

Materials and Fuels Complex Facilities Radioactive Waste Management Basis and DOE Manual 435.1-1 Compliance Tables

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Materials and Fuels Complex Facilities Radioactive Waste Management Basis and DOE Manual 435.1-1 Compliance Tables

September 2011

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ABSTRACT

Department of Energy Order 435.1, “Radioactive Waste Management,” along with its associated manual and guidance, requires development and maintenance of a radioactive waste management basis for each radioactive waste management facility, operation, and activity. This document presents a radioactive waste management basis for Idaho National Laboratory’s Materials and Fuels Complex facilities that manage radioactive waste. The radioactive waste management basis for a facility comprises existing laboratory-wide and facility-specific documents. Department of Energy Manual 435.1-1, “Radioactive Waste Management Manual,” facility compliance tables also are presented for the facilities. The tables serve as a tool for developing the radioactive waste management basis.

CONTENTS

ABSTRACT.....	iii
1. INTRODUCTION.....	1
2. METHODOLOGY.....	2
3. SCOPE.....	3
4. FACILITY RADIOACTIVE WASTE MANAGEMENT BASIS AND DOE MANUAL 435.1-1 COMPLIANCE TABLES.....	4
4.1 MFC-702, Plant Services Equipment Storage Building.....	4
4.2 MFC-703, Sodium Storage Building.....	29
4.3 MFC-704, Fuel Manufacturing Facility.....	54
4.4 MFC-752, Analytical Laboratory.....	95
4.5 MFC-765, Fuels Conditioning Facility.....	138
4.6 MFC-771, Radioactive Scrap and Waste Facility.....	181
4.7 MFC-774, Electron Microscopy Laboratory.....	223
4.8 MFC-775, Zero Power Physics Reactor Workroom.....	248
4.9 MFC-784, Zero Power Physics Reactor Material Control Building.....	272
4.10 MFC-785, Hot Fuel Examination Facility.....	296
4.11 MFC-787, Fuels and Applied Sciences Building.....	341
4.12 MFC-792A, Space and Security Power Systems Facility.....	366
4.13 MFC-793, Sodium Components Maintenance Shop (including Metal RCRA Storage Building MFC-793C and 793G).....	390
4.14 MFC-794, Contaminated Equipment Storage Building.....	416
4.15 MFC-798, Radioactive Liquid Waste Treatment Facility.....	441
4.16 MFC-797, Outside Radioactive Storage Area.....	466
4.17 MFC-799 and 799A, Sodium Process Facility.....	490
4.18 MFC-1702, Radiochemistry Laboratory.....	515
5. REFERENCES.....	540

TABLES

1.	MFC-702, Plant Services Equipment Storage Building, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	5
2.	MFC-703, Sodium Storage Building, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	30
3.	MFC-704, Fuel Manufacturing Facility, DOE Manual 435.1-1 transuranic waste requirements and facility compliance information	55
4.	MFC-704, Fuel Manufacturing Facility, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	72
5.	MFC-752, Analytical Laboratory, DOE Manual 435.1-1 transuranic waste requirements and facility compliance information	98
6.	MFC-752, Analytical Laboratory, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	114
7.	MFC-765, Fuels Conditioning Facility, DOE Manual 435.1-1 transuranic waste requirements and facility compliance information	139
8.	MFC-765, Fuels Conditioning Facility, DOE Manual 435.1-1 Low-level waste requirements and facility compliance information	157
9.	MFC-771, Radioactive Scrap and Waste Facility, DOE Manual 435.1-1 transuranic waste requirements and facility compliance information	183
10.	MFC-771, Radioactive Scrap and Waste Facility, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	199
11.	MFC-774, Electron Microscopy Laboratory, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	225
12.	MFC-775, Zero Power Physics Reactor Workroom, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	249
13.	MFC-784, Zero Power Physics Reactor Material Control Building, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	273
14.	MFC-785, Hot Fuel Examination Facility, DOE Manual 435.1-1 transuranic waste requirements and facility compliance information	298
15.	MFC-785, Hot Fuel Examination Facility, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	317
16.	MFC-787, Fuels and Applied Sciences Building, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	343

17.	MFC-792A, Space and Security Power Systems Facility, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	367
18.	MFC-793, Sodium Components Maintenance Shop, DOE M 435.1-1 low-level waste requirements and facility compliance information	392
19.	MFC-794, Contaminated Equipment Storage Building, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	417
20.	MFC-798, Radioactive Liquid Waste Treatment Facility, DOE Manual 435.1-1 low-level waste requirements and Facility compliance information	443
21.	MFC-797, Outside Radioactive Storage Area, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	467
22.	MFC-799 and MFC-799A, Sodium Process Facility, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	493
23.	MFC-1702, Radiochemistry Laboratory, DOE Manual 435.1-1 low-level waste requirements and facility compliance information	516

Materials and Fuels Complex Facilities Radioactive Waste Management Basis and DOE Manual 435.1-1 Compliance Tables

1. INTRODUCTION

The U.S. Department of Energy (DOE) ensures that DOE radioactive waste is managed in a manner that is protective of worker and public health and the environment through DOE Order 435.1, “Radioactive Waste Management,” and its associated manual (DOE Manual 435.1-1, “Radioactive Waste Management Manual”) and guidance (DOE Guide 435.1-1, “Implementation Guide for Use with DOE M 435.1-1”). As required by DOE Manual 435.1-1, I.F.(2), field element managers are responsible for ensuring that a radioactive waste management basis (RWMB) is developed and maintained for each DOE radioactive waste management facility, operation, and activity. The RWMB must do the following:

- Reference or define the conditions under which the facility may operate based on the radioactive waste management documentation
- Include the applicable elements identified in the specific waste type chapters of the manual (DOE Manual 435.1-1)
- Be developed using the graded approach process.

The specific waste type chapters of DOE Manual 435.1-1 are high-level waste (Chapter II), transuranic (TRU) waste (Chapter III), and low-level waste (LLW) (Chapter IV). The RWMB is required to consist of “physical and administrative controls to ensure the protection of workers, the public, and the environment.” For TRU waste and LLW, the RWMB is to include the following specific waste management controls:

- For generators, the waste certification program
- For treatment facilities and storage facilities, the waste acceptance requirements and the waste certification program
- For disposal facilities, the performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.

Similar waste management controls are specified for high-level waste generators and high-level waste pretreatment, treatment, and storage facilities.

However, consistent with the graded approach provided in the DOE guidance, the required elements of the RWMB vary with the type of waste management operation or facility and the types of hazards associated with the facility. Therefore, the elements that are included in the guidance for each waste type chapter of the manual are not to be considered a complete list of elements. For example, the elements determined to be applicable to the RWMB for a facility may include the facility safety basis; authorization basis; operational procedures; radiation protection controls and procedures; waste characterization and certification plan; waste acceptance criteria; waste tracking and records management; waste storage and staging requirements; facility monitoring; quality assurance; and regulatory permits and appropriate documentation for permitted facilities.

The purpose of this document is to present a RWMB for Materials and Fuels Complex (MFC) facilities that manage radioactive waste and DOE Manual 435.1-1 facility compliance information tables for the MFC facilities. The facility RWMB comprises existing laboratory-wide and facility-specific documents. The DOE M 435.1-1 facility compliance information tables show how each facility meets the DOE Manual 435.1-1 requirement for a waste type and serve as a tool to develop the RWMB. The tables provide information that BEA and facility management officials can use to apply the graded approach

emphasized in DOE Order 435.1 and its associated manual and guidance. This document is intended to support the summary RWMB (PLN-3654) for the facilities managing radioactive waste at MFC. The summary RWMB is to be submitted to the DOE field element manager for approval.

2. METHODOLOGY

The following methodology was used to prepare preliminary RWMB and facility compliance information tables for MFC:

- A kick-off meeting was held with MFC officials. At this meeting, a preliminary list of MFC facilities that should be included in this effort was verified. Based on the information obtained at this meeting, the list of facilities was revised. The MFC officials also provided the point of contact (POC) for each facility that could provide facility radioactive waste management information.
- Interviews were conducted with the primary POCs to discuss radioactive waste management procedures and programs at each facility. The interviews were conducted March 30 and April 2, 2010.
- Based on the information received from the interviews and analysis of the procedures cited by the facility POCs and found through the Electronic Document Management System, initial draft tables describing facility-level compliance with DOE Manual 435.1-1 requirements for each facility and each waste type managed at the facility were developed.
- A series of review meetings were then conducted with the facility POCs and BEA management officials. These review meetings served as the verification of the information presented in the initial draft tables, which were based on the information obtained from the POC interviews and analysis of documents from the Electronic Document Management System. The meetings also allowed the BEA management officials to discuss and make decisions regarding the potential compliance issues identified in the tables. The BEA management officials determined areas where BEA would take further actions and also areas where further actions were not necessary (e.g., issues where the BEA management officials decided that sufficient compliance was provided by INL-wide procedures or programs). The review meetings were held between May 25 and May 28, 2010.
- The tables were revised based on the input received during the review meetings.
- For each facility, a preliminary RWMB and a list of areas requiring further BEA and facility management actions were developed based on information from the revised tables.

In developing and reviewing the compliance information and preliminary RWMB, the graded approach that DOE specifies for developing the RWMB and that is emphasized throughout the DOE Guide 435.1-1 guidance was used. The guidance also states that, when possible, existing processes, programs, and documentation should be considered as possible ways to comply with DOE Manual 435.1-1 requirements (DOE Guide 435.1-1).

Both the manual and associated guidance were considered in developing and reviewing the preliminary RWMB. DOE Manual 435.1-1 describes the requirements and establishes specific responsibilities for implementing DOE Order 435.1 for the management of DOE high-level waste, TRU waste, LLW, and the radioactive component of mixed waste. DOE Guide 435.1-1 was developed to aid in implementing DOE Manual 435.1-1 requirements. The guide aids in understanding what is necessary to attain compliance, facilitates effective and efficient implementation of the requirements, and offers acceptable ways to implement the requirements. The guide is not meant to be viewed as additional or mandatory requirements. The guide emphasizes consideration of situation-specific attributes and application of the graded approach to dictate the rigor applied to implementation (DOE Guide 435.1-1 and DOE Manual 435.1-1).

3. SCOPE

The following MFC facilities were identified as managing radioactive waste and are included in this study:

- MFC-702, Plant Services Equipment Storage Building
- MFC-703, Sodium Storage Building
- MFC-704, Fuel Manufacturing Facility (FMF)
- MFC-752, Analytical Laboratory
- MFC-765, Fuels Conditioning Facility (FCF)
- MFC-771, Radioactive Scrap and Waste Facility (RSWF)
- MFC-774, Electron Microscopy Laboratory
- MFC-775, Zero Power Physics Reactor (ZPPR) Workroom
- MFC-785, Hot Fuel Examination Facility (HFEF)
- MFC-787, Fuels and Applied Sciences Building
- MFC-792A, Space and Security Power Systems Facility
- MFC-793, Sodium Components Maintenance Shop (including Metal Resource Conservation and Recovery Act [RCRA] Storage Building MFC-793C and 793G)
- MFC-794, Contaminated Equipment Storage Building
- MFC-798, Radioactive Liquid Waste Treatment Facility (RLWTF)
- MFC-797, Outside Radioactive Storage Area
- MFC-799 and 799A, Sodium Process Facility
- MFC-1702, Radiochemistry Laboratory.

The facilities below were identified prior to the kick-off meeting as facilities that manage radioactive waste. However, information obtained during the kick-off meeting held with facility representatives or during subsequent POC interviews confirmed that radioactive waste management activities are not conducted at these facilities. Therefore, compliance information tables were not developed for these facilities:

- MFC-720, Transient Reactor Experiment and Test (TREAT) Transient Reactor Test Facility
- MFC-721, TREAT Transient Reactor Test Facility
- MFC-723, TREAT Transient Reactor Test Facility Warehouse
- MFC-724, TREAT Transient Reactor Test Facility
- MFC-780, Laundry Sorting Building
- MFC-784, ZPPR – Material Control
- MFC-792, Space and Security Power Systems Facility
- MFC-774, ZPPR Counting Lab B
- MFC-NFRSA and SFRSA North Fenced Radioactive Storage Area and South Fenced Radioactive Storage Area.

4. FACILITY RADIOACTIVE WASTE MANAGEMENT BASIS AND DOE MANUAL 435.1-1 COMPLIANCE TABLES

This section presents the RWMB and DOE Manual 435.1-1 compliance tables for the following MFC facilities:

- MFC-702, Plant Services Equipment Storage Building (Subsection 5.1)
- MFC-703, Sodium Storage Building (Subsection 5.2)
- MFC-704, FMF (Subsection 5.3)
- MFC-752, Analytical Laboratory (Subsection 5.4)
- MFC-765, FCF (Subsection 5.5)
- MFC-771, RSWF (Subsection 5.6)
- MFC-774, Electron Microscopy Laboratory (Subsection 5.7)
- MFC-775, ZPPR Workroom (Subsection 5.8)
- MFC-785, HFEF (Subsection 5.9)
- MFC-787, Fuels and Applied Sciences Building (Subsection 5.10)
- MFC-792A, Space and Security Power Systems Facility (Subsection 5.11)
- MFC-793, Sodium Components Maintenance Shop (including Metal RCRA Storage Building MFC-793C and 793G) (Subsection 5.12)
- MFC-794, Contaminated Equipment Storage Building (Subsection 5.13)
- MFC-798, RLWTF (Subsection 5.14)
- MFC-797, Outside Radioactive Storage Area (Subsection 5.15)
- MFC-799 and 799A, Sodium Process Facility (Subsection 5.16)
- MFC-1702, Radiochemistry Laboratory (Subsection 5.17).

For each MFC facility, a brief facility overview is provided. The overview includes a facility description, the facility's safety basis classification, the radioactive waste management activities and waste types for the facility, a list of the RWMB documents and programs for the facility, and a list of the compliance requirements needing further BEA management action.

The DOE Manual 435.1-1 compliance information table for each radioactive waste type managed at each MFC facility also is provided for each facility. Each table shows the DOE Manual 435.1-1 requirement, facility compliance information for each requirement, and compliance issues for consideration by INL, BEA, and facility management, as appropriate. In some cases, excerpts from the DOE Guide 435.1-1 guidance associated with the DOE Manual 435.1-1 requirement are included. These excerpts are included to provide additional context and information about the requirement. However, the complete guidance citation should be consulted for decision-making.

4.1 MFC-702, Plant Services Equipment Storage Building

1. **Facility description:** Radiologically contaminated laundry used at MFC facilities is collected in MFC-702 and readied for shipment to a commercial laundry vendor. The laundry consists primarily of used cloth coveralls and cloth hoods and may contain some used full-face respirators. The laundry is typically packaged in the facilities in double poly bags, transferred to MFC-702, and placed in a metal shipping bin. Some of the personal protective laundry is used in facilities as a precautionary

measure during radiological work where engineered contamination controls are used. This typically ensures that the laundry does not get radiologically contaminated. In contaminated areas, the laundry is normally used as an under layer protected by a disposable coverall, such that the likelihood of contamination on the laundry is mitigated but not eliminated. This application is used most frequently in FCF and HFEF.

2. **Hazard category:** “Other”
3. **Radioactive waste managed at this facility:** Contact-handled (CH) LLW is generated and staged in this facility subsequent to routine facility operations.
4. **RWMB documents/programs:**
 - a. Safety basis/hazard analysis:
 - ECAR-789, “Hazard Categorization of the Materials and Fuels Complex Laundry Facility MFC-702”
 - EDF-7234, “Evaluation of Source Terms in MFC-Building 702”
 - b. Laboratory-wide:
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - LI-435, “Waste Management Routine Field Activities”
 - LRD-15001, “Radiological Control Manual”
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”
 - LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
 - LWP-17000, “Waste Management”
 - MCP-139, “Radiological Surveys”
 - MCP-17000, “Waste Generator Services Waste Management”
 - MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
 - PDD-17000, “Waste Management Program”
 - PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
 - PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”
 - c. Facility-specific:
 - AWP-2.13, “Radiological Material Inventory Control and Facility Hazard Categorization”
 - TSD-OI-004, “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control.”

LLW is managed at this facility. Table 1 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 1. MFC-702, Plant Services Equipment Storage Building, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
A. <u>Definition of Low-Level Waste</u> . Low-level	This requirement provides the criteria for determining

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>(From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See (1), (2), (3), and (4) below.</p>
<p>(1) <u>Mixed Low-Level Waste</u>. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>Not applicable (NA); this facility does not manage RCRA-regulated mixed LLW.</p>
<p>(2) <u>TSCA-Regulated Waste</u>. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i>, as amended, DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not manage TSCA-regulated waste.</p>
<p>(3) <u>Accelerator-Produced Waste</u>. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual, and all applicable Federal or State requirements.</p>	<p>NA; this facility does not manage accelerator-produced waste.</p>
<p>(4) <u>11e.(2) and Naturally Occurring Radioactive Material</u>. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.</p>	<p>NA; this facility does not manage naturally occurring radioactive material.</p>
<p>C. <u>Complex-Wide Low-Level Waste Management Program</u>. A complex-wide program and plan shall be developed as described under <i>Responsibilities</i>, 2.B and 2.D, in Chapter I of this Manual.</p>	<p>DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.</p>
<p>D. <u>Radioactive Waste Management Basis</u>. Low-level waste facilities, operations, and activities shall have a</p>	<p>The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically</p>

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:</p>	<p>identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste.</p>
<p>(1) Generators. The waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.</p>	<p>See J. below for waste certification program requirements.</p> <p>ECAR-789 documents the hazard categorization prepared for this facility and determines it to be an “other” facility.</p> <p>EDF-7234 documents the calculated source terms in the facility and prescribes dose rate limits below which the laundry may be shipped as a limited quantity.</p>
<p>(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>NA; this facility is not a radioactive waste treatment facility.</p>
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting</p>	<p>NA; this facility is not a radioactive waste storage facility.</p>

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a radioactive waste disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>NA; this facility does not store liquid LLW.</p>
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with</p>	<p>NA; this facility does not transfer LLW.</p>

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.</p>	<p>See F. above.</p>
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.</p>

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.	
G. <u>Waste Acceptance</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].	DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
<p>(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.</p>	<p>Because MFC-702 functions as a staging or collection point for non-waste shipments of potentially radiologically contaminated laundry and respirators awaiting shipment out to a commercial laundry vendor, the only radioactive waste management function served by the facility is staging of LLW that is generated upon return of the poly bags (original shipment packaging materials) returned to MFC by the laundry vendor or contaminated clothing disposed of upon being rejected by HP spot check of outgoing laundry. Therefore, there is no waste acceptance criteria (WAC) for the facility.</p> <p>ECAR-789 determines this facility’s hazard categorization as “other.”</p> <p>EDF-7234 provides the source term calculations for the building and establishes that all packages in the building meet the criteria of “de minimus” as defined in AWP-2.13, Section 6.3. A completed radiological material transfer nuclear safety evaluation form is kept on file verifying the de minimus status of the packages.</p>
(a) Allowable activities and/or concentrations of specific radionuclides.	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	See (1) above.
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	See (1) above.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its	See (1) above.

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
container shall be reduced to the extent practical.	
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (1) above.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (1) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (1) above.
5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [<i>sic</i>]	See (1) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved. From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.	See (1) above.
(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established. From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis	See (1) above.

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.	
H. <u>Waste Generation Planning</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].	DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.
(1) <u>Life-Cycle Planning</u> . Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams. From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.	PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.
(2) <u>Waste with No Identified Path to Disposal</u> . Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:	This facility is not generating radioactive waste that does not have an identified path to disposal.
(a) Programmatic need to generate the waste;	See (2) above.
(b) Characteristics and issues preventing the disposal of the waste;	See (2) above.
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
I. <u>Waste Characterization</u> . Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving	MCP-17000 §4 specifies the requirements for preparing an Integrated Waste Tracking System (IWTS) profile that captures waste characterization information.

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.</p>	
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.</p>	<p>MCP-17000 §4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.</p>
<p>(a) Physical and chemical characteristics;</p>	<p>See (2) above.</p>
<p>(b) Volume, including the waste and any stabilization or absorbent media;</p>	<p>See (2) above.</p>
<p>(c) Weight of the container and contents;</p>	<p>See (2) above.</p>
<p>(d) Identities, activities, and concentrations of major radionuclides;</p>	<p>See (2) above.</p>
<p>(e) Characterization date;</p>	<p>See (2) above.</p>
<p>(f) Generating source; and</p>	<p>See (2) above.</p>
<p>(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.</p>	<p>See (2) above.</p>
<p>J. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with</p>	<p>MCP-17000 §4 specifies the requirements for preparing an IWTS profile that captures waste certification information.</p> <p>MCP-17500 provides the Waste Generator Services (WGS) waste certification program for LLW to be shipped to the Nevada National Security Site (NNSS).</p>

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>Container procurement is addressed in MCP-17000 §4.6.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSS.</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	<p>See J. above.</p>
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above.</p>
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or</p>	<p>See J. above.</p>

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>MCP-17000 specifies the requirements for preparing an IWTS profile, which captures waste certification data, transfer information and associated authorizations.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NTS</p> <p>TSD-OI-004 specifies requirements and provides instructions for accepting LLW and mixed LLW at the MFC treatment, storage, and disposal facilities.</p>
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	See K. above.
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	See K. above.

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
L. <u>Packaging and Transportation</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].	DOE Manual 435.1-1 §I.1.E(11) applies to field element managers.
(1) Packaging. If containers are used: From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repackage the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.	MCP-17000 §4 addresses packaging requirements.
(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.	See (1) above.
(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.	See (1) above.
(c) Containers of low-level waste shall be marked such that their contents can be identified.	See (1) above.
(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized. From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.	NA; waste is not shipped to an offsite facility for final disposition from this facility.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities.

