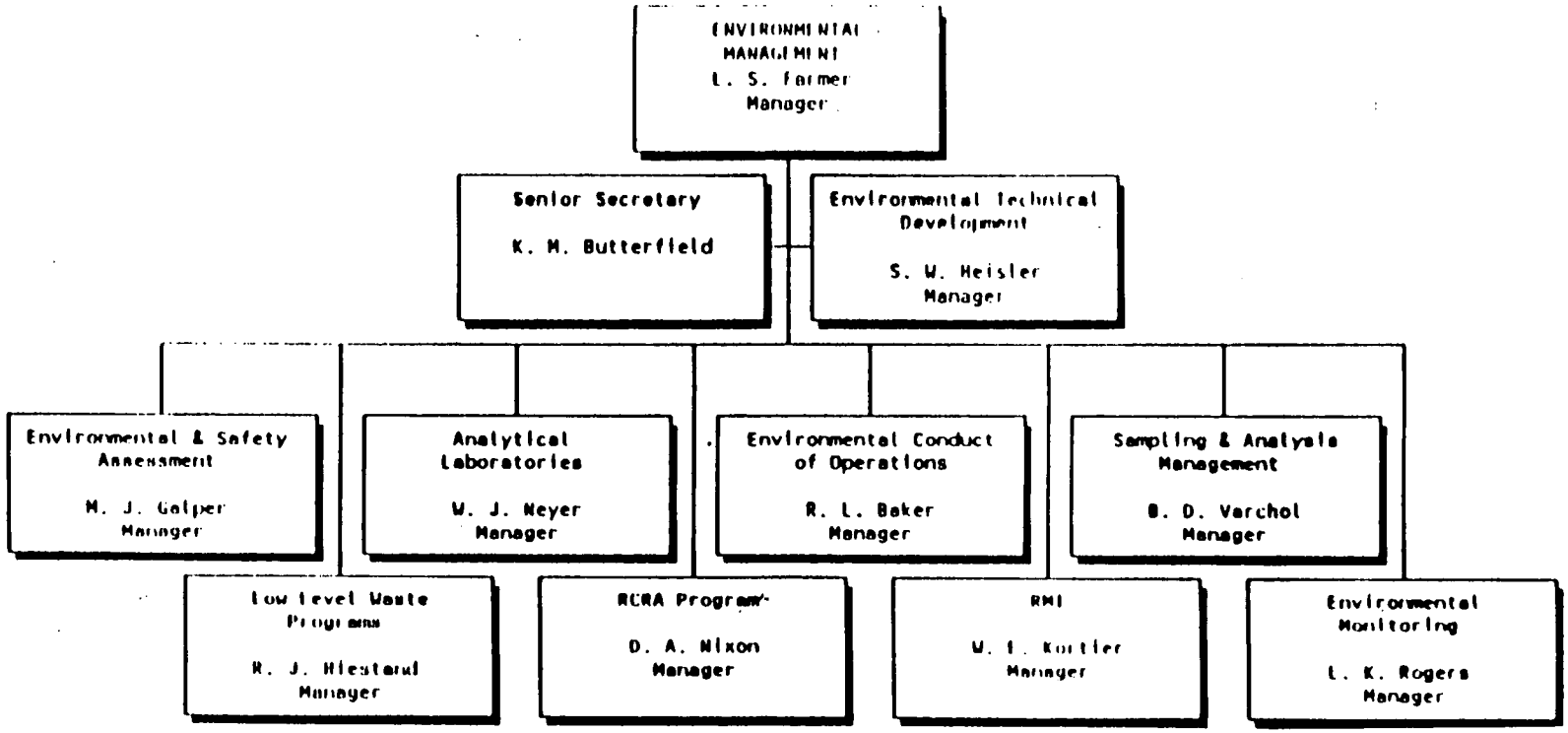
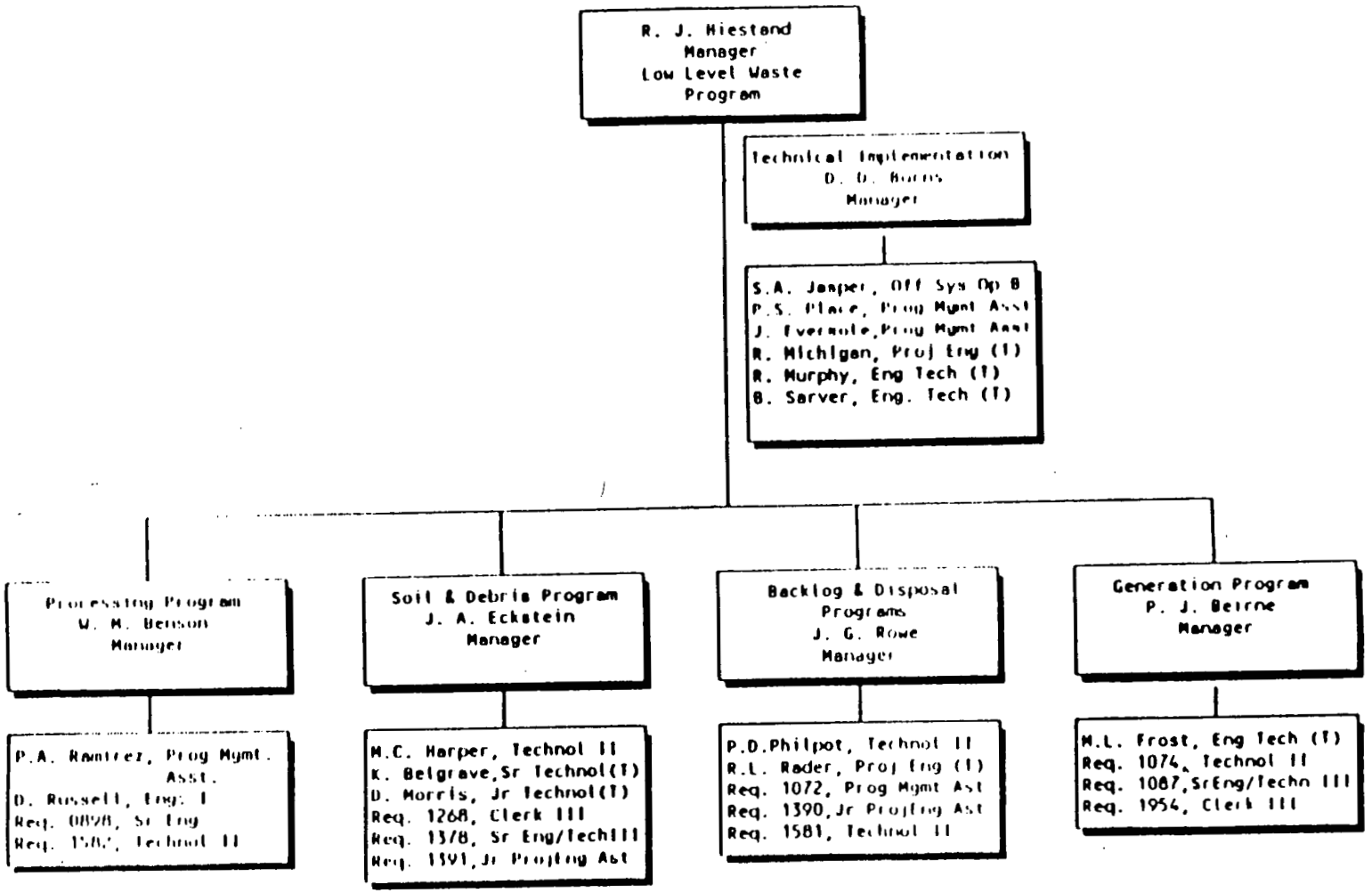
ENVIRONMENTAL MANAGEMENT

October 1, 1992



ENVIRONMENTAL MANAGEMENT
LOW LEVEL WASTE PROGRAM

October 1, 1992



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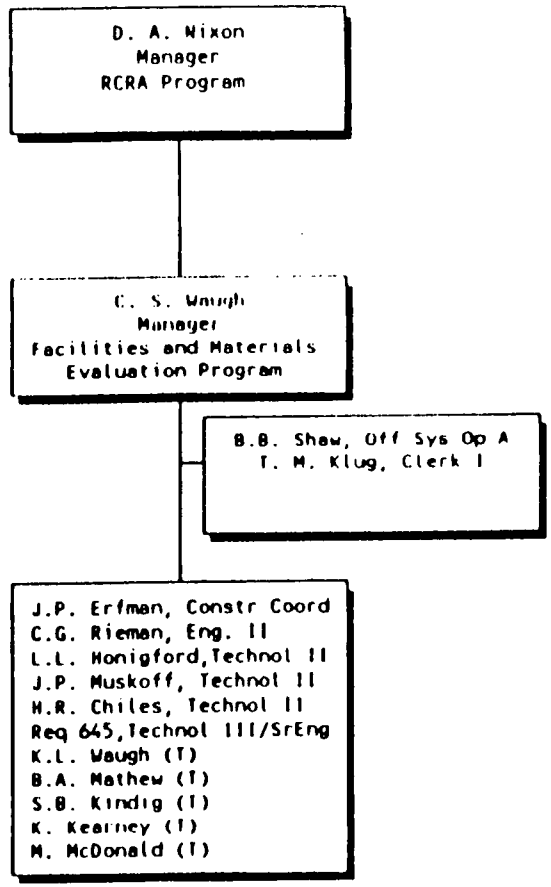
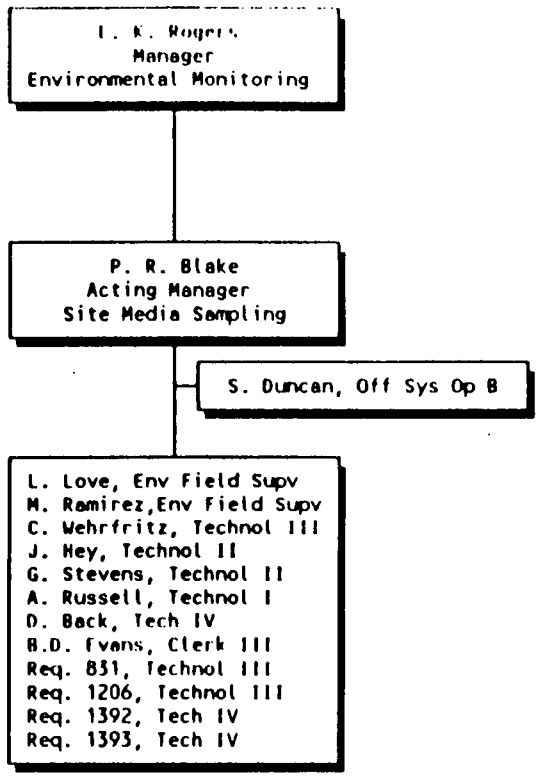
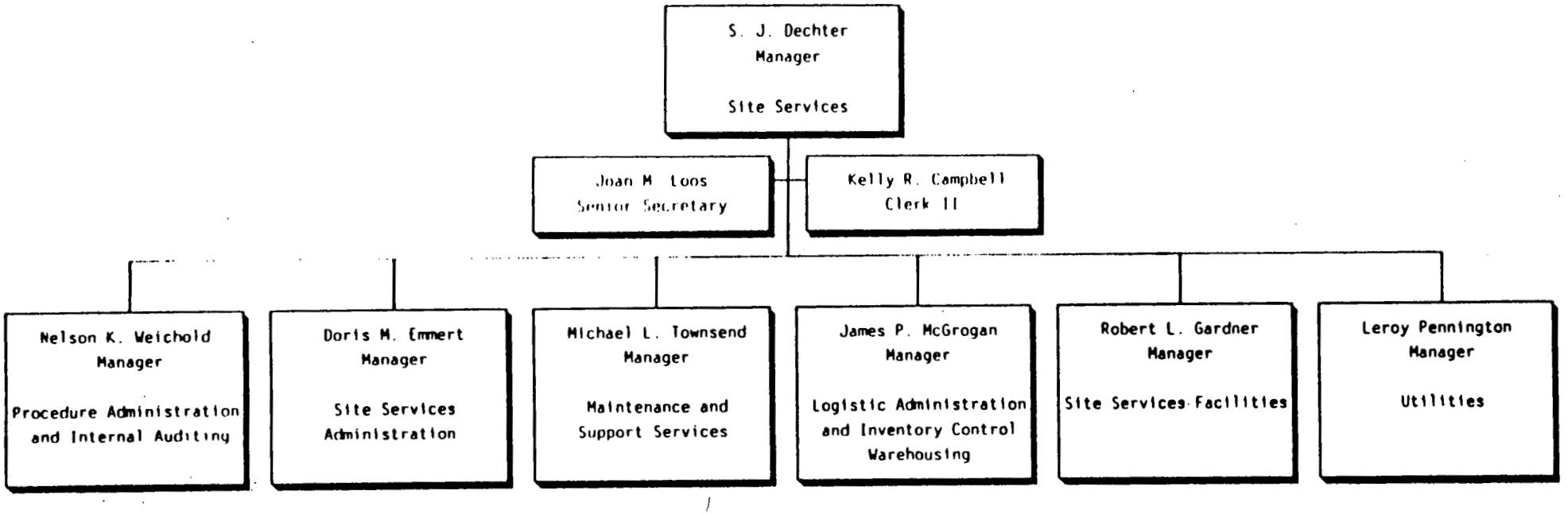