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:	See M. above.
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases	See M. above.

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active	See M. above.

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
maintenance following final closure.	
(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.
N. <u>Storage and Staging</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].	DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.	NA; this facility does not store LLW. See N. (7) below for staging requirements.
(2) Storage Limit. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager. From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility. Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place. <u>Mixed waste</u> . Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four	See (1) above.

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <ol style="list-style-type: none"> 1) the radioactive waste management basis allows for storage for no more than one year. 2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis. 3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives. 4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives. <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored</p>	<p>See (1) above.</p>

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>From DOE G 435.1-1 Chapter IV: However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	
(4) Waste Characterization for Storage.	See (1) above.
(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.	See (1) above.
<p>(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.</p>	See (1) above.
<p>(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.</p>	LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.
(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.	See (1) above.

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.</p>	<p>Routine LLW, such as personnel protective equipment, is accumulated at this facility for disposal. MCP-17000, Appendix F, "Container Start Date and Storage Prohibitions," restricts staging LLW to 90 days maximum at any generator or treatment facility prior to acceptance by a storage facility.</p> <p>As stated in DOE Guide 435.1-1 §IV.N.(7), staging waste in accordance with this requirement allows waste to be accumulated without being considered storage and being bound by the associated storage requirements.</p>
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	<p>NA; this facility does not treat LLW.</p>
<p>P. <u>Disposal</u>. Low-level waste disposal facilities shall meet the following requirements.</p>	<p>NA; this facility does not dispose of LLW.</p>
<p>(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:</p>	<p>See P. above.</p>

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.	See P. above.
(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.	See P. above.
(c) Release of radon shall be less than an average flux of 20 pCi/m ² /s (0.74Bq/m ² /s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.	See P. above.
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	See P. above.
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	See P. above.
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.	See P. above.
(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and	See P. above.

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.	
(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.	See P. above.
(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	See P. above.
(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	See P. above.
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	See P. above.

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements include:	See P. above.
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	See P. above.
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	See P. above.
(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	See P. above.
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this facility does not dispose of LLW.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal	See Q. above.

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	DOE Manual 435.1-1 §I.1.E(7) applies to field element managers.
(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.	Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the "routine sheet" and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>
<p>(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p>	<p>NA; this facility does not store liquid LLW.</p>
<p>(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.</p>	<p>NA; this facility does not dispose of LLW.</p>
<p>(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.</p>	<p>See (3) above.</p>
<p>(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.</p>	<p>See (3) above.</p>

Table 1. (continued).

MFC-702, Plant Services Equipment Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.	See (3) above.

4.2 MFC-703, Sodium Storage Building

1. **Facility description:** MFC-703 consists of one building used for container storage. The Sodium Storage Building is a prefabricated steel frame building with uninsulated metal wall and roof panels. The wall and roof panels are nestable ribbed-type panels of painted steel. Steel flashing, closures, and trim provide weather-tight construction and finishing to the building. End laps in roofing and side walls, in addition to all flashing and vertical joints of siding, are sealed with continuous beads of sealant or sealant tape. Ridge vents and wall louvers, providing building passive ventilation, are designed to prevent moisture influx into the building.

MFC-703 is 50 × 100 ft with a nominal eave height of 12 ft (10 ft clear at the inside haunch connection of the structural frame). The building was placed on a 6-in. reinforced-concrete slab elevated slightly above grade ensuring that any precipitation drains away from the building. Access into the building is limited to two personnel doors and one 14 × 12-ft overhead door for forklift access on the east end. The doors are maintained closed and locked except when access is necessary for inspection or other routine activities. The electrical system in the Sodium Storage Building consists of a 480-V, three-phase power service transformed to 120/208-V power for lighting, receptacles, overhead door motor, and the fire alarm and detection system.

2. **Hazard category:** Less-than-hazard-category-3 facility (LTHC3)
3. **Radioactive waste managed at this facility:** CH LLW and liquid mixed CH LLW are stored at this facility.
4. **RWMB documents/programs:**
 - a. Safety basis/hazard analysis:
 - EDF-7030, “Inventory Analysis of Radiological Facilities at the Materials and Fuels Complex (MFC)”
 - b. Laboratory-wide:
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - FRM-323, “TSD Facilities Material Acceptance Checksheet”
 - LI-435, “Waste Management Routine Field Activities”
 - LRD-15001, “Radiological Control Manual”
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”
 - LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
 - MCP-139, “Radiological Surveys”
 - MCP-17000, “Waste Generator Services Waste Management”

- MCP-17410, “Management of Waste Storage Areas”
 - MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
 - PDD-17000, “Waste Management Program”
 - PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
 - PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”
- c. Facility-specific:
- PER-116, “HWMA/RCRA Storage and Treatment Permit for the Materials and Fuels Complex”
 - SD-38.1.1, “Treatment, Storage, and Disposal Facilities (TSDF) Environmental Compliance”
 - TSD-OI-004, “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control.”

LLW is managed at this facility. Table 2 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 2. MFC-703, Sodium Storage Building, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>A. <u>Definition of Low-Level Waste</u>. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>(From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>This requirement provides the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See below.</p>
<p>(1) <u>Mixed Low-Level Waste</u>. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act (RCRA)</i>, as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>This facility has a Hazardous Waste Management Act (HWMA)/RCRA permit to store mixed waste (PER-116). This facility stores mixed LLW only.</p>
<p>(2) <u>TSCA-Regulated Waste</u>. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in</p>	<p>NA; this facility does not manage TSCA-regulated waste.</p>

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
accordance with requirements derived from the <i>Toxic Substances Control Act</i> , as amended, DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	
(3) Accelerator-Produced Waste. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual, and all applicable Federal or State requirements.	NA; this facility does not manage accelerator-produced waste.
(4) 11e.(2) and Naturally Occurring Radioactive Material. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.	NA; this facility does not manage naturally occurring radioactive material.
C. <u>Complex-Wide Low-Level Waste Management Program.</u> A complex-wide program and plan shall be developed as described under <i>Responsibilities</i> , 2.B and 2.D, in Chapter I of this Manual.	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.
D. <u>Radioactive Waste Management Basis.</u> Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:	The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste. This facility is a LTHC3 facility (EDF-7030).
(1) Generators. The waste certification program. From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.	NA; this facility does not generate LLW.
(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [<i>sic</i>] From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis. A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the	NA; this facility does not treat LLW.

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>See G. and J. below.</p> <p>MCP-17000 §4 specifies the use of IWTS, which tracks the waste inventory.</p> <p>TSD-OI-004 §3.2.1 addresses the use of IWTS to track waste inventory.</p>
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p> <p>The HWMA/RCRA permit also includes a contingency plan (PER-116, Attachment 7, §G).</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any</p>	<p>NA; this facility does not store liquid waste in tanks.</p>

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>NA; this facility does not store liquid waste in tanks.</p>
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste</i></p>	<p>See F. above.</p> <p>This facility is has a HWMA/RCRA permit to store</p>

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p><i>Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.</p>	<p>mixed LLW.</p> <p>Corrective actions for waste regulated under this permit are addressed as permit conditions.</p> <p>PER-116, Module VI</p> <p>PER-116, Attachment 4</p> <p>SD-38.1.1 §§2.4 and 6; Appendix A.</p>
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.</p>
<p>G. <u>Waste Acceptance</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.</p>
<p>(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.</p>	<p>See below.</p>

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(a) Allowable activities and/or concentrations of specific radionuclides.	MCP-17000 TSD-OI-004 §3.2.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	MCP-17000 TSD-OI-004 §§3.3 and 3.4 PER-116, Module II.C and III PER-116, Attachment 1 §§B-2(a) and §D-1(a); Attachment 2 §C-2(a) SD-38.1.1, Appendix A and Appendix H.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	MCP-17000 TSD-OI-004 §3.2 PER-116, Module II.C and III PER-116, Attachment 1 §§B-2(a) and D-1(a); Attachment 2 §C-2(a) SD-38.1.1, Appendix A and Appendix H.
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	NA; this facility is not a LLW disposal facility.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (d) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (d) above.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (d) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (d) above.

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]</p>	<p>See (d) above.</p>
<p>(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved.</p> <p>From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.</p>	<p>Exceptions to the waste acceptance requirements are not permitted.</p>
<p>(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	<p>MCP-17000 TSD-OI-004 §3 PER-116, Module II.C and III PER-116, Attachment 1 §D-1(b); Attachment 2 §C-2(a) SD-38.1.1, Appendix A and Appendix H Meeting permit and safety basis constraints are checked using: FRM-323 IWTS material and waste characterization profile Nonconforming waste is not permitted.</p>
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with</p>	<p>NA; LLW is not generated at this facility.</p>

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.</p>	
<p>(2) Waste with No Identified Path to Disposal. Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:</p>	<p>NA; this facility is not generating LLW that does not have an identified path to disposal.</p>
<p>(a) Programmatic need to generate the waste;</p>	<p>See (2) above.</p>
<p>(b) Characteristics and issues preventing the disposal of the waste;</p>	<p>See (2) above.</p>
<p>(c) Safe storage of the waste until disposal can be achieved; and</p>	<p>See (2) above.</p>
<p>(d) Activities and plans for achieving final disposal of the waste.</p>	<p>See (2) above.</p>
<p>I. <u>Waste Characterization</u>. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.</p>	<p>MCP-17000 TSD-OI-004 §3.2.6 and Appendix C PER-116, Module II.C PER-116, Attachment 2 SD-38.1.1, Appendix A and Appendix H.</p>
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following</p>	<p>MCP-17000, including §§4.2, 4.3, and 4.4, provides waste characterization requirements. Information on</p>

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.</p>	<p>absorbent media is required in §§4.5 and 4.7. MCP-17000 also specifies the use of IWTS that documents characterization data in an IWTS profile.</p> <p>TSD-OI-004 §3.2.6 and Appendix C</p> <p>PER-116, Module II.C</p> <p>PER-116, Attachment 2</p> <p>SD-38.1.1, Appendix A and Appendix H</p> <p>FRM-323</p> <p>IWTS material and waste characterization profile.</p>
(a) Physical and chemical characteristics;	See I. and (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See I. and (2) above.
(c) Weight of the container and contents;	See I. and (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See I. and (2) above.
(e) Characterization date;	See I. and (2) above.
(f) Generating source; and	See I. and (2) above.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See I. and (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records,</p>	<p>MCP-17000 cites a waste certification program for LLW destined for NNSS. For waste destined for locations other than NNSS, the waste disposition specialist is responsible for certifying the waste stream by ensuring the waste, as characterized, falls within the limitations of the waste acceptance criteria of the treatment, storage, or disposal facility (§2).</p> <p>Container procurement is addressed in MCP-17000 §4.6.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition</p>

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>waste to NNSS.</p> <p>TSD-OI-004 §§3.2.4, 3.2.5, 3.3, 3.4, and 4</p> <p>PER-116, Module II.C, III</p> <p>PER-116, Attachment 1 §§B-2(a) and §D-1(a); Attachment 2 §C-2(a)</p> <p>SD-38.1.1, Appendix A and Appendix H</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	<p>See J. above. MCP-17500 §2, 5 address certification records for shipments to NNSS.</p>
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above. MCP-17500 §4.3.6 addresses controls for certification before transfer for LLW to be disposed of at NNSS.</p>
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its</p>	<p>See J. above. Pre-certification checklists are cited in MCP-17000 and MCP-17500. Surveillances also are addressed in MCP-17500.</p> <p>LWP-15011 §5 provides general radioactive storage area requirements.</p>

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
certification and the information supporting that certification.	
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>MCP-17000 §4.8.15 specifies requirements for interfacility transfers.</p> <p>MCP-17500 §4 addresses LLW to be transferred to NNSS.</p> <p>TSD-OI-004 §§3.2, 3.4, 3.7, 3.8, and 4.</p>
<p>(1) <u>Authorization</u>. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	See K. above.
<p>(2) <u>Data</u>. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	See K. above.
<p>L. <u>Packaging and Transportation</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].</p>	See (1) and (2) below.
<p>(1) <u>Packaging</u>. If containers are used:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is</p>	<p>MCP-17000 §4 addresses packaging requirements.</p> <p>TSD-OI-004 §3.3.</p>

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repackage the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.	
(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.	See (1) above.
(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.	See (1) above.
(c) Containers of low-level waste shall be marked such that their contents can be identified.	See (1) above.
(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized. From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.	MCP-17000 §4 addresses transportation. The waste disposition specialist coordinates with packaging and transportation personnel for waste shipped offsite from this facility. MCP-17500 specifies waste certification official and waste disposition specialist responsibilities and coordination with packaging and transportation personnel for waste shipped directly to NNS from this facility.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities or modifications to existing facilities.
(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:	See M. above.
1 Located to accommodate the projected volume of waste to be received;	See M. above.

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and	See M. above.

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.	See M. above.
(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.
N. <u>Storage and Staging</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared,	MCP-17000 TSD-OI-004 §3.2 PER-116, Module II.C and III

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>and packaged to be nonflammable.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.</p>	<p>PER-116, Attachment 1 §D-1(a); Attachment 2 §C-2(a)</p> <p>SD-38.1.1, Appendix A and Appendix H</p> <p>The HWMA/RCRA permit (PER-116, Module III.B.5) allows ignitable (D001) and reactive (D003) hazardous waste to be stored and specifies the conditions under which the waste can be stored safely.</p>
<p>(2) Storage Limit. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager.</p> <p>From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place.</p> <p><u>Mixed waste.</u> Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as</p>	<p>MCP-17000 §4.8.16 addresses storage time limits and waste that is to be stored longer than 1 year.</p> <p>MCP-17000, Appendix F, addresses storage time limits.</p> <p>Storage longer than 1 year for mixed waste is allowable under the Site Treatment Plan.</p>

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <p>1) the radioactive waste management basis allows for storage for no more than one year.</p> <p>2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis.</p> <p>3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>From DOE G 435.1-1 Chapter IV: However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or</p>	<p>MCP-17000</p> <p>TSD-OI-004 §§3.3 and 3.4</p> <p>PER-116, Module III</p> <p>PER-116, Attachment 1, §D-1(a)</p> <p>SD-38.1.1, Appendix A and Appendix H.</p>

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.	
(4) Waste Characterization for Storage.	See below.
(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.	This facility does not store LLW that does not have an identified path to disposal.
(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.	MCP-17000 TSD-OI-004 §§3.8 and 4 PER-116, Module III PER-116, Attachment 1 §D and Attachment 2 SD-38.1.1, Appendix A and Appendix H.
(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.	MCP-17000 For mixed LLW: TSD-OI-004 §§3.4.7 and 4.3 PER-116, Module III PER-116, Attachment 4 (this attachment includes examples of facility-specific inspection forms to be used) SD-38.1.1, Appendix A and Appendix H LWP-15011 does not include a requirement for inspection. This facility does not store LLW that is not mixed LLW. LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than one year.
(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.	NA; LLW is not stored at this facility.
(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.	NA; LLW is not staged at this facility.

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.</p>	
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	NA; treatment is not performed in this facility.
<p>P. <u>Disposal</u>. Low-level waste disposal facilities shall meet the following requirements.</p>	NA; LLW is not disposed of in this facility.
<p>(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:</p>	See P. above.
<p>(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.</p>	See P. above.
<p>(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.</p>	See P. above.

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(c) Release of radon shall be less than an average flux of 20 pCi/m ² /s (0.74Bq/m ² /s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.	See P. above.
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	See P. above.
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	See P. above.
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.	See P. above.
(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.	See P. above.

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.	See P. above.
(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	See P. above.
(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	See P. above.
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	See P. above.
(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements	See P. above.

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
include:	
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	See P. above.
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	See P. above.
(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	See P. above.
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; LLW is not disposed of in this facility.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and</i>	See Q. above.

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<i>the Environment.</i>	
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	See (1), (2), and (3) below.
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the</p>	<p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>PER-116, Attachment 1 §D and Attachment 4 §F describe facility monitoring and inspection requirements.</p> <p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the "routine sheet" and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>

Table 2. (continued).

MFC-703, Sodium Storage Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	
<p>(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p>	<p>NA; liquid LLW waste is not stored at this facility.</p>
<p>(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.</p>	<p>NA; LLW is not disposed of in this facility.</p>
<p>(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.</p>	<p>See (3) above.</p>
<p>(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.</p>	<p>See (3) above.</p>
<p>(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.</p>	<p>See (3) above.</p>

4.3 MFC-704, Fuel Manufacturing Facility

1. **Facility description:** FMF was constructed in 1986 for the purpose of housing binary (i.e., uranium and zirconium) fuel and its associated manufacturing equipment to sustain a fuel manufacturing operation for Experimental Breeder Reactor (EBR)-II. EBR-II fuel is no longer manufactured in FMF. Activities conducted as part of the FMF mission include (1) processing fuel currently stored at MFC for use elsewhere in the DOE complex, (2) research and development on new fabrication methods for high-density, low-enrichment fuel forms, (3) fuel fabrication for the Fuel Cycle Research and Development Program to investigate options for actinide transmutation fuels and targets, and (4) storage of uranium and TRU elements, including plutonium and neptunium.

FMF operations associated with the aforementioned activities include receipt, storage, handling, inspection, and processing of uranium, plutonium, and other TRU materials. There are five gloveboxes and two operational hoods in FMF. Processing of plutonium-bearing and other TRU materials is performed in the Advanced Fuel Cycle Initiative glovebox and the waste characterization glovebox. Processing of uranium-bearing materials can be performed in all gloveboxes. These include the Advanced Fuel Cycle Initiative, waste characterization, uranium handling, highly enriched uranium, and special nuclear material gloveboxes. Radioactive material is stored in the FMF vault in five storage arrangements: (1) EBR-II subassemblies in a vertical rack, (2) neptunium oxide containers stored in horizontal tubes in a shielded, modular array, (3) uranium, plutonium, and other TRU materials (typically highly enriched uranium fuel and scrap material) in containers of various shapes and sizes stored within modules in racks, (4) long element storage rack, and (5) radioactive material stored in shipping containers on the vault floor.

2. **Hazard category:** Hazard Category 2 Nuclear Facility
3. **Radioactive waste managed at this facility:** CH TRU and mixed CH TRU waste are generated and stored at this facility. CH LLW and MLLW is generated and staged in this facility subsequent to routine facility operations.
4. **RWMB documents/programs:**
 - a. Safety Basis/Hazards Analysis:
 - IAG-262, “INL Authorization Agreement for the Materials and Fuels Complex (MFC) Fuel Manufacturing Facility (FMF)”
 - LST-303, “Safety Basis List for the Materials and Fuels Complex (MFC) Fuel Manufacturing Facility (FMF)”
 - SAR-404, “Safety Analysis Report for the Fuel Manufacturing Facility”
 - b. Laboratory-wide:
 - Form 435.83, “Idaho National Laboratory Contact-Handled Transuranic Waste Disposition – TSR-Related (Checklist – Requirements – Certification)”
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - LI-435, “Waste Management Routine Field Activities”
 - LRD-15001, “Radiological Control Manual”
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”
 - LWP-8300, “Transuranic Waste Handling”
 - LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
 - LWP-17000, “Waste Management”

- MCP-139, “Radiological Surveys”
 - MCP-17000, “Waste Generator Services Waste Management”
 - MCP-17410, “Management of Waste Storage Areas”
 - MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
 - PDD-17000, “Waste Management Program”
 - PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
 - PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”
 - PLN-8300, “Materials and Fuels Complex Contact-Handled TRU Waste Certification Program Plan”
- c. Facility-specific:
- ANL-NT-192, “The Defense Programs Origin of Transuranic Waste at Argonne National Laboratory-West, H. F. McFarlane, 11/1/2001”
 - FMF-OI-015, “General Facility Waste”
 - INL/EXT-10-17600, “Process Knowledge Summary Report for Materials and Fuels Complex Contact-handled Transuranic Waste”
 - LST-337, “Approved Container/Payload List For Inter-Facility Transfer Operations At MFC”
 - RSWF-OI-003, “Material Acceptance for Storage”
 - RSWF-OI-004, “Administrative Requirements/Process for Material Transfers”
 - TSD-OI-004, “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control”
 - TSM-OI-003, “Transfer of Hazardous Material in Non-DOT-Certified Packaging between MFC Nuclear Facilities”

TRU waste and LLW are managed at this facility. Table 3 shows the facility compliance information for DOE Manual 435.1-1 Chapter III, “Transuranic Waste Requirements,” and Table 4 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 3. MFC-704, Fuel Manufacturing Facility, DOE Manual 435.1-1 transuranic waste requirements and facility compliance information.

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
<p>A. <u>Definition of Transuranic Waste.</u> Transuranic waste is radioactive waste containing more than 100 nanocuries (3700 becquerels) of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years, except for:</p> <p>(From DOE G 435.1-1 Chapter III: The determination of transuranic waste should be made at the time of waste certification, that is, each time the waste is transferred to another person or facility.)</p>	<p>This requirement proves the criteria for determining which DOE radioactive wastes are to be managed as TRU waste in accordance with DOE Manual 435.1-1, Chapter III.</p> <p>See J. below.</p>
(1) High-level radioactive waste;	See A. above.
(2) Waste that the Secretary of Energy has	See A. above.

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
determined, with the concurrence of the Administrator of the Environmental Protection Agency, does not need the degree of isolation required by the 40 CFR Part 191 disposal regulations; or	
(3) Waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with 10 CFR Part 61.	See A. above.
<p>B. Management of Specific Wastes. The following provide for management of specific wastes as transuranic waste in accordance with the requirements in this Chapter:</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with these requirements is demonstrated if RCRA, state-hazardous, and TSCA-regulated radioactive wastes are being managed in compliance with applicable requirements and agreements or in accordance with a consent order, and consistent with the Transuranic Waste Requirements of DOE M 435.1-1.)</p>	See (1), (2), and (3) below.
<p>(1) Mixed Transuranic Waste. Transuranic waste determined to contain both a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, and a radioactive component subject to the <i>Atomic Energy Act of 1954</i>, as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>MFC-704 generates mixed TRU waste.</p> <p>This facility manages mixed TRU waste in satellite accumulation areas (SAAs). Management of SAAs is addressed in MCP-17410 and overall management of mixed waste is addressed in MCP-17000.</p> <p>FMF-OI-015 addresses management of the mixed TRU waste generated in this facility.</p> <p>LWP-8300 defines the requirements and establishes the process associated with generation, handling, characterization, and storage of CH, mixed, and remote-handled (RH) TRU waste.</p>
<p>(2) TSCA-Regulated Waste. Transuranic waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i>, as amended, DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	NA; TSCA-regulated TRU waste is not managed at this facility.
<p>(3) Pre-1970 Transuranic Waste. Transuranic waste disposed of prior to implementation of the 1970 Atomic Energy Commission Immediate Action Directive regarding retrievable storage of transuranic waste is not subject to the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	NA; pre-1970 TRU waste is not managed at this facility.
<p>C. Complex-Wide Transuranic Waste Management Program. A complex-wide program and plan shall be</p>	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
<p>developed as described under <i>Responsibilities</i>, 2.B and 2.D, in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the presence of a Complex-Wide Transuranic Waste Management Program which includes the appropriate interfaces, technical information, data inputs, and other elements described in Chapter I of this Manual.</p>	<p>Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.</p>
<p><u>D. Radioactive Waste Management Basis.</u> Transuranic waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated if, the radioactive waste management basis is documented and signed by the Field Element manager or a designee (see DOE M 435.1-1, Section I.1.A, Delegation of Authority) for each transuranic waste management facility, operation, or activity. Using a graded approach, it may be possible to include multiple activities under a single radioactive waste management basis, but it should be possible to objectively identify which activities are covered. Further, the radioactive waste management basis includes or references the controls that are established on a facility-specific basis to address the unique waste management requirements and circumstances for each facility, operation, and/or activity.)</p>	<p>The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste.</p>
<p>(1) Generators. The waste certification program.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>For a facility that generates transuranic waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.</p>	<p>See J. below for waste certification program requirements.</p> <p>SAR-404 serves as the safety basis documentation for the facility and establishes it as a Hazard Category 2 nuclear facility.</p>
<p>(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic]</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Facilities that store or treat ransuranic waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section III.G) prior to the issuance of a radioactive waste management basis. The waste</p>	<p>NA; waste is not treated at this facility.</p>

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
<p>acceptance requirements will usually suffice as documentation of the radiological, physical, and chemical limitations on waste that can be safely received at the facility, provided they are developed correctly with consideration of the hazards of the waste to be managed, and are kept up to date. Controls on the radiological, physical and chemical limitations need to include considerations of the potential effects of radiolysis.</p> <p>A facility that stores or treats waste is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel should implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Facilities that store or treat transuranic waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section III.G) prior to the issuance of a radioactive waste management basis. The waste acceptance requirements will usually suffice as documentation of the radiological, physical, and chemical limitations on waste that can be safely received at the facility, provided they are developed correctly with consideration of the hazards of the waste to be managed, and are kept up to date. Controls on the radiological, physical and chemical limitations need to include considerations of the potential effects of radiolysis.</p> <p>A facility that stores or treats waste is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment,</p>	<p>See G. and J. below for waste acceptance and waste certification program requirements.</p> <p>LWP-8300 and PLN-8300 specifies documentation and packaging. LWP-8300 addresses the use of the IWTS to track waste inventory.</p>

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
<p>monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel should implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(4) Disposal Facilities. The performance assessment, disposal authorization statement, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with these requirements is demonstrated by having adequate spare capacity and transfer equipment exists for emergency transfers of all liquid transuranic waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving liquid transuranic waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated transuranic waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not store liquid TRU waste.</p>
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of liquid waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not store liquid TRU waste.</p>
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or</p>

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
	curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility's or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system exists which addresses noncompliant or hazardous situations associated with transuranic waste management and in a systematic fashion, and allows identification of problems by all personnel.</p>	See F. above.
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by documented evidence of systematic, routine reviews to determine whether waste management activities and facilities under are operating in accordance with an approved radioactive waste management basis. In addition, the documentation should show that limitations (which may include shutdown) have been placed on activities and operations that do not have or are operating outside the conditions of an approved radioactive waste management basis.</p>	The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.
<p>G. <i>Waste Acceptance</i>. The following requirements are in addition to those in Chapter I of this Manual.</p>	DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
<p>(1) Technical and Administrative. Waste acceptance requirements for all transuranic waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with these requirements is demonstrated if waste acceptance requirements are documented,</p>	NA; this facility does not accept TRU waste from other facilities.

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
<p>contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the transuranic waste. Waste acceptance requirements are to also contain a clear description of the process and bases for obtaining an exception or deviation to the acceptance criteria for transuranic waste to be received at the facility.</p>	
(a) Allowable activities and/or concentrations of specific radionuclides;	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal;	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance;	See (1) above.
(d) Requirement to identify transuranic waste as defense or non-defense, and limitations on acceptance; and	See (1) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved.	See (1) above.
<p>(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with these requirements is demonstrated if there is a procedure or process for evaluating and accepting incoming waste which ensures the acceptance criteria of the facility receiving the waste are met by one or a combination of: (1) testing, sampling, and analysis of representative samples of</p>	See (1) above.

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
<p>incoming waste upon receipt; (2) testing, sampling, and analysis of samples of waste taken at the generator facility; (3) evaluation of testing, sampling, and analysis of data provided by the generator; or (4) audits, reviews, or surveillances of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment, or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) <u>Life-Cycle Planning</u>. Prior to waste generation, planning shall be performed to address the entire life cycle for all transuranic waste streams.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of [transuranic] waste prior to its generation, including the identification of [transuranic] wastes with no path to disposal and appropriate records justifying the newly generated [transuranic] waste stream(s), and site personnel possessing planning information showing the location(s) where [transuranic] waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the [transuranic] waste may be managed at those facilities.</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p>
<p>(2) <u>Waste with No Identified Path to Disposal</u>. Transuranic waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with requirement is demonstrated by the waste generation organization having documentation concerning the decision to generate a transuranic waste stream that does not have an identified path to disposal. This documentation needs to include the cognizant Field Element Manager or designee approval to generate the waste, an explanation of the need for the process that generates the transuranic waste, a discussion of the reason it cannot be disposed of, the proposed management plan for the waste, and an up-to-date schedule of activities being pursued to</p>	<p>NA; this facility does not generate TRU waste with no identified path to disposal.</p>

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
resolve constraints to the disposal of the subject waste. Consistent with the use of a graded approach for applying DOE M 435.1-1 requirements, the schedule and plans for disposing of nondefense waste can defer to the complex-wide resolution of the issue.)	
(a) Programmatic need to generate the waste;	See (2) above.
(b) Characteristics and issues preventing the disposal of the waste;	See (2) above.
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
<p>I. <u>Waste Characterization</u>. Transuranic waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of transuranic waste characterization data acquired through the use of direct or indirect methods.</p>	<p>LWP-8300 § 4.2 provides general INL-wide requirements for containerization and characterization documentation requirements.</p> <p>FMF-OI-015 addresses characterization requirements for TRU and mixed TRU waste generated in this facility.</p> <p>TRU waste transferred for onsite storage to MFC-771, RSWF, is characterized in accordance with RSWF-OI-003.</p> <p>MCP-17000 §4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.</p> <p>When certified in accordance with the RSWF WAC, MFC TRU waste is, to the extent possible, in compliance with the WAC for various treatment or disposal facilities that could be the ultimate destination of the waste (RSWF-OI-003).</p>
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage transuranic waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter III:</p>	<p>LWP-8300 § 4.2 provides general INL-wide requirements for containerization and characterization documentation requirements.</p> <p>MCP-17000 §4 specifies the requirements for preparing an IWTS profile that captures waste characterization information. FMF-OI-015 addresses characterization</p>

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
Compliance with this requirement is demonstrated by the existence of a program or procedures for determining and records that document characterization of transuranic waste consistent with the minimum characterization data requirements.)	requirements for TRU waste. TRU waste transferred for onsite storage to MFC-771, RSWF, is characterized in accordance with RSWF-OI-003 § 4.1.7 and Appendix A
(a) Physical and chemical characteristics;	See (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See (2) above.
(c) Weight of the container and contents;	See (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See (2) above.
(e) Characterization date;	See (2) above.
(f) Generating source;	See (2) above.
(g) Packaging date; and	See (2) above.
(h) Any other information which may be needed to prepare and maintain the disposal facility performance assessment or demonstrate compliance with applicable performance objectives.	See (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving transuranic waste for storage, treatment, or disposal are met.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when the appropriate personnel are trained, and have and follow the procedures that govern their part of the waste certification process. Acceptable performance also requires that the waste certification plan and procedures are current and controlled in accordance with a document control program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>PLN-8300 provides MFC-wide certification of CH TRU waste.</p> <p>LWP-8300 provides general INL-wide requirements for containerization and characterization documentation requirements.</p> <p>TRU waste transferred for onsite storage to MFC-771, RSWF, is certified in accordance with RSWF-OI-003 § 3.</p> <p>MCP-17000 specifies the requirements for preparing an IWTS profile that captures waste certification information.</p> <p>When certified in accordance with the RSWF WAC, MFC TRU waste is, to the extent possible, in compliance with the WAC for various treatment or disposal facilities that could be the ultimate destination of the waste (RSWF-OI-003). Procedural documentation other than this statement regarding certification of TRU waste destined for Waste Isolation Pilot Plant (WIPP) disposition was not found.</p>

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that each container of waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	<p>See J. above.</p>
<p>(2) Certification before Transfer. Transuranic waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above.</p>
<p>(3) Maintaining Certification. Transuranic waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the existence of a program or procedure reflecting this requirement and site personnel able to show that the storage of containers of waste is in a facility or manner where the containers are not damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	<p>See J. above.</p>
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring</p>	<p>RSWF-OI-003 specifies requirements and provides instructions for accepting mixed waste, radioactive</p>

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
<p>responsibility for management of transuranic waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers are available and accurate, and that documented transfer of responsibility occurs.</p>	<p>waste, and radioactive material for storage at RSWF. Appendix A serves as the record document to be maintained for each container going to that facility.</p> <p>RSWF-OI-004 provides the administrative requirements/process used by RSWF management for approving material transfer activities into and out of RSWF.</p> <p>TSD-OI-004 specifies requirements and provides instructions for accepting CH TRU and mixed CH TRU waste at the MFC treatment, storage, and disposal facilities.</p> <p>LWP-8300 § 4.3 provides instruction on containerization of CH TRU waste going to the Advanced Mixed Waste Treatment Plant and prescribes the use of Form 435.83 as the documented record of container data and transfer.</p> <p>PLN-8300 provides MFC-wide certification of CH TRU waste.</p>
<p>(1) Authorization. Transuranic waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	<p>See K. above.</p>
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for transuranic waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each waste transfer and documented records of transfers show that the information is being provided.</p>	<p>See K. above.</p>
<p>L. <u>Packaging and Transportation</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>See (1)(a) through (2) below.</p>
<p>(1) Packaging.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with the packaging requirement is</p>	<p>See (1)(a) through (2) below.</p>

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
<p>demonstrated by procedures which document proper packaging protocols, including documented evidence that, where feasible, non-defense transuranic waste has been packaged separately from defense transuranic waste and by never having to repackage transuranic waste that is packaged after issuance of DOE O 435.1 in order to maintain containment. However, the above protocol may not be satisfied by containers that were placed in storage prior to issuance of the DOE O 435.1. For those containers, the goal is to only have to repackage the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information. Successful performance of this requirement is also demonstrated by a record of container performance in which failure has not routinely occurred.</p>	
<p>(a) Transuranic waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste is removed from the container.</p>	<p>LWP-8300 §§4.2 and 4.3 address packaging ventilation requirements for TRU waste.</p> <p>PLN-8300 addresses this requirement for CH TRU waste generated at this facility.</p> <p>FMF-OI-015§5.2.1.2 provides instructions for packaging of CH TRU.</p> <p>RSWF-OI-003 provides for use of Appendix A as a record of the ventilated or other pressurization protection packaging.</p> <p>TSM-OI-003 prescribes the appropriate packaging for intra-facility movements of TRU waste.</p> <p>LST-337 prescribes the appropriate container as approved by waste type.</p>
<p>(b) Vents or other mechanisms to prevent pressurization of containers or generation of flammable or explosive concentrations of gases shall be installed on containers of newly-generated waste at the time the waste is packaged. Containers of currently stored waste shall meet this requirement as soon as practical unless analyses demonstrate that the waste can otherwise be managed safely.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>In developing the radioactive waste management basis, site personnel need to consider the hazards associated with drums of transuranic waste which have not been provided with vents or been proven to not need vents through an approved safety analysis. For unvented containers in earthen-covered storage,</p>	<p>LWP-8300 §§4.2 and 4.3 address packaging ventilation requirements for TRU waste.</p> <p>PLN-8300 addresses this requirement for CH TRU waste generated at this facility.</p> <p>FMF-OI-015 §5.2.1.2 provides instructions for packaging of CH TRU.</p> <p>RSWF-OI-003 provides for use of Appendix A as a record of the ventilated or other pressurization protection packaging.</p> <p>TSM-OI-003 prescribes the appropriate packaging for intra-facility movements of TRU waste.</p> <p>LST-337 prescribes the appropriate container as approved by waste type.</p>

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
the facility itself may mitigate the hazards associated with the accumulation of gases. For above-grade storage of transuranic waste containers, the radioactive waste management basis needs to include controls which mitigate the hazards associated with the accumulation of gases by restricting access to the storage area and providing equipment to protect against fire or explosion.	
(c) When transuranic waste is packaged, defense waste shall be packaged separately from non-defense waste, if feasible.	INL/EXT-10-17600 § 3 addresses the defense determination requirement based on ANL-NT-192.
(d) Containers of transuranic waste shall be marked such that their contents can be identified.	LWP-8300 § 4.3.1.7 provides instructions on properly marking/labeling TRU waste containers. PLN-8300 addresses this requirement for CH TRU waste generated at this facility. FMF-OI-015 §5.2.1.2 provides instructions for packaging of CH TRU. RSWF-OI-003 specifies requirements and provides instructions for accepting mixed waste, radioactive waste, and radioactive material for storage at RSWF. Appendix A serves as the record document to be maintained for each container going to that facility.
(2) Transportation. To the extent practical, the volume of waste and number of transuranic waste shipments shall be minimized. From DOE G 435.1-1 Chapter III: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that transuranic waste shipments are systematically planned and make optimal use of the shipment system (e.g., TRUPACT II) to the extent practical.	NA; waste is not shipped to an offsite facility for final disposition from this facility
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities.
(1) Site Evaluation. Proposed locations for transuranic waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above
(a) Each site proposed for a new transuranic waste facility or expansion of an existing transuranic waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities.	See M. above

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above
(2) Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above
(a) Confinement. Transuranic waste systems and components shall be designed to maintain waste confinement.	See M. above
(b) Ventilation.	
1 Design of transuranic waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above
2 When conditions exist for generating gases in flammable or explosive concentrations in treatment or storage facilities, ventilation or other measures shall be provided to keep the gases in a non-flammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing transuranic waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of transuranic waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of transuranic waste storage, treatment, and disposal facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
N. <u>Storage</u> . The following requirements are in addition to those in Chapter I of this Manual.	See below.
<p>(1) Storage Prohibitions. Transuranic waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit waste that is ignitable or explosive from being accepted for storage unless it has been treated.</p>	<p>NA; this facility does not have WAC for TRU waste because the facility does not accept TRU waste from other facilities.</p> <p>For the TRU waste generated at this facility, LWP-8300 and PLN-8300 address meeting receiving facility WAC and procedures.</p>
<p>(2) Storage Integrity. Transuranic waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated if sites have storage capabilities for transuranic waste that provide protection of waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where transuranic waste is stored.</p>	<p>The mixed TRU waste at this facility is accumulated in SAAs and TAAs, respectively.</p> <p>MCP-17000 and MCP-17410 §4.4 addresses conditions under which waste should be accumulated.</p> <p>LWP-15011 §5 provides general radioactive storage area requirements.</p>
<p>(3) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of transuranic waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by a documented process for waste container inspection and maintenance at every facility managing transuranic waste, and documentation for all waste container inspections and maintenance actions performed.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p> <p>Inspections are performed for TAAs and SAAs as required by WGS procedures (MCP-17000 and MCP-17410).</p>
<p>(4) Retrievable Earthen-Covered Storage. Plans for the removal of transuranic waste from retrievable earthen-covered storage facilities shall be established and maintained. Prior to commencing waste retrieval activities, each waste storage site shall be evaluated to determine relevant information on types, quantities, and location of radioactive and hazardous chemicals as necessary to protect workers during the retrieval process.</p>	<p>NA; this facility is not an earthen-covered storage facility.</p>

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
<p>O. <u>Treatment</u>. Transuranic waste shall be treated as necessary to meet the waste acceptance requirements of the facility receiving the waste for storage or disposal.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the custodian of transuranic waste maintaining documentation which identifies the plans for treating waste, and maintaining the records that show waste was treated, if necessary, to meet the waste acceptance requirements of the storage or disposal facility to which it was transferred.</p>	<p>NA; this facility is not a TRU waste treatment facility.</p>
<p>P. <u>Disposal</u>. Transuranic waste shall be disposed in accordance with the requirements of 40 CFR Part 191, <i>Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes</i>.</p>	<p>NA; this facility is not a TRU waste disposal facility.</p>
<p>Q. <u>Monitoring</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>See below.</p>
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved, constitutes an exemption to the Manual.</p> <p>Verification activities are part of the radioactive waste management basis and are to be documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with an accuracy, precision, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p>
<p>(2) Stored Wastes. All transuranic wastes in storage</p>	<p>The facility's safety basis requirements and</p>

Table 3. (continued).

Facility Name: MFC-704, Fuel Manufacturing Facility	
Chapter III, TRU Waste Requirements	Facility Compliance Information
<p>shall be monitored, as prescribed by the appropriate facility safety analysis, to ensure the wastes are maintained in safe condition.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated if the monitoring requirements in the facility procedures include, at a minimum, monitoring the systems and parameters as indicated by the safety analysis.</p>	<p>implementing documents are identified in SAR-404. This facility is a Hazard Category 2 Nuclear Facility.</p>
<p>(3) Liquid Waste Storage Facilities. For facilities storing liquid transuranic waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by developing operational procedures for monitoring liquid transuranic waste storage tank liquid level, waste volume, and tank chemistry so that waste volume or chemistry changes are detected in a time frame that will allow implementation of corrective measures to limit public and worker doses and to mitigate unplanned releases of stored liquid waste.</p>	<p>NA; this facility does not store liquid TRU waste.</p>

Table 4. MFC-704, Fuel Manufacturing Facility, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>A. <u>Definition of Low-Level Waste</u>. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>This requirement provides the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1 Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1 Chapter II or Chapter III.</p>
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See (1), (2), (3), and (4) below.</p>
<p>(1) Mixed Low-Level Waste. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject</p>	<p>This facility manages mixed LLW in SAAs. Management of SAAs is addressed in MCP-17410, and overall management of mixed waste is addressed in MCP-17000.</p>

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	LI 1219-07-MFC § 2, Table 2.03 and § 5 address generation of mixed LLW and accumulation in an SAA. Individual projects also would have project-specific laboratory instructions that would address the management of mixed LLW in accordance with RCRA regulations.
(2) TSCA-Regulated Waste. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i> , as amended, DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	NA; this facility does not manage TSCA-regulated waste.
(3) Accelerator-Produced Waste. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual, and all applicable Federal or State requirements.	NA; this facility does not manage accelerator-produced waste.
(4) 11e.(2) and Naturally Occurring Radioactive Material. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.	NA; this facility does not manage naturally occurring radioactive material.
C. Complex-Wide Low-Level Waste Management Program. A complex-wide program and plan shall be developed as described under <i>Responsibilities</i> , 2.B and 2.D, in Chapter I of this Manual.	DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.
D. Radioactive Waste Management Basis. Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:	The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste.
(1) Generators. The waste certification program. From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.	See J. below for waste certification program requirements. SAR-404 establishes the safety basis documentation for the facility and determines it to be a Hazard Category 2 nuclear facility.
(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic]	NA; waste is not treated at this facility.

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	NA; this facility does not store LLW.
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	NA; this facility is not a disposal facility.
<p>E. <u>Contingency Actions</u>. The following requirements</p>	DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].	emergency management system. The INL plan is provided in PLN-114.
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	NA; this facility does not store liquid LLW.
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	NA; this facility does not store or treat liquid LLW.
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures,</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.	
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.</p>	See F. above.
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.</p>	The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.
<p>G. <u>Waste Acceptance</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].</p>	DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
<p>(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of</p>	NA; this facility does not accept LLW from other facilities.

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.)	
(a) Allowable activities and/or concentrations of specific radionuclides.	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	See (1) above.
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	See (1) above.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (1) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (1) above.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (1) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (1) above.