ENVIRONMENTAL MONITORING
SITE MEDIA SAMPLING

October 1, 1992

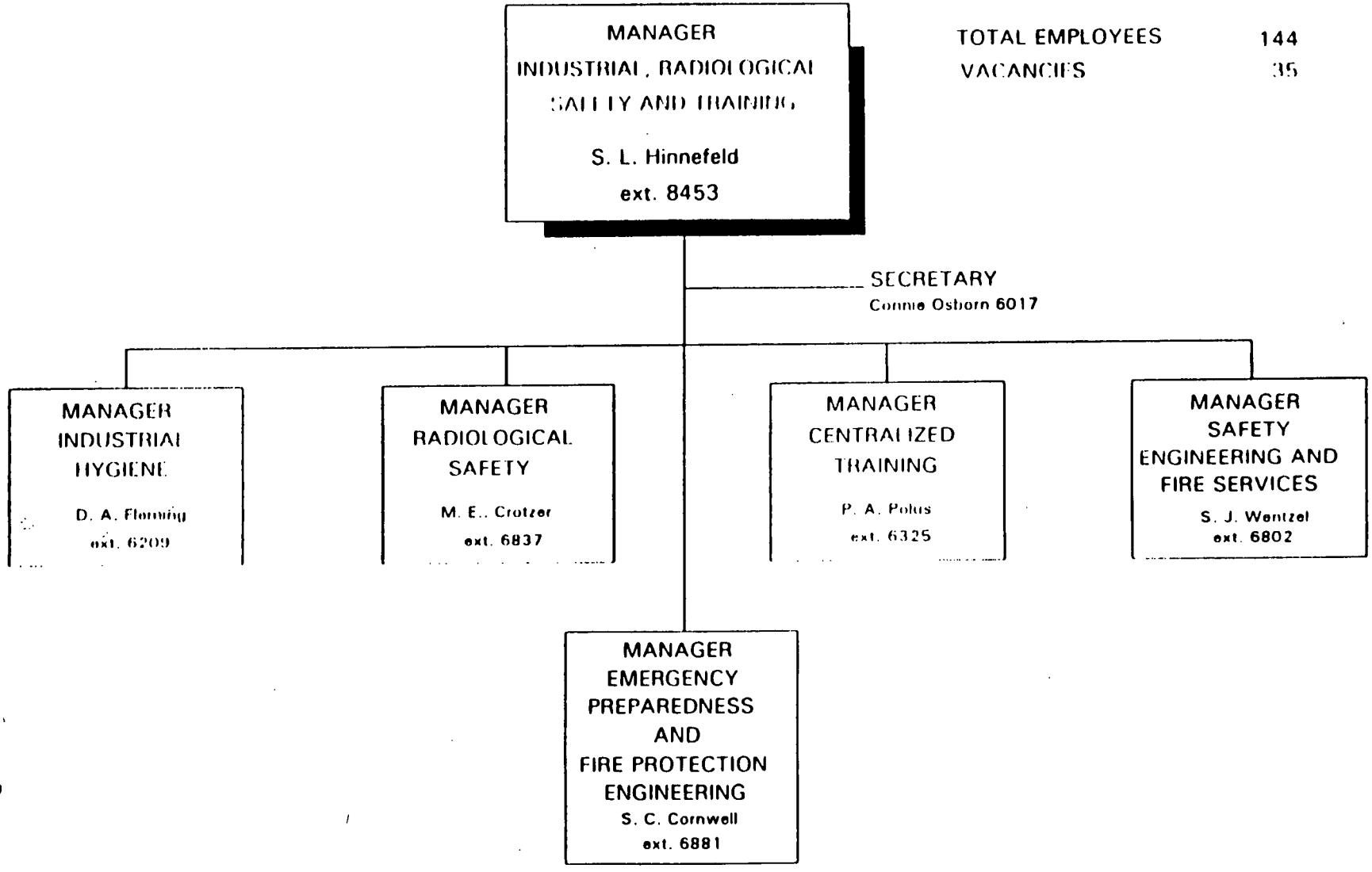


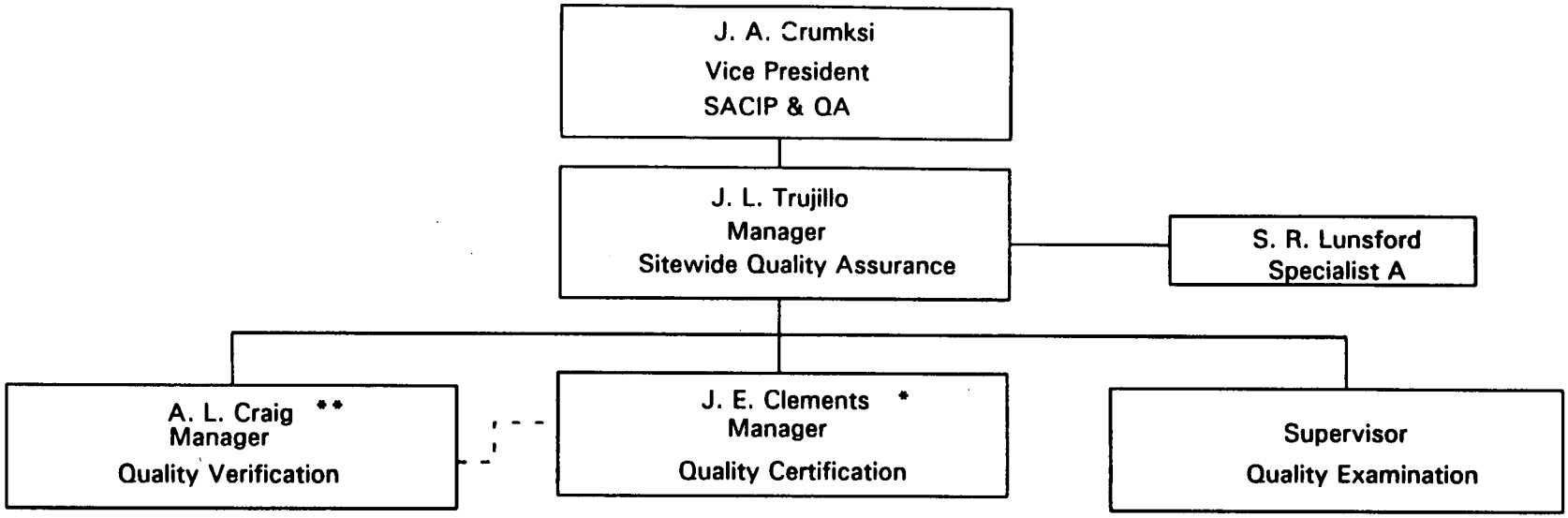
WESTINGHOUSE ENVIRONMENTAL MANAGEMENT
COMPANY OF OHIO
SITE SERVICES DEPARTMENT



WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO

INDUSTRIAL, RADIOLOGICAL SAFETY & TRAINING DEPARTMENT





*** F. B. Thompson
Sr. Engineer

S. E. Adkins
Sr. Engineer

Req. #1376
Engineer II

D. A. Salisbury
Technician

D. Sparks
Technician

Four Subcontractors
Const. Support

** R. L. Ashcraft
Quality Analyst

** E. B. Spencer
Cert. Official

** R. M. Kirkham
Quality Analyst I

T. E. Beaver
Sr. Quality Field Engineer

*** J. C. McDonald
Quality Analyst

*** D. G. Miller
Quality Analyst

*** M. L. March
Specialist A

*** J. W. Stanzak
Technician III

S. L. Tomes
Clerk II

Technician

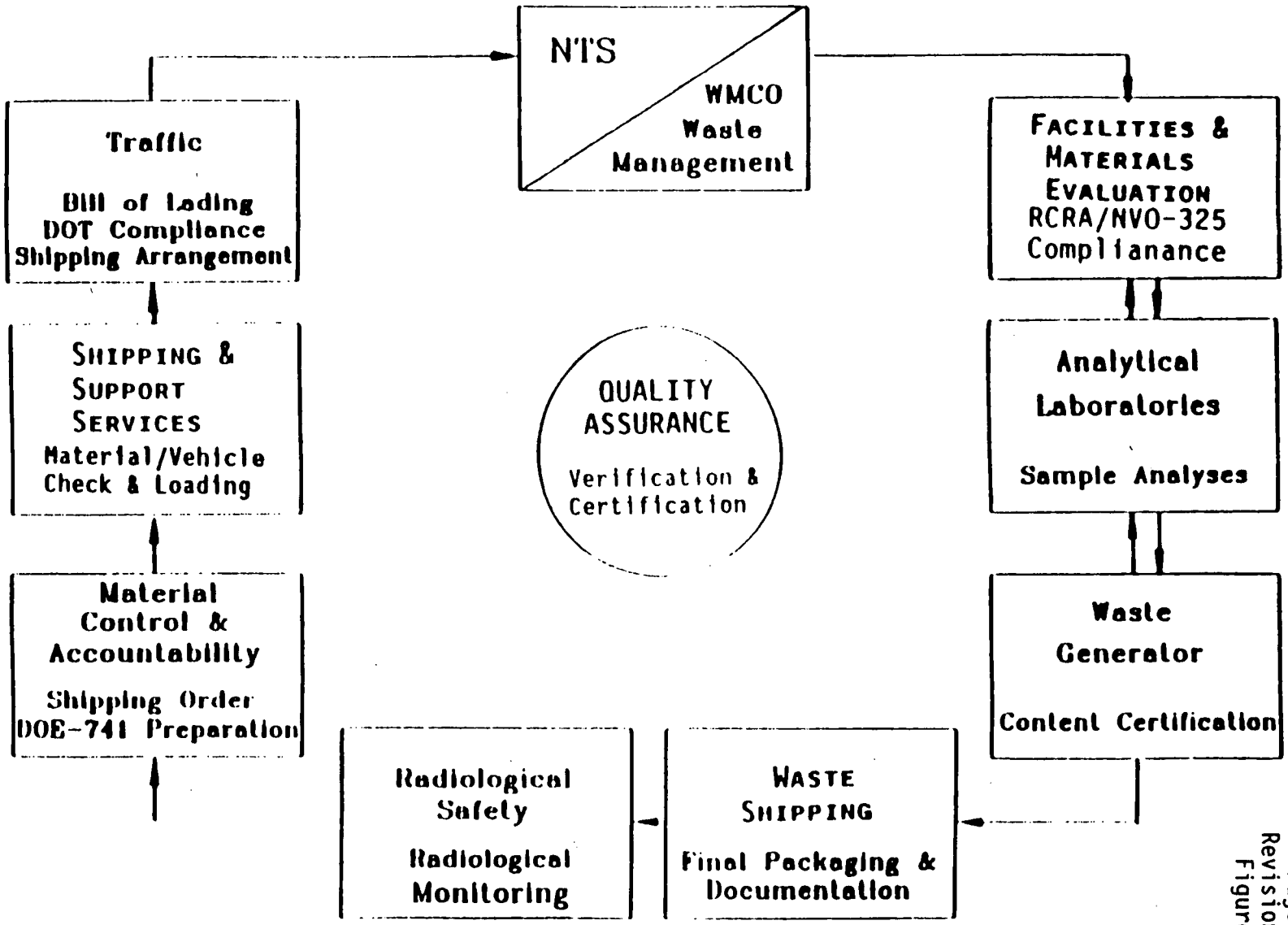
Technician

* Chief Waste Certification Official has full access to the office of the President to resolve certification issues.

** Waste Certification Official

*** Waste Package Certifier

Waste Processing Interface

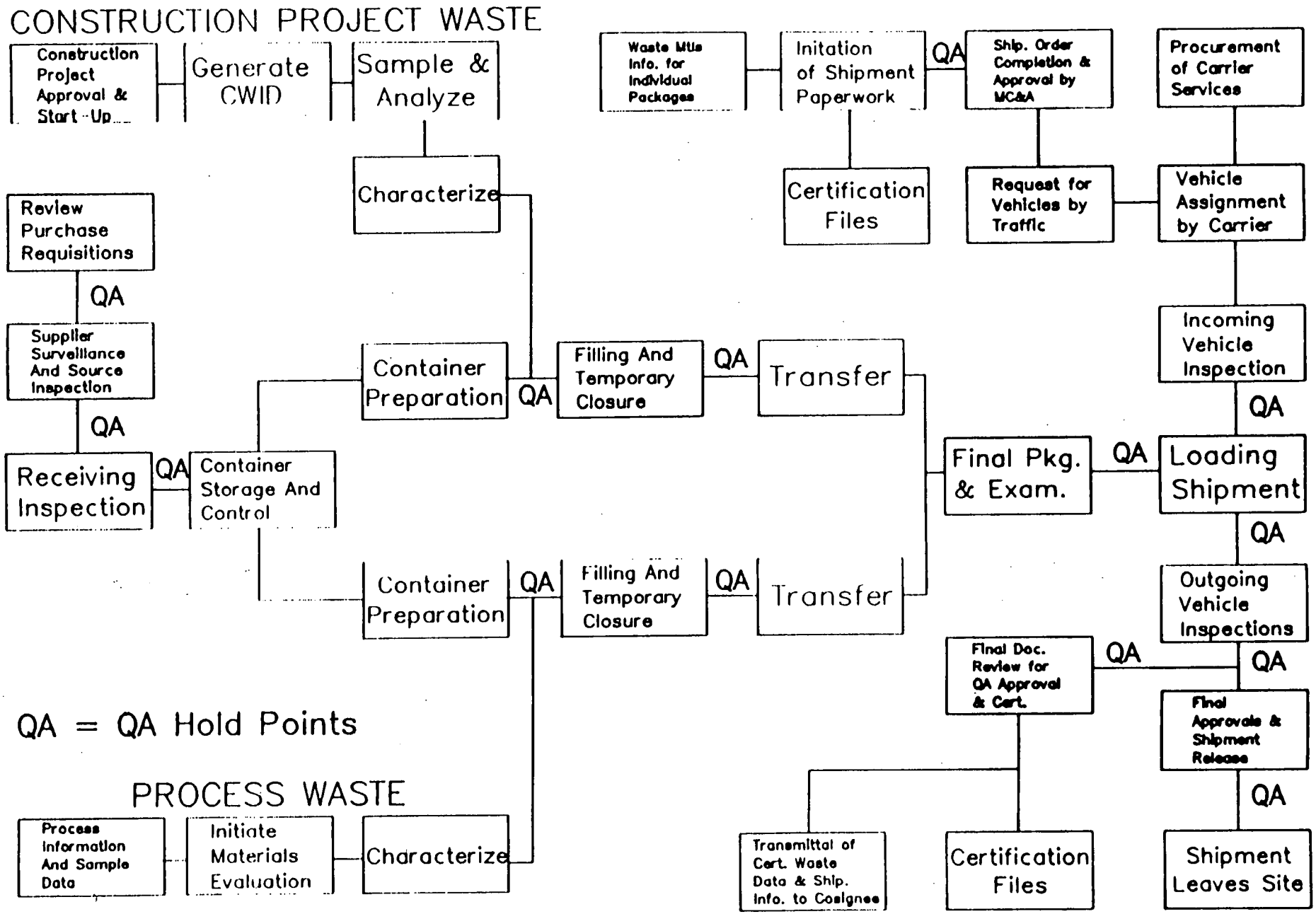


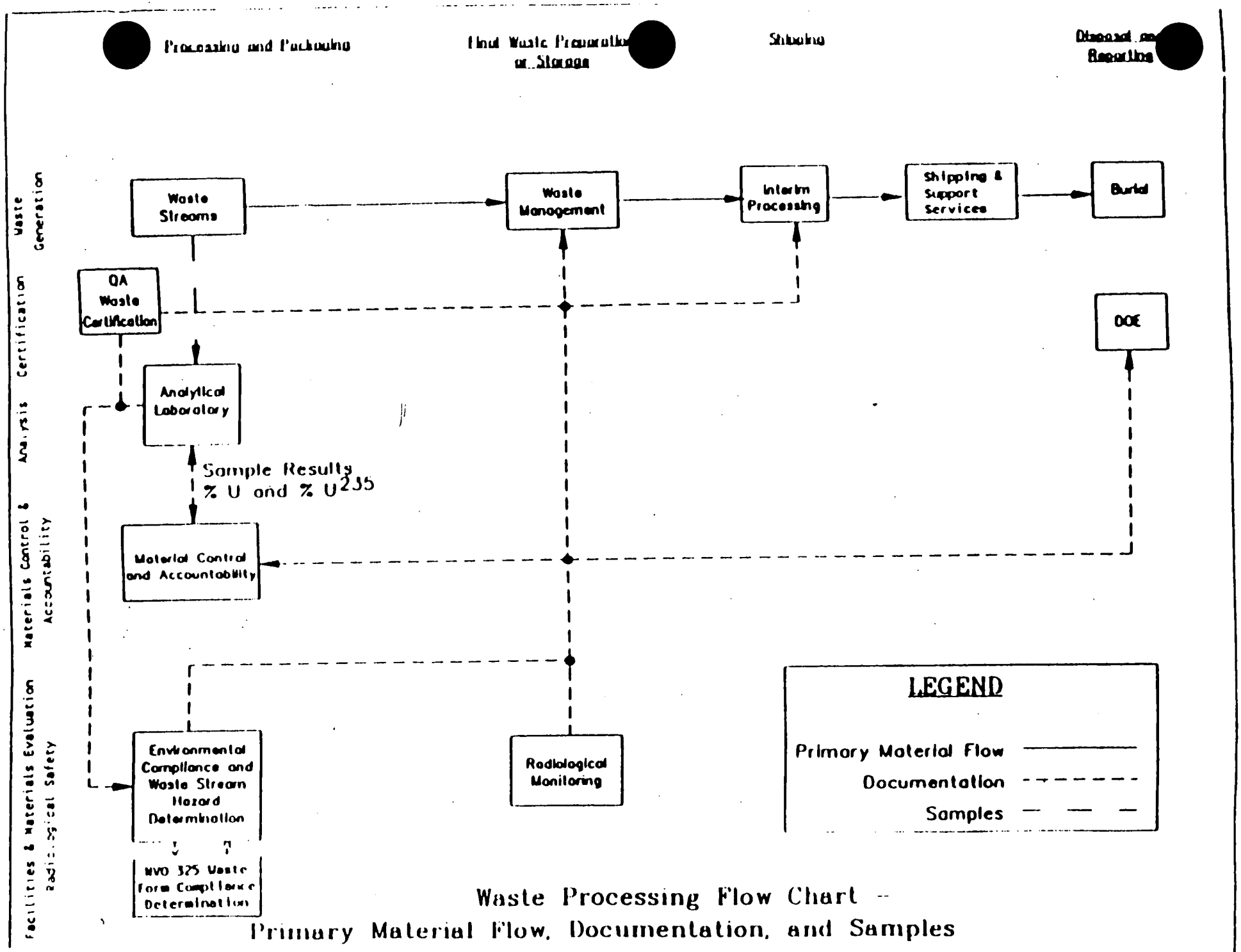
Page 61
Revision 6
Figure 2

247

4038

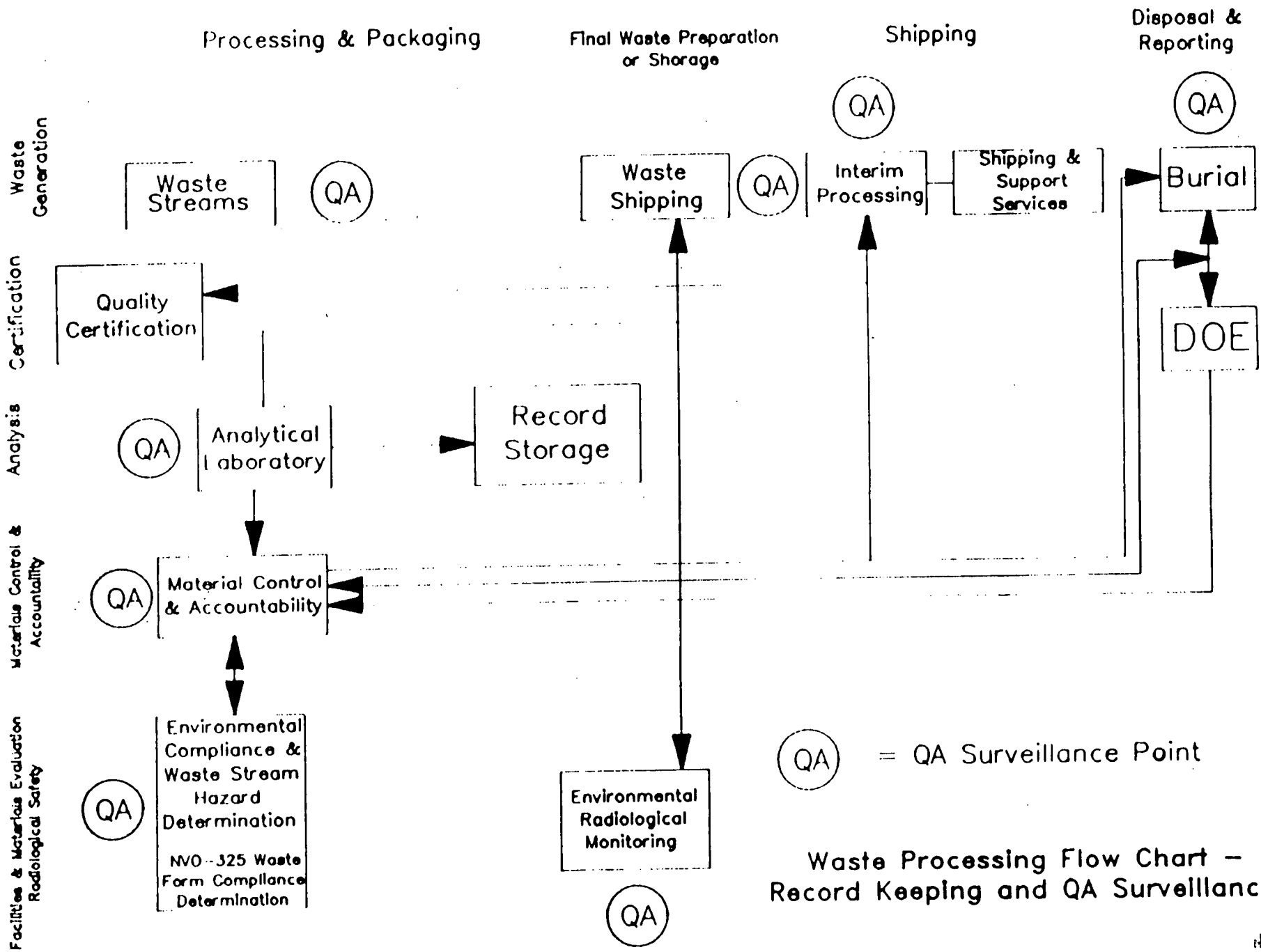
LOW LEVEL WASTE FLOW DIAGRAM





Waste Processing Flow Chart --
Primary Material Flow, Documentation, and Samples

249



Waste Processing Flow Chart – Record Keeping and QA Surveillance

4038

If Seal is broken or package damaged check contents before signing receipt.

4038

******** CHAIN-OF-CUSTODY ********

ANALYSIS_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 DENT	
DATE TIME NET WT	

TYPICAL PREPRINTED

FERNALD SITE
SITE SERVICES - ANALYTICAL

Form Number _____ - _____ - _____

SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD

Page _____ of _____

PROJECT:

( ) PLAN NO.: OR ( ) PROJECT NO.:

PROJECT MANAGER/ENGINEER:

FOR SAMPLE RELATED PROBLEMS, CONTACT:
ORGANIZATION:
NAME: PHONE:

SAMPLER: PHONE:

CHARGE NUMBER: LOT MARKING CODE:

SAMPLER REMARKS:

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 88 3361 (7/89)

253

Page 67
Revision 6
Figure 8

4038

4038

Westinghouse
Environmental
Management
Company of Ohio

P.O. Number: _____

Receiving
Report No.: _____

Inspection
Report No.: _____

Date Inspected: _____

Badge No.: _____

QUALITY
ACCEPTED

FS-F-2707 (REV 8/3/91)

4038

Westinghouse
Materials Company
of Ohio

DCAR No.: _____

DATE: _____

QUALITY NONCONFORMANCE

TO BE REMOVED BY AUTHORIZED PERSONNEL ONLY

SIDE 1

QUALITY NONCONFORMANCE

SHIPMENT LOT PACKAGE CONTAINER ID No. _____

REFERENCE REPORT NO. _____ INSPECTION REPORT NO. _____

DESCRIPTION OF NONCONFORMANCE _____

NAME _____ BADGE No _____ PHONE No. _____

TO BE REMOVED BY AUTHORIZED PERSONNEL ONLY

SIDE 2

4038

Westinghouse
Materials Company
of Ohio

QUALITY
HOLD FOR INSPECTION

TO BE REMOVED BY QUALITY PERSONNEL ONLY

4038

FMPC
SECURITY ACQUISITION & MATERIALS LOGISTICS DEPARTMENT - TRANSPORTATION SECTION

OFFSITE LOADING — TIE DOWN INSPECTION — VEHICLE INSPECTION

Date: _____

CONSIGNEE	CARRIER	TRAILER NO.	SEAL NO.
			FA-WMCO

BALE/BOX/DRUM/SEA LAND CONTAINER NUMBERS:

LSA _____
LSA-RO _____
LC _____
LC-RO _____
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 brassman 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 brassman plates secured with eight each 2" nails		
Sea Land Containers ..... 4 each nylon straps		
..... Chains		
..... Ties		

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-248 (REV 6/5/88)

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

4038

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	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD MBA
		EMPTY CONTAINER AT START				
		PUNCTURED OR DENTS				
		MATERIAL BAR CODED			PLANT TO	MBA TO
WASTE DESCRIPTION AND COMMENTS		PROHIBITED MATERIALS				
		LIQUIDS IN CONTAINER				
PACKAGE TYPE		MINIMUM OF VOID SPACE				
PACKAGE SIZE		PACKAGE SECURED				
		DRAIN PLUG SECURED				

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

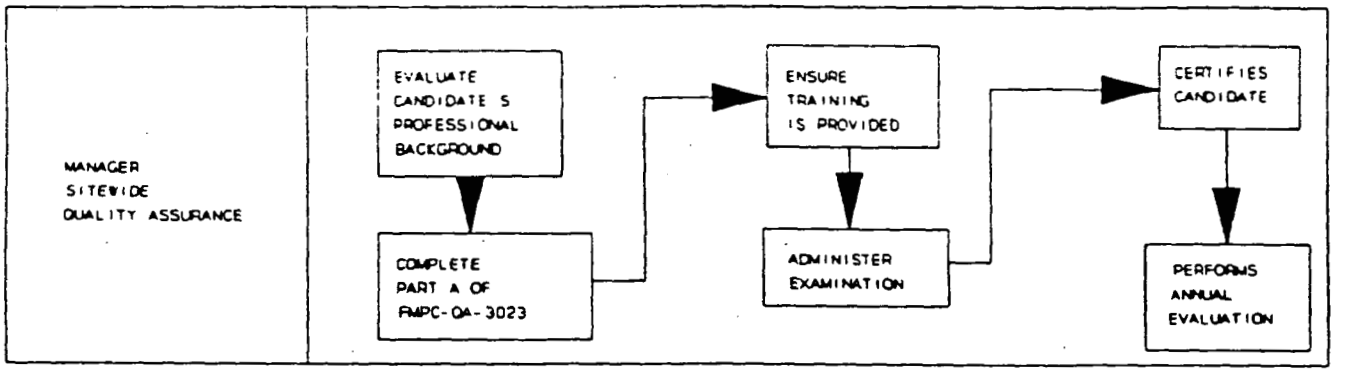
GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FMPC-CONT-1945-XX (REV 12-19/88)

1.0 SCOPE

To define the system utilized by the Westinghouse Materials Company of Ohio for evaluating and documenting the certification of individuals as Waste Package Certifiers. This procedure covers FMPC 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 professional expertise, demonstrated skills, required training, and proficiency examination. This review will be conducted by the Manager of Sitewide QA with the assistance of the Manager, Quality Certification and documented on form FMPC-Q&S-3024 (Attachment A).