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]</p>	<p>See (1) above.</p>
<p>(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved.</p> <p>From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.</p>	<p>See (1) above.</p>
<p>(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	<p>See (1) above.</p>
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].</p>	<p>DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p>

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.</p>	
<p>(2) Waste with No Identified Path to Disposal. Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:</p>	<p>This facility is not generating radioactive waste that does not have an identified path to disposal.</p>
<p>(a) Programmatic need to generate the waste;</p>	<p>See (2) above.</p>
<p>(b) Characteristics and issues preventing the disposal of the waste;</p>	<p>See (2) above.</p>
<p>(c) Safe storage of the waste until disposal can be achieved; and</p>	<p>See (2) above.</p>
<p>(d) Activities and plans for achieving final disposal of the waste.</p>	<p>See (2) above.</p>
<p>I. <u>Waste Characterization</u>. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.</p>	<p>MCP-17000 §4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.</p> <p>FMF-OI-015 provides very general discussion of waste characterization being conducted by use of process knowledge, nondestructive analysis, or chemical and radiochemical analyses, all of which are conducted at the Analytical Laboratory.</p>
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following</p>	<p>MCP-17000 §4 specifies the requirements for preparing an IWTS profile that captures waste</p>

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.)</p>	<p>characterization information.</p> <p>FMF-OI-015 provides very general discussion of waste characterization being conducted by use of process knowledge, non-destructive analysis, or chemical and radiochemical analyses, all of which are conducted at the Analytical Laboratory.</p>
(a) Physical and chemical characteristics;	See (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See (2) above.
(c) Weight of the container and contents;	See (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See (2) above.
(e) Characterization date;	See (2) above.
(f) Generating source; and	See (2) above.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>MCP-17000 §4 specifies the requirements for preparing an IWTS profile that captures waste certification information.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Container procurement is addressed in MCP-17000 §4.6.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSS.</p>
(I) Certification Program. The waste certification	See J. above.

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	See J. above.
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	See J. above.
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with</p>	<p>MCP-17000 specifies the requirements for preparing an IWTS profile that captures waste certification data, transfer information, and associated authorizations.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>TSD-OI-004 specifies requirements and provides</p>

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>instructions for accepting LLW and mixed LLW at the MFC treatment, storage, and disposal facilities.</p>
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	<p>See K. above.</p>
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	<p>See K. above.</p>
<p><u>L. Packaging and Transportation.</u> The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].</p>	<p>DOE Manual 435.1-1 §I.1.E(11) applies to field element managers.</p>
<p>(1) Packaging. If containers are used:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repack the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.)</p>	<p>MCP-17000 §4 addresses packaging requirements.</p>

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.	See (1) above.
(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.	See (1) above.
(c) Containers of low-level waste shall be marked such that their contents can be identified.	See (1) above.
(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized. From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.	NA; waste is not shipped to an offsite facility for final disposition from this facility.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities.
(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:	See M. above.
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the	See M. above.

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
location of the facility.	
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The	See M. above.

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
following facility requirements and general design criteria, at a minimum, apply:	
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.	See M. above.
(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.
N. <u>Storage and Staging</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].	DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.	NA; this facility does not store LLW.
(2) Storage Limit. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for	NA; this facility does not store LLW. See N. (7) below for staging requirements.

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>decay, or as otherwise authorized by the Field Element Manager.</p> <p>From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place.</p> <p><u>Mixed waste.</u> Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <ol style="list-style-type: none"> 1) the radioactive waste management basis allows for storage for no more than one year. 2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis. 3) the radioactive waste management basis allows for storage for more than one year, up to a specified period 	

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(4) Waste Characterization for Storage.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(b) Characterization information for all low-level waste</p>	<p>NA; this facility does not store LLW. See N. (7) below</p>

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.</p>	<p>for staging requirements.</p>
<p>(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p>
<p>(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in</p>	<p>Routine LLW, such as personnel protective equipment, is accumulated at this facility for disposal. MCP-17000, Appendix F, restricts staging LLW to 90 days maximum at any generator or treatment facility prior to acceptance by a storage facility.</p> <p>As stated in DOE Guide 435.1-1 §IV.N.(7), staging waste in accordance with this requirement allows waste to be accumulated without being considered storage and being bound by the associated storage requirements.</p>

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
the radioactive waste management basis for the facility.	
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	NA; this facility does not treat LLW.
<p>P. <u>Disposal</u>. Low-level waste disposal facilities shall meet the following requirements.</p>	NA; this facility does not dispose of LLW.
<p>(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:</p>	See P. above.
<p>(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.</p>	See P. above.
<p>(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.</p>	See P. above.
<p>(c) Release of radon shall be less than an average flux of 20 pCi/m²/s (0.74Bq/m²/s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.</p>	See P. above.
<p>(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.</p>	See P. above.
<p>(a) Analyses performed to demonstrate compliance</p>	See P. above.

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.</p>	<p>See P. above.</p>
<p>(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.</p>	<p>See P. above.</p>
<p>(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.</p>	<p>See P. above.</p>
<p>(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.</p>	<p>See P. above.</p>
<p>(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination</p>	<p>See P. above.</p>

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
of the need to revise the performance assessment or composite analysis.	
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	See P. above.
(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements include:	See P. above.
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	See P. above.
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	See P. above.
(d) Operations are to be conducted so that active waste	See P. above.

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
disposal operations will not have an adverse effect on any other disposal units.	
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this facility does not dispose of LLW.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support	See Q. above.

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
of the facility closure.	
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	DOE Manual 435.1-1 §I.1.E(7) applies to field element managers.
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.
(2) Liquid Waste Storage Facilities. For facilities	NA; liquid LLW is not stored in this facility.

Table 4. (continued).

MFC-704, Fuel Manufacturing Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.	
(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.	NA; this facility does not dispose of LLW.
(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.	See (3) above.
(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.	See (3) above.
(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.	See (3) above.

4.4 MFC-752, Analytical Laboratory

1. **Facility description:** MFC-752, Analytical Laboratory, is located in the A and B wings of the Laboratory and Office Building 752, with one room in the C wing. However, MFC-752's administrative offices are in the L wing and Room C-126. The Analytical Laboratory also occupies a portion of the Laboratory and Office Building beneath the A and B wings. The construction of the foundation, floor, and hot cells is reinforced concrete. The building construction is concrete masonry exterior walls and concrete masonry or metal stud and gypsum board interior walls.

The main features of the A wing are the six hot cells and attached gloveboxes, one general purpose laboratory (C-123), an equipment decontamination room (A-126), two vaults (A-116) for storage of radioactive materials, and two glovebox systems (A-102). The B wing contains the chemical, casting, and nondestructive assay laboratories.

a. Hot Cells

The basic purpose of the hot cells is to provide a shielded laboratory environment for analysis of nuclear fuels and other irradiated material. The hot cells provide the primary confinement for all highly radioactive materials introduced into the facility for analysis or characterization. Analyses are performed behind leaded glass shielding windows using state-of-the-art leader/follower manipulators in order to protect personnel, the process, and the environment.

The primary wall for the six interconnected hot cells is constructed of 2-ft-thick high density concrete. In the back of the four center cells is a 3-ft-wide (stepped to 4 ft) by 6-ft 8-in.-high shielding door. At the east and west end cells are 5-ft 6-in.-wide (stepped to 6 ft 6 in.) by 6-ft 8-in.-high shielding doors. Inside each shielding door is a steel splash door for sealing the cells. The gasket seal between the splash door and the cell wall is broken when the splash door is opened, allowing cell entry. The cell wall thickness reduces to 1 ft above the doors on the back and on the ends at a height of 7 ft 11 in. Adjacent to the four rear cell doors, the wall thickness is 2 ft 6 in. The concrete ceiling is 10 in. thick. There is a 2-ft-thick shielded viewing window in the front of each cell with a viewing area of 25.5 in. (front) to 31 in. (back) in height and 36 in. (front) to 48 in. (back) in width. Two sealed manipulators are located inside the cell just behind the viewing windows. Attached to the back of Cell 6 is a shielded glovebox. Access from the hot cell to the glovebox is an 8-in. penetration through the hot cell wall.

The hot cells are operated at a pressure negative with respect to the surrounding rooms and at ambient temperature.

The hot cell design includes features that facilitate decontamination and eventual decommissioning and dismantling. To the extent practicable, corners are rounded and exposed sheet metal surfaces of the hot cells are free of sharp edges, cracks, pits, grooves, and other irregularities that could trap contaminants. The interior is a painted surface that can be decontaminated.

Interior lighting for the hot cells is provided by fixtures mounted to the exterior of the hot cells. An easy access unit design permits routine maintenance and lamp change without breaching the cell boundary.

b. Hot Cell Service Area

Behind the hot cells is the hot cell service area (A-101a). This area provides access to the hot cells. Equipment and reagent needed in the cells are transferred into the cells from the service entry through a shielded transfer port in Cell 6. Radioactive waste and samples are removed through a shielded transfer port in Cell 1 via a 4-in. pneumatic transfer system line that terminates in a shielded cask in the Laboratory and Office Building, or via a 2-in. pneumatic transfer system line that goes to FCF and then on to HFEF. Samples are transferred into the hot cells through a pneumatic transfer system from FCF or from HFEF by intermediate transfer to FCF or via the Cell 6 transfer port. Some samples may be transferred directly to the hot cells.

c. Manipulator Repair Room

A 10-ft by 12-ft room located adjacent to the hot cells is equipped to support repair of the leader/follower manipulators. The room is set up similar to the hot cells such that the manipulator can be pulled and inserted into the repair room via a port for repair.

d. Vaults

North of the hot cell service area is an area containing vaults. The vaults are used for storage of radioactive and hazardous waste.

e. B-Wing Laboratories

The main features of the B wing are general chemistry laboratories, analytical instrument laboratories, gloveboxes, counting rooms, and chemical storage. B-147, formerly known as the Experimental Fuels Laboratory, contains an inert atmosphere glovebox where actinide-bearing

materials are fabricated and tested. The laboratories are designed with laboratory air hoods and contain a variety of scientific equipment. Typical equipment may include, but is not limited to, spectrophotometers, spectrometers, chromatographs, ion selective electrodes, diffractometers, fluorimeters, elemental analyzers, and other Analytical Laboratory equipment, such as hot plates and balances. The general chemistry laboratories perform analyses on nonradioactive samples or samples containing relatively low levels of radioactivity.

2. **Hazard category:** Hazard category 3 non-reactor nuclear facility
3. **Radioactive waste managed at this facility:** Routine CH LLW and liquid mixed LLW are generated and staged at this facility. CH TRU waste and RH TRU waste are generated and stored at this facility.
4. **RWMB documents/programs:**
 - a. Safety basis/hazard analysis:
 - W0660-0055-KH, “Analytical Laboratory Safety Analysis Report”
 - LST-329, “Analytical Laboratory Nuclear Safety Basis Implementation Matrix”
 - b. Laboratory-wide:
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - LI-435, “Waste Management Routine Field Activities”
 - LRD-15001, “Radiological Control Manual”
 - LWP-8000, Environmental Instructions for Facilities, Processes, Materials, and Equipment
 - LWP-8300, “Transuranic Waste Handling”
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”
 - LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
 - LWP-17000, “Waste Management”
 - MCP-139, “Radiological Surveys”
 - MCP-17000, “Waste Generator Services Waste Management”
 - MCP-17410, “Management of Waste Storage Areas”
 - MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
 - PDD-17000, “Waste Management Program”
 - PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
 - PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”
 - PLN-8300, “Materials and Fuels Complex Contact-Handled TRU Waste Certification Program Plan”
 - c. Facility-specific:
 - AL-0634-OI-001, “Radioactive Liquid Waste System”
 - AL-5000-LI-003, “Contact-Handled Transuranic Waste Handling”
 - AL-7000-OI-001, “Facility Conditions”
 - ANL-NT-192, “The Defense Programs Origin of Transuranic Waste at Argonne National Laboratory-West, H. F. McFarlane, 11/1/2001”

- INL/EXT-10-17600, *Process Knowledge Summary Report for Materials and Fuels Complex Contact-handled Transuranic Waste*
- PER-116, “HWMA/RCRA Storage and Treatment Permit for the Materials and Fuels Complex”
- PLN-2495, “Waste Analysis Plan for the Idaho National Laboratory Materials and Fuels Complex Analytical Laboratory Elementary Neutralization Unit”
- RL-OI-1, “Radioactive-Liquid-Waste Collection”
- SD-38.1.1, “Treatment, Storage, and Disposal Facilities (TSDF) Environmental Compliance”
- TSD-OI-004, “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control”
- W0640-0047-KP, “Hot Cell Waste Preparation and Sample Collection for Disposal/Return”
- W0660-0035-AP, “General Laboratory Waste.”

TRU waste and LLW are managed at this facility. Table 5 shows the facility compliance information for DOE Manual 435.1-1 Chapter III, “Transuranic Waste Requirements,” and Table 6 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 5. MFC-752, Analytical Laboratory, DOE Manual 435.1-1 transuranic waste requirements and facility compliance information.

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>A. <u>Definition of Transuranic Waste</u>. Transuranic waste is radioactive waste containing more than 100 nanocuries (3700 becquerels) of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years, except for:</p> <p>(From DOE G 435.1-1 Chapter III: The determination of transuranic waste should be made at the time of waste certification, that is, each time the waste is transferred to another person or facility.)</p>	<p>This requirement proves the criteria for determining which DOE radioactive waste is to be managed as TRU waste in accordance with DOE Manual 435.1-1, Chapter III.</p> <p>See J. below.</p>
(1) High-level radioactive waste;	See A. above.
(2) Waste that the Secretary of Energy has determined, with the concurrence of the Administrator of the Environmental Protection Agency, does not need the degree of isolation required by the 40 CFR Part 191 disposal regulations; or	See A. above.
(3) Waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with 10 CFR Part 61.	See A. above.
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as transuranic waste in accordance with the requirements in this Chapter:</p> <p>From DOE G 435.1-1 Chapter III: Compliance with these requirements is demonstrated if RCRA, state-hazardous, and TSCA-regulated radioactive wastes are being managed in compliance with applicable</p>	See below.

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
requirements and agreements or in accordance with a consent order, and consistent with the Transuranic Waste Requirements of DOE M 435.1-1.	
(1) Mixed Transuranic Waste. Transuranic waste determined to contain both a hazardous component subject to the <i>Resource Conservation and Recovery Act (RCRA)</i> , as amended, and a radioactive component subject to the <i>Atomic Energy Act of 1954</i> , as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	Mixed TRU waste is managed at this facility. Compliance with RCRA regulations is addressed by WGS in its waste management services role in MCP-17000.
(2) TSCA-Regulated Waste. Transuranic waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i> , as amended, DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	NA; TSCA-regulated TRU waste is not managed at this facility.
(3) Pre-1970 Transuranic Waste. Transuranic waste disposed of prior to implementation of the 1970 Atomic Energy Commission Immediate Action Directive regarding retrievable storage of transuranic waste is not subject to the requirements of DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	NA; pre-1970 TRU waste is not managed at this facility.
C. Complex-Wide Transuranic Waste Management Program. A complex-wide program and plan shall be developed as described under <i>Responsibilities</i> , 2.B and 2.D, in Chapter I of this Manual. From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by the presence of a Complex-Wide Transuranic Waste Management Program which includes the appropriate interfaces, technical information, data inputs, and other elements described in Chapter I of this Manual.	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.
D. Radioactive waste management basis. Transuranic waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis: From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated if, the radioactive waste management basis is documented and signed by the Field Element manager or a designee (see DOE M 435.1-1, Section I.1.A, Delegation of Authority) for	The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste. This facility is a Hazard Category 3 non-reactor nuclear facility (W0660-0055-KH). The facility's safety basis requirements and implementing documents are identified in LST-329.

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>each transuranic waste management facility, operation, or activity. Using a graded approach, it may be possible to include multiple activities under a single radioactive waste management basis, but it should be possible to objectively identify which activities are covered. Further, the radioactive waste management basis includes or references the controls that are established on a facility-specific basis to address the unique waste management requirements and circumstances for each facility, operation, and/or activity.</p>	
<p>(1) Generators. The waste certification program. From DOE G 435.1-1 Chapter III: For a facility that generates transuranic waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.</p>	<p>See J. below.</p>

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic]</p> <p>From DOE G 435.1-1 Chapter III: Facilities that store or treat transuranic waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section III.G) prior to the issuance of a radioactive waste management basis. The waste acceptance requirements will usually suffice as documentation of the radiological, physical, and chemical limitations on waste that can be safely received at the facility, provided they are developed correctly with consideration of the hazards of the waste to be managed, and are kept up to date. Controls on the radiological, physical and chemical limitations need to include considerations of the potential effects of radiolysis.</p> <p>A facility that stores or treats waste is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel should implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>NA; LLW is not treated at this facility.</p>
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter III: Facilities that store or treat transuranic waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section III.G) prior to the issuance of a radioactive waste management basis. The waste acceptance requirements will usually suffice as documentation of the radiological, physical, and chemical limitations on waste that can be safely received at the facility, provided they are developed correctly with consideration of the hazards of the waste to be managed, and are kept up to date. Controls on the radiological, physical and chemical limitations need to include considerations of the potential effects of radiolysis.</p> <p>A facility that stores or treats waste is generally</p>	<p>See G. and J. below for waste acceptance and waste certification program requirements.</p> <p>AL-5000-LI-003 specifies documentation and packaging in accordance with LWP-8300 and PLN-8300. LWP-8300 addresses the use of the IWTS to track waste inventory.</p>

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel should implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(4) Disposal Facilities. The performance assessment, disposal authorization statement, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with these requirements is demonstrated by having adequate spare capacity and transfer equipment exists for emergency transfers of all liquid transuranic waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving liquid transuranic waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated transuranic waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not store or treat liquid TRU waste in tanks.</p>
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of liquid waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not store or treat liquid TRU waste in tanks.</p>
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1</p>

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
	<p>§I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter III: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility's or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system exists which addresses noncompliant or hazardous situations associated with transuranic waste management and in a systematic fashion, and allows identification of problems by all personnel.</p>	<p>See F. above.</p>
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by documented evidence of systematic, routine reviews to determine whether waste management activities and facilities under are operating in accordance with an approved radioactive waste management basis. In addition, the documentation should show that limitations (which may include shutdown) have been placed on activities and operations that do not have or are operating outside the conditions of an approved radioactive waste management basis.</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.</p>
<p>G. <u>Waste Acceptance</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.</p>
<p>(1) Technical and Administrative. Waste acceptance requirements for all transuranic waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p> <p>From DOE G 435.1-1 Chapter III: Compliance with these requirements is demonstrated if waste acceptance</p>	<p>NA; this facility does not accept TRU waste from other facilities.</p>

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>requirements are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the transuranic waste. Waste acceptance requirements are to also contain a clear description of the process and bases for obtaining an exception or deviation to the acceptance criteria for transuranic waste to be received at the facility.</p>	
(a) Allowable activities and/or concentrations of specific radionuclides;	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal;	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance;	See (1) above.
(d) Requirement to identify transuranic waste as defense or non-defense, and limitations on acceptance; and	See (1) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved.	See (1) above.
<p>(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with these requirements is demonstrated if there is a procedure or process for evaluating and accepting incoming waste which ensures the acceptance criteria of the facility receiving the waste are met by one or a combination of: (1) testing, sampling, and analysis of representative samples of incoming waste upon</p>	NA; this facility does not accept TRU waste from other facilities.

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>receipt; (2) testing, sampling, and analysis of samples of waste taken at the generator facility; (3) evaluation of testing, sampling, and analysis of data provided by the generator; or (4) audits, reviews, or surveillances of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment, or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all transuranic waste streams.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of [transuranic] waste prior to its generation, including the identification of [transuranic] wastes with no path to disposal and appropriate records justifying the newly generated [transuranic] waste stream(s), and site personnel possessing planning information showing the location(s) where [transuranic] waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the [transuranic] waste may be managed at those facilities.</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p>
<p>(2) Waste with No Identified Path to Disposal. Transuranic waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:</p> <p>From DOE G 435.1-1 Chapter III: Compliance with requirement is demonstrated by the waste generation organization having documentation concerning the decision to generate a transuranic waste stream that does not have an identified path to disposal. This documentation needs to include the cognizant Field Element Manager or designee approval to generate the waste, an explanation of the need for the process that generates the transuranic waste, a discussion of the reason it cannot be disposed of, the proposed management plan for the waste, and an up-to-date schedule of activities being pursued to resolve constraints to the disposal of the subject waste. Consistent with the use of a graded approach for</p>	<p>NA; this facility is not generating TRU waste that does not have an identified path to disposal.</p>

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
applying DOE M 435.1-1 requirements, the schedule and plans for disposing of nondefense waste can defer to the complex-wide resolution of the issue.	
(a) Programmatic need to generate the waste;	See (2) above.
(b) Characteristics and issues preventing the disposal of the waste;	See (2) above.
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
<p>I. <u>Waste Characterization</u>. Transuranic waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of transuranic waste characterization data acquired through the use of direct or indirect methods.</p>	<p>W0660-0035-AP §§3.4 and 3.5 W0640-0047-KP §3.2</p> <p>AL-5000-LI-003, which specifies documentation and packaging in accordance with LWP-8300 (§4 addresses waste characterization) and PLN-8300 (§2.9 addresses waste characterization).</p> <p>This facility also is managing several drums of RH TRU waste. LWP-8300 states that RH TRU waste must meet receiving facility WAC and procedures. Disposition of the RH TRU is being coordinated with the DOE Environmental Management (EM) contractor. The waste acceptance criteria will be established by the EM contractor by a project agreement. Acceptable knowledge and characterization information will be provided to demonstrate compliance with these criteria.</p>
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage transuranic waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by the existence of a program or procedures for determining and records that document characterization of transuranic waste consistent with the minimum characterization data requirements.</p>	See I. above.