2.1.2 Part B of Form FMPC-Q&S-3024 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.

2.1.3 For abbreviations, acronyms and definitions see EQP-1.05.

2.2 Evaluation of Candidate

Manager Sitewide QA/Designee:

2.2.1 Evaluate the candidate's professional background to determine if it is sufficient to provide the general knowledge and experience required and documents this evaluation on form FMPC-Q&S-3024 Part 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. 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, past performance, waste training courses.

d. Surveillance Skills

Perform an evaluation of a candidate's ability to observe waste packaging and loading operations, identify nonconforming conditions, and obtain resolution to prevent recurrence.

2.2.3 Complete Part A of Form FMPC-Q&S-3024.

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 FMPC requirements is necessary.

2.3.2 Required Training

Manager, Sitewide QA/Designee:

a. 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 QAP's

2.3.3 Specific Examination

Manager, Sitewide QA/Designee:

a. 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 Form FMPC-Q&S-3024 (Attachment A). A grade of 80% will be considered as passing.

2.3.4 CERTIFICATION

Manager, Sitewide QA/Designee:

a. Certify candidate only after satisfactory completion of qualification requirements and examination by signing and dating the Certified by block of Part B Form FMPC-Q&S-3024.

2.4 MAINTENANCE OF QUALIFICATION

Manager, Sitewide QA/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 of Form FMPC-Q&S-3024.

3.0 REFERENCES

3.1 EQP-1.05, Abbreviations, Acronyms, and Definitions

4.0 ATTACHMENTS

4.1 Attachment A, Page 1 of 2 - Waste Package Certifier Qualification, Form FMPC-Q&S-3024 Part A (8/31/89)

4.2 Attachment A, Page 2 of 2 - Waste Package Certifier Qualification Form Specific Certification Authority, Form FMPC-Q&S-3024 Part B (8/31/89)

ATTACHMENT A
PAGE 1 OF 2

WASTE PACKAGE CERTIFIER QUALIFICATION FORM

Westinghouse Materials Company of Ohio
WASTE PACKAGE CERTIFIER QUALIFICATION FORM
PART A

EMPLOYEE NAME:	BADGE NUMBER:

PROFESSIONAL		
EDUCATION		(3 POINTS MAX)
EXPERIENCE		(3 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:

FMPC-065-3024 PART A (9/21/89)

ATTACHMENT A
PAGE 2 OF 2

WASTE PACKAGE CERTIFIER QUALIFICATION FORM
SPECIFIC CERTIFICATION AUTHORITY

Westinghouse Materials Company of Ohio
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

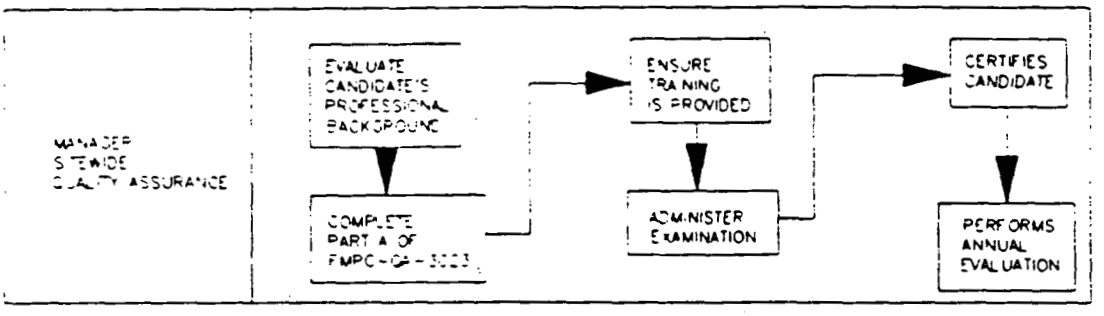
/ /		/ /		/ /	

FMPC-065-3024 PART B (8/31/88)

WESTINGHOUSE MATERIALS COMPANY OF OHIO - FMPC	NON-CONTROLLED COPY	DOCUMENT NUMBER: EQP-6.05
ENVIRONMENTAL QUALITY PROCEDURE	SUBJECT: QUALIFICATION OF WASTE CERTIFICATION OFFICIALS	REVISION: 0
		Page 1 of 5
	AUTHORIZED: (Manager, Environmental Compliance & Quality Assurance) Ellery D. Savage	Effective Date: 05/30/91

1.0 SCOPE

To define the system utilized by the Westinghouse Materials Company of Ohio for evaluating and documenting the certification of individuals as Waste Certification Officials. This procedure covers FMPC 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 of Sitewide QA with the assistance of the Manager of Quality Certification and documented on form FMPC-QA-3023 (Attachment A).

2.1.2 Part B of Form FMPC-QA-3023 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.

2.1.3 For abbreviations, acronyms and definitions see EQP-1.05.

2.2 Evaluation of Candidate

Manager, Sitewide QA/ 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 form FMPC-QA-3023 Part 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)

- o Associate degree from an accredited institution - 1 point
  If in engineering, physical science, QA or math - 2 points
- o Bachelors degree from an accredited institution - 2 points
  If in engineering, physical science, QA or math - 3 points
- o Masters degree from accredited institution - 1 additional point

b. Experience (9 points maximum)

- o 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.
- o If two (2) or more years of this experience have been in the nuclear field, score one (1) additional point; or.
- o If two (2) or more years of this experience have been in the nuclear waste field, score three (3) additional points; or.
- o 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. Surveillance Skills

Performs an evaluation of a candidate's ability for observing waste packaging and loading operations, identifying nonconforming conditions and in achieving resolution to prevent recurrence.

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, past performance, waste training courses.

2.2.3 Complete Part A of Form FMPC-QA-3023.

2.3 Specific Certification Authority

2.3.1 General

In order to be certified as a Waste Certification Offical 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, Sitewide QA/ Designee:

a. 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 QAP's
3. Applicable DOT Standards

2.3.3 Specific Examination

Manager, Sitewide QA/ Designee:

a. 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 Form FMPC-QA-3023 (Attachment A). A grade of 80% will be considered as passing.

2.3.4 CERTIFICATION

Manager, Sitewide QA/ Designee:

a. Certify candidate only after satisfactory completion of qualification requirements and examination by signing and dating the Certified by block of Part B Form FMPC-QA-3023.

2.4 MAINTENANCE OF QUALIFICATION

Manager, Sitewide QA/ 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 of Form FMPC-QA-3023.

3.0 REFERENCES

3.1 EQP-1.05, Abbreviations, Acronyms, and Definitions

4.0 ATTACHMENTS

4.1 Attachment A - Waste Certification Official Qualification Form Part A & B.

ATTACHMENT A
PAGE 1 OF 2

Westinghouse Materials Company of Ohio
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:		

Westinghouse Materials Company of Ohio
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

/ /		/ /		/ /	

Westinghouse Materials Company of Ohio

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

ADMINISTERED BY:	NAME:	GRADE:	DATE:

QUALIFICATION CERTIFIED

CERTIFIED BY:	NAME & TITLE:	DATE:

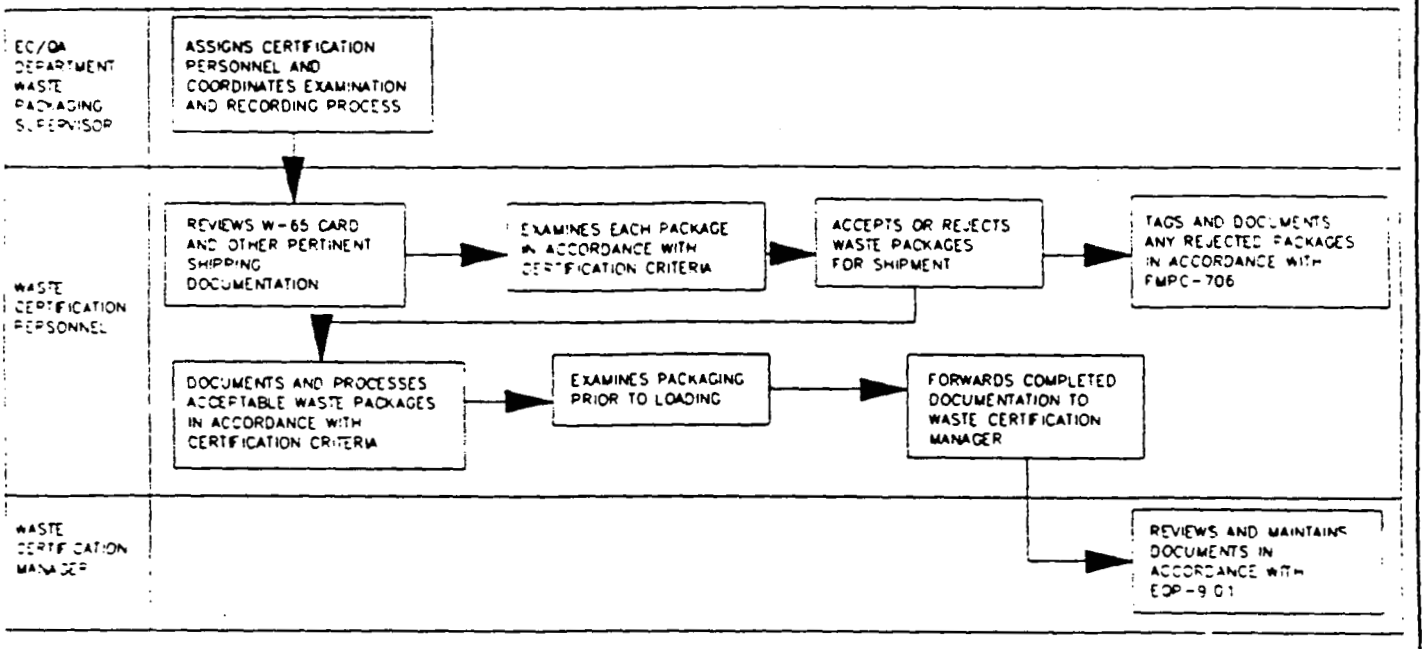
ANNUAL RE-EVALUATION

/ /		/ /		/ /	

WESTINGHOUSE MATERIALS COMPANY OF OHIO - FMPC	NON-CONTROLLED COPY	DOCUMENT NUMBER: EQP-12.03
ENVIRONMENTAL QUALITY PROCEDURE	SUBJECT: CERTIFICATION OF WASTE PACKAGE EXAMINATION AND SEALING FOR OFF-SITE SHIPMENT	REVISION: 0
		Page 1 of 19
	AUTHORIZED: (Manager, Environmental Compliance & Quality Assurance) Ellery D. Savage	Effective Date: 05/30/91

1.0 SCOPE

This procedure outlines the method for the certification of waste materials at the Feed Materials Production Center (FMPC) (for additional abbreviations, acronyms, and definitions refer to EQP-1.05) 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 Safety (RS) Technician shall be available for each person working with waste material and shall be used at the direction of the RS Technician.

2.1.4 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 RS 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.

2.1.5 Spill incidents involving RCRA materials shall be reported to the Spill Reporting Advisor in Environmental Compliance in accordance with Site Procedure FMPC-503, "FMPC Spill Incident Reporting and Cleanup."

2.2 General Requirements for Packaging L-LRW

2.2.1 All certification personnel verifying packaging and shipment of L-LRW to the Nevada Test Site (NTS) be trained and qualified on this procedure, NVO-325, and the Waste Certification Program Plan in accordance with EQP-6.04, Qualification of Waste Package Certifiers, or on EQP-6.05, Qualification of Waste Certification Officials.

2.2.2 Materials prohibited by NVO-325 and listed on the Prohibited Materials List (Attachment A) shall not be packaged for shipment.

2.2.3 Only materials approved by the NTS, Solid Waste Compliance and Waste Management shall be shipped. The Waste Certification Manager is responsible for making this information available to all personnel performing verification and certification work.

2.2.4 Only container designs approved for shipment by the NTS that meet the requirements of NVO-325 shall be used. For the purpose of this procedure only those container types verified as acceptable by the Waste Certification Manager, or another Certification Official, are to be used.

2.2.5 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 173.431 and 173.425.

2.2.6 Marking and labeling shall be in accordance with Title 49 CFR 172, Subparts D & E, as follows:

a. Container Number
b. Shipment Number
c. Gross Weight
d. Radioactive markings
e. Other marking and labeling as required for the packaged material

2.2.7 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 Examination of Metal Drums Prior to Filling

Metal drum examination by Certification prior to filling is not a routine requirement, but may be performed on an audit basis as follows:
Physical Inspection - 50% of lot
W-65 Card comparison - 10% of lot
W-65 Card check for completeness and accuracy - 100% of lot
Results of examination shall be documented with an appropriate check list and signed by Certification personnel performing the examination. Criteria for examination shall include as a minimum:

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. A breach (a hole, crack, gash, etc.)
b. A dent or bulge which has creased, gouged, or may have otherwise significantly weakened the metal.
c. A dent greater than 1" in depth or extending over 6" in any direction.
d. A significant dent in the bottom rim. A significant dent is one that compromises the integrity of the container.
e. A significant dent in a rolling hoop. Each deficiency is to be evaluated for affect on the integrity of the container.
f. 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.)
g. Any deformation or out-of-round condition affecting the integrity of the sealing surface.

2.4 Examination of Metal Drum Filling

The filling of drums with low level radioactive waste materials shall be monitored by Certification personnel. The results of examination shall be documented on the "Waste Certification Examination Report 'Drum Filling'", QAC-881115-5 (Attachment B), 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 W-65 card, FMPC-CONT-1945-XX, Attachment C).

2.4.2 If material is a respirable fine, verify that double containment is used in packaging.

2.4.2.1 Plant 8 residues shall 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, 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 NTS. Also, there is no assurance that when and if shipment is resumed that asbestos in drums will be acceptable.

2.4.3 Verify that numbered seals are being used to secure inner containers.

2.4.4 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 loose.)

2.5 Examination of Metal Drums Prior to Loading Trailers For Transfer to Plant 1 (Waste Operations)

Examine packaged drums prior to loading on trailers for transfer to the Plant 1 Area. These drums are to be examined 100% on a best effort basis, and responsibility shall not be waived without the approval of Sitewide QA who shall notify Operations and Waste Management supervision of Certification's inability to perform the examination.

2.5.1. Receives the "Item Production/Certification/Identification" card FMPC-CONT-1945-XX (W-65 Card, Attachment C)

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.

a. A breach (a hole, crack, gash, etc.)
b. A dent or bulge which has creased, gouged, or may have otherwise significantly weakened the metal.
c. A dent greater than 1" in depth or extending over 6" in any direction.
d. A significant dent in the bottom rim. A significant dent is one that compromises the integrity of the container.
e. A significant dent in a rolling hoop. Each deficiency is to be evaluated for affect on the integrity of the container.
f. 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.)

g. Any deformation or out-of-round condition affecting the integrity of the sealing surface.

2.5.4 Complete "Waste Certification Examination Report 'Prior to Transfer'", QAC-881115-3 (Attachment D).

2.6 Examination of Wood Boxes Prior to Filling

On an occasional basis, wood boxes will be examined prior to filling to verify compliance. The examination shall be documented on a checklist, and shall include verification of the following:

2.6.1 The box design is approved for shipment to NTS.

2.6.2 The box is not damaged or seriously deteriorated (i.e. rot).

2.6.3 The box is free of holes, splits, or voids between plywood panels and framework.

2.6.4 The box is free of protruding fasteners.

2.6.5 The box is labeled, on opposite sides, with the manufacturer's name and shipping box serial number.

2.6.6 Lids, if in place, fit securely into the top recesses of the box and are free of severe warping, and voids.

2.6.7 Each box has three (four if the large 124 cu. ft. box) 1-1/4" width straps equidistant and horizontally around the perimeter.

2.6.8 Each box has a preformed plastic or 6-mil (0.006") sheet plastic liner. A preformed liner is required if box is to be filled with loose material such as scrap wood, metal, soil, or masonry.

2.6.9 Each box has a minimum of one 50 lb. bag of uncalcined diatomaceous earth (Dicalite) spread evenly in the bottom of the box, or an absorbent pad, covering the liner in the bottom of the box.

2.7 Monitoring of Wood Box Filling Prior to Closure

Wood box filling is to be monitored occasionally to verify compliance. Observance may include the filling process, or may only include observance after filling prior to closure. The results of the monitoring shall be documented on a checklist and shall verify the following:

2.7.1 A prohibited materials list is displayed in the loading area.

2.7.2 Box has a 6 mil (0.006") sheet plastic or a preformed plastic liner. A preformed liner is required if box is to be filled with loose material such as scrap wood, metal, soil, or masonry.

NOTE: A plastic liner is not required if box is being loaded with heavy metal items.

2.7.3 When loading with heavy items, floor seams and one foot up each corner are caulked.

2.7.4 Box contents agrees with documentation on FMPC-CONT-1945-XX (W-65 card, Attachment C).

2.7.5 No prohibited items are being or have been packaged.

NOTE: Depending on the contents, all materials in a filled package may not be visible. The examiner should view as much of the contents as possible by looking into the box from different angles, and making use of inspection equipment such as mirrors, boroscopes, etc. as available.

2.7.6 Verify that visible internal structure of box is undamaged.

2.7.7 Sheets of wet-strength polypropylene/pulp super absorbent fabric have been placed in the bottom of the box or that one 50 lb. bag of uncalcined diatomaceous earth has been added and spread evenly in the bottom of the box.

2.7.8 If the box contains soil, wet-strength polypropylene/pulp super absorbent fabric or one 50 lb. bag of uncalcined diatomaceous earth has been added in alternating layers accounting for moisture level of soil.

2.7.9 Complete "Waste Certification Wood Box Examination Filling," QAC-881206-1 (Attachment E).

2.8 Monitoring Wood Box Closure Activities

Wood box closure activities shall be monitored occasionally to verify compliance. Results of the monitoring shall be documented on a check list and shall verify the following:

2.8.1 Plastic is folded over contents of box.

2.8.2 Form FMPC-CONT-1945-XX, "Item Production/Certification/Identification" card (W-65 Card, Attachment C) is filled out properly.

2.8.3 No moisture is visible on either the inside or the outside of the box.

2.8.4 RTW Silicone Adhesive, or equivalent, has been applied in a continuous bead (1/4 inch minimum) between lid and box.

2.8.5 Box is banded vertically with three 1-1/4 inch metal bands, one band on each end of the box and one in the middle of the box.

2.8.6 Box lid shall be fastened using ten penny nails on 3 inch centers and two sixteen penny galvanized nails on each side panel into two inch by four inch on top panel (8 places) providing proper closure.

2.8.7 Box does not exceed 5000 pounds gross weight.

2.8.8 Check for damage to the box and lid. No holes, cracks, or deterioration (i.e. rot) which would permit leakage or lessen the structural integrity of the box are acceptable.

2.8.9 Complete "Waste Certification Wood Box Examination Filled Box," QAC-881206-2 (Attachment F).

2.9 Examination of Metal Boxes Prior to Filling

2.9.1 Metal box examination by Certification prior to filling is not required but should be performed on a monitoring basis. Criteria for examination shall include as a minimum:

a. Metal box must be a light color, usually white for Uranium contaminated rubble, gray for Thorium contaminated rubble.
b. Containers must be clean and empty.
c. Each container shall be well constructed of steel with all seams adequately welded.
d. The containers shall be free of holes, severe gouges, and significant deformations causing structural weakness or improper sealing.
e. 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.

2.9.2 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. 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.

2.10 Examination of Metal Boxes at Closure After Filling

2.10.1 Metal box must be a light color, usually white for Uranium contaminated rubble, gray for Thorium contaminated rubble.

2.10.2 Containers must be clean.

2.10.3 Each container shall be well constructed of steel with all seams adequately welded.

2.10.4 The containers shall be free of holes, severe gouges, and significant deformations causing structural weakness or improper sealing.

2.10.5 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.

2.10.6 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. 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.

2.10.7 If container has been observed during loading operation ensure that wet-strength polypropylene/pulp super absorbent fabric or uncalcined diatomaceous earth is properly placed in and around the container so that all moisture is absorbed and no free liquid is visible.

2.10.8 If steel boxes are used as overpack containers for previously inspected containers, no further inspection of the contents is required.

2.10.9 Examine container at closure as follows :

a. Verify form FMPC-CONT-1945-XX (W-65 Card, Attachment C) is completed accurately.
b. Verify that Radioactive material markings (2 sides) and FMPC container number markings are present and legible.
c. Verify that all unnecessary marking have been removed or covered.
d. Verify that gross weight does not exceed 6,000 pounds.
e. Verify marked gross weight value is consistent with shipment paperwork.
f. 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.
g. Verify that lid is properly placed on the box.
h. 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.
i. If bolted retainer ring is on, verify all bolts are securely in place.
j. Verify the lid is secured with two 1-1/4" steel straps.

2.10.10 For boxes filled with construction rubble, complete the "Construction Rubble Examination Metal Boxes" checklist, QAC-881206-3 (Attachment G).

2.11 <u>Examination of Sea/Land Cargo Containers Prior to Filling</u>

2.11.1 Sea/Land container examination by Certification prior to filling is not required but should be performed on a monitoring basis. Criteria for examination shall include as a minimum:

2.11.1.1 Containers must be clean and empty.

2.11.1.2 Each container shall be well constructed of steel with all seams adequately welded.

2.11.1.3 The containers shall be free of holes, severe gouges, and significant deformations causing structural weakness or improper sealing.

2.11.1.4 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.

2.11.1.5 Verify a tare weight is marked on the container.

2.11.1.6 Verify that a 1/4" minimum continuous bead of RTW Silicone Adhesive Sealant, or equivalent, has been applied on all seams and corners of the container interior.

2.11.1.7 Verify that the container floors have been lined with wet-strength polypropylene/pulp super absorbent fabric, blotter paper, or uncalcined diatomaceous earth.

2.11.1.8 Verify that the absorbent fabric, blotter paper or uncalcined diatomaceous earth has been covered with a 0.006 mil thick plastic sheet that extends at least 36 inches up each side of the container.

2.11.1.9 Verify that plywood has been placed on the container floor and up to four feet in height on all sides. If container is top loading Sea/Land container, verify that the entire floor and sides are lined with plywood.

2.11.1.10 Verify that all container outside markings not related to the load have been removed.

2.11.1.11 Verify that a prohibited materials list has been attached to the container in a visible location.

2.11.1.12 After the container has been filled, verify that the back ledge of the container is clean.

2.11.1.13 Verify that the lid/door opening has been lined with 0.006 mil thick plastic or similar material to a height of 18 inches.

2.11.1.14 Verify that the load inside the container has been secured with plywood and 2" X 4" wood, or other similar type materials.

2.11.1.15 Verify that all doors and around all sealing surfaces have been caulked with RTW Silicone Adhesive Sealant, or the equivalent.

2.12 <u>Examination of Sea/Land Cargo Containers at Closure After Filling</u>

2.12.1 Each container shall be well constructed of steel with all seams adequately welded.

2.12.2 The containers shall be free of holes, severe gouges, and significant deformations causing structural weakness or improper sealing.

2.12.3 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.

2.12.4 If Sea/Land container has been observed during loading operation ensure that wet-strength polypropylene/pulp super absorbent fabric or uncalcined diatomaceous earth is properly placed in and around the container so that all moisture is absorbed and no free liquid is visible.

2.12.5 Examine Sea/Land containers at closure as follows :

a. Verify form FMPC-CONT-1945-XX (W-65 card, Attachment C) is completed accurately.
b. Verify that all unnecessary marking have been removed or covered.
c. Verify that caulking is around all doors and around all sealing surfaces, and that the metal doors are securely closed, and two metal bands secure the two door latches together.
d. If Sea/Land 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 durable sealant.
e. Verify that a prohibited materials list has been attached to the container in a visible location.

2.13 <u>Examination of Baled Trash</u>

2.13.1 Examine baled trash as follows:

a. Each bale shall have minimum of six (6) bands or straps for binding.
b. Free liquids are prohibited. Be watchful of liquids in pockets of water in a bags. Condensation in plastic bags is acceptable unless excessive.
c. Prohibited materials are not allowed in accordance with "Prohibited Materials List" (Attachment A).

<u>NOTE</u>: Reject bale if prohibited materials or suspicious items (i.e. asbestos) are present, and mark W-65 card accordingly.

d. "Bale Examination" checklist (Attachment H) is completed.
e. Using a barrel grab lift and turn the bale to check underside.
f. Ensure that form FMPC-CONT-1945-XX (W-65 card, Attachment C) is complete and accurate for each bale.
g. Initial and date the W-65 card after examining the card and bale.

NOTE: If bale is designated wet (to be sent to Plant 1 for drying) initial card but note that bale is wet (unacceptable for shipment).Wet bales will be recertified at Plant 1 prior to packaging for shipment.

h. Make entry in log book at the baler.
i. Enter bale inspection on computer in Waste Packaging Office.

3.0 REFERENCES

3.1 NVO-325, Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements
3.2 FMPC-503, FMPC Spill Incident Reporting and Cleanup
3.3 FMPC-704, Minor Event Reporting System
3.4 EQP-1.05, Abbreviations, Acronyms, and Definitions
3.5 FMPC-706, Deviation and Corrective Action Reporting
3.6 EQP-9.01, Designation, Preparation, Storage and Maintenance of Quality Documents
3.7 EQP-12.04, Certification of Loading and Shipment of Low-Level Radioactive Waste

4.0 ATTACHMENTS

4.1 Attachment A - Prohibited Materials List
4.2 Attachment B -Waste Certification Examination Report, "Drum Filling"
4.3 Attachment C -Item Production/Certification/Identification Card
4.4 Attachment D -Waste Certification Examination Report, "Prior to Transfer"
4.5 Attachment E -Waste Certification Wood Box Examination Filling
4.6 Attachment F -Waste Certification Wood Box Examination Filled Box
4.7 Attachment G - Construction Rubble Examination Metal Boxes
4.8 Attachment H -Bale Examination

PROHIBITED MATERIALS

Nonradioactive Material

Pressurized Vessels

Explosives

Radioactive Gases

High-Level Waste

Pyrophoric Materials

Toxic or Poisonous Materials

Liquid Metals

Flammable Substances

Alkaline Metals

Reactive Materials (could cause fire)

Liquid Organic Waste or Waste that contains any free liquid

Ashes, Dry Powders or Respirable Fines (unless immobilized or a double containment package is used)

If the Waste is Ionized or Immobilized the pH must be greater than 4

Attachment B
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 C
Page 1 of 1

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION CARD

CARD XX **ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION** 129702

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

625

Attachment D
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:_____

QAC-881115-3, Rev. 1 (08/31/89)

WASTE CERTIFICATION WOOD BOX EXAMINATION FILLING

WASTE CERTIFICATION
WOOD BOX EXAMINATION
FILLING

INFORMATION

MTL. TYPE: _____ BOX S/N(): _____

REQUESTOR: _____ LOCATION : _____

EXAMINATION (Waste Certification)

DATE CHECKED	STATUS	INITIALS

CERTIFICATION (Waste Certification)

Deviation Reportable: YES_____ NO_____

Nonconformance Record Number:_____

Date Deviation Corrected:_____

I hereby certify the above woodbox has been examined to the best of my knowledge, as defined by the above criteria, requirements of this procedure, & SOP 20-C-601.

Signed:_____
(Waste Certification)

Date: _____

QAC-881206-1, Rev. 1 (12/15/88)

285A

Attachment F
Page 1 of 1

WASTE CERTIFICATION WOOD BOX EXAMINATION FILLED BOX

WASTE CERTIFICATION
WOOD BOX EXAMINATION
FILLED BOX

INFORMATION

MTL. TYPE: _____ BOX S/N(): _____

GENERATOR: _____ LOCATION : _____

EXAMINATION

	INITIALS
1. Check for damage to the box and lid. Verify no holes, cracks or defects which would permit leakage or lessen the structural integrity of the box.	_____
2. Verify clarity of shipment number and container number.	_____
3. Verify Gross Weight is marked on each box.	_____
4. Verify three metal bands are secure and located vertically with one in the center of the box and the remaining two equidistant from the center, one on each side, or verify that large boxes are secured with four evenly spaced bands.	_____
5. Verify no standing water on the box.	_____
6. Verify W-65 card information matches information marked on box.	_____
7. Verify the existence of the Low Specific Activity (LSA), Reportable Quantity (RQ), label identification, as applicable.	_____
8. Verify the existence of durable sealant compound between the lid and the box.	_____
9. Verify the existence of nails, attaching the lid to the box.	_____

CERTIFICATION (Waste Certification)

Deviation Reportable: YES_____ NO_____

Nonconformance Record Number:_____

Date Deviation Corrected:_____

I hereby certify the above woodbox has been examined to the best of my knowledge, as defined by the above criteria, requirements of this procedure, & SOP 20-C-601.

Signed:_____
(Waste Certification)

Date: _____

QAC-881206-2, Rev. 2 (12/15/88)

CONSTRUCTION RUBBLE EXAMINATION METAL BOXES

CONSTRUCTION RUBBLE EXAMINATION
METAL BOXES

RECORD :
Container S/N : _____ Date : _____

PRIOR TO LOADING:

1. Verify that the container has no holes, tears or creases. _____
2. Verify drain plug is installed, if applicable _____
3. Verify the container lid is not damaged (including the gasket). _____
4. Verify that one bag of Uncalcined diatomaceous earth or absorbent pad is placed on top of soil. _____
5. Only correct materials are placed in container. _____
6. No free liquids are visible in the container. _____
7. Verify only unsaturated wood is used as topping-off material. _____
8. Verify gross weight of container does not exceed 6000 lbs. _____
9. Verify caulking/gasket, banding (2) and pins are all in place. _____
10. Verify the data record (W-65) is filled out correctly. _____

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: Yes_____ NO_____

I hereby certify that the above checklist has been completed and witness that the above items are correct to the best of my knowledge.

Signed : _____ Date : _____
(Waste Certification)

QAC-881206-3, Rev. 1 (12/08/88)

BALE EXAMINATION

BALE EXAMINATION

BALE NUMBER_____ DATE_____

EXAMINATION:

1. Verify correct materials are placed in bale where visible. _____

2. No visual evidence of free liquids or seepage from bale, nor is material in bale saturated to the extent that seepage could be expected during bundling, handling and transport. _____

3. Verify the data record (W-65) is filled out correctly. _____

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.

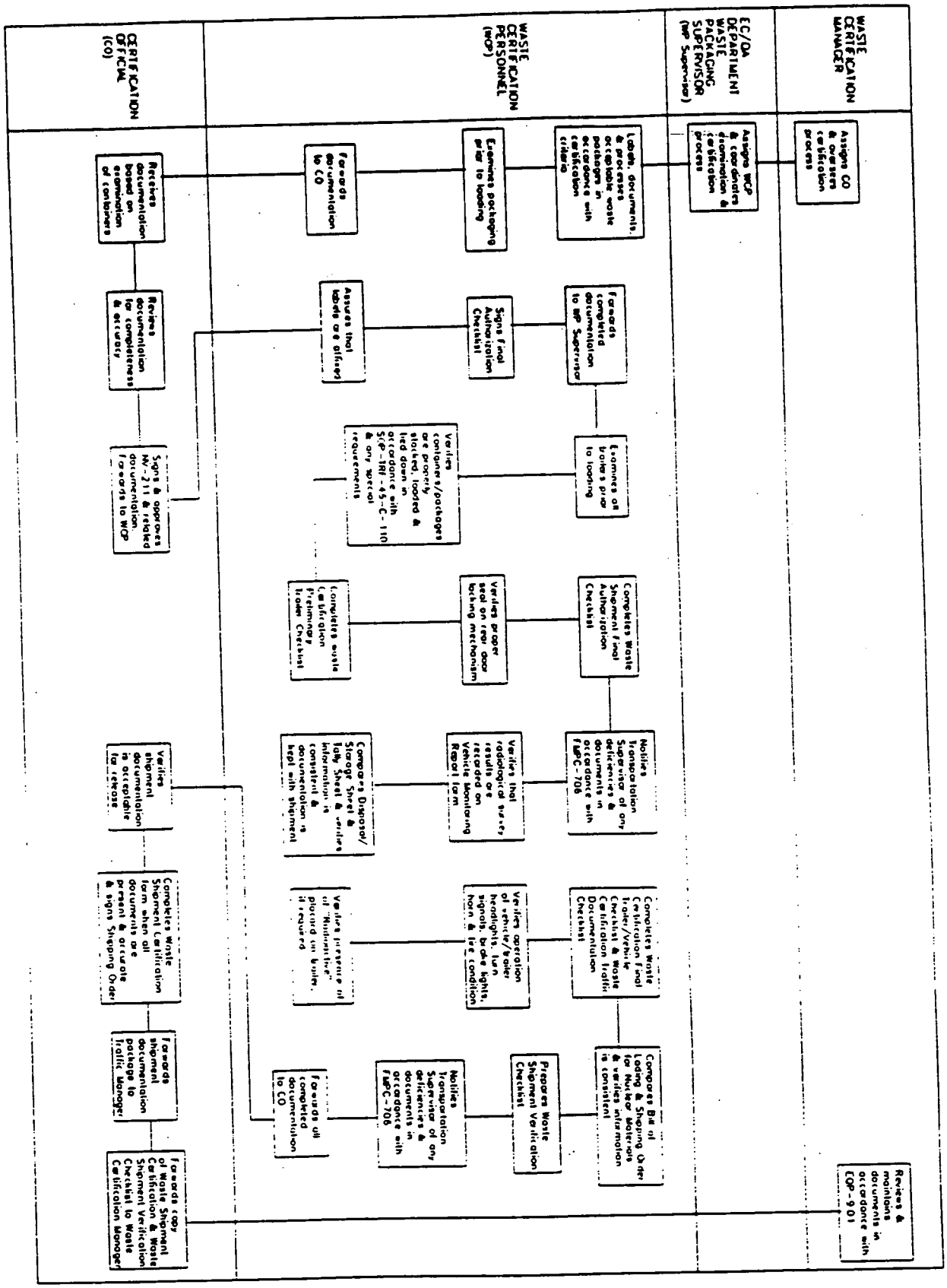
Deviation Noted: Yes_____ No_____

I hereby certify that the above checklist has been completed and witness that the above items are correct to the best of my knowledge.

Signed:_____ Date:_____
(Waste Certification)

1.0 SCOPE

This procedure establishes a detailed method for the certification of Low-Level Radioactive Waste (L-LRW) packages (for additional abbreviations, acronyms, and definitions refer to EQP-1.05), the loading of L-LRW materials and the examination of highway transport vehicles for exclusive use shipments only at the Feed Materials Production Center (FMPC) to ensure compliance with applicable federal regulations.


WASTE CERTIFICATION MANAGER
EC/DA DEPARTMENT WASTE PACKAGING SUPERVISOR (WP Supervisor)
WASTE CERTIFICATION PERSONNEL (WCP)
CERTIFICATION OFFICIAL (CO)
Assigns CO & oversees certification process
Assigns WCP & coordinates determination & certification process
Labels, documents & processes acceptable waste packages in accordance with certification criteria
Examines packaging prior to loading
Forwards documentation to CO
Reviews documentation based on determination of containers
Forwards completed documentation to WP Supervisor
Signs Final Authorization Checklist
Assures that labels are affixed
Reviews documentation for completeness & accuracy
Examines all trailers prior to loading
Verifies containers/packages are properly stacked, loaded & tied down in accordance with SCP-TRF-45-C-110 & any special requirements
Signs & approves NV-211 & related documentation. Forwards to WCP
Completes Waste Shipment Final Authorization Checklist
Verifies proper seal on rear door locking mechanism
Completes waste Certification Preliminary Trailer Checklist
Notifies Transportation Supervisor of any deficiencies & documents in accordance with FMPC-708
Verifies that radiological surveys results are recorded on Vehicle Monitoring Report form
Compares Disposal/Storage Sheet & Tally Sheet & verifies information is consistent & documentation is kept with shipment
Verifies shipment documentation is acceptable for release
Completes Waste Certification Final Trailer/Vehicle Checklist & Waste Certification Traffic Documentation Checklist
Verifies operation of vehicle/trailer headlights, turn signals, brake lights, horn & tire condition
Verifies presence of all "Hazardous" placards on trailer, if required
Completes Waste Shipment Certification form when all documents are present & accurate & signs Shipping Order
Compares Bill of Lading & Shipping Order for Nuclear Materials & verifies information is consistent
Prepares Waste Shipment Verification Checklist
Notifies Transportation Supervisor of any deficiencies & documents in accordance with FMPC-708
Forwards completed documentation to CO
Forwards shipment documentation package to Traffic Manager
Forwards copy of Waste Shipment Certification & Waste Shipment Verification Checklist to Waste Certification Manager
Reviews & maintains documents in accordance with EQP-901

2.0 PROCEDURE

2.1 Event Notification and Reporting Requirements

2.1.1 All unplanned or unwanted events or incidents shall be immediately reported to supervision. In the supervisor's absence the Assistant Emergency Duty Officer (AEDO) shall be notified for proper notification and reporting in accordance with topical manual, FMPC-2182, "Emergency and Non-Routine Event Notification and Reporting."

2.1.2 Supervision shall evaluate all unplanned or unwanted events or incidents for determination of reportability as a Minor Event in accordance with site procedure, FMPC-704, Minor Event Reporting System.

2.1.3 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 Safety (RS) 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.

2.2.3 Supervisors shall be responsible for contacting Industrial Hygiene for chemical air contaminants, or RS for radioactive contaminants, to determine appropriate respiratory protection. Determination of requirements shall be made in accordance with topical manual, FMPC-2128, Industrial Hygiene and Safety Manual.

2.2.4 Respirators, as determined required per 2.2.3, shall be available by supervision for each person working with waste material and shall be used in accordance with topical manual, FMPC-2084, Radiation Control Manual.