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
(a) Physical and chemical characteristics;	See I. above.
(b) Volume, including the waste and any stabilization or absorbent media;	See I. above.
(c) Weight of the container and contents;	See I. above.
(d) Identities, activities, and concentrations of major radionuclides;	See I. above.
(e) Characterization date;	See I. above.
(f) Generating source;	See I. above.
(g) Packaging date; and	See I. above.
(h) Any other information which may be needed to prepare and maintain the disposal facility performance assessment or demonstrate compliance with applicable performance objectives.	See I. above.
<p>J. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving transuranic waste for storage, treatment, or disposal are met.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when the appropriate personnel are trained, and have and follow the procedures that govern their part of the waste certification process. Acceptable performance also requires that the waste certification plan and procedures are current and controlled in accordance with a document control program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>Certification of the CH TRU managed at this facility is performed in conjunction with WGS in accordance with AL-5000-LI-003, which specifies documentation and packaging in accordance with LWP-8300 and PLN-8300.</p> <p>This facility also is managing several drums of RH TRU waste. LWP-8300 states that RH TRU waste must meet receiving facility WAC and procedures. Disposition of the RH TRU is being coordinated with the EM contractor. The WAC will be established by the EM contractor by a project agreement. Acceptable knowledge and characterization information will be provided to demonstrate compliance with these criteria.</p>
(l) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required	See J. above.

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that each container of waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	
<p>(2) Certification before Transfer. Transuranic waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above.</p>
<p>(3) Maintaining Certification. Transuranic waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by the existence of a program or procedure reflecting this requirement and site personnel able to show that the storage of containers of waste is in a facility or manner where the containers are not damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	<p>See J. above.</p> <p>LWP-15011 §5 provides general radioactive storage area requirements.</p>
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of transuranic waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on</p>	<p>AL-5000-LI-003 §5.4</p> <p>PLN-8300 §2.11 states that MFC storage facilities or the Advanced Mixed Waste Treatment Project needs to approve material profiles and containers for shipment.</p> <p>This facility also is managing several drums of RH TRU waste. LWP-8300 states that RH TRU waste must meet receiving facility WAC and procedures. Disposition of the RH TRU is being coordinated with the EM contractor. A waste-specific agreement will be developed to transfer management responsibility to the EM contractor for this waste.</p>

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
the waste containers are available and accurate, and that documented transfer of responsibility occurs.	
<p>(1) Authorization. Transuranic waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	See K. above.
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for transuranic waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each waste transfer and documented records of transfers show that the information is being provided.</p>	See K. above.
L. <u>Packaging and Transportation</u> . The following requirements are in addition to those in Chapter I of this Manual.	See (1) and (2) below.
<p>(1) Packaging.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with the packaging requirement is demonstrated by procedures which document proper packaging protocols, including documented evidence that, where feasible, non-defense transuranic waste has been packaged separately from defense transuranic waste and by never having to repackage transuranic waste that is packaged after issuance of DOE O 435.1 in order to maintain containment. However, the above protocol may not be satisfied by containers that were placed in storage prior to issuance of the DOE O 435.1. For those containers, the goal is to only have to repackage the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information. Successful performance of this requirement is also demonstrated by a record of container performance in which failure has not routinely occurred.</p>	<p>For CH TRU waste:</p> <p style="padding-left: 40px;">AL-5000-LI-003 §§ 3 and 5.</p> <p style="padding-left: 40px;">LWP-8300 §§ 4.3 and 4.4</p> <p style="padding-left: 40px;">PLN-8300 § 2.10.</p> <p>Disposition of RH TRU waste is being coordinated with the EM contractor. Acceptable knowledge and characterization information will be provided to demonstrate compliance with the EM WAC to be established for the waste. These criteria would include requirements for packaging.</p> <p>The CH and RH TRU wastes are not segregated because all waste is expected to be defense waste (INL/EXT-10-17600 and ANL-NT-192). The Waste Isolation Pilot Plant Central Characterization Project prepares the acceptable knowledge documentation for the RH TRU waste. This documentation also relies heavily on ANL-NT-192.</p>
(a) Transuranic waste shall be packaged in a manner	See (1) above.

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste is removed from the container.	
<p>(b) Vents or other mechanisms to prevent pressurization of containers or generation of flammable or explosive concentrations of gases shall be installed on containers of newly-generated waste at the time the waste is packaged. Containers of currently stored waste shall meet this requirement as soon as practical unless analyses demonstrate that the waste can otherwise be managed safely.</p> <p>From DOE G 435.1-1 Chapter III: In developing the radioactive waste management basis, site personnel need to consider the hazards associated with drums of transuranic waste which have not been provided with vents or been proven to not need vents through an approved safety analysis. For unvented containers in earthen-covered storage, the facility itself may mitigate the hazards associated with the accumulation of gases. For above-grade storage of transuranic waste containers, the radioactive waste management basis needs to include controls which mitigate the hazards associated with the accumulation of gases by restricting access to the storage area and providing equipment to protect against fire or explosion.</p>	See (1) above.
(c) When transuranic waste is packaged, defense waste shall be packaged separately from non-defense waste, if feasible.	See (1) above.
(d) Containers of transuranic waste shall be marked such that their contents can be identified.	See (1) above.
<p>(2) Transportation. To the extent practical, the volume of waste and number of transuranic waste shipments shall be minimized.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that transuranic waste shipments are systematically planned and make optimal use of the shipment system (e.g., TRUPACT II) to the extent practical.</p>	NA; waste is not shipped to an offsite facility for final disposition from this facility.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities or modifications to existing facilities.

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
(1) Site Evaluation. Proposed locations for transuranic waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new transuranic waste facility or expansion of an existing transuranic waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(2) Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Transuranic waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of transuranic waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations in treatment or storage facilities, ventilation or other measures shall be provided to keep the gases in a non-flammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing transuranic waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of transuranic waste treatment and storage	See M. above.

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of transuranic waste storage, treatment, and disposal facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
N. <u>Storage</u> . The following requirements are in addition to those in Chapter I of this Manual.	See below.
<p>(1) Storage Prohibitions. Transuranic waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit waste that is ignitable or explosive from being accepted for storage unless it has been treated.</p>	<p>NA; this facility does not have WAC for TRU waste because the facility does not accept TRU waste from other facilities.</p> <p>For the TRU waste generated at this facility, LWP-8300 and PLN-8300 address meeting receiving facility WAC and procedures.</p>
<p>(2) Storage Integrity. Transuranic waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated if sites have storage capabilities for transuranic waste that provide protection of waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where transuranic waste is stored.</p>	<p>The mixed TRU waste at this facility is accumulated in SAAs and TAAs, respectively.</p> <p>MCP-17000 and MCP-17410 §4.4 addresses conditions under which waste should be accumulated.</p> <p>LWP-15011 §5 provides general radioactive storage area requirements.</p>
<p>(3) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of transuranic waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by a documented process for waste container inspection and maintenance at every facility managing transuranic waste, and documentation for all waste container inspections and maintenance actions performed.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p> <p>Inspections are performed for TAAs and SAAs as required by WGS procedures (MCP-17000 and MCP-17410).</p>
(4) Retrievable Earthen-Covered Storage. Plans for the removal of transuranic waste from retrievable earthen-covered storage facilities shall be established and maintained. Prior to commencing waste retrieval	NA; this facility is not an earthen-covered storage facility.

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
activities, each waste storage site shall be evaluated to determine relevant information on types, quantities, and location of radioactive and hazardous chemicals as necessary to protect workers during the retrieval process.	
<p>O. <u>Treatment</u>. Transuranic waste shall be treated as necessary to meet the waste acceptance requirements of the facility receiving the waste for storage or disposal.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by the custodian of transuranic waste maintaining documentation which identifies the plans for treating waste, and maintaining the records that show waste was treated, if necessary, to meet the waste acceptance requirements of the storage or disposal facility to which it was transferred.</p>	NA; TRU waste is not treated at this facility.
<p>P. <u>Disposal</u>. Transuranic waste shall be disposed in accordance with the requirements of 40 CFR Part 191, <i>Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes</i>.</p>	NA; TRU waste is not disposed of at this facility.
<p>Q. <u>Monitoring</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	See (1), (2), and (3) below.
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter III: If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved, constitutes an exemption to the Manual.</p> <p>Verification activities are part of the radioactive waste management basis and are to be documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with an accuracy, precision, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or</p>	<p>General facility monitoring is addressed in AL-7000-OI-001. However, a specific monitoring program for radioactive waste and the assessment of monitoring parameters were not identified.</p> <p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities. LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the “routine sheet” and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>

Table 5. (continued).

MFC-752, Analytical Laboratory	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
sampled.	
<p>(2) Stored Wastes. All transuranic wastes in storage shall be monitored, as prescribed by the appropriate facility safety analysis, to ensure the wastes are maintained in safe condition.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated if the monitoring requirements in the facility procedures include, at a minimum, monitoring the systems and parameters as indicated by the safety analysis.</p>	<p>The facility's safety basis requirements and implementing documents are identified in LST-329. This facility is a Hazard Category 3 non-reactor nuclear facility (W0660-0055-KH).</p>
<p>(3) Liquid Waste Storage Facilities. For facilities storing liquid transuranic waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by developing operational procedures for monitoring liquid transuranic waste storage tank liquid level, waste volume, and tank chemistry so that waste volume or chemistry changes are detected in a time frame that will allow implementation of corrective measures to limit public and worker doses and to mitigate unplanned releases of stored liquid waste.</p>	<p>NA; liquid TRU waste is not stored at this facility.</p>

Table 6. MFC-752, Analytical Laboratory, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>A. <u>Definition of Low-Level Waste</u>. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>(From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>This requirement provides the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See below.</p>
<p>(1) Mixed Low-Level Waste. Low-level waste determined to contain both source, special nuclear, or</p>	<p>This facility manages mixed LLW.</p>

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
byproduct material subject to the <i>Atomic Energy Act of 1954</i> , as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	Compliance with RCRA regulations is addressed by WGS in its waste management services role in MCP-17000.
(2) TSCA-Regulated Waste. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i> , as amended, DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	This facility manages TSCA-regulated waste. Compliance with TSCA regulations is addressed by WGS in its waste management services role in MCP-17000.
(3) Accelerator-Produced Waste. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual, and all applicable Federal or State requirements.	NA; this facility does not manage accelerator-produced waste.
(4) 11e.(2) and Naturally Occurring Radioactive Material. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.	NA; this facility does not manage naturally occurring radioactive material.
<u>C. Complex-Wide Low-Level Waste Management Program.</u> A complex-wide program and plan shall be developed as described under <i>Responsibilities</i> , 2.B and 2.D, in Chapter I of this Manual.	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.
<u>D. Radioactive Waste Management Basis.</u> Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:	The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste. This facility is a Hazard Category 3 non-reactor nuclear facility (W0660-0055-KH.) The facility's safety basis requirements and implementing documents are identified in LST-329.
(1) Generators. The waste certification program. From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.	See J. below.
(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [<i>sic</i>]	NA; LLW is not treated at this facility. Containerized elementary neutralization is performed

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>at this facility as provided by LWP-8000. As stated in §4.118, elementary neutralization of corrosive hazardous waste may take place at any location at which the waste is generated or stored, and neither a generator treatment plan nor a permit is required. Solidification of liquid LLW for the purpose of staging (not for treating the radioactive constituents) also may be performed. Therefore, this facility is not considered to be a treatment facility.</p>
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>NA; this facility stages waste in accordance with N.(7) to facilitate treatment or disposal.</p>
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>NA; liquid LLW is not stored or treated in a tank system at this facility.</p> <p>However, AL-0634-OI-001 addresses the facility's evaporator feed tanks, which are used for the recirculation, sampling, and pumping of suspect liquid waste to RLWTF. The contents of the tanks can be transferred to an onsite tank truck. These transfers would be directed by a work order.</p> <p>This tank system is being replaced. In the interim, carboys are being used for the disposal of suspect liquid waste to RLWTF in accordance with AL-0634-OI-002.</p>
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>NA; liquid LLW is not stored or treated in a tank system at this facility.</p> <p>However, AL-0634-OI-001 addresses the facility's evaporator feed tanks, which are used for recirculation, sampling, and pumping of suspect liquid waste to RLWTF. The contents of the tanks can be transferred to an onsite tank truck. These transfers would be directed by a work order.</p> <p>This tank system is being replaced. In the interim, carboys are being used for disposal of suspect liquid waste to RLWTF in accordance with AL-0634-OI-002.</p>
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE</p>

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.	Manual 435.1-1 §I.2.G.(2) is LWP-14002.
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.</p>	See F. above.
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.</p>	The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.
G. Waste Acceptance. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
<p>(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if</p>	NA; this facility generates LLW but does not receive radioactive waste from other sources.

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.	
(a) Allowable activities and/or concentrations of specific radionuclides.	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	See (1) above.
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	NA; this facility is not a LLW disposal facility.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (d) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (d) above.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (d) above.

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.</p>	See (d) above.
<p>5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]</p>	See (d) above.
<p>(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved.</p> <p>From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.</p>	NA; this facility does not accept waste from other facilities.
<p>(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	NA; this facility does not accept waste from other facilities.
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].</p>	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p>
<p>(2) Waste with No Identified Path to Disposal. Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:</p>	<p>NA; this facility is not generating LLW that does not have an identified path to disposal.</p>
<p>(a) Programmatic need to generate the waste;</p>	<p>See (2) above.</p>
<p>(b) Characteristics and issues preventing the disposal of the waste;</p>	<p>See (2) above.</p>
<p>(c) Safe storage of the waste until disposal can be achieved; and</p>	<p>See (2) above.</p>
<p>(d) Activities and plans for achieving final disposal of the waste.</p>	<p>See (2) above.</p>
<p>I. <u>Waste Characterization</u>. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.</p>	<p>MCP-17000 addresses waste characterization. W0660-0035-AP §§ 3.4 and 3.5 W0640-0047-KP § 3.2 PLN-2495 § 4</p>

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p> <p>PLN-2495 § 5 specifies the data quality objectives for verification sampling. However, documentation of the data quality objectives process and results is not provided or referenced.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.</p>	<p>MCP-17000, including §§ 4.2, 4.3, and 4.4, provides waste characterization requirements. Information on absorbent media is required in §§ 4.5 and 4.7. MCP-17000 also specifies the use of IWTS, which documents characterization data in an IWTS profile.</p>
(a) Physical and chemical characteristics;	See I. and (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See I. and (2) above.
(c) Weight of the container and contents;	See I. and (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See I. and (2) above.
(e) Characterization date;	See I. and (2) above.
(f) Generating source; and	See I. and (2) above.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See I. and (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the</p>	<p>MCP-17000 cites a waste certification program for LLW destined for NNSS. For waste destined for locations other than NNSS, the waste disposition specialist is responsible for certifying the waste stream by ensuring the waste, as characterized, falls within the limitations of the waste acceptance criteria of the treatment, storage, or disposal facility (§2).</p> <p>Container procurement is addressed in MCP-17000 § 4.6.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Waste certification is performed and tracked using</p>

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSC packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSC.</p> <p>Liquid LLW is sent to RLWTF in accordance with AL-0634-OI-001 and AL-0634-OI-002, which require compliance with RLWTF waste acceptance criteria.</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	<p>See J. above. MCP-17500 §§2 and 5 address certification records for shipments to NNSC.</p>
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above. MCP-17500 §4.3.6 addresses controls for certification before transfer for LLW to be disposed of at NNSC.</p>
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or</p>	<p>See J. above. Pre-certification checklists are cited in MCP-17000 and MCP-17500. Surveillances also are addressed in MCP-17500.</p> <p>LWP-15011 §5 provides general radioactive storage area requirements.</p>

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	
<p>K. Waste Transfer. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>W0640-0047-KP § 5.8 W0660-0035-AP §§3.8 and 3.9 PLN-2495 §§3.2 and 6</p> <p>Liquid LLW is sent to RLWTF in accordance with AL-0634-OI-001 and AL-0634-OI-002, which require compliance with RLWTF WAC.</p> <p>RL-OI-1 specifies the RLWTF requirements for receiving transferred waste.</p> <p>MCP-17000 §4.8.15 specifies requirements for interfacility transfers.</p> <p>TSD-OI-004 includes the MFC-703, MFC-793, and MFC-797 requirements for receiving transferred waste.</p> <p>MCP-17500 §4 addresses LLW to be transferred to NNSS.</p>
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	<p>See K. above.</p>
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	<p>See K. above.</p>
<p>L. Packaging and Transportation. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].</p>	<p>See (1) and (2) below.</p>

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(1) Packaging. If containers are used:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repack the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.</p>	<p>W0660-0035-AP § 3.8</p> <p>W0640-0047-KP § 5</p> <p>MCP-17000 §4 addresses packaging requirements.</p>
<p>(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.</p>	<p>See (1) above.</p>
<p>(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.</p>	<p>See (1) above.</p>
<p>(c) Containers of low-level waste shall be marked such that their contents can be identified.</p>	<p>See (1) above.</p>
<p>(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.</p>	<p>MCP-17000 §4 addresses transportation. The waste disposition specialist coordinates with packaging and transportation personnel for waste shipped offsite from this facility.</p> <p>Waste is shipped directly to NNSS from this facility. MCP-17500 specifies waste certification official and waste disposition specialist responsibilities and coordination with packaging and transportation personnel.</p>
<p>M. <u>Site Evaluation and Facility Design</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>NA; this requirement addresses new radioactive waste management facilities or modifications to existing facilities.</p>
<p>(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.</p>	<p>See M. above.</p>
<p>(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste</p>	<p>See M. above.</p>

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:	
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are	See M. above.

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.	See M. above.
(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>N. <u>Storage and Staging</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.</p>
<p>(1) <u>Storage Prohibitions</u>. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.</p>	<p>NA; LLW is not stored at this facility.</p>
<p>(2) <u>Storage Limit</u>. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager.</p> <p>From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place.</p> <p><u>Mixed waste</u>. Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste</u>. As discussed above, the intention of the requirement is not to force malicious compliance or</p>	<p>NA; LLW is not stored at this facility.</p>

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <p>1) the radioactive waste management basis allows for storage for no more than one year.</p> <p>2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis.</p> <p>3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>From DOE G 435.1-1 Chapter IV: However, in making a decision to use a facility for storage and in</p>	<p>NA; LLW is not stored at this facility.</p>

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	
(4) Waste Characterization for Storage.	NA; LLW is not stored at this facility.
(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.	See (4) above.
(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.	See (4) above.
(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p> <p>Inspections are performed for temporary accumulation areas and satellite accumulation areas as required by WGS procedures (MCP-17000 and MCP-17410).</p>
(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.	NA; LLW is not stored at this facility.
(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.	LLW and mixed LLW is staged for the purpose of accumulation to facilitate treatment and disposal. Mixed LLW is staged in SAAs in accordance with MCP-17000 and MCP-17410. LLW is staged in temporary accumulation areas in accordance with MCP-17000 and MCP-17410.

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.</p>	<p>MCP-17000, Appendix F restricts staging LLW to 90 days maximum at any generator or treatment facility prior to acceptance by a storage facility.</p>
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	<p>NA; treatment is not performed in this facility.</p> <p>Containerized elementary neutralization is performed at this facility as provided by LWP-8000. As stated in § 4.118, elementary neutralization of corrosive hazardous waste may take place at any location where the waste is generated or stored and neither a generator treatment plan nor a permit is required. Solidification of liquid LLW for the purpose of staging (not for treating the radioactive constituents) also may be performed. Therefore, this facility is not considered to be a treatment facility.</p>
<p>P. <u>Disposal</u>. Low-level waste disposal facilities shall meet the following requirements.</p>	<p>NA; LLW is not disposed of in this facility.</p>
<p>(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:</p>	<p>See P. above.</p>
<p>(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.</p>	<p>See P. above.</p>
<p>(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.</p>	<p>See P. above.</p>

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
(c) Release of radon shall be less than an average flux of 20 pCi/m ² /s (0.74Bq/m ² /s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.	See P. above.
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	See P. above.
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	See P. above.
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.	See P. above.
(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.	See P. above.

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.	See P. above.
(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	See P. above.
(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	See P. above.
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	See P. above.
(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements	See P. above.

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
include:	
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	See P. above.
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	See P. above.
(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	See P. above.
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; LLW waste is not disposed of in this facility.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements	See Q. above.

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	See (1), (2), (3) below.
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to</p>	<p>General facility monitoring is addressed in AL-7000-OI-001. However, a specific monitoring program for radioactive waste and the assessment of monitoring parameters were not identified.</p> <p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the "routine sheet" and is to be used by facility radiological control foremen to list radiological areas that are to be</p>

Table 6. (continued).

Facility Name: MFC-752, Analytical Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>surveyed, the survey periods, and methods.</p>
<p>(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p>	<p>NA; liquid waste is not stored at this facility.</p>
<p>(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.</p>	<p>NA; LLW is not disposed of in this facility.</p>
<p>(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.</p>	<p>See (3) above.</p>
<p>(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.</p>	<p>See (3) above.</p>
<p>(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.</p>	<p>See (3) above.</p>

4.5 MFC-765, Fuels Conditioning Facility

1. **Facility description:** Remote conditioning of spent metallic fuel from EBR-II is the principal operation conducted in FCF, which is located at MFC at INL. Before facility modifications and installations of new conditioning equipment, FCF was named the HFEF – South from 1969 through 1990.