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 L-LRW and LSA Waste

NOTE: EQP-12.03 must be completed prior to implementation of this procedure.

2.3.1 All certification personnel verifying packaging and shipment of L-LRW to the Nevada Test Site (NTS) shall be trained and qualified on this procedure, EQP-12.03, NVO-325, and the Waste Certification Program Plan 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.

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 Only materials approved by NTS, Solid Waste Compliance and Waste Management shall be shipped. The Quality Department Waste 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 NTS that meet the requirements of NVO-325 and CFR 49 shall be used. For the purpose of this procedure only those container types verified as acceptable by the Waste Certification Manager, or another 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 White Metal box containers may not exceed 6000 lbs. maximum gross weight, wood box containers may not exceed 5000 lbs., 48 or 55 gallon drums may not exceed 1200 lbs. maximum gross weight, 85 gallon drums may not exceed 1000 lbs. maximum gross weight, 85 gallon overpacks may not exceed 1280 lbs. maximum gross weight, or as specified in EQP-12.03.

2.3.7 Marking and labeling shall be in accordance with Title 49 CFR 172, Subparts D & E, as follows:

a. Container Number
b. Shipment Number
c. Gross Weight
d. Radioactive markings
e. 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 Waste 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 or 10 millirem/hour measured externally at one (1) meter in accordance with 49 CFR 173.441.

Alpha emitters	220 DPM/100 cm^2
Beta/Gamma emitters	2200 DPM/100 cm^2

2.3.10 No container leakage is permitted under normal transport conditions in accordance with 49 CFR 173.425.

2.4 Examination of Packages in Staging Area

This examination will be performed at the loading area by Waste Certification Personnel who have been properly trained in this procedure and NVO-325 prior to loading any packages into trailers for shipment to NTS. Results shall be documented on "Waste Shipment Final Authorization Checklist" (Attachment B).

2.4.1 Examination of Drums Prior to Loading

Examines sealed drums prior to loading on trailers for shipment to NTS. These drums are to be examined 100% by Waste Certification Personnel.

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 ring is positioned upside down.

2.4.1.2 Checks for red paint on ring bolt to indicate it has been tightened to 45 (± 5) ft-lbs. using torque wrench (Attachment B).

2.4.1.3 Checks for safety wire threaded through hole in with the bolt head or threaded portion of bolt and around threaded portion of bolt ring and fastened (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 Examines all surfaces of the drum and lid and reject for any of the following conditions.

a. A breach (a hole, crack, gash, etc.)
b. A dent or bulge which has creased, gouged, or may have otherwise significantly weakened the metal.
c. A dent greater than 1" in depth or extending over 6" in any direction.
d. A significant dent in the bottom rim. A significant dent is one that compromises the integrity of the container.
e. A significant dent in a rolling hoop which may affect the integrity of the container.
f. 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).

g. Any deformation or out-of-round condition affecting the integrity of the sealing surface.

2.4.1.5 Checks exterior of container for exposed bare metal requiring touch-up painting.

2.4.1.6 Checks exterior of drums for moisture.

2.4.1.7 Checks that the gross weight does not exceed 1200 lbs. and that it is marked in two inch (minimum) letters on each drum.

2.4.1.8 Checks labels and markings against "Storage & Disposal Data Sheet" (Attachment D), "Tally Sheet" (Attachment E) , and computer printout (Attachment F) "Circle Copy" for the particular shipment for weight and labels accuracy.

2.4.1.9 Notify Waste Operations Supervisor of any nonconformance found and checks that they are corrected prior to loading.

2.4.1.10 Apply "NV-211 Packaging Certification Label" to each package upon satisfactory examination (Attachment G).

2.4.2 Examination of Wood Boxes Prior to Loading

Examines wood boxes at the loading area prior to loading on trailers for shipment to NTS. These boxes are to be examined 100% by Waste Certification Personnel. Results shall be documented on "Waste Shipment Final Authorization Checklist" (Attachment B).

2.4.2.1 Checks for damage to the box and lid. No holes, cracks, or deterioration (i.e. rot) which would permit leakage or lessen the structural integrity of the box are acceptable.

2.4.2.2 No moisture is visible on either the inside or the outside of the box.

2.4.2.3 RTW Silicone Adhesive, or equivalent, has been applied in a continuous bead (1/4 inch minimum) between lid and box.

2.4.2.4 Box is banded vertically with three 1-1/4 inch metal bands, one band on each end of the box and one in the middle of the box.

2.4.2.5 Box lid shall be fastened using ten penny nails on 3 inch centers and two sixteen penny galvanized nails on each side panel into two inch by four inch on top panel (8 places) providing proper closure.

2.4.2.6 Box does not exceed 5000 pounds gross weight and that it is marked in two inch (minimum) letters on each box.

2.4.2.7 Checks labels and markings against "Storage & Disposal Data Sheet" (Attachment D), "Tally Sheet" (Attachment E), and computer printout (Attachment F) "Circle Copy" for the particular shipment for weight and labels accuracy.

2.4.2.8 Notifies Waste Operations Supervisor of any nonconformance found and checks that they are corrected prior to loading.

2.4.2.9 Apply "NV-211 Packaging Certification Label" to each package upon satisfactory examination (Attachment G).

2.4.3 Examination of Metal Boxes Prior to Loading

Examines metal boxes at the loading area prior to loading on trailers for shipment to NTS. These boxes are to be examined 100% by Waste Certification Personnel. Results shall be documented on "Waste Shipment Final Authorization Checklist" (Attachment B).

2.4.3.1 Metal box must be a light color, usually white for Uranium contaminated rubble, gray for Thorium contaminated rubble.

2.4.3.2 Containers must be clean.

2.4.3.3 Each container shall be well constructed of steel with all seams adequately welded.

2.4.3.4 The containers shall be free of holes, severe gouges, and significant deformations causing structural weakness or improper sealing.

2.4.3.5 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.

2.4.3.6 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. 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.

2.4.3.7 Examines container for proper closure as follows :

a. Verifies that Radioactive material markings (2 sides) and FMPC container number markings are present and legible. Shipment number, log number and container identification number shall be clearly marked in one inch (minimum) letters using black waterproof ink.

b. Verify that all unnecessary marking have been removed or covered.
c. Verify that gross weight does not exceed 6,000 pounds and that it is marked in two inch (minimum) letters on each box.
d. 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.
e. Verifies that lid is properly placed on the box.
f. Verifies 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.
g. If the bolt type utilizes a bolted retainer ring, verify all bolts are securely in place.
h. Verifies the lid is secured with two 1-1/4" steel straps.

2.4.3.8 Checks labels and markings against "Storage & Disposal Data Sheet" (Attachment D), "Tally Sheet" (Attachment E), and computer printout (Attachment F) "Circle Copy" for the particular shipment for weight and labels accuracy.

2.4.3.9 Checks exterior of container for exposed bare metal requiring touch-up painting.

2.4.3.10 Notifies Waste Operations Supervisor of any nonconformance found and checks that they are corrected prior to loading.

2.4.3.11 Applies "NV-211 Packaging Certification Label" to each package upon satisfactory examination (Attachment G).

2.4.4 <u>Examination of Sea/Land Cargo Containers Prior to Loading</u>

Examines sea/land containers at the loading area prior to loading on trailers for shipment to NTS. These containers are to be examined 100% by Waste Certification Personnel. Results shall be documented on "Ready to Ship" Checklist (Attachment H).

2.4.4.1 Each container shall be well constructed of steel with all seams adequately 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.

2.4.4.4 Verifies that the exterior of the sea/land is in good condition.

a. Verifies that all unnecessary markings have been removed or covered.

CHANGE NOTICE

EQP-12.04-02	Effective Date: 9/30/91	Page 1 of 1

AUTHORIZED: [illegible] for Ellery D. Gray

Revise section 2.4.3.7 (a) as follows:

2.4.3.7 Examines container for proper closure as follows:

a. Verifies that Radioactive material markings (top and two sides) and FEMP container number markings are present and legible. Shipment number, lot number and container identification number shall be clearly marked in one inch (minimum) letters using black waterproof ink.

b. Verifies that caulking is around all doors and around all sealing surfaces, and that the metal doors are securely closed, and two metal bands secure the two door latches together.

c. Verifies gross weight of sea/land and that it is marked in two inch (minimum) letters on each sea/land.

d. Verifies that Radioactive material markings (2 sides) and FMPC container number markings are present and legible. Shipment number, log number and container identification number shall be clearly marked in one inch (minimum) letters using black waterproof ink.

e. If Sea/Land container is top loading, verifies 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. Verifies that the sea/land container has been painted.

2.4.4.5 Checks labels and markings against "Storage & Disposal Data Sheet" (Attachment D), "Tally Sheet" (Attachment E), and computer printout (Attachment F) "Circle Copy" for the particular shipment for weight and labels accuracy.

2.4.4.6 Apply "NV-211 Packaging Certification Label" to each package upon satisfactory examination. (Attachment G)

2.4.5 <u>Examination of Bales Prior to Loading</u>

Examines bales at the loading area prior to loading on trailers for shipment to NTS. Bales are to be examined 100% by Waste Certification Personnel. Results shall be documented on "Waste Shipment Final Authorization Checklist" (Attachment B).

2.4.5.1 Verifies that each bundle of trash is properly constructed:

a. Consists of two bales of trash covered with Flex-Iron Bulk Bags or equivalent.

b. Each bag covered bale is mounted on a wood pallet.

c. Two of these subparts are stacked one on top of each other and a third wood pallet is positioned on top.

d. Two 1-1/4 inch straps of banding are wrapped around to secure the bundle and tightened with banding clips.

e. Cardboard strips are positioned to keep the metal banding strips from cutting into the bales.

f. Checks baled trash package for holes, tears, water leaks, and defects.

2.4.5.2 Verifies the top wood pallet is labeled with the shipment number and bundle number in one inch letters.

2.4.5.3 Verifies that markings are legible and waterproof ink has been used.

2.4.5.4 Verifies that the gross weight is marked on the top wood pallet

2.4.5.5 Checks labels and markings against "Storage & Disposal Data Sheet" (Attachment D), "Tally Sheet" (Attachment E), and computer printout (Attachment F) "Circle Copy" for the particular shipment for weight and labels accuracy.

2.4.5.6 Notifies Waste Operations Supervisor of any nonconformance found and Checks that they are corrected prior to loading.

2.4.5.7 Applies "NV-211 Packaging Certification Label" to each package upon satisfactory examination (Attachment G).

2.5 Examination of Package Markings and Labels

Immediately prior to transport loading, Waste Certification Personnel 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, form FMPC-T-1623 (Attachment I), if the surface dose rate exceeds 0.5 mR/hr. or the U-235 content exceeds 15 grams.
b. Each acceptable package shall have a "RADIOACTIVE-LIMITED QUANTITY" Label, FMPC-REST-1623-1 (Attachment I) if the surface dose 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 Curries or greater of Uranium must be labeled "RQ" in conjunction with the requirements of sections 2.5.a. and 2.5.b. (Attachment I).
d. Each acceptable package will have the letters "WML" and the shipment number on the package exterior. This may be either stenciling in one inch block or legible letters using black waterproof ink on bar code label.
e. Each acceptable package shall have a separate package number on the exterior. This may be either stenciling in one inch block or legible letters using black waterproof ink on bar code label.
f. Each acceptable package shall have the gross weight marked on the exterior. This may be either stenciling in two inch block or legible letters on bar code label.
g. Each package certified as acceptable for NTS disposal shall have a required "NV-211 Packaging Certification Label," FMPC-Q&S-234 or FMPC-Q&S-234-1 (Attachment G), affixed after examination of the package and shortly before or during loading. The label shall be displayed on the side of the package in a group pattern with other labels and markings.

2.6 Documentation of Examination and Deviations

Immediately prior to transport loading, Waste Certification Personnel assure that all examinations are properly documented on the applicable checklist, as required; assures that nonconforming conditions are documented and processed as follows:

2.6.1 Any deviations observed should be documented on the appropriate checklist.

CHANGE NOTICE

No. EQP-12.04-01	Effective Date: 8/30/91	Page 1 of 1

AUTHORIZED: Ellery D. Savage

Revise Section 2.5 as follows:

2.5 Examination of Package Markings and Labels

Immediately prior to transport loading, Waste Certification Personnel 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, form FMPC-T-1623 (Attachment I), if the surface dose rate exceeds 0.5 mR/hr. or the U-235 content exceeds 15 grams.

b. Each acceptable package shall have a "RADIOACTIVE-LIMITED QUANTITY" Label, FMPC-REST-1623-1 (Attachment I) 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 Curries or greater of Uranium must be labeled "RQ" in conjunction with the requirements of sections 2.5.a. and 2.5.b. (Attachment I).

d. Each acceptable package will have the letters "WML" and the shipment number on the package exterior. This may be either stenciling in one inch block or legible letters using black waterproof ink on bar code label.

e. Each acceptable package shall have a separate package number on the exterior. This may be either stenciling in one inch block or legible letters using black waterproof ink on bar code label.

f. Each acceptable package shall have the gross weight marked on the exterior. This may be either stenciling in two inch block or legible letters on bar code label.

g. Each acceptable package shall have the lot marking code marked on the exterior. This may be either stencilling in two inch block or legible letters on bar code label.

h. Each acceptable package shall have the waste stream number marked on the exterior. This may be either stenciling in two inch block or legible letters on bar code label.

i. Each package certified as acceptable for NTS disposal shall have a required "NV-211 Packaging Certification Label," FMPC-Q&S-234 or FMPC-Q&S-234-1 (Attachment G), affixed after examination of the package and shortly before or during loading. The label shall be displayed on the side of the package in a group pattern with other labels and markings.

2.6.2 Any waste package rejected due to non-acceptable or non-authorized contents or physical damage to the containers shall have a nonconformance tag attached to it as identification (See FMPC-706). Deviations shall be corrected prior to affixing "NV-211 Packaging Certification Label." Uncorrectable deviations or lack of prompt or appropriate action, or chronic and/or systematic errors must be documented on a Deviation or Corrective Action Report in accordance with FMPC-706.

2.6.3 Any waste packages rejected due to improper labeling or identification shall be corrected prior to affixing a "NV-211 Packaging Certification Label." If no acceptable solution can be defined, a nonconformance tag shall be attached and a Deviation Report shall be issued in accordance with FMPC-706.

2.6.4 Forwards appropriate forms and documentation to Certification Official for review, approval, and certification.

NOTE: Disposal of any rejected containers, lids, bolt rings, or lever rings shall be the responsibility of Waste Operations or the generator of the package.

2.7 Preliminary Certification

Waste Certification Personnel examine 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 Verifies that the RS Technician has surveyed each trailer/vehicle prior to loading and has recorded results on the "Vehicle Radiation Monitoring Report," form FMPC-ES&H-1596-1 (Attachment J), to ensure that radiation and contamination levels do not exceed the requirements listed in 49 CFR 173.441.

2.7.1.2 Determines 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 Traffic Manager:

a. holes or "soft" areas in floor or roof which would 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
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)
   6. flats

2.7.1.3 Examines the lining of trailer/vehicle for compacted baled trash and verifies that the floor and approximately three (3) feet up the side and rear walls are covered with plastic sheet, and that the floor is covered with single-faced cardboard or approved equivalent.

2.7.1.4 Completes the "Waste Certification Preliminary Trailer Checklist" (Attachment K) or the "Waste Certification Preliminary Trailer Checklist (Sea/Lands)" (Attachment L).

2.8 Examination of Drums

Waste Certification Personnel examine drums at loading and verifies that 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 2 x 4 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 no metal plate is directly behind the group, 2 x 4 wood shoring is nailed to the floor behind the group.

2.8.2 Double-decked drummed material has been loaded in a similar manner as paragraph 2.8.1, except for the following:

a. the floor is loaded solid,
b. a piece of plywood has been placed on the top of the first deck and the second deck of drums has been loaded from the front to the rear. Both rows of drums have been encircled with 1-1/4" steel strapping, with two clips, double-crimped,
c. two-by-four wood shoring has been nailed to the floor behind the first deck of drums, if no metal plate is directly behind the drums.

2.9 Examination of Metal Boxes

Waste Certification Personnel examine metal boxes at trailer loading and verifies 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 them in the same manner as for seven (7).

2.9.2 Front Unit (2-5 boxes) were 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 Wooden Boxes

Waste Certification Personnel examine wooden boxes at loading and verifies they are not damaged and that wooden boxes are properly stacked, loaded and tied down in accordance with SOP-TRF-46-C-110 and that the following requirements have been met:

2.10.1 Wooden boxes have been placed into the vehicle for proper weight distribution. Normally, these shipments consist of sufficient numbers to require partial double-decking. When double-decking is required the double stacks shall be banded together prior to loading.

2.10.2 Two sets of brakeman plates have been nailed to the floor (set on top of the plastic and cardboard) in the front and rear section of the vehicle with 1-1/4" steel strapping threaded through each plate.

2.10.3 Boxes are loaded straight down the center of the vehicle floor.

2.10.4 Two (2) bands have been used to encircle the first six (6) boxes as one unit and the last five (5) as one unit.

2.11 Examination of Compacted Baled Trash

2.11.1 Waste Certification Personnel examine compacted baled trash at loading and verifies that compacted baled trash has been properly stacked, loaded and tied down in accordance with SOP-TRF-46-C-110 and that the following requirements have been met:

2.11.1.1 Compacted bales of trash placed for proper weight distribution have been double stacked and loaded straight down the center of the vehicle floor. Normally, these shipments consist of twenty-two (22) bales (11 packages) of compacted trash.

2.11.1.2 Two sets of brakeman plates have been nailed to the floor (set on top of the plastic and cardboard) in the front and rear section of the vehicles with 1-1/4" steel strapping threaded through each plate. Six side cleats with 1-1/4" steel strapping have been nailed to the floor on both sides of the vehicle for cross banding of the bales.

2.11.1.3 After the first five double stacks of bales have been loaded, the front unit has been encircled with steel strapping and the bands tightened and fastened with two clips, double-crimped.

2.11.1.4 Cross bands have been placed over stack numbers one, three, and five. Single-faced cardboard has been folded for a minimum of 4-ply protection and placed under the bands of the top bales plastic enclosure. The bands have been tightened and fastened with two clips double-crimped.

2.11.1.5 The rear section has been banded in the same manner as the front section except that cross bands have been placed over bale numbers seven, nine and ten.

2.12 Examination of Sea/Land Cargo Containers

Waste Certification Personnel examine Sea/Land container at loading, checks the maximum gross weight on container with actual gross weight, and verifies that container has been loaded and tied down in accordance with SOP-TRF-46-C-110 and that the following requirements have been met:

2.12.1 Sea/Land 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 the rear unit shall be facing the front of the truck.

2.12.2 If the container or shipment exceeds 42,000 gross pounds, a waiver must be approved by the Manager, Transportation Regulatory Compliance and 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" Checklist when it is prepared during the check of incoming paperwork.

2.12.3 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 2 x 4 has been nailed to the trailer floor at the rear of each unit.

2.13 General Examination Activities After Loading

Waste Certification Personnel shall conduct the following activities after the trailer has been loaded:

NOTE: Two (2) photographs of the packages shall be taken prior to closing the doors of the trailer. Photos are also required of flat bed loads. Include information on shots to be taken.

2.13.1 Verifies that the trailer is locked or a numbered 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.

2.13.2 Completes the examination of the loaded trailers for NTS shipments and completes the "Waste Shipment Final Authorization Checklist" (Attachment B).

2.13.3 Reports, by copy of the appropriate checklist, any deficiencies to the Transportation Supervisor for correction. Checklists which include deficiencies are recorded and tracked on a deficiency log. Documents any repetitive or uncorrected deficiencies in accordance with FMPC-706.

2.13.4 Forwards all completed documentation to the the individual who will be making the final inspection at Traffic prior to release of the trailer.

2.14 Final Trailer/Vehicle Examination

Waste Certification Personnel conduct a final examination of the vehicle/trailer after closure as follows:

2.14.1 Verifies that the shipment, associated paperwork and transport vehicle is acceptable for release.

2.14.2 Verifies that RS Technician has surveyed the trailer/vehicle and recorded the results on the "Vehicle Radiation Monitoring Report," form FMPC-ES&H-1596-1 (Attachment J), and that these results are within specification.

2.14.3 Compares the "Storage & Disposal Data Sheet" (Attachment D) with the "Bill of Lading" (Attachment M) to verify that the following information is correct:

a. Number and type of containers
b. Total curie content
c. Shipment gross and net weight
d. Shipment number

2.14.4 Verifies that an envelope containing copies of the "Tally Sheet," "Storage & Disposal Data Sheet" (refer to EQP-12.03), and LSA/RQ, LQ (Limited Quantity) documentation of the shipment is fastened to the rear container when possible or stapled to the trailer wall inside of the trailer doors for NTS use upon opening the trailer at the destination. If the shipment is not in a closed van, verifies that the "Tally Sheet" and "Storage & Disposal Data Sheet" are in the envelope which is to be delivered by the driver.

2.14.5 Verifies the presence of "Radioactive" placard on both sides, front and rear of vehicle/trailer.

NOTE: A shipment containing limited quantity packages exclusively does not require these placards.

2.14.6 Verifies that the following are operational on the vehicle/trailer. Completes the "Waste Certification Final Trailer/Vehicle Checklist" (Attachment N).

a. Headlights
b. Turn signals
c. Brake lights
d. Horn
e. Tire condition, per section 2.7.1.2 of this procedure

2.14.7 Compares the "Bill of Lading" (Attachment M) and the "Shipping Order for Nuclear Material," form FMPC-CONT-558 (Attachment O), to verify the following:

a. Trailer Number
b. Shipment Number
c. Gross Wt. and Net Wt.
d. Bill of Lading Number
e. Shipping Order Number
f. Seal Number
g. Lot Number
h. Container Number (for Sea/Land containers)

2.14.8 Verifies 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 M), and reviews the "LLW Shipment Checklist" (Attachment Q), and the "Off-Site Loading Tie-Down Inspection-Vehicle Inspection" Form (Attachment S).

2.14.9 Completes the "Waste Certification Final Trailer/Vehicle Checklist" (Attachment N), and "Waste Certification Traffic Shipment Documentation Checklist" (Attachment P).

2.14.10 Verifies that the gross weight on all documentation is within 100 lbs. of actual.

2.14.11 When instructed, completes the "Waste Shipment Verification Checklist" (Attachment T), for the Certification Official by verifying the following information:

a. Radiation Monitoring Sheets
b. Off-Site Tie Down Inspection/Vehicle Inspection Form
c. Weight Ticket
d. Shipping Order
e. Bill of Lading
f. Disposal/Storage Sheet
g. Tally Sheet
h. Radiological Survey Report
i. LLW Shipment Checklist

j. Sea/Land 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
n. Item Production/Certification/Identification Card

2.14.12 Reports all deficiencies on the appropriate checklist. Repetitive or uncorrected deficiencies are documented in accordance with FMPC-706.

NOTE: Uncorrected deviations must be resolved before Quality Department can provide a release of the shipment.

2.14.13 Notifies the Certification Official that shipment paperwork is complete and available for final review.

2.14.14 Forwards completed documentation to Waste Certification Manager who reviews and maintains documents in accordance with WMCO-QAP-9.01.

3.0 REFERENCES

3.1 NVO-325, Nevada Test Site Defense Waste Acceptance Criteria, Certification and Transfer Requirements
3.2 FMPC-503, FMPC Spill Incident Reporting and Cleanup
3.3 FMPC-704, Minor Event Reporting System
3.4 EQP-1.05, Abbreviations, Acronyms, and Definitions
3.5 EQP-6.04, Qualification of Waste Package Certifiers
3.6 EQP-6.05, Qualification of Waste Certification Officials
3.7 FMPC-706, Deviation and Corrective Action Reporting
3.8 EQP-9.01, Designation, Preparation, Storage and Maintenance of Quality Documents
3.9 EQP-12.03, Certification of Waste Package Examination and Sealing for Off-Site Shipment
3.10 SOP-TRF-46-C-110, Preparation and Shipment of Radioactive Material (Low-Level Waste)
3.11 SOP 20-C-601, Packaging Low Level Radioactive Waste (L-LRW) for Offsite Disposal
3.12 SOP 1-C-602, Low Level Radioactive Waste (L-LRW) Shipment Preparations

4.0 ATTACHMENTS

4.1 Attachment A, Prohibited Materials List
4.2 Attachment B, Waste Shipment Final Authorization Checklist
4.3 Attachment C, Bolt Diagram
4.4 Attachment D, Storage & Disposal Data Sheet
4.5 Attachment E, Tally Sheet
4.6 Attachment F, Computer Printout - "Circle Copy"
4.7 Attachment G, NV-211 Packaging Certification Labels

4.8	Attachment H,	"Ready to Ship" Checklist (for Sea/Lands)
4.9	Attachment I,	Radioactive-LSA, Radioactive-Limited Quantity, & "RQ" Labels
4.10	Attachment J,	Vehicle Radiation Monitoring Report
4.11	Attachment K,	Waste Certification Preliminary Trailer Checklist
4.12	Attachment L,	Waste Certification Preliminary Trailer Checklist Sea/Lands)
4.13	Attachment M,	Bill of Lading
4.14	Attachment N,	Waste Certification Final Trailer/Vehicle Checklist
4.15	Attachment O,	Shipping Order for Nuclear Material
4.16	Attachment P,	Waste Certification Traffic Shipment Documentation Checklist
4.17	Attachment Q,	LLW Shipment Checklist
4.18	Attachment S,	Off-Site Loading Tie-Down Inspection-Vehicle Inspection Form
4.19	Attachment T,	Waste Shipment Verification Checklist

PROHIBITED MATERIALS LIST

Nonradioactive Material

Pressurized Vessels

Explosives

Radioactive Gases

High-Level Waste

Pyrophoric Materials

Toxic or Poisonous Materials

Liquid Materials

Flammable Substances

Alkaline Metals

Reactive Materials (could cause fire)

Liquid Organic Waste or Waste that contains any Free Liquid

Ashes, Dry Powders or Respirable Fines (unless immobilized or a double containment package is used)

If the Waste is Ionized or Immobilized the pH must be greater than 4

WASTE SHIPMENT FINAL AUTHORIZATION CHECKLIST

WASTE SHIPMENT FINAL AUTHORIZATION CHECKLIST

SHIPMENT NUMBER: WML- _____

WASTE DESCRIPTION: _____

Waste Package Description:

Package Type _____

Number of Packages _____ Verified by (Initials) _____

VERIFICATION CRITERIA PER QAP 12.09

Verify the following:

1. Information on packages matches REDCO Radioactive Waste Management - Storage & Disposal Sheet (Circle Copy) and no inappropriate information present on packages. _____
2. No unauthorized materials loaded. _____
3. No free liquids on or emitting from packages. _____
4. No significant package defects such as dents, rust, holes, cracks, or tears (baled trash). _____
5. Proper closure of container lid. _____
6. Packages are free of adhering or entrapped soil, debris, etc. _____

Verify the following where applicable:

Drums: Presence of safety wire on bolts. _____

Locking nut tightened (red paint on bolt). _____

Lid and ring are seated properly. _____

Wood boxes: Lid nailed and secure, adequate caulking, and three 1 1/4" metal bands present (one on each end and one in middle) and secure. _____

Holes drilled in false bottom, runners secure and no severly bowed sides or liquid seepage. _____

Metal boxes: Required number of wedge type locking pins are fully engaged catching lower edge of locking strap and are at least even with locking strap. _____

Two 1 1/4" metal bands are banded tightly with two banding clips on each band equidistant from center around package. _____

Presence of a red dot (drain plug exists) or a black dot (no drain plug). _____

WASTE SHIPMENT FINAL AUTHORIZATION CHECKLIST
(continued)

Existance of gasket around lid when possible. _____

Open holes in runners. _____

Baled trash: Two 1 1/4" metal bands and two banding clips on each band strapped evenly and tightly completely around the outside of the closed sides of the top and bottom pallets. _____

Corrugated cardboard present on top of bale and under banding in area of band/pallet contact. _____

Shipment information located on the top pallet of each bundle. _____

Verify shipment number, FMPC, and package number are stenciled in 1-inch block letters located on top center and on the side of all packages except for baled trash (sides only). _____

LOADING INFORMATION

Verify presence of the following labels:
DOT Radiation Labels, Radioactive LSA and LQ/RQ as applicable. _____

Package containing asbestos require 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. _____

NV-211 label dated and signed by an authorized package certifier. _____

Verify the loading of the shipment concurs with the criteria established in SOP TFR-46-C-110, Section 6.1. _____

Shipment Number Loaded:_____ Time:_____ Date:_____

Trailer Number:_____ Seal Number:_____

I hereby certify that the above checklist has been completed and witness that the above items are correct to the best of my knowledge.

Signed:_____ Date:_____
QA Waste Packaging

Comments:_____

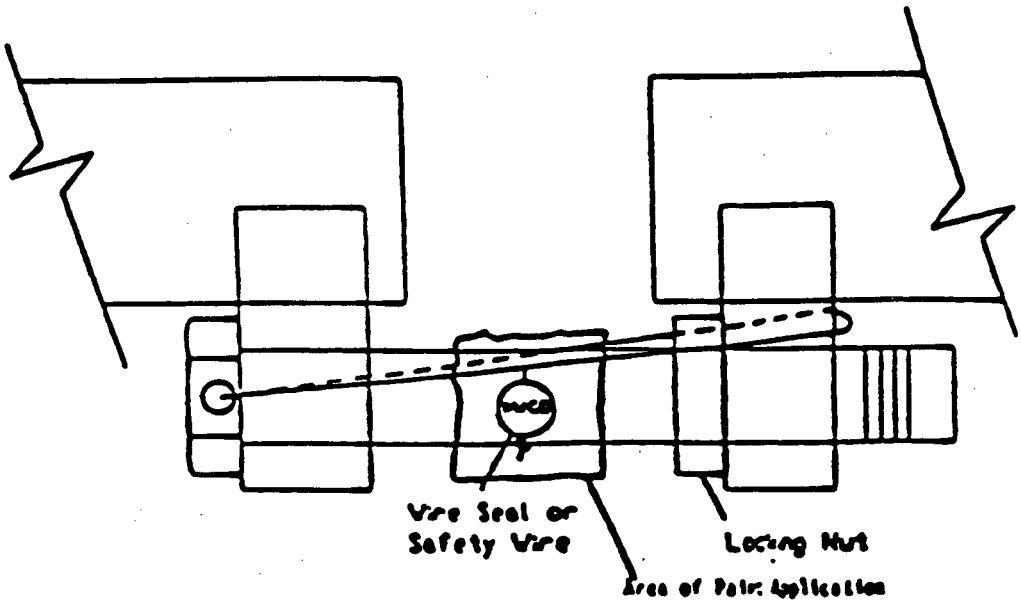
_____

Signed:_____ Date:_____
Waste Operations Supervisor

Copies to :Waste Certification Files
Waste Operations (original)

QAC-881115-1, Rev. 1 (03/01/90)

BOLT DIAGRAM



Attachment D
Page 1 of 1

STORAGE & DISPOSAL DATA SHEET

WNL-90 091

02/27/90
14:50:10

Reynolds Electrical and Engineering Co., Inc.
Radioactive Waste Management-Storage & Disposal

DESCRIPTION: Construction Rubble
Maintenance Rubble

Prepared by: [signature]
Date: 2/27/90 Area Code Phone: FTS 774-8647
Approved: Responsible Personnel [signature]
Date: 2-27-90 Area Code Phone: FTS 774-8647

SECTION 1

CARD	SHIPMENT NUMBER (2–9)	O (10)	C (11)	D (12)	S (13)	O (14)	FY (15)	YR (16)	G (17)	NUCLIDE CATEGORY (25)	CURIE QUANTITY (26–34)	C (35)	GROSS VOLUME (36–44)	F (45)	GROSS WT(lbs) (46–54)	P (55)	OVERPACKS 0 / BOXES 10 / DRUMS 0 / OTHER 0
2	WNL90091	O	B	L	O	B	9	0	2	2	2.795E-04		1.020E+03		2.461E+04		
											0.0002794		1020.00		24605.0		

SECTION 2

CARD (2)	NUCLIDE DESCRIPTION (15–16)	QUANTITY (16–24)	C (25)	S (26)	COMMENTS (27)
3	U-238	2.707E-04	C	1	810 GRAMS
3	U-235	8.754E-06	C	2	4 GRAMS

SECTION 3

CARD (4)	WASTE CODE (23)	VOLUME CU.FT. (4–12)	F (13)	% COMB. (14–16)	WEIGHT LBS. (17–25)	P (26)	S (27)	COMMENTS (28)
4	00	8.160E+02	F	0	1.804E+04	P	1	835
4	00	2.040E+02	F	0	6.570E+03	P	2	841

SECTION 5

CARD	CONT NUMBER	ASSAY DATE	CLASS CODE	CONT/AT CODE	GROSS WEIGHT LBS	GROSS VOLUME CU.FT.	RADIATION AT SURF mrem/hr	RADIATION AT 3 FT mrem/hr	PRIMARY ELEMENT & ISOTOPIC	PRIMARY CURIE QUANTITY	SECONDARY ELEMENT & ISOTOPIC	SECONDARY CURIE QUANTITY	PRIMARY ISOTOPE WEIGHT GRAMS	SECONDARY ISOTOPE WEIGHT GRAMS
6/7	1	05/09/89	2122	8352122	1674.0	102.00	0.30	0.30	U-238	1.5039E-05	U-235	4.8630E-07	45	0.2
6/7	2	05/09/89	2122	8352122	1875.0	102.00	0.30	0.30	U-238	1.5039E-05	U-235	4.8630E-07	45	0.2
6/7	3	05/09/89	2122	8352122	1674.0	102.00	0.30	0.30	U-238	1.5039E-05	U-235	4.8630E-07	45	0.2
6/7	4	05/09/89	2122	8412122	2930.0	102.00	0.30	0.30	U-238	3.0079E-05	U-235	9.7270E-07	90	0.5
6/7	5	05/09/89	2122	8352122	4293.0	102.00	0.30	0.30	U-238	6.0158E-05	U-235	1.9454E-06	180	0.9
6/7	6	05/09/89	2122	8352122	1537.0	102.00	0.30	0.30	U-238	1.5039E-05	U-235	4.8630E-07	45	0.2
6/7	7	05/09/89	2122	8352122	2923.0	102.00	0.30	0.30	U-238	3.0079E-05	U-235	9.7270E-07	90	0.5
6/7	8	05/09/89	2122	8412122	3640.0	102.00	0.30	0.30	U-238	4.5118E-05	U-235	1.4590E-06	135	0.7
6/7	9	05/09/89	2122	8352122	1300.0	102.00	0.30	0.30	U-238	1.5039E-05	U-235	4.8630E-07	45	0.2
6/7	10	05/09/89	2122	8352122	2759.0	102.00	0.30	0.30	U-238	3.0079E-05	U-235	9.7270E-07	90	0.5

TALLY SHEET

WRL-90 091

02/27/90
14:50:01

TO: Reynolds Electric and Engineering Co., Inc.
U.S. DOE, Nevada Test Site, Zone 2
Mercury, NV 89023
Attention: R. Kendall

NEVADA TEST SITE SHIPMENT
TALLY SHEET
LOT NUMBER W050-100-P003-9023
LOT NUMBER W050-100-P003-A334

FROM: Westinghouse Materials Company of Ohio
P. O. Box 398704
Cincinnati, OH 45239

LOT NUMBER	CONT. NO.	GROSS WT. (POUNDS)	TARE WT. (POUNDS)	NET WT. (POUNDS)	U ASSAY	PERCENT U-235	PERCENT U-238	U POUNDS	ELEMENT WT(gms)	U-235 ISOTOPE WT(gms)	U-238 ISOTOPE WT(gms)	U-235 Ci	U-238 Ci	VOLUME CU FT
A334	1	1674.0	630.0	1044.0	0.010	0.500	99.48	0.1	45	0.2	45	4.8630E-07	1.5039E-05	102.00
A334	2	1875.0	630.0	1245.0	0.010	0.500	99.48	0.1	45	0.2	45	4.8630E-07	1.5039E-05	102.00
A334	3	1674.0	630.0	1044.0	0.010	0.500	99.48	0.1	45	0.2	45	4.8630E-07	1.5039E-05	102.00
9023	4	2930.0	630.0	2300.0	0.010	0.500	99.48	0.2	91	0.5	90	9.7270E-07	3.0079E-05	102.00
A334	5	4293.0	630.0	3663.0	0.010	0.500	99.48	0.4	181	0.9	180	1.9454E-06	6.0158E-05	102.00
A334	6	1537.0	630.0	907.0	0.010	0.500	99.48	0.1	45	0.2	45	4.8630E-07	1.5039E-05	102.00
A334	7	2923.0	630.0	2293.0	0.010	0.500	99.48	0.2	91	0.5	90	9.7270E-07	3.0079E-05	102.00
9023	8	3640.0	630.0	3010.0	0.010	0.500	99.48	0.3	136	0.7	135	1.4590E-06	4.5118E-05	102.00
A334	9	1300.0	630.0	670.0	0.010	0.500	99.48	0.1	45	0.2	45	4.8630E-07	1.5039E-05	102.00
A334	10	2759.0	630.0	2129.0	0.010	0.500	99.48	0.2	91	0.5	90	9.7270E-07	3.0079E-05	102.00
TOTALS		24605.0	6300.0	18305.0				1.8	815	4.1	810	8.7540E-06	2.7071E-04	1020.00
					--- LOT TOTALS ---									
9023	2	6570.0	1260.0	5310.0				0.5	227	1.1	226	2.4317E-06	7.5197E-05	204.00
A334	8	18035.0	5040.0	12995.0				1.3	588	2.9	587	6.3223E-06	1.9551E-04	816.00

COMPUTER PRINTOUT - "CIRCLE COPY"

WML-90 091

Reynolds Electrical and Engineering Co., Inc.
Radioactive Waste Management-Storage & Disposal

PACKAGE NO.	NET WT	TARE WT	GROSS WT	LSA	LQ	RQ
1	1044.00	630.00	1674.00	X		
2	1245.00	630.00	1875.00	X		
3	1044.00	630.00	1674.00	X		
4	2300.00	630.00	2930.00	X		
5	3663.00	630.00	4293.00	X		
6	907.00	630.00	1537.00	X		
7	2293.00	630.00	2923.00	X		
8	3010.00	630.00	3640.00	X		
9	670.00	630.00	1300.00	X		
10	2129.00	630.00	2759.00	X		

NV-211 PACKAGING CERTIFICATION LABELS

NV-211 **PACKAGING CERTIFICATION**

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: FMPC

FMPC-Q&S-234 (REV. 9/7/89)

NV-211 **PACKAGING CERTIFICATION**

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: FMPC

FMPC-Q&S-234-1 (REV. 9/7/89)

"READY TO SHIP" CHECKLIST (FOR SEA/LANDS)

WASTE CERTIFICATION CHECKLIST
SEA LAND CONTAINER
"READY TO SHIP"

INFORMATION (Waste Operations)

DATE: _____ SHIPMENT NUMBER: _____

MTL. TYPE: _____ BOX ___ S/N: _____

MTL. TYPE: _____ ___ _____

LOCATION : _____ WEIGHTS: Gross _____ BOX 1 _____ BOX 2

_____ Tare _____ _____

_____ Net _____ _____

EXAMINATION CRITERIA (Waste Certification)

Initials

Trailer No.: _____

0. Verify "Item Production/Certification/Identification" XX card is completed accurately. Form Number FMPC-ES&H-1945-XX. _____
1. Radioactive material markings present. (2 sides) _____
2. Container Number-FMPC marking present. _____
3. All unnecessary markings have been removed or covered. _____
4. Marking is complete as follows:
   Proper shipping label(s) identified (LSA, RQ, LQ) _____
   Gross weight identified _____
5. Marked weight values match above values. _____
6. The box door has been sealed by caulking and a metal band is attached to both door latches. _____
7. Seal number _____ affixed to container. _____

PLACE NV-211 ON DOOR OF CONTAINER WHEN ABOVE CRITERIA IS SATISFACTORILY MET.