FCF is an updated hot-cell facility meeting modern codes and standards for use by DOE to demonstrate the technical feasibility of the electrometallurgical technology for the conditioning of DOE spent fuel and to complete the treatment if the demonstration is successful. The present emphasis of the facility is treatment of the EBR-II spent driver-and blanket-fuel assemblies. DOE has identified the electrometallurgical treatment as a promising technology to treat EBR-II spent nuclear fuel.

2. **Hazard category:** Hazard Category 2 Nuclear Facility
3. **Radioactive waste managed at this facility:** CH TRU waste, mixed-TRU waste, and RH TRU waste are generated and stored at this facility. CH LLW, mixed LLW, RH LLW, mixed RH-LLW, and liquid LLW are generated and staged at this facility. The mixed LLW is accumulated in an SAA for disposition.
4. **RWMB documents/programs:**
 - a. Safety Basis/Hazards Analysis:
 - F0000-0018-AK, “Final Safety Analysis Report for the Fuel Conditioning Facility”
 - F0000-0026-ES, “Criticality Hazard Control Statement for the Fuel Conditioning Facility”
 - IAG-263, “INL Authorization Agreement for the Materials and Fuels Complex (MFC) Fuel Conditioning Facility (FCF)”
 - LST-304, “Safety Basis List for the Materials and Fuels Complex (MFC) Fuel Conditioning Facility (FCF)”
 - b. Laboratory-wide:
 - Form 435.83, “Idaho National Laboratory Contact-Handled Transuranic Waste Disposition - TSR Related (Checklist - Requirements - Certification)”
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - LI-435, “Waste Management Routine Field Activities”
 - LRD-15001, “Radiological Control Manual”
 - LWP-8300, “Transuranic Waste Handling”
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”
 - LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
 - LWP-17000, “Waste Management”
 - MCP-139, “Radiological Surveys”
 - MCP-17000, “Waste Generator Services Waste Management”
 - MCP-17410, “Management of Waste Storage Areas”
 - MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
 - PDD-17000, “Waste Management Program”
 - PLN-114, “INL Emergency Plan/RCRA Contingency Plan”

- PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”
 - PLN-8300, “Materials and Fuels Complex Contact-Handled TRU Waste Certification Program Plan”
- c. Facility-specific:
- ANL-NT-192, “The Defense Programs Origin of Transuranic Waste at Argonne National Laboratory-West, H. F. McFarlane, 11/1/2001”
 - CCN 210728, August 8, 2007, Mr. Brian R. Monson to Mr. David L. Wessman, “Manufacturing Process Unit Exemption for the Fuel Conditioning Facility at the Materials and Fuels Complex, Idaho National Laboratory”
 - FCF-OI-1302, “Material Control and Accountability”
 - FCF-OI-6523, “Radioactive Liquid Waste System”
 - FCF-OI-6605, “In-Cell Waste Tracking and Logging”
 - FCF-OI-6606, “In-Cell Radiological Smear Data Logging”
 - FCF-OI-6614, “Contact-Handled Low-Level Waste Handling”
 - FCF-OI-6620, “In Cell Indirect Waste Handling”
 - INL/EXT-10-17600, *Process Knowledge Summary Report for Materials and Fuels Complex Contact-handled Transuranic Waste*
 - LST-337, “Approved Container/Payload List for Inter-Facility Transfer Operations at MFC”
 - RL-OI-1, “Radioactive Liquid Waste Collection”
 - RSWF-OI-003, “Material Acceptance for Storage”
 - RSWF-OI-004, “Administrative Requirements/Process for Material Transfers”
 - TSD-OI-004, “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control”
 - TSM-OI-003, Transfer of Hazardous Material in Non-DOT-Certified Packaging between MFC Nuclear Facilities.”

TRU waste and LLW are managed at this facility. Table 7 shows the facility compliance information for DOE Manual 435.1-1 Chapter III, “Transuranic Waste Requirements,” and Table 8 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 7. MFC-765, Fuels Conditioning Facility, DOE Manual 435.1-1 transuranic waste requirements and facility compliance information.

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>A. <u>Definition of Transuranic Waste.</u> Transuranic waste is radioactive waste containing more than 100 nanocuries (3700 becquerels) of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years, except for:</p> <p>(From DOE G 435.1-1 Chapter III: The determination of transuranic waste should be made at the time of waste certification, that is, each time the waste is transferred to another person or facility.)</p>	<p>This requirement proves the criteria for determining which DOE radioactive waste is to be managed as TRU waste in accordance with DOE Manual 435.1-1, Chapter III.</p> <p>See J. below.</p>
<p>(1) High-level radioactive waste;</p>	<p>See A. above.</p>

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
(2) Waste that the Secretary of Energy has determined, with the concurrence of the Administrator of the Environmental Protection Agency, does not need the degree of isolation required by the 40 CFR Part 191 disposal regulations; or	See A. above.
(3) Waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with 10 CFR Part 61.	See A. above.
<p>B. Management of Specific Wastes. The following provide for management of specific wastes as transuranic waste in accordance with the requirements in this Chapter:</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with these requirements is demonstrated if RCRA, state-hazardous, and TSCA-regulated radioactive wastes are being managed in compliance with applicable requirements and agreements or in accordance with a consent order, and consistent with the Transuranic Waste Requirements of DOE M 435.1-1.)</p>	See (1), (2), and (3) below.
(1) Mixed Transuranic Waste. Transuranic waste determined to contain both a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, and a radioactive component subject to the <i>Atomic Energy Act of 1954</i> , as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	<p>This facility generates and stores mixed TRU waste. CCN 210728, August 8, 2007, Mr. Brian R. Monson to Mr. David L. Wessman, <i>Manufacturing Process Unit Exemption for the Fuel Conditioning Facility at the Materials and Fuels Complex, Idaho National Laboratory</i>, provides the Idaho Department of Environmental Quality concurrence with the MPU exemption of FCF operations from RCRA regulation.</p> <p>LWP-8300 defines the requirements and establishes the process associated with generation, handling, characterization, and storage of CH, mixed, and RH TRU waste.</p> <p>FCF-OI-6620 establishes and implements administrative requirements and provides instructions for management of the in-cell mixed TRU wastes managed at this facility.</p>
(2) TSCA-Regulated Waste. Transuranic waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i> , as amended, DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	NA; TSCA-regulated TRU waste is not managed at this facility.
(3) Pre-1970 Transuranic Waste. Transuranic waste disposed of prior to implementation of the 1970 Atomic Energy Commission Immediate Action	NA; pre-1970 TRU waste is not managed at this facility.

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
Directive regarding retrievable storage of transuranic waste is not subject to the requirements of DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	
<p><u>C. Complex-Wide Transuranic Waste Management Program.</u> A complex-wide program and plan shall be developed as described under <i>Responsibilities</i>, 2.B and 2.D, in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the presence of a Complex-Wide Transuranic Waste Management Program which includes the appropriate interfaces, technical information, data inputs, and other elements described in Chapter I of this Manual.</p>	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.
<p><u>D. Radioactive Waste Management Basis.</u> Transuranic waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated if, the radioactive waste management basis is documented and signed by the Field Element manager or a designee (see DOE M 435.1-1, Section I.1.A, Delegation of Authority) for each transuranic waste management facility, operation, or activity. Using a graded approach, it may be possible to include multiple activities under a single radioactive waste management basis, but it should be possible to objectively identify which activities are covered. Further, the radioactive waste management basis includes or references the controls that are established on a facility-specific basis to address the unique waste management requirements and circumstances for each facility, operation, and/or activity.)</p>	The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste.
<p>(1) Generators. The waste certification program.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>For a facility that generates transuranic waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.</p>	<p>See J. below for waste certification program requirements.</p> <p>F0000-0018-AK serves as the safety basis documentation for the facility and establishes it as a Hazard Category 2 nuclear facility.</p> <p>F0000-0026-ES provides the limits, boundaries , conditions, and rules under which activities involving fissionable materials are carried out.</p>

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
	FCF-OI-1302 specifies material accountability requirements for managing special nuclear material in FCF and provides the instructions necessary to meet the requirements using the Mass Tracking System database.
<p>(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic]</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Facilities that store or treat transuranic waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section III.G) prior to the issuance of a radioactive waste management basis. The waste acceptance requirements will usually suffice as documentation of the radiological, physical, and chemical limitations on waste that can be safely received at the facility, provided they are developed correctly with consideration of the hazards of the waste to be managed, and are kept up to date. Controls on the radiological, physical and chemical limitations need to include considerations of the potential effects of radiolysis.</p> <p>A facility that stores or treats waste is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel should implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>NA; waste is not treated at this facility.</p>
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Facilities that store or treat transuranic waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section III.G) prior to the issuance of a radioactive waste management basis. The waste acceptance requirements will usually suffice as documentation of the radiological, physical, and chemical limitations on waste that can be safely received at the facility, provided they are developed</p>	<p>See G. and J. below for waste acceptance and waste certification program requirements.</p> <p>F0000-0018-AK serves as the safety basis documentation for the facility and establishes it as a Hazard Category 2 nuclear facility.</p> <p>F0000-0026-ES provides the limits, boundaries , conditions, and the rules under which activities involving fissionable materials are carried out.</p> <p>FCF-OI-1302 specifies material accountability requirements for managing special nuclear material in</p>

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>correctly with consideration of the hazards of the waste to be managed, and are kept up to date. Controls on the radiological, physical and chemical limitations need to include considerations of the potential effects of radiolysis.</p> <p>A facility that stores or treats waste is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel should implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>FCF and provides the instructions necessary to meet the requirements using the Mass Tracking System database.</p>
<p>(4) Disposal Facilities. The performance assessment, disposal authorization statement, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with these requirements is demonstrated by having adequate spare capacity and transfer equipment exists for emergency transfers of all liquid transuranic waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving liquid transuranic waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated transuranic waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not store or treat liquid TRU waste.</p>

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of liquid waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not store or treat liquid TRU waste.</p>
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility's or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system exists which addresses noncompliant or hazardous situations associated with transuranic waste management and in a systematic fashion, and allows identification of problems by all personnel.</p>	<p>See F. above.</p>
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by documented evidence of systematic, routine reviews to determine whether waste management activities and facilities under are operating in accordance with an approved radioactive waste management basis. In addition, the documentation should show that limitations (which may include shutdown) have been placed on activities and operations that do not have or</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.</p>

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
are operating outside the conditions of an approved radioactive waste management basis.	
G. <u>Waste Acceptance</u> . The following requirements are in addition to those in Chapter I of this Manual.	DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
(1) Technical and Administrative. Waste acceptance requirements for all transuranic waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following: From DOE G 435.1-1 Chapter III: Compliance with these requirements is demonstrated if waste acceptance requirements are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the transuranic waste. Waste acceptance requirements are to also contain a clear description of the process and bases for obtaining an exception or deviation to the acceptance criteria for transuranic waste to be received at the facility.	NA; this facility does not accept TRU waste from other facilities.
(a) Allowable activities and/or concentrations of specific radionuclides;	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal;	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance;	See (1) above.
(d) Requirement to identify transuranic waste as defense or non-defense, and limitations on acceptance; and	See (1) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved.	See (1) above.
(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including	See (1) above.

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>confirmation that technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with these requirements is demonstrated if there is a procedure or process for evaluating and accepting incoming waste which ensures the acceptance criteria of the facility receiving the waste are met by one or a combination of: (1) testing, sampling, and analysis of representative samples of incoming waste upon receipt; (2) testing, sampling, and analysis of samples of waste taken at the generator facility; (3) evaluation of testing, sampling, and analysis of data provided by the generator; or (4) audits, reviews, or surveillances of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment, or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) <u>Life-Cycle Planning</u>. Prior to waste generation, planning shall be performed to address the entire life cycle for all transuranic waste streams.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of [transuranic] waste prior to its generation, including the identification of [transuranic] wastes with no path to disposal and appropriate records justifying the newly generated [transuranic] waste stream(s), and site personnel possessing planning information showing the location(s) where [transuranic] waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the [transuranic] waste may be managed at those facilities.</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p>
<p>(2) <u>Waste with No Identified Path to Disposal</u>. Transuranic waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:</p>	<p>NA; this facility does not generate TRU waste with no identified path to disposal.</p>

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with requirement is demonstrated by the waste generation organization having documentation concerning the decision to generate a transuranic waste stream that does not have an identified path to disposal. This documentation needs to include the cognizant Field Element Manager or designee approval to generate the waste, an explanation of the need for the process that generates the transuranic waste, a discussion of the reason it cannot be disposed of, the proposed management plan for the waste, and an up-to-date schedule of activities being pursued to resolve constraints to the disposal of the subject waste. Consistent with the use of a graded approach for applying DOE M 435.1-1 requirements, the schedule and plans for disposing of nondefense waste can defer to the complex-wide resolution of the issue.)</p>	
(a) Programmatic need to generate the waste;	See (2) above.
(b) Characteristics and issues preventing the disposal of the waste;	See (2) above.
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
<p>I. <u>Waste Characterization</u>. Transuranic waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of transuranic waste characterization data acquired through the use of direct or indirect methods.</p>	<p>LWP-8300 § 4.2 provides general INL-wide requirements for containerization and characterization documentation requirements.</p> <p>FCF-OI-6620 addresses characterization requirements for CH TRU, mixed TRU, and RH TRU waste generated in the facility.</p> <p>TRU waste transferred for onsite storage to MFC-771, RSWF, is characterized in accordance with RSWF-OI-003.</p> <p>MCP-17000 §4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.</p> <p>When certified in accordance with the RSWF WAC, MFC TRU waste is, to the extent possible, in compliance with the WAC for various treatment or disposal facilities that could be the ultimate destination of the waste (RSWF-OI-003).</p>
(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.	Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage transuranic waste.</p>	<p>comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the existence of a program or procedures for determining and records that document characterization of transuranic waste consistent with the minimum characterization data requirements.)</p>	<p>LWP-8300 § 4.2 provides general INL-wide requirements for containerization and characterization documentation requirements.</p> <p>FCF-OI-6620 addresses characterization of in-cell, non-process, or indirect waste.</p> <p>TRU waste transferred for onsite storage to MFC-771, RSWF, is characterized in accordance with RSWF-OI-003 § 4.1.7 and Appendix A, Form 412.09.</p> <p>MCP-17000 §4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.</p> <p>FCF-OI-6605 addresses in-cell waste tracking and logging to identify discrete waste items and aid in characterization of waste. This document requires revision due to reference to DOE Order 5820.2A, which is now replaced by DOE Order 435.1.</p> <p>FCF-OI-6606 provides instructions for recording the radiological smear data in the MTG system for use as a record in characterization of loose contamination levels associated with waste materials.</p>
(a) Physical and chemical characteristics;	See (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See (2) above.
(c) Weight of the container and contents;	See (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See (2) above.
(e) Characterization date;	See (2) above.
(f) Generating source;	See (2) above.
(g) Packaging date; and	See (2) above.
(h) Any other information which may be needed to prepare and maintain the disposal facility performance assessment or demonstrate compliance with applicable performance objectives.	See (2) above.
J. <u>Waste Certification</u> . A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of	<p>PLN-8300 provides MFC-wide certification of CH TRU waste.</p> <p>LWP-8300 provides general INL-wide requirements for</p>

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>facilities receiving transuranic waste for storage, treatment, or disposal are met.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when the appropriate personnel are trained, and have and follow the procedures that govern their part of the waste certification process. Acceptable performance also requires that the waste certification plan and procedures are current and controlled in accordance with a document control program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>containerization and characterization documentation requirements.</p> <p>TRU waste transferred for on-site storage to RSWF is certified in accordance with RSWF-OI-003 § 3.</p> <p>MCP-17000 specifies the requirements for preparing an IWTS profile that captures waste certification information.</p> <p>When certified in accordance with the RSWF WAC, MFC TRU waste is, to the extent possible, in compliance with the WAC for various treatment or disposal facilities that could be the ultimate destination of the waste (RSWF-OI-003). Procedural documentation other than this statement regarding certification of TRU waste destined for Waste Isolation Pilot Plant disposition was not found.</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that each container of waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	<p>See J. above.</p>
<p>(2) Certification before Transfer. Transuranic waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by</p>	<p>See J. above.</p>

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	
<p>(3) Maintaining Certification. Transuranic waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the existence of a program or procedure reflecting this requirement and site personnel able to show that the storage of containers of waste is in a facility or manner where the containers are not damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	<p>See J. above.</p>
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of transuranic waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers are available and accurate, and that documented transfer of responsibility occurs.</p>	<p>RSWF-OI-003 specifies requirements and provides instructions for accepting mixed waste, radioactive waste, and radioactive material for storage at RSWF. Appendix A serves as the record document to be maintained for each container going to that facility.</p> <p>RSWF-OI-004 provides the administrative requirements/process used by RSWF management for approving material transfer activities into and out of RSWF.</p> <p>TSD-OI-004 specifies requirements and provides instructions for accepting CH TRU and mixed CH TRU waste at the MFC treatment, storage, and disposal facilities.</p> <p>LWP-8300 § 4.3 provides instruction on containerization of CH TRU waste going to the Advanced Mixed Waste Treatment Plant and prescribes the use of Form 435.83 as the documented record of container data and transfer.</p> <p>PLN-8300 provides MFC-wide certification of CH TRU waste.</p> <p>MCP-17000 specifies the requirements for preparing an IWTS profile that captures waste certification data, transfer information, and associated authorizations.</p>
<p>(1) Authorization. Transuranic waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving</p>	<p>See K. above.</p>

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for transuranic waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each waste transfer and documented records of transfers show that the information is being provided.</p>	See K. above.
<p>L. <u>Packaging and Transportation</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	See (1)(a) through (2) below.
<p>(1) Packaging.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with the packaging requirement is demonstrated by procedures which document proper packaging protocols, including documented evidence that, where feasible, non-defense transuranic waste has been packaged separately from defense transuranic waste and by never having to repackage transuranic waste that is packaged after issuance of DOE O 435.1 in order to maintain containment. However, the above protocol may not be satisfied by containers that were placed in storage prior to issuance of the DOE O 435.1. For those containers, the goal is to only have to repackage the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information. Successful performance of this requirement is also demonstrated by a record of container performance in which failure has not routinely occurred.</p>	See (1)(a) through (2) below.
<p>(a) Transuranic waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste is removed</p>	<p>LWP-8300 and the various documents cited below address packaging requirements for TRU waste managed at this facility.</p> <p>PLN-8300 addresses this requirement for CH TRU</p>

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>from the container.</p>	<p>waste generated at this facility.</p> <p>FCF-OI-6620 § 2.2.5 requires all waste be packaged in an approved waste receptacle.</p> <p>RSWF-OI-003 specifies requirements and provides instructions for accepting mixed waste, radioactive waste, and radioactive material for storage at RSWF. Appendix A serves as the record document to be maintained for each container going to that facility.</p> <p>TSM-OI-003 prescribes the appropriate packaging for intra-facility movements of TRU waste.</p> <p>LST-337 prescribes the appropriate container as approved by waste type.</p>
<p>(b) Vents or other mechanisms to prevent pressurization of containers or generation of flammable or explosive concentrations of gases shall be installed on containers of newly-generated waste at the time the waste is packaged. Containers of currently stored waste shall meet this requirement as soon as practical unless analyses demonstrate that the waste can otherwise be managed safely.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>In developing the radioactive waste management basis, site personnel need to consider the hazards associated with drums of transuranic waste which have not been provided with vents or been proven to not need vents through an approved safety analysis. For unvented containers in earthen-covered storage, the facility itself may mitigate the hazards associated with the accumulation of gases. For above-grade storage of transuranic waste containers, the radioactive waste management basis needs to include controls which mitigate the hazards associated with the accumulation of gases by restricting access to the storage area and providing equipment to protect against fire or explosion.</p>	<p>LWP-8300 §§ 4.2 and 4.3 address packaging ventilation requirements for TRU waste.</p> <p>PLN-8300 addresses this requirement for TRU waste generated at this facility.</p> <p>FCF-OI-6620 § 2.2.5 requires all waste be packaged in an approved waste receptacle.</p> <p>RSWF-OI-003 provides for use of Appendix A as record of the ventilated or other pressurization protection packaging.</p> <p>TSM-OI-003 prescribes the appropriate packaging for intra-facility movements of TRU waste.</p> <p>LST-337 prescribes the appropriate container as approved by waste type.</p>
<p>(c) When transuranic waste is packaged, defense waste shall be packaged separately from non-defense waste, if feasible.</p>	<p>INL/EXT-10-17600 § 3 addresses the defense determination requirement based on ANL-NT-192.</p>
<p>(d) Containers of transuranic waste shall be marked such that their contents can be identified.</p>	<p>LWP-8300 § 4.3.1.7 provides instructions on properly marking/labeling TRU waste containers.</p> <p>PLN-8300 addresses this requirement for CH TRU waste generated at this facility.</p> <p>RSWF-OI-003 specifies requirements and provides instructions for accepting mixed waste, radioactive waste, and radioactive material for storage at RSWF. Appendix A serves as the record document to be</p>

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
	maintained for each container going to that facility.
<p>(2) Transportation. To the extent practical, the volume of waste and number of transuranic waste shipments shall be minimized.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that transuranic waste shipments are systematically planned and make optimal use of the shipment system (e.g., TRUPACT II) to the extent practical.</p>	NA; waste is not shipped from this facility to an offsite facility for final disposition.
<p>M. <u>Site Evaluation and Facility Design</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	NA; this requirement addresses new radioactive waste management facilities.
<p>(1) Site Evaluation. Proposed locations for transuranic waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.</p>	See M. above.
<p>(a) Each site proposed for a new transuranic waste facility or expansion of an existing transuranic waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities.</p>	See M. above.
<p>(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.</p>	See M. above.
<p>(2) Facility Design. The following facility requirements and general design criteria, at a minimum, apply:</p>	See M. above.
<p>(a) Confinement. Transuranic waste systems and components shall be designed to maintain waste confinement.</p>	See M. above.
<p>(b) Ventilation.</p>	
<p>1 Design of transuranic waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.</p>	See M. above.
<p>2 When conditions exist for generating gases in flammable or explosive concentrations in treatment or storage facilities, ventilation or other measures shall</p>	See M. above.