CERTIFICATION (Waste Certification)

I hereby certify the above items have been examined and the above items are correct to the best of my knowledge.

Signed: _____
(Waste Certification)

Date: _____

DAC-880930-1, Rev. 2 (08/15/89)

RADIOACTIVE-LSA, RADIOACTIVE-LIMITED QUANTITY, & "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-REST-1623-1 (REV. 10/23/89)

RQ

Attachment J
Page 1 of 1

VEHICLE RADIATION MONITORING REPORT

FWPC
ENVIRONMENT SAFETY & HEALTH - ENVIRONMENTAL & RADIOLOGICAL MONITORING

VEHICLE RADIATION MONITORING REPORT

Date Monitored: _____ Monitored by: _____ (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: _____

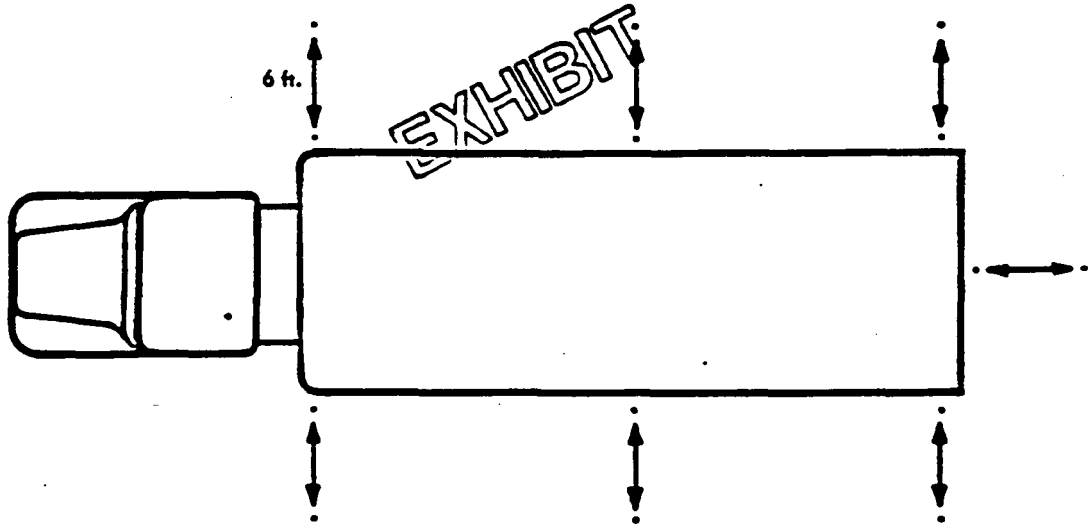
Is this an exclusive use vehicle? Yes ☐ No ☐

Vehicle Status: (a) Outgoing ☐ (b) Incoming ☐ (c) Outgoing empty, not "exclusive use" ☐ (d) Empty, before loading ☐

(e) Outgoing empty, "exclusive use" ☐ (f) If (e) is checked, is vehicle to remain "exclusive use"? Yes ☐ No ☐

Is visible contamination present? Yes ☐ No ☐ If "yes", show on diagram.

Dose rate shown by asterisks in mrem/hr. Surface alpha contamination, circled, in d/m/100cm².



(1) Same locations apply to van-type trucks. For railcars, disregard cab section but show dose rates found at each end.
(2) Measurements at 6-ft. not required if all readings at vehicle surface are not greater than 10 mrem/hr.

Survey Instruments Used

Alpha — Type or Model No _____ Serial No. _____

Beta-gamma — Type or Model No _____ Serial No. _____

Additional information attached? (E&RM copy only): Yes ☐ No ☐

NO.	DISTRIBUTION OF COPIES
1	Environmental & Radiological Monitoring (RECORD COPY)
2	Transportation Supervisor

FWPC-ESH-1596-1 (Rev 6/28/86)

WASTE CERTIFICATION PRELIMINARY CHECKLIST

WASTE CERTIFICATION PRELIMINARY TRAILER CHECKLIST

TRAILER NUMBER: _____

1. Verify the RST has surveyed trailer prior to loading and recorded results on form ES&H-1596-1 to assure the trailer is not contaminated. _____

2. Verify the condition of trailer floor, interior, roof, sides, exterior, rear doors and tires are acceptable. Any discrepancies must be reported immediately to the Transportation Supervisor. _____

Comments: _____

_____

3. Verify the trailer has been lined properly according to SOP-TRF-46-C-110 prior to loading. _____

4. Visually verify that the packages have been properly tied-down according to SOP-TRF-46-C-110. _____

   Shipment Number: _____

5. Visually verify that the loaded trailer rear doors are secured with a tamper indicating seal. _____

   Seal Number: _____

I hereby certify that the above checklist item have been verified and that all the above items are correct to the best of my knowledge.

Signed : _____
(Certification Personnel)

Date : _____

Signed : _____
(Transportation Supervisor)

Date : _____

Attachment L
Page 1 of 1

WASTE CERTIFICATION PRELIMINARY CHECKLIST (SEA/LANDS)

WASTE CERTIFICATION PRELIMINARY TRAILER CHECKLIST (SEALANDS)

Rev. 10/10/89

Trailer Number:_____ Shipment Number:_____

1. Verify the ERMT has surveyed trailer prior to loading and recorded results on form ES&H-1596-1 to assure the trailer is not contaminated . _____

2. Verify the trailer floor, exterior and tires are acceptable for loading . Any discrepancies must be reported immediately to the transportation supervisor . Any nonconfomances or outstanding DCAR must be resolved before shipment can be released . _____

Comments: _____

_____

3. Visually verify that the sealand containers have been properly tied down with, four straps on each container, chain and 2X4 on front and back of load . _____

4. Visually verify the sealand containers rear doors are secured with a tamper proof DOT approved seal . _____

Container #1:_____Seal number:_____Box #:_____
Container #2:_____Seal number:_____Box #:_____

I hereby certify that the above checklist has been completed and witness that all above information is correct to the best of my knowledge .

Signed :_____
(Certification Personnel)

Date :_____

Signed :_____
(Transportation Supervisor)

Date :_____

Attachment M
Page 1 of 1

BILL OF LADING

STRAIGHT BILL OF LADING — SHORT FORM — ORIGINAL — NOT NEGOTIABLE

CARRIER	DATE	CARRIER'S I. J.	SHIPPER'S NO.

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading by the carrier of the property described in the Original Bill of Lading.

AT FERNALD, OHIO **FROM USDOE, c/o Westinghouse Materials Company of Ohio ACTING UNDER DOE CONTRACT DE-AC05-86OR21600**

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 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

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.

WMCO
(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
_____ LBS
SUBJECT TO VERIFICATION BY THE E. W. & I. BUREAU
NATIONAL WT. AGREEMENT

* Shipper's signature in lieu of stamp; not a part of bill of lading approved by 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 Westinghouse Materials Company of Ohio, shipper

Per _____

Permanent post office address of shipper,

P. O. BOX 398704 CINCINNATI, OHIO 45239
AREA CODE 513 738-6200

_____ Agent

Per _____

MPC-ADMS-463 (REV. 9/79/88)

Attachment N
Page 1 of 1

WASTE CERTIFICATION FINAL TRAILER/VEHICLE CHECKLIST

WASTE CERTIFICATION FINAL TRAILER/VEHICLE CHECKLIST

(Rev.12/06/89)

Carrier:_____ Trailer No. :_____ Shipment No. :_____

Initials

1. Verify the RST has surveyed the trailer/vehicle and recorded results on Vehicle Radiation Monitoring Report (Form FMPC-ES&H-1596-1). _____

2. Verify the proper placards are in place, as required. _____

3. Verify the driver has performed a safety inspection of vehicle prior to leaving the FMPC: _____

   headlights _____ horn _____
   turn signals _____ tires _____
   brake lights _____ braking check test (optional) _____

4. Verify the envelope with Manifest and Tally Sheets is in trailer. _____

5. Verify that a seal has been placed on the trailer doors and that the trailer number and seal number match the trailer and seal number recorded on the Bill of Lading. Report all discrepancies to the Traffic Manager. _____

   Seal Number: _____

6. Verify all lot markings and weights on the Tally Sheet match the lot markings and weights on the Shipping Order. _____

Date Shipped: _____ Time Shipped: _____

I hereby certify that the above items have been verified and are correct to the best of my knowledge.

Signed:_____ Date:_____
(Waste Certification Personnel)

NOTE: UPON SATISFACTORY COMPLIANCE WITH THE ABOVE CHECKLIST CERTIFICATION PERSONNEL SHOULD SIGN THE SHIPPING ORDER AT THE SPACE MARKED "QUALITY CONTROL APPROVAL".

QAC-881115-1, Rev. 2

Attachment O
Page 1 of 1

SHIPPING ORDER FOR NUCLEAR MATERIAL

NOTE: Spaces marked "A" are for use of classification stamps when required

Westinghouse Materials Company of Ohio

SHIPPING ORDER FOR NUCLEAR MATERIAL

A

Date Prepared: _____

SHIP TO:	ROUTING:			SHIPPERS AUTHORIZATION NO.	SHIPPING ORDER NO.
STREET	PREPAID	CAR OR TRAILER NO.	SEAL NO.	SHIPPED FROM PLANT.	ORIGINATOR NO
CITY / STATE	COLLECT.	BILL OF LADING NO.	QUALITY CONTROL APPROVAL:		DATE SHIPPED:
SPECIAL INSTRUCTIONS		COUNTRY CONTROL NO.	PROJECT NO.		TIME SHIPPED

Type of Material _____ FMPC Production Order No _____ Originator's Signature _____

Station RIS _____ DOE 741 No _____ Shipment Authorized By _____ NUCLEAR MATERIAL REPRESENTATIVE

NMC DATA			ORIGINATOR'S DATA						MATERIAL CONTROL DATA							
FROM NMA	COST CODE	741 NO	PO NO	LOT NUMBER	QUANTITY	WEIGHT (LBS) GROSS	TARE	NET	ANAL CODE	ELE ANAL	ELE LBS	ELE GRAMS OR KGS	LIMIT ERROR %	ISO ANAL	GRAMS OR KGS	LIMIT ERROR

DISTRIBUTION OF COPIES	
NMA (RECORD COPY)	5 | Cost Accounting
Shipping Group	6 | Originator of Shipping Order
Site Control	
Production Control	

741 (REV 6-8-88)

I _____ certify that this shipment was made on the above date after complying with all security regulations

A

Audited by _____ Date _____

A

Attachment P
Page 1 of 1

WASTE CERTIFICATION TRAFFIC SHIPMENT DOCUMENTATION CHECKLIST

Waste 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.)

QAC-880731-1, Rev.1 (10/10/89)

Attachment Q
Page 1 of 1

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 N ☐ (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	

sportation Supervisor: _____

Attachment S
Page 1 of 1

OFF-SITE LOADING TIE-DOWN INSPECTION - VEHICLE INSPECTION FORM

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-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		
"¾" 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. 4/3/89)

Attachment T
Page 1 of 2

WASTE SHIPMENT VERIFICATION CHECKLIST

WASTE SHIPMENT VERIFICATION

Page 1 of 2

Date_____ Time _____

Shipment No. WML-_____ Trailer No._____ No./Type Container_____

1. Storage & Disposal Data Sheet

   A. Material Descsription_____
   B. Signed _____ Shipment No. WML-_____
   C. Total Curries _____
   D. Total Weight(Gross)_____
   E. Total Volume _____
   F. Type Container _____
   G. Date _____ Time _____
   H. Check of "G" for all copies _____

2. Tally Sheet

   Shipment No. WML-_____ Date _____ Time _____
   Check of Date & Time of all copies in Pkg. _____

A. Lot Number	Gross Weight	Net Weight
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
Totals	_____	_____

   B. Total containers _____ Totals agree with "1" above _____
   C. Field check of Tally Sheet included _____

3. Shipping Order for Nuclear Material (FMPC-ES&H-558-3 REV. 1/29/87)

   A. Shipping Order No. _____ B/L No. _____
   B. 741 No. FVC-VAB _____ Seal No. FA-WMCO_____
   C. Trailer No. _____ MC & A Signed _____
   D. Material Type _____
   E. Lot Nos. agrees with Tally Sheet _____ Total Quantity _____
   F. Gross Weight _____* Element Analysis _____*
   G. Tare Weight _____* Element Lbs. _____*
   H. Net Weight _____* Element Grams or Kgs _____*
   I. Iso Analysis _____* U235 Grams or Kgs _____*
   J. Est. Time of Arrival _____
   K. *Totals (listed) & Individual Lot values (not listed) agree with Tally Sheet. _____

4. Bill of Lading

   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.

WASTE SHIPMENT VERIFICATION CHECKLIST
(continued)

WASTE SHIPMENT VERIFICATION

5. Low Level Waste Shipment Checklist and NTS Notification Form

   A. Shipment No. WML-_____ 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 (FMPC ES&H-1596-1) 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 _____

7. Container Radiological Data
   Initial Dose Rate Data _____ 48 Hour Smears: Date_____Time_____
   Equal to or less than 48 hours 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-_____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. Signed if non-computer report _____
    B. Wt. checks with Tally Sheet _____
    C. Curries checks with Disposal Sheet or Tally Sheet _____

11. Driver Instructions Complete (2 sets) _____
    Tally sheet also in envelope _____
    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:

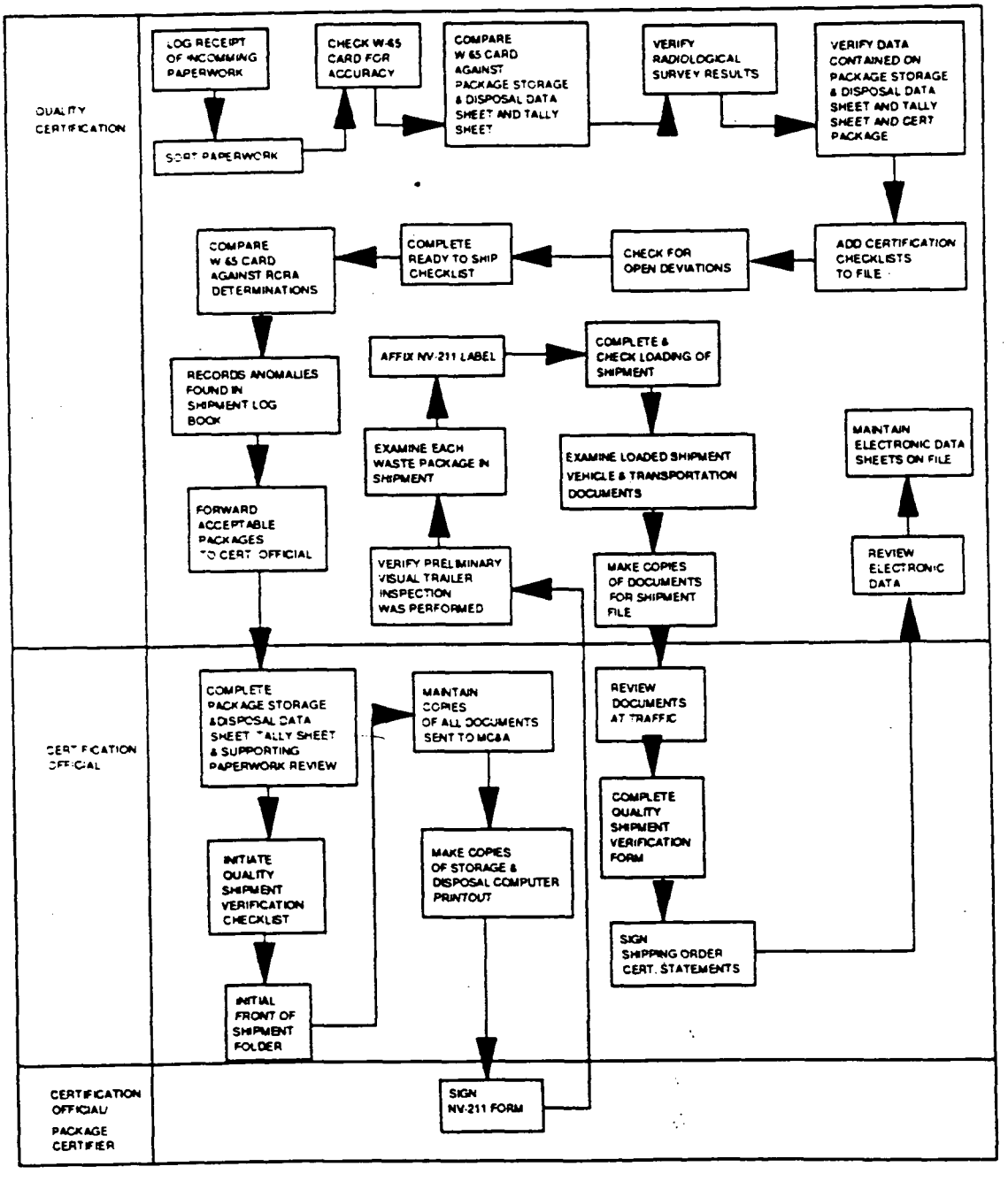
_____

_____

WESTINGHOUSE MATERIALS COMPANY OF OHIO - FMPC NON-CONTROLLED COPY		DOCUMENT NUMBER: EQP-12.07
ENVIRONMENTAL QUALITY PROCEDURE	SUBJECT: CERTIFICATION OF LOW LEVEL WASTE SHIPMENTS TO NTS	REVISION: 0
		Page 1 of 22
	AUTHORIZED: (Manager, Environmental Compliance & Quality Assurance) S. M. Bechman for E.D. Savage	Effective Date: 09/6/91

1.0. SCOPE

This procedures establishes a detailed method for the certification of Low-Level Radioactive Waste packages (L-LRW) for shipment to NTS. For abbreviation, acronyms, and definitions refer to WMCO-EQP-1.05.



2.0. PROCEDURE

2.1 Event Notification and Reporting Requirements

All unplanned or unwanted events or incidents shall be immediately reported to supervision. In the supervisor's absence [illegible] Assistant Emergency Duty Officer (AEDO) shall be notified for proper notification and reporting in accordance with, OM-FMPC-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 topical manuals FMPC-2128, Industrial Hygiene and Safety Manual and FMPC-2084, Radiation Control Manual.

2.3 Examination and Certification of Incoming Paperwork

Quality Certification

2.3.1 Examine waste shipment paperwork packages prepared by the Waste Shipment Coordinator for accuracy, completeness, and that requirements for compliance with NVO-325 are met prior to forwarding them to MC&A for preparation of Shipping Orders.

2.3.2 Upon receipt of shipment packages from Waste Shipment Coordinator, log receipt of incoming shipment paperwork in the Shipment Log Book, which may be a computer data base. The following minimum data is required to be in the log book or data base:

a. Shipment Number
b. Container Quantity
c. Container Type
d. Material Type
e. Month, Date, and Time of Receipt

2.3.3. Sort paperwork in folder into two groups:

a. Group I is documents that are forwarded to MC&A, which include:

1. Package Storage and Disposal Data sheet.

2. Tally Sheet.

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".

4. Storage and Disposal computer printout (List of packages with weights, and required DOT markings), commonly called "circle copy".