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
be provided to keep the gases in a non-flammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing transuranic waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of transuranic waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of transuranic waste storage, treatment, and disposal facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
N. <u>Storage</u> . The following requirements are in addition to those in Chapter I of this Manual.	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
(1) <u>Storage Prohibitions</u> . Transuranic waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable. From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit waste that is ignitable or explosive from being accepted for storage unless it has been treated.	LWP-8300 §4.2, addresses the storage prohibitions for TRU waste managed at INL. The documents cited below provide for proper documentation that this requirement is met upon containerization of this waste. PLN-8300 provides MFC-wide certification of CH TRU waste. FCF-OI-6620 § 2.2.4 addresses materials prohibited from acceptance as waste at this facility.
(2) <u>Storage Integrity</u> . Transuranic waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure. From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated if sites have storage capabilities for transuranic waste that provide protection of waste containers so that	LWP-15011 §5 provides general radioactive storage area requirements. LWP-8300 §4.2 addresses the adequate storage requirements for TRU waste managed at INL.

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where transuranic waste is stored.</p>	
<p>(3) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of transuranic waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by a documented process for waste container inspection and maintenance at every facility managing transuranic waste, and documentation for all waste container inspections and maintenance actions performed.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p>
<p>(4) Retrievable Earthen-Covered Storage. Plans for the removal of transuranic waste from retrievable earthen-covered storage facilities shall be established and maintained. Prior to commencing waste retrieval activities, each waste storage site shall be evaluated to determine relevant information on types, quantities, and location of radioactive and hazardous chemicals as necessary to protect workers during the retrieval process.</p>	<p>NA; this facility is not an earthen-covered storage facility.</p>
<p>O. Treatment. Transuranic waste shall be treated as necessary to meet the waste acceptance requirements of the facility receiving the waste for storage or disposal.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the custodian of transuranic waste maintaining documentation which identifies the plans for treating waste, and maintaining the records that show waste was treated, if necessary, to meet the waste acceptance requirements of the storage or disposal facility to which it was transferred.</p>	<p>NA; this facility is not a TRU waste treatment facility.</p>
<p>P. Disposal. Transuranic waste shall be disposed in accordance with the requirements of 40 CFR Part 191, <i>Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes.</i></p>	<p>NA; this facility is not a TRU waste disposal facility.</p>
<p>Q. Monitoring. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>See below.</p>
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems),</p>	<p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing</p>

Table 7. (continued).

Facility Name: MFC-765, Fuels Conditioning Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved, constitutes an exemption to the Manual.</p> <p>Verification activities are part of the radioactive waste management basis and are to be documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with an accuracy, precision, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the “routine sheet” and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>
<p>(2) Stored Wastes. All transuranic wastes in storage shall be monitored, as prescribed by the appropriate facility safety analysis, to ensure the wastes are maintained in safe condition.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated if the monitoring requirements in the facility procedures include, at a minimum, monitoring the systems and parameters as indicated by the safety analysis.</p>	<p>The facility’s safety basis requirements and implementing documents are identified in F0000-0018-AK and F0000-0026-ES. This facility is a Hazard Category 2 Nuclear Facility.</p>
<p>(3) Liquid Waste Storage Facilities. For facilities storing liquid transuranic waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by developing operational procedures for monitoring liquid transuranic waste storage tank liquid level, waste volume, and tank chemistry so that waste volume or chemistry changes are detected in a time frame that will allow implementation of corrective measures to limit public and worker doses and to mitigate unplanned releases of stored liquid waste.</p>	<p>NA; this facility does not store liquid TRU waste.</p>

Table 8. MFC-765, Fuels Conditioning Facility, DOE Manual 435.1-1 Low-level waste requirements and facility compliance information.

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>A. <u>Definition of Low-Level Waste</u>. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p>	<p>This requirement proves the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See (1), (2), (3), and (4) below.</p>
<p>(1) <u>Mixed Low-Level Waste</u>. Low-level waste determined to contain source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act (RCRA)</i>, as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>This facility manages mixed LLW. The documents cited below seem to demonstrate compliance with this requirement.</p> <p>CCN 210728, August 8, 2007, Mr. Brian R. Monson to Mr. David L. Wessman, "Manufacturing Process Unit Exemption for the Fuel Conditioning Facility at the Materials and Fuels Complex, Idaho National Laboratory," provides the Idaho Department of Environmental Quality concurrence with the MPU exemption of FCF operations from RCRA regulation.</p> <p>This facility manages mixed LLW in SAAs. Management of SAAs is addressed in MCP-17410, and overall management of mixed waste is addressed in MCP-17000.</p> <p>FCF-OI-6620 establishes and implements administrative requirements and provides instructions for management of the in-cell mixed TRU waste managed at this facility.</p>
<p>(2) <u>TSCA-Regulated Waste</u>. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i>, as amended, DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not manage TSCA-regulated waste.</p>
<p>(3) <u>Accelerator-Produced Waste</u>. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual, and all applicable Federal or State requirements.</p>	<p>NA; this facility does not manage accelerator-produced waste.</p>
<p>(4) 11e.(2) and <u>Naturally Occurring Radioactive Material</u>. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material</p>	<p>NA; this facility does not manage naturally occurring radioactive material.</p>

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.	
C. <u>Complex-Wide Low-Level Waste Management Program</u> . A complex-wide program and plan shall be developed as described under <i>Responsibilities</i> , 2.B and 2.D, in Chapter I of this Manual.	DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.
D. <u>Radioactive Waste Management Basis</u> . Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:	The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste.
(1) Generators. The waste certification program. From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.	See J. below for waste certification program requirements. F0000-0018-AK serves as the safety basis documentation for the facility and establishes it as a Hazard Category 2 nuclear facility. F0000-0026-ES provides the limits, boundaries, conditions, and rules under which activities involving fissionable materials are carried out. FCF-OI-6605 provides instructions for performing in-cell tracking and logging using the Mass Tracking System to document the contents and source term for each waste container. FCF-OI-1302 specifies material accountability requirements for managing special nuclear material in FCF and provides the instructions necessary to meet the requirements using the Mass Tracking System database.
(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [<i>sic</i>] From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis. A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment,	NA; waste is not treated at this facility.

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>NA; this facility does not store LLW.</p>
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, Radioactive</p>	<p>NA; this facility does not store or treat liquid LLW.</p>

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>Waste Management, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>NA; this facility does not store or treat liquid LLW.</p>
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste</i></p>	<p>See F. above.</p>

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p><i>Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.</p>	
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.</p>
<p>G. <u>Waste Acceptance</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].</p>	<p>DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.</p>
<p>(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will</p>	<p>NA; this facility does not accept LLW from other facilities.</p>

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
result in acceptable waste at subsequent steps in managing the low-level waste.)	
(a) Allowable activities and/or concentrations of specific radionuclides.	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	See (1) above.
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	See (1) above.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (1) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (1) above.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (1) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (1) above.
5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]	See (1) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in	See (1) above.

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>each facility’s waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.</p>	
<p>(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	See (1) above.
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].</p>	DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.
<p>(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and</p>	PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.	
(2) Waste with No Identified Path to Disposal. Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:	This facility is not generating radioactive waste that does not have an identified path to disposal.
(a) Programmatic need to generate the waste;	See (2) above.
(b) Characteristics and issues preventing the disposal of the waste;	See (2) above.
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
<p>I. <u>Waste Characterization</u>. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.</p>	<p>MCP-17000 §4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.</p> <p>FCF-OI-6620 addresses characterization of in-cell, non-process, or indirect waste.</p> <p>FCF-OI-6614 establishes and implements administrative requirements and provides instructions for characterization, documentation, packaging, labeling, and shipping of solid contact-handled LLW generated in this facility.</p> <p>FCF-OI-6605 provides instructions for performing in-cell tracking and logging using the Mass Tracking System to document the contents and source term for each waste container.</p> <p>Appendices A, B, and C of RL-OI-1 provide documented characterization of the liquid LLW generated at the decontamination spray chamber.</p> <p>Characterization of the liquid LLW stream from the Decontamination Spray Chamber is done in accordance with FCF-OI-6523 § 5.3.1.</p>
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this requirement is demonstrated by</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.	
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.)</p>	<p>MCP-17000 §4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.</p> <p>FCF-OI-6620 addresses characterization of in-cell, non-process, or indirect waste.</p> <p>FCF-OI-6614 establishes and implements administrative requirements and provides instructions for characterization, documentation, packaging, labeling, and shipping of solid contact-handled LLW generated in this facility.</p> <p>FCF-OI-6605 provides instructions for performing in-cell tracking and logging using the Mass Tracking System to document the contents and source term for each waste container.</p> <p>Appendices A, B, and C of RL-OI-1 provide documented characterization of the liquid LLW generated at the decontamination spray chamber.</p> <p>Characterization of the liquid LLW stream from the Decontamination Spray Chamber is done in accordance with FCF-OI-6523 §5.3.1.</p>
(a) Physical and chemical characteristics;	See (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See (2) above.
(c) Weight of the container and contents;	See (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See (2) above.
(e) Characterization date;	See (2) above.
(f) Generating source; and	See (2) above.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with the development and documentation</p>	<p>MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste certification information.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Container procurement is addressed in MCP-17000 § 4.6.</p>

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>RSWF-OI-003 specifies requirements and provides instructions for accepting mixed waste, radioactive waste, and radioactive material for storage at RSWF. Appendix A serves as the record document to be maintained for each container going to that facility.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSS.</p> <p>The facility completes a Liquid Waste Generator Certification Form which is featured as Appendices A and C of RL-OI-1 to support certification of the liquid LLW generated prior to transfer to RLWTF.</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	<p>See J. above.</p>
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being</p>	<p>See J. above.</p>

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
transferred.	
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	See J. above.
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>MCP-17000 specifies the requirements for preparing an IWTS profile that captures waste certification data, transfer information, and associated authorizations.</p> <p>RSWF-OI-003 specifies requirements and provides instructions for accepting mixed waste, radioactive waste, and radioactive material for storage at RSWF. Appendix A serves as the record document to be maintained for each container going to that facility.</p> <p>RSWF-OI-004 provides the administrative requirements/process used by RSWF management for approving material transfer activities into and out of RSWF.</p> <p>TSD-OI-004 specifies requirements and provides instructions for accepting LLW and mixed LLW at the MFC treatment, storage, and disposal facilities.</p> <p>The facility completes a Liquid Waste Generator Certification Form (no form number on the form), which is featured as Appendix C of RL-OI-1.</p>
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	See K. above.

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	See K. above.
<p>L. <u>Packaging and Transportation</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].</p>	DOE Manual 435.1-1 §I.1.E(11) applies to field element managers.
<p>(1) Packaging. If containers are used: From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repack the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.)</p>	MCP-17000 §4 addresses packaging requirements.
<p>(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.</p>	See (1) above.
<p>(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.</p>	See (1) above.
<p>(c) Containers of low-level waste shall be marked such that their contents can be identified.</p>	See (1) above.
<p>(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized.</p>	NA; waste is not shipped to an offsite facility for final disposition from this facility.

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.</p>	
<p>M. <u>Site Evaluation and Facility Design</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>NA; this requirement addresses new radioactive waste management facilities.</p>
<p>(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.</p>	<p>See M. above.</p>
<p>(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:</p>	<p>See M. above.</p>
<p>1 Located to accommodate the projected volume of waste to be received;</p>	<p>See M. above.</p>
<p>2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and</p>	<p>See M. above.</p>
<p>3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.</p>	<p>See M. above.</p>
<p>(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.</p>	<p>See M. above.</p>
<p>(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.</p>	<p>See M. above.</p>
<p>(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:</p>	<p>See M. above.</p>
<p>(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.</p>	<p>See M. above.</p>
<p>(b) Ventilation.</p>	<p>See M. above.</p>

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.</p>	<p>See M. above.</p>
<p>(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.</p>	<p>See M. above.</p>
<p>(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.</p>	<p>See M. above.</p>
<p>N. <u>Storage and Staging</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].</p>	<p>DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.</p>
<p>(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(2) Storage Limit. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>in the radioactive waste management basis for the facility in which the storage will take place.</p> <p><u>Mixed waste.</u> Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <ol style="list-style-type: none"> 1) the radioactive waste management basis allows for storage for no more than one year. 2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis. 3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives. 4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a 	

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(4) Waste Characterization for Storage.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
established at the applicable Field Element.	
<p>(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p>
<p>(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.</p>	<p>Routine LLW, such as personnel protective equipment, is accumulated at this facility for disposal. MCP-17000, Appendix F restricts staging LLW to 90 days maximum at any generator or treatment facility prior to acceptance by a storage facility.</p> <p>As stated in DOE Guide 435.1-1 §IV.N.(7), staging waste in accordance with this requirement allows waste to be accumulated without being considered storage and being bound by the associated storage requirements.</p>
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV:</p>	<p>NA; this facility does not treat LLW.</p>

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.	
P. <u>Disposal</u> . Low-level waste disposal facilities shall meet the following requirements.	NA; this facility does not dispose of LLW.
(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:	See P. above.
(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.	See P. above.
(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.	See P. above.
(c) Release of radon shall be less than an average flux of 20 pCi/m ² /s (0.74Bq/m ² /s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.	See P. above.
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	See P. above.
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected	See P. above.

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future	See P. above.

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.	
(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.	See P. above.
(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.	See P. above.
(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	See P. above.
(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	See P. above.
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level	See P. above.

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.</p>	
<p>(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements include:</p>	See P. above.
<p>(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.</p>	See P. above.
<p>(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.</p>	See P. above.
<p>(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.</p>	See P. above.
<p>(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.</p>	See P. above.
<p>(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.</p>	See P. above.
<p>(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design</p>	See P. above.

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this facility does not dispose of LLW.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	DOE Manual 435.1-1 §I.1.E(7) applies to field element managers.
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter IV:</p> <p>The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the "routine sheet" and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>
(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.	NA; this facility does not store liquid LLW.
(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the	NA; this facility does not dispose of LLW.

Table 8. (continued).

MFC-765, Fuels Conditioning Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.	
(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.	See (3) above.
(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.	See (3) above.
(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.	See (3) above.

4.6 MFC-771, Radioactive Scrap and Waste Facility

1. **Facility description:** RSWF, established in 1965 for storage of RH mixed waste, is outdoors. There are no permanent buildings. The facility is approximately 388 × 448 ft (4 acres) and is entirely enclosed by a fence. Sealed carbon-steel liners are buried vertically in the ground in bored holes such that the top of the liners protrude approximately 4 in. above ground. Prior to placing the liners in the storage area, several feet of gravel and soil were placed over the storage area and graded to slope gently from the centerline to the parallel sides, which were banked with gravel. This grade promotes run-off, reducing percolation, and serves to prevent run-on into the area.

RSWF is designed with a grid of 27 rows spaced 12 ft apart with approximately 50 storage sites per row. The storage liners are arranged on 6-ft centers in the rows. The volume capacity, based on the size of the waste containers that are placed in storage, is approximately 53,000 gal. This assumes that approximately 1,320 of the liner sites are usable for mixed waste storage.

There are three primary sizes of storage liners containing HW/mixed waste currently located in RSWF. They are 16 in., 24 in., and 26 in. in diameter.

Waste is not placed directly in the carbon steel liners, but rather is placed in containers that are transferred into the liners. Shielding is provided by placing a 30-in. concrete or 6-in. steel shield plug in the liner and welding it to the top of the liner, as applicable.

2. **Hazard category:** Hazard Category 2 non-reactor nuclear facility
3. **Radioactive waste managed at this facility:** RH TRU, RH mixed TRU, RH LLW and RH mixed LLW are stored at this facility.

4. **RWMB documents/programs:**

a. Safety basis/hazard analysis:

- SAR-407, “Safety Analysis Report for the Radioactive Scrap and Waste Facility (MFC-771)”
- LST-305, “Safety Basis List for the Materials and Fuels Complex (MFC) Radioactive Scrap and Waste Facility (RSWF)”
- IAG-264, “INL Authorization Agreement for the Materials and Fuels Complex (MFC) Radioactive Scrap and Waste Facility (RSWF)”

b. Laboratory-wide:

- Form 441.A34, “INL Radiological Control Required Surveys”
- LI-435, “Waste Management Routine Field Activities”
- LRD-15001, “Radiological Control Manual”
- LWP-8300, “Transuranic Waste Handling”
- LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
- LWP-14002, “Timeout and Stop Work Authority”
- LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
- LWP-17000, “Waste Management”
- MCP-139, “Radiological Surveys”
- MCP-17000, “Waste Generator Services Waste Management”
- MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
- PDD-17000, “Waste Management Program”
- PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
- PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”
- PLN-8300, “Materials and Fuels Complex Contact-Handled TRU Waste Certification Program Plan”

c. Facility-specific:

- ANL-NT-192, “The Defense Programs Origin of Transuranic Waste at Argonne National Laboratory-West, H. F. McFarlane, 11/1/2001”
- RSWF-OI-003, “Material Acceptance for Storage”
- RSWF-OI-004, “Administrative Requirements/Process for Material Transfers”
- RSWF-OI-006, “Maintenance and Surveillance Requirements”
- INL/EXT-10-17600, *Process Knowledge Summary Report for Materials and Fuels Complex Contact-handled Transuranic Waste*
- PER-116, “HWMA/RCRA Storage and Treatment Permit for the Materials and Fuels Complex”
- SD-38.1.1, “Treatment, Storage, and Disposal Facilities (TSDF) Environmental Compliance”
- TSD-OI-004, “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control”

TRU waste and LLW are managed at this facility. Table 9 shows the facility compliance information for DOE Manual 435.1-1, Chapter III, “Transuranic Waste Requirements,” and Table 10 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 9. MFC-771, Radioactive Scrap and Waste Facility, DOE Manual 435.1-1 transuranic waste requirements and facility compliance information.

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
<p>A. <u>Definition of Transuranic Waste.</u> Transuranic waste is radioactive waste containing more than 100 nanocuries (3700 becquerels) of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years, except for:</p> <p>(From DOE G 435.1-1 Chapter III: The determination of transuranic waste should be made at the time of waste certification, that is, each time the waste is transferred to another person or facility.)</p>	<p>This requirement proves the criteria for determining which DOE radioactive waste is to be managed as TRU waste in accordance with DOE Manual 435.1-1, Chapter III.</p> <p>See J. below.</p>
(1) High-level radioactive waste;	See A. above.
(2) Waste that the Secretary of Energy has determined, with the concurrence of the Administrator of the Environmental Protection Agency, does not need the degree of isolation required by the 40 CFR Part 191 disposal regulations; or	See A. above.
(3) Waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with 10 CFR Part 61.	See A. above.
<p>B. <u>Management of Specific Wastes.</u> The following provide for management of specific wastes as transuranic waste in accordance with the requirements in this Chapter:</p> <p>From DOE G 435.1-1 Chapter III: Compliance with these requirements is demonstrated if RCRA, state-hazardous, and TSCA-regulated radioactive wastes are being managed in compliance with applicable requirements and agreements or in accordance with a consent order, and consistent with the Transuranic Waste Requirements of DOE M 435.1-1.</p>	See below.
(1) Mixed Transuranic Waste. Transuranic waste determined to contain both a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, and a radioactive component subject to the <i>Atomic Energy Act of 1954</i> , as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	<p>Mixed TRU waste is managed at this facility.</p> <p>This facility has a HWMA/RCRA permit to store mixed waste (PER-116).</p>
(2) TSCA-Regulated Waste. Transuranic waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i> , as amended, DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	NA; TSCA-regulated TRU waste is not managed at this facility.