5. Radiological Survey Report, form FMPC-IRS&T-1993-1.

6. Shipping Order, Form FMPC-CONT-558.

b. Group II is information pertaining to the shipment but not required by other organizations, which include:

1. Shipment worksheet, and untitled and unsigned document used to collect and process information. This is not part of the official certification record.

2. Waste Shipment Data Special Entry Information. This is not part of the official certification record.

3. Factor Assay data, either a letter or form listing the correct factor assay for a particular shipment.

4. Computer printout data entry sheets.

5. Any worksheets, such as Preparation of Baled Trash Shipment.

6. Item Production/Certification/Identification Card, (W-65 Card) FMPC-Cont-1945-XX.

2.3.4. Check the W-65 Card for accuracy. Check the signatures on the W-65 card to be sure the card has been signed by a properly trained individual. Only original W-65 card, or replacement W-65 cards having verified documentation of required information, are to be accepted for certification.

2.3.5. Compare the W-65 Card against the Package Storage and Disposal Data sheet and Tally Sheet for:

a. material type
b. shipment number
c. package serial number
d. material description
e. lot number
f. package number
g. gross, tare and net weights
h. package description

2.3.6. Verify Radiological Survey Results for packages being shipped are on file, complete and within acceptable limits, and verify accuracy of all entries to extent possible for computer entries made on Data Entry Sheets for items listed above. Radiological Survey Result Limits are:

a. Beta/Gamma radiation levels 200 millirem/hour measured externally at the surface.

b. Alpha emitters 220 DPM/100 cm2

c. Beta/Gamma emitters 2200 DPM/100 cm2

2.3.7 Verify that data contained on the Package Storage and Disposal Data sheet and Tally Sheet correspond with supporting documentation received in the shipment certification package.

2.3.8 Utilizing package serial numbers, obtain completed Quality Certification check lists and add to the file. Verify that all anomalies noted on the check lists have been resolved.

2.3.9 Check to make sure there are no open Deviation Reports, per PP-FMPC-706, against the package (packaging and contents) being shipped.

2.3.10 Compare material descriptions and source information on W-65 card against RCRA determination letters from Environmental Compliance to ensure that only materials approved for release are approved for shipment.

2.3.11 Complete a Ready to Ship Checklist for any Sea/Land containers in the shipment. (Attachment A)

2.3.12 Record anomalies found in the Shipment Log Book, and ensure the respective shipment package is returned to the Waste Shipment Coordinator for resolution.

2.3.13 Forward acceptable shipment packages to a Certification Official.

Certification Official

2.3.14 Complete the "Package Storage & Disposal Sheet, Tally Sheet, and Supporting Paperwork Review Checklist for L-LRW" (Attachment B). This becomes part of the shipment paperwork file retained in Quality Certification. If the shipment is unusually complex or non-routine, a second Certification Official may be asked to check the shipment paperwork, and will either fill out a new check list, or countersign the first Certification Official's checklist. The second check need only include as many checks as deemed necessary to provide confidence that the paperwork package is acceptable.

2.3.15 Sign and date the Package Storage and Disposal Data sheet signifying the paperwork is acceptable and can be forwarded to MC&A to initiate shipment.

2.3.16 Complete sections 1 and 2 of the Quality Shipment Verification checklist (Attachment C). It is filed separately from the shipment file and is kept ready for use at Traffic. A blank copy of the Certification Statement (Attachment D), the Certification Statement Specific to Hazardous Waste (Attachment E), and a copy of the Package Storage and Disposal Data Sheet are attached to this form along with any additional original documents which will accompany the shipment to NTS.

2.3.17 Initial the front of the shipment folder indicating the date and time the package was approved.

2.3.18 Maintain in the shipment certification file copies of all documents sent to MC&A.

NOTE: Documents from the certification paperwork package required by MC&A, are either faxed to MC&A (# 6454), delivered to the recipient within the group, or delivered to a designated pick-up point. The time of transmittal is recorded on the certification file folder and in the Shipment Log book.

2.3.19 Make copies of the Storage and Disposal computer printout (list of packages with weights, and required DOT markings), the Package Storage and Disposal Data sheet, and the Tally Sheet for Quality Certification persons checking packages prior to loading of shipment.

Certification Official/Package Certifier

2.3.20 Either the Certification Official or the Package Certifier can sign NV-211 Certification labels (Attachment F) for the shipment as follows:

a. When Certification Official signs NV-211 labels:

Certification Official

1. Sign NV-211, identify the packet of labels with the shipment number, and enter in the Chain of Custody Log book (Attachment G) the Quality Certification person responsible for affixing them to the containers.

Quality Certification

2. Sign in the log book acknowledging receipt of signed NV-211 labels. Any damaged, replaced, or unused labels (e. g. canceled shipments) are to be returned, and a record of return is to be made in the log book. The Certification Official signing the labels signs to acknowledge receipt, or in their absence, another Certification Official may sign for the labels, but must immediately destroy them.

b. When the Package Certifier signs NV-211 labels:

1. Sign as needed to affix to each package. Any damaged, replaced, or unused labels are to be destroyed.

2.4 <u>Waste Packages and Shipment Vehicle</u>

Quality Certification

2.4.1 Complete examination of waste packages, shipment vehicle, and check loading of shipment.

Note : Detailed instructions for each of the following checklists are found in WMCO-EQP-12.04 "Certification of Loading and Shipment of Low-Level Radioactive Waste".

2.4.2 Verify that a Preliminary Visual Trailer Inspection was performed by WEMCO mechanics. Examine the transport trailer/vehicle and complete either the "Waste Certification Preliminary Trailer Checklist for Flat Beds" (Attachment H) or the "Waste Certification Preliminary Checklist for Vans" (Attachment I) as applicable. The checklist becomes part of the shipment certification file.

2.4.3 Examine each waste package in the shipment. Each package prior to loading is checked for agreement with the information on the approved Package Storage and Disposal Data sheet, the Tally Sheet, and the Storage and Disposal computer printout list of packages, weights, and DOT markings. When this agrees, and criteria listed in EQP-12.04 are met, affix a properly completed and signed NV-211 certification label on each package.

2.4.4 Examine the loaded shipment vehicle after it has been sealed, weighed, monitored, and moved to traffic, take photographs, and complete the "Quality Certification Final Vehicle/Trailer Checklist" (Attachment J) which becomes part of the shipment certification file.

2.4.5 Examine the Transportation documents as listed in EQP-12.04 for accuracy and completeness. Complete the "Quality Certification Traffic Shipment Documentation Checklist" (Attachment K) which becomes part of the shipment certification file.

2.4.6 Make copies of the following documents and make them part of the shipment file:

a. Waste Certification Final Trailer Checklist

b. Waste Certification Traffic Shipment Document Checklist

c. Shipping Order for Nuclear Material

d. Radiological Survey Results (48-Hour Smears) if original is not already in file

f. Out going vehicle Radiation Survey

g. Out going vehicle Radiation Monitoring Sheet

2.5 <u>Shipping Papers</u>

Certification Official

2.5.1 Review the following documents for accuracy and completeness at Traffic :

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 for results of smear samples of packages.

f. Weight Ticket
g. Off-Site Tie Down Inspection Form
h. LSA/RQ, LQ Documentation
i. Drivers Instructions
j. Waste Certification checklists

2.5.2 Complete the "Quality Shipment Verification Form" form and list any nonconformances. This becomes part of the shipment certification file.

2.5.3 Sign and date the Shipping Order, in the space provided for Quality Certification, when all documents are complete and accurate.

2.5.4 Sign the Certification Statement. The original and one copy are given to Traffic. One copy is retained and becomes part of the shipment certification file.

2.5.5 Sign the Certification Statement Specific to Hazardous Waste. The original and one copy are given to Traffic. One copy is retained and becomes part of the shipment certification file.

2.5.6 Fax the Certification Statement Specific to Hazardous Waste, the Package Storage and Disposal Data Sheet, and a Facsimile Service form to NTS per the directions on the Facsimile Service form two days prior to the shipment's arrival at NTS. This is to be followed by a phone call to NTS to verify the receipt of this information.

NOTE: The Facsimile Service form 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.

2.6 Electronic Data Transfer Sheet

Quality Certification

2.6.1 Receive the electronic transfer data sheet from the Shipping Coordinator.

2.6.2 Review electronic transfer data sheet for accuracy. Data must agree with the approved respective Package Storage and Data Disposal report and comply with the requirements of Reynolds Electrical & Engineering Company's, Inc. (REECO) Defense Low Level Waste Information System Data Transmission Guide. If not acceptable, return it to the shipping coordinator for clarification or correction and resubmittal.

2.6.3 Maintain a file for the electronic data sheet.

3.0 REFERENCES

3.1 NVO-325 "Nevada Test Site Defense Waste Acceptance Criteria, Certification and Transfer Requirements"

3.2 WMCO:EQP-1.05 "Abbreviations, Acronyms, and Definitions"

3.3 PP-FMPC-706 "Deviation and Corrective Action Reporting"

3.4 WMCO-EQP-12.04 "Certification of Loading and Shipment of Low-Level Radioactive Waste

3.5 OM-FMPC-0001 "Event Notification and Reporting"

3.6 FMPC-2128 "Industrial Hygiene and Safety Manual"

3.7 FMPC-2084 "Radiation Control Manual"

4.0 ATTACHMENTS

4.1 Attachment A, Quality Certification Checklist Sea/Land Container "Ready to Ship"

4.2 Attachment B, Package Storage and Disposal Data Sheet, Tally Sheet, and Supporting Paperwork Review Checklist for L-LRW

4.3 Attachment C, Quality Waste Shipment Verification Form

4.4 Attachment D, Certification Statement

4.5 Attachment E, Certification Statement Specific to Hazardous Waste

4.6 Attachment F, NV-211 Certification Labels

4.7 Attachment G, Example of Chain of Custody Log used to issue NV-211 labels

4.8 Attachment H, Quality Certification Preliminary Trailer Checklist For Flat Beds

4.9 Attachment I, Quality Certification Preliminary Trailer Checklist For Vans

4.10 Attachment J, Quality Certification Final Trailer/Vehicle Checklist

4.11 Attachment K, Quality Certification Traffic Shipment Document Checklist

4.12 Attachment L, Facsimile Service Form

Attachment A
Page 1 of 1

QUALITY CERTIFICATION CHECKLIST
SEA/LAND CONTAINER "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)

Trailer No.: _____ Initials

1. Verify "Item Production/Certification/Identification" W-65 card is completed accurately (Form FMPC-ES&H-1945-XX) _____
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 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. 3 (08/26/91)

EXHIBIT

PACKAGE STORAGE & DISPOSAL SHEET, TALLY SHEET, AND
SUPPORTING PAPERWORK REVIEW CHECKLIST FOR L-LRW

Shipment No. _____

Review the paperwork for the following requirements:	Approval Check
Shipment No. agrees with LLW shipping report.	_____
Waste Stream number present and correct.	_____
Waste material description present and accurate.	_____
W-65 cards are correct for each container.	_____
Lot No. agree with LLW shipping report.	_____
Lot Code agrees with LLRW shipping report material description.	_____
Lot enrichment code agrees with U-235 analysis.	_____
U Assay, U-235, & U-238 concur with approved values. (from Analytical or approved in writing by MC&A)	_____
No unusual analysis dates (If so, check).	_____
Container type code listed and accurate.	_____
Proper waste code is entered.	_____
Combustibility percent listed and appropriate for contents.	_____
Gross weights agree with LLRW shipping report.	_____
Gross weights do not exceed the maximum gross weight per container type.	_____
Tare weights agree with LLW shipping report.	_____
Net weights agree with LLW shipping report.	_____
Net + Tare = Gross	_____
Inner container identity numbers check.	_____
Outer container identity numbers check.	_____
Total number of containers agrees with LLRW shipping report.	_____

EXHIBIT

ECQ-881115-2, Rev. 2 (07/30/91)

PACKAGE STORAGE & DISPOSAL SHEET, TALLY SHEET, AND
SUPPORTING PAPERWORK REVIEW CHECKLIST FOR L-LRW (Continued)

	Approval Check
Total containers correct on Storage & Disposal Sheet.	_____
Package description correct on Storage & Disposal Sheet.	_____
Correct volume listed for outer container.	_____
Gross volume is correct for shipment.	_____
Checked conversion from English to Metric units.	_____
Radiological Survey results present.	_____
Rad Survey at Contact is not greater than 200 mR/hr.	_____
Rad Survey at 3 ft is not greater than 10 mR/hr.	_____
No unusual values or arrangement indicating computer error.	_____
LQ, RQ, & LSA designations correct on Curie List. (If not, verify correct curie list is issued)	_____
LSA, LQ, & RQ list for loading correct and in agreement with Curie List. (Non-process contaminated materials are always LSA.	_____
Appropriate preparer signature on Storage & Disposal Sheet.	_____
Checked against RCRA letters and found to be non-RCRA.	_____
Partially completed Shipping Order included in folder.	_____

EXHIBIT

I hereby certify the above criteria has been verified to be correct, to the best of my knowledge.

Signature: _____

Date: _____

ECQ-881115-2, Rev. 2 (07/30/91)

Attachment C
Page 1 of 2

QUALITY WASTE SHIPMENT VERIFICATION

Page 1 of 2

Date_____ Time _____

Shipment No. WML-_____ Trailer No._____ No./Type Container_____

1. Storage & Disposal Data Sheet
   A. Material Descsription_____
   B. Signed _____ Shipment No. WML-_____
   C. Total Curries _____
   D. Total Gross Weight (Lbs.)_____ (Kgs)_____
   E. Total Volume (Cu Ft) _____ (Cu Meters)_____
   F. Type Container _____
   G. Date _____ Time _____
   H. Check of "G" for all copies _____

2. Tally Sheet
   Shipment No. WML-_____ Date _____ Time _____
   Check of Date & Time of all copies in Pkg. _____
   A. Lot Number | Gross Weight | Net Weight
   _____ | _____ | _____
   _____ | _____ | _____
   _____ | _____ | _____
   _____ | _____ | _____
   Totals | _____ | _____
   B. Total containers _____ Totals agree with "1" above _____
   C. Field check of Tally Sheet included _____

3. Bill of Lading (FMPC PM&A-452 Rev 2/12/91)
   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 (FMPC-ES&H-558-3 REV. 1/29/87)
   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. _____

EXHIBIT

ECQ-890601-1, Rev.1, (08/04/91)

QUALITY WASTE SHIPMENT VERIFICATION

5. Low Level Waste Shipment Checklist and NTS Notification Form
   A. Shipment No. WML-_____ 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 (FMPC ES&H-1596-1) 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 _____ 48 Hour Smears: Date_____Time_____
   Equal to or less than 48 hours 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-_____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 1, (08/04/91)

EXHIBIT

CERTIFICATION STATEMENT

Shipment No. WML-91-_____ Trailer No. _____

Bill of Lading No. _____ Seal No. _____

This is to certify that the herein named materials are properly classifies, described, packaged, marked and labeled, are in proper condition for transportation according to the applicable regulations of the Department of transportation, and that the shipment meets DOT and EPA requirements. Except for exemptions approved by DOE/Nevada, and data that is being transmitted in the same format and content as that for preceding shipments, this shipment and all packages contained therein meets NVO-325 requirements.

EXHIBIT

_____
FMPC Certification Official

Date: _____

Quality Certification Form

ECQ-900914-1, Rev. 2 (08/06/91)

Attachment E
Page 1 of 1

CERTIFICATION STATEMENT SPECIFIC TO HAZARDOUS WASTE

This is to certify that the packages itemized in the attached list for Shipment No. WML-91-_____ contain no hazardous waste as determined by 40 CFR Part 261.30, and OAC 3745-54.

_____
FMPE Certification Official

Date: _____

EXHIBIT

Quality Certification Form
ECQ-900914-2, Rev. 2 (08/06/91)

NV-211 LABELS

NV-211 **PACKAGING CERTIFICATION**

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: FMPC

FMPC-O&S-234 (REV 9/7/89)

EXHIBIT

NV-211 **PACKAGING CERTIFICATION**

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: FMPC

FMPC-O&S-234-1 (REV 9/7/89)

Attachment G
Page 1 of 1

CHAIN OF CUSTODY LOG
FOR
ISSUE & RECEIPT OF SIGNED NV-211 LABELS

DATE	SHIPMENT NUMBER	LABELS ISSUED	ISSUED BY (SIGNATURE)	NUMBER RECD.	RECEIVED BY (SIGNATURE)	LABELS RETURNED	RECEIVED BY (SIGNATURE)

EXHIBIT

QAC-890712-1, REV. 0

Attachment H
Page 1 of 1

QUALITY CERTIFICATION - PRELIMINARY TRAILER CHECKLIST FOR FLAT BEDS
(SEA/LAND SHIPMENTS)

DATE: _____ 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 E98H-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 respeared.)	_____
3. Verify that the doors of the sea/land containers are banded closed and secured with a tamper proof DOT approved seal.	_____
4. 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.	_____
5. 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. 3 (07/31/91)

EXHIBIT

Attachment I
Page 1 of 1

QUALITY CERTIFICATION - PRELIMINARY TRAILER CHECKLIST FOR VANS

DATE: _____ 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. If trailer is to be loaded with baled trash, verify the trailer has been lined properly as specified per SOP-TRF-46-C-110.	____
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. _____	____

EXHIBIT

Signed: _____ Date: _____
(Quality Certification)

Distribution: 1. QA Certification 2. Traffic Manager

QA Certification Form
ECQ-880801-1, Rev. 4 (07/30/91)

QUALITY CERTIFICATION FINAL TRAILER/VEHICLE CHECKLIST

Carrier:_____ Trailer No. :_____ Shipment No. :_____

Initials

1. Verify the RST has surveyed the trailer/vehicle and recorded results on Vehicle Radiation Monitoring Report (Form FMPC-ES&H-1596-1). _____

2. Verify the proper placards are in place, as required. _____

3. Verify the driver has performed a safety inspection of vehicle prior to leaving the FMPC: _____

headlights	_____	horn	_____
turn signals	_____	tires	_____
brake lights	_____	braking check test (optional)	_____

4. Verify the envelope with Manifest and Tally Sheets is in trailer. _____

5. Verify that a seal has been placed on the trailer doors and that the trailer number and seal number match the trailer and seal number recorded on the Bill of Lading. Report all discrepancies to the Traffic Manager. _____

Seal Number: _____

6. Verify all lot markings and weights on the Tally Sheet match the lot markings and weights on the Shipping Order. _____

Date Shipped: _____ Time Shipped: _____

I hereby certify that the above items have been verified and are correct to the best of my knowledge.

Signed:_____ Date:_____
(Quality Certification Personnel)

NOTE: UPON SATISFACTORY COMPLIANCE WITH THE ABOVE CHECKLIST CERTIFICATION PERSONNEL SHOULD SIGN THE SHIPPING ORDER AT THE SPACE MARKED "QUALITY CONTROL APPROVAL".

ECQ-881115-1, Rev. 3 (07/30/91)

EXHIBIT

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	

EXHIBIT

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)

FEED MATERIALS PRODUCTION CENTER

WESTINGHOUSE MATERIALS COMPANY OF OHIO
P.O. Box 398704
Cincinnati, Ohio 45239-8704

Equipment: Sharp FO-230

FAX:

FTS: 774-8651
COMMERCIAL NO: (513)-738-8651

VERIFICATION:

FTS: 774-8649
COMMERCIAL NO: (513)-738-8649

EXHIBIT

DATE: _____ TIME: _____

TO: Stacey A. Sorg

ORGANIZATION & LOCATION: DOE/NV

FACSIMILE NO.: FTS 575-1810

VERIFICATION REQUESTED: _____ YES _____ NO

FROM: James E. Clements FMPC/WMCO FTS 774-8648

SUBJECT: CERTIFICATION STATEMENT(S) FOR L-LRW SHIPMENT(S) TO NTS

FAX MACHINE OPERATOR: _____ VERIFICATION CONFIRMED BY: _____

This message consists of _____ pages excluding cover sheets.