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
<p>(3) Pre-1970 Transuranic Waste. Transuranic waste disposed of prior to implementation of the 1970 Atomic Energy Commission Immediate Action Directive regarding retrievable storage of transuranic waste is not subject to the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; pre-1970 TRU waste is not managed at this facility.</p>
<p><u>C. Complex-Wide Transuranic Waste Management Program.</u> A complex-wide program and plan shall be developed as described under <i>Responsibilities</i>, 2.B and 2.D, in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by the presence of a Complex-Wide Transuranic Waste Management Program which includes the appropriate interfaces, technical information, data inputs, and other elements described in Chapter I of this Manual.</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.</p>
<p><u>D. Radioactive waste management basis.</u> Transuranic waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated if, the radioactive waste management basis is documented and signed by the Field Element manager or a designee (see DOE M 435.1-1, Section I.1.A, Delegation of Authority) for each transuranic waste management facility, operation, or activity. Using a graded approach, it may be possible to include multiple activities under a single radioactive waste management basis, but it should be possible to objectively identify which activities are covered. Further, the radioactive waste management basis includes or references the controls that are established on a facility-specific basis to address the unique waste management requirements and circumstances for each facility, operation, and/or activity.</p>	<p>The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste.</p> <p>This facility is a Hazard Category 2 non-reactor nuclear facility (SAR-407). The facility's safety basis list and approval are identified in LST-305 and IAG-264.</p>
<p>(1) Generators. The waste certification program.</p> <p>From DOE G 435.1-1 Chapter III: For a facility that generates transuranic waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.</p>	<p>NA; this facility does not generate TRU waste.</p>

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
<p>(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic]</p> <p>From DOE G 435.1-1 Chapter III: Facilities that store or treat transuranic waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section III.G) prior to the issuance of a radioactive waste management basis. The waste acceptance requirements will usually suffice as documentation of the radiological, physical, and chemical limitations on waste that can be safely received at the facility, provided they are developed correctly with consideration of the hazards of the waste to be managed, and are kept up to date. Controls on the radiological, physical and chemical limitations need to include considerations of the potential effects of radiolysis.</p> <p>A facility that stores or treats waste is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel should implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>NA; waste is not treated at this facility.</p>
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter III: Facilities that store or treat transuranic waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section III.G) prior to the issuance of a radioactive waste management basis. The waste acceptance requirements will usually suffice as documentation of the radiological, physical, and chemical limitations on waste that can be safely received at the facility, provided they are developed correctly with consideration of the hazards of the waste to be managed, and are kept up to date. Controls on the radiological, physical and chemical limitations need to include considerations of the potential effects of radiolysis.</p> <p>A facility that stores or treats waste is generally</p>	<p>See G. and J. below.</p> <p>LWP-8300 addresses the use of the IWTS to track waste inventory.</p> <p>RSWF-OI-003 §3.2 indicates that waste must be tracked using IWTS.</p>

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
<p>expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel should implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(4) Disposal Facilities. The performance assessment, disposal authorization statement, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with these requirements is demonstrated by having adequate spare capacity and transfer equipment exists for emergency transfers of all liquid transuranic waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p> <p>The HWMA/RCRA permit also includes a contingency plan (PER-116, Attachment 7, § G).</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving liquid transuranic waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated transuranic waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not store or treat liquid TRU waste in tanks.</p>
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of liquid waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not store or treat liquid TRU waste in tanks.</p>

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter III: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility's or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system exists which addresses noncompliant or hazardous situations associated with transuranic waste management and in a systematic fashion, and allows identification of problems by all personnel.</p>	<p>See F. above.</p> <p>This facility has a HWMA/RCRA permit to store and treat mixed waste.</p> <p>Corrective actions for waste regulated under this permit are addressed as permit conditions.</p> <p>PER-116, Module VI</p> <p>PER-116, Attachment 4</p> <p>SD-38.1.1 §§ 2.4 and 6; Appendix A</p>
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by documented evidence of systematic, routine reviews to determine whether waste management activities and facilities under are operating in accordance with an approved radioactive waste management basis. In addition, the documentation should show that limitations (which may include shutdown) have been placed on activities and operations that do not have or are operating outside the conditions of an approved radioactive waste management basis.</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.</p>
<p>G. <u>Waste Acceptance</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.</p>
<p>(1) Technical and Administrative. Waste acceptance requirements for all transuranic waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p>	<p>See below.</p>

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter III: Compliance with these requirements is demonstrated if waste acceptance requirements are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the transuranic waste. Waste acceptance requirements are to also contain a clear description of the process and bases for obtaining an exception or deviation to the acceptance criteria for transuranic waste to be received at the facility.</p>	
<p>(a) Allowable activities and/or concentrations of specific radionuclides;</p>	<p>LWP-8300 RSWF-OI-003 § 4</p>
<p>(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal;</p>	<p>LWP-8300 RSWF-OI-003 § 4 PER-116, Module II.C and V PER-116, Attachment 1, §§ B-2(a), D-1(a); Attachment 2, § C-2(a) SD-38.1.1, Appendix A and Appendix E</p>
<p>(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance;</p>	<p>LWP-8300 RSWF-OI-003 § 4 PER-116, Module II.C and V PER-116, Attachment 1, §§ B-2(a), D-1(a); Attachment 2, § C-2(a) SD-38.1.1, Appendix A and Appendix E</p>
<p>(d) Requirement to identify transuranic waste as defense or non-defense, and limitations on acceptance; and</p>	<p>The remote-handled TRU waste is expected to be defense waste (INL/EXT-10-17600 and ANL-NT-192). The Waste Isolation Pilot Plant Central Characterization Project prepares the acceptable knowledge documentation for the remote-handled TRU waste. This documentation also relies heavily on ANL-NT-192.</p>
<p>(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved.</p>	<p>A letter from the site manager granting permission to accept waste that does not meet the waste acceptance requirements is needed. However, this process is not documented.</p> <p>COMPLIANCE CONSIDERATION</p> <p>Evaluate whether this requirement needs to be addressed in the</p>

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
	facility's WAC and procedure.
<p>(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with these requirements is demonstrated if there is a procedure or process for evaluating and accepting incoming waste which ensures the acceptance criteria of the facility receiving the waste are met by one or a combination of: (1) testing, sampling, and analysis of representative samples of incoming waste upon receipt; (2) testing, sampling, and analysis of samples of waste taken at the generator facility; (3) evaluation of testing, sampling, and analysis of data provided by the generator; or (4) audits, reviews, or surveillances of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment, or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	<p>LWP-8300</p> <p>RSWF-OI-003 § 3</p> <p>PER-116, Module II.C and V</p> <p>PER-116, Attachment 1 § D-1(b); Attachment 2 § C-2(a)</p> <p>SD-38.1.1, Appendix A and Appendix E.</p> <p>Meeting permit and safety basis constraints are checked using an IWTS Material and Waste Characterization Profile.</p> <p>COMPLIANCE CONSIDERATION</p> <p>Evaluate whether non-conforming waste needs to be addressed in the facility's WAC and procedure.</p>
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all transuranic waste streams.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of [transuranic] waste prior to its generation, including the identification of [transuranic] wastes with no path to disposal and appropriate records justifying the newly generated [transuranic] waste stream(s), and site personnel possessing planning information showing the location(s) where [transuranic] waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the [transuranic] waste may be managed at those facilities.</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p>
<p>(2) Waste with No Identified Path to Disposal. Transuranic waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall</p>	<p>NA; this facility is not generating TRU waste that does not have an identified path to disposal.</p>

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
<p>address:</p> <p>From DOE G 435.1-1 Chapter III: Compliance with requirement is demonstrated by the waste generation organization having documentation concerning the decision to generate a transuranic waste stream that does not have an identified path to disposal. This documentation needs to include the cognizant Field Element Manager or designee approval to generate the waste, an explanation of the need for the process that generates the transuranic waste, a discussion of the reason it cannot be disposed of, the proposed management plan for the waste, and an up-to-date schedule of activities being pursued to resolve constraints to the disposal of the subject waste. Consistent with the use of a graded approach for applying DOE M 435.1-1 requirements, the schedule and plans for disposing of nondefense waste can defer to the complex-wide resolution of the issue.</p>	
(a) Programmatic need to generate the waste;	See (2) above.
(b) Characteristics and issues preventing the disposal of the waste;	See (2) above.
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
<p><u>I. Waste Characterization.</u> Transuranic waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of transuranic waste characterization data acquired through the use of direct or indirect methods.</p>	<p>LWP-8300</p> <p>RSWF-OI-003 § 4 and Appendix A</p> <p>PER-116, Module II.C</p> <p>PER-116, Attachment 2</p> <p>SD-38.1.1, Appendix A and Appendix E</p>
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage transuranic waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by the existence of a program or procedures for determining and records that document characterization of transuranic waste consistent with the minimum characterization data requirements.</p>	<p>LWP-8300 RSWF-OI-003 § 3, 4, and Appendix A PER-116, Module II.C PER-116, Attachment 2 SD-38.1.1, Appendix A, Appendix E, and IWTS Material and Waste Characterization Profile</p>
(a) Physical and chemical characteristics;	See I. and (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See I. and (2) above.
(c) Weight of the container and contents;	See I. and (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See I. and (2) above.
(e) Characterization date;	See I. and (2) above.
(f) Generating source;	See I. and (2) above.
(g) Packaging date; and	See I. and (2) above.
(h) Any other information which may be needed to prepare and maintain the disposal facility performance assessment or demonstrate compliance with applicable performance objectives.	See I. and (2) above.
<p>J. Waste Certification. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving transuranic waste for storage, treatment, or disposal are met.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when the appropriate personnel are trained, and have and follow the procedures that govern their part of the waste certification process. Acceptable performance also requires that the waste certification plan and procedures are current and controlled in accordance with a document control program, and records related to certification (e.g., certification statements, training</p>	<p>LWP-8300 PER-116 RSWF-OI-003 § 3, 4, and Appendix A RSWF-OI-003 § 1 states that “to the extent possible, the WAC for RSWF complies with the WAC for various treatment or disposal facilities that could be the ultimate destination of the waste. Since there is not a disposal facility with waste acceptance criteria for some of the types of waste stored at RSWF, compliance with this procedure does not ensure compliance with all transport systems or treatment/disposal facility acceptance criteria.” RSWF-OI-004</p>

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.	
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that each container of waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	See J. above.
<p>(2) Certification before Transfer. Transuranic waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	See J. above.
<p>(3) Maintaining Certification. Transuranic waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by the existence of a program or procedure reflecting this requirement and site personnel able to show that the storage of containers of waste is in a facility or manner where the containers are not damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	<p>See J. above.</p> <p>LWP-15011 §5 provides general radioactive storage area requirements.</p>

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of transuranic waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers are available and accurate, and that documented transfer of responsibility occurs.</p>	<p>RSWF-OI-004</p>
<p>(1) <u>Authorization</u>. Transuranic waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	<p>See K. above.</p>
<p>(2) <u>Data</u>. Waste characterization data, container information, and generation, storage, treatment, and transportation information for transuranic waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each waste transfer and documented records of transfers show that the information is being provided.</p>	<p>See K. above.</p>
<p>L. <u>Packaging and Transportation</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>See (1) and (2) below.</p>
<p>(1) <u>Packaging</u>.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with the packaging requirement is demonstrated by procedures which document proper packaging protocols, including documented evidence that, where feasible, non-defense transuranic waste has been packaged separately from defense transuranic waste and by never having to repackage transuranic waste</p>	<p>LWP-8300 RSWF-OI-003 § 4 PER-116, Module II.C and V PER-116, Attachment 1 § D-5 SD-38.1.1, Appendix A and Appendix E The remote-handled TRU waste is not segregated because all of</p>

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
that is packaged after issuance of DOE O 435.1 in order to maintain containment. However, the above protocol may not be satisfied by containers that were placed in storage prior to issuance of the DOE O 435.1. For those containers, the goal is to only have to repackage the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information. Successful performance of this requirement is also demonstrated by a record of container performance in which failure has not routinely occurred.	the waste is expected to be defense waste (INL/EXT-10-17600 and ANL-NT-192). The Waste Isolation Pilot Plant Central Characterization Project prepares the acceptable knowledge documentation for the remote-handled TRU waste. This documentation also relies heavily on ANL-NT-192.
(a) Transuranic waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste is removed from the container.	See (1) above.
(b) Vents or other mechanisms to prevent pressurization of containers or generation of flammable or explosive concentrations of gases shall be installed on containers of newly-generated waste at the time the waste is packaged. Containers of currently stored waste shall meet this requirement as soon as practical unless analyses demonstrate that the waste can otherwise be managed safely. From DOE G 435.1-1 Chapter III: In developing the radioactive waste management basis, site personnel need to consider the hazards associated with drums of transuranic waste which have not been provided with vents or been proven to not need vents through an approved safety analysis. For unvented containers in earthen-covered storage, the facility itself may mitigate the hazards associated with the accumulation of gases. For above-grade storage of transuranic waste containers, the radioactive waste management basis needs to include controls which mitigate the hazards associated with the accumulation of gases by restricting access to the storage area and providing equipment to protect against fire or explosion.	See (1) above. The storage containers, including the absence of venting, have been evaluated (SAR-407).
(c) When transuranic waste is packaged, defense waste shall be packaged separately from non-defense waste, if feasible.	See (1) above.
(d) Containers of transuranic waste shall be marked such that their contents can be identified.	See (1) above.
(2) Transportation. To the extent practical, the volume of waste and number of transuranic waste shipments shall be minimized.	NA; waste is not shipped for offsite disposal from this facility.

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
From DOE G 435.1-1 Chapter III: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that transuranic waste shipments are systematically planned and make optimal use of the shipment system (e.g., TRUPACT II) to the extent practical.	
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities or modifications to existing facilities.
(1) Site Evaluation. Proposed locations for transuranic waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new transuranic waste facility or expansion of an existing transuranic waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(2) Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Transuranic waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of transuranic waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations in treatment or storage facilities, ventilation or other measures shall be provided to keep the gases in a non-flammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing transuranic waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of transuranic waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of transuranic waste storage, treatment, and disposal facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
N. <u>Storage</u> . The following requirements are in addition to those in Chapter I of this Manual.	See below.
(1) Storage Prohibitions. Transuranic waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable. From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit waste that is ignitable or explosive from being accepted for storage unless it has been treated.	RSWF-OI-003 § 4 PER-116, Module II.C and V PER-116, Attachment 1 §D-1(a); Attachment 2 § C-2(a) SD-38.1.1, Appendix A and Appendix E The HWMA/RCRA permit (PER-116, Module V.B.1) allows ignitable (D001) and reactive (D003) hazardous waste to be stored. This waste was considered in the safety analysis (SAR-407). For the TRU waste generated at this facility, LWP-8300, addresses meeting receiving facility waste acceptance criteria and procedures.
(2) Storage Integrity. Transuranic waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure. From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated if sites have storage capabilities for transuranic waste that provide protection of waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where transuranic waste is stored.	RSWF-OI-003 § 4 PER-116, Module V PER-116, Attachment 1 § D-5 SD-38.1.1, Appendix A and Appendix E LWP-8300 LWP-15011 § 5 provides general radioactive storage area requirements. This waste was considered in the safety analysis (SAR-407).

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
<p>(3) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of transuranic waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by a documented process for waste container inspection and maintenance at every facility managing transuranic waste, and documentation for all waste container inspections and maintenance actions performed.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p> <p>LWP-8300</p> <p>LWP-15011 does not include a requirement for inspection.</p> <p>RSWF-OI-006 § 2.3 requires weekly inspection of the cathodic protection system.</p> <p>For mixed LLW:</p> <p style="padding-left: 40px;">PER-116, Module V.F</p> <p style="padding-left: 40px;">PER-116, Attachment 4, F-2(b)(3); Attachment F-3</p> <p style="padding-left: 40px;">SD-38.1.1, Appendix A and Appendix E.</p> <p>Although the permit addresses mixed waste only, the inspection of the cathodic protection system applies to the entire facility. Therefore, with state agreement, the cathodic protection system inspection provisions address all liners in the facility.</p>
<p>(4) Retrievable Earthen-Covered Storage. Plans for the removal of transuranic waste from retrievable earthen-covered storage facilities shall be established and maintained. Prior to commencing waste retrieval activities, each waste storage site shall be evaluated to determine relevant information on types, quantities, and location of radioactive and hazardous chemicals as necessary to protect workers during the retrieval process.</p>	<p>NA; this facility is not an earthen-covered storage facility.</p>
<p>O. Treatment. Transuranic waste shall be treated as necessary to meet the waste acceptance requirements of the facility receiving the waste for storage or disposal.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by the custodian of transuranic waste maintaining documentation which identifies the plans for treating waste, and maintaining the records that show waste was treated, if necessary, to meet the waste acceptance requirements of the storage or disposal facility to which it was transferred.</p>	<p>NA; treatment is not performed at this facility.</p>
<p>P. Disposal. Transuranic waste shall be disposed in accordance with the requirements of 40 CFR Part 191, <i>Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes.</i></p>	<p>NA; TRU waste is not disposed of at this facility.</p>
<p>Q. Monitoring. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>See (1), (2), and (3) below.</p>
<p>(1) All Waste Facilities. Parameters that shall be</p>	<p>Monitoring requirements at INL radioactive waste management</p>

Table 9. (continued).

MFC-771 Radioactive Scrap and Waste Facility	
Chapter III. Transuranic Waste Requirements	Facility Compliance Information
<p>sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter III: If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved, constitutes an exemption to the Manual.</p> <p>Verification activities are part of the radioactive waste management basis and are to be documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with an accuracy, precision, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>PER-116, Attachment 1 § D and Attachment 4 § F describe facility monitoring and inspection requirements.</p> <p>RSWF-OI-006 includes requirements for inspecting the cathodic protection system.</p> <p>SAR-407</p> <p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the “routine sheet” and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>
<p>(2) Stored Wastes. All transuranic wastes in storage shall be monitored, as prescribed by the appropriate facility safety analysis, to ensure the wastes are maintained in safe condition.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated if the monitoring requirements in the facility procedures include, at a minimum, monitoring the systems and parameters as indicated by the safety analysis.</p>	<p>SAR-407</p>
<p>(3) Liquid Waste Storage Facilities. For facilities storing liquid transuranic waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p> <p>From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by developing operational procedures for monitoring liquid transuranic waste storage tank liquid level, waste volume, and tank chemistry so that waste volume or chemistry changes are detected in a time frame that will allow implementation of corrective measures to limit public and worker doses and to mitigate unplanned releases of stored liquid waste.</p>	<p>These parameters are known for the NaK liquid waste stored at the facility. Additional waste with free liquids will not be accepted.</p> <p>The HWMA/RCRA permit (PER-116, Module V.B.4) prohibits storage of waste containing free liquids other than the NaK described at Module V.B.3.a.</p> <p>RSWF-OI-003 § 4.2.2 states that no free liquids (including NaK or mercury) are allowed in newly received waste.</p>

Table 10. MFC-771, Radioactive Scrap and Waste Facility, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>A. <u>Definition of Low-Level Waste</u>. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>(From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>This requirement provides the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See below.</p>
<p>(1) <u>Mixed Low-Level Waste</u>. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act (RCRA)</i>, as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>This facility is has a HWMA/RCRA permit to store mixed waste (PER-116).</p>
<p>(2) <u>TSCA-Regulated Waste</u>. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i>, as amended, DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not manage TSCA-regulated waste.</p>
<p>(3) <u>Accelerator-Produced Waste</u>. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual, and all applicable Federal or State requirements.</p>	<p>NA; this facility does not manage accelerator-produced waste.</p>
<p>(4) 11e.(2) and <u>Naturally Occurring Radioactive Material</u>. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.</p>	<p>NA; this facility does not manage naturally occurring radioactive material.</p>

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>C. <u>Complex-Wide Low-Level Waste Management Program</u>. A complex-wide program and plan shall be developed as described under <i>Responsibilities</i>, 2.B and 2.D, in Chapter I of this Manual.</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.</p>
<p>D. <u>Radioactive Waste Management Basis</u>. Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:</p>	<p>The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste.</p> <p>This facility is a Hazard Category 2 non-reactor nuclear facility (SAR-407). The facility's safety basis list and approval are identified in LST-305.</p> <p>IAG-264 documents DOE's approval of Battelle Energy Alliance's safety basis that is defined in LST-305.</p>
<p>(1) Generators. The waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.</p>	<p>NA; this facility does not generate LLW.</p>
<p>(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [<i>sic</i>]</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>NA; waste is not treated at this facility.</p>
<p>(3) Storage Facilities. The waste acceptance</p>	<p>See G. and J. below.</p>

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>MCP-17000 § 4 specifies the use of IWTS, which tracks the waste inventory.</p> <p>RSWF-OI-003 § 3.2 indicates that waste must be traced using IWTS.</p>
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p> <p>The HWMA/RCRA permit also includes a contingency plan (PER-116, Attachment 7 § G).</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform</p>	<p>NA; this facility does not store or treat liquid waste in tanks.</p>

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>NA; this facility does not store or treat liquid waste in tanks.</p>
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p>	<p>See F. above.</p> <p>This facility has a HWMA/RCRA permit to store and treat mixed LLW.</p> <p>Corrective actions for waste regulated under this permit are addressed as permit conditions.</p> <p>PER-116, Module VI</p> <p>PER-116, Attachment 4</p> <p>SD-38.1.1 § 2.4, 6, and Appendix A</p>

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.	
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.</p>	The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.
G. <u>Waste Acceptance</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
<p>(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.</p>	See below.
(a) Allowable activities and/or concentrations of specific radionuclides.	MCP-17000 RSWF-OI-003 § 4
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	MCP-17000 RSWF-OI-003 § 4 PER-116, Module II.C and V PER-116, Attachment 1 §§ B-2(a) and D-1(a); Attachment 2 § C-2(a)

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
	SD-38.1.1, Appendix A and Appendix E.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	MCP-17000 RSWF-OI-003 § 4 PER-116, Module II.C and V PER-116, Attachment 1 §§ B-2(a) and D-1(a); Attachment 2 § C-2(a) SD-38.1.1, Appendix A and Appendix E
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	NA; this facility is not a LLW disposal facility.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (d) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (d) above.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (d) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (d) above.
5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]	See (d) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved.	A letter from the site manager granting permission to accept waste that does not meet the waste acceptance requirements is needed. However, this process is not documented. COMPLIANCE CONSIDERATION

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.</p>	<p>Evaluate whether this requirement needs to be addressed in the facility's WAC and procedure.</p>
<p>(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	<p>MCP-17000 RSWF-OI-003 § 3 PER-116, Module II.C and V PER-116, Attachment 1 § D-1(b); Attachment 2 § C-2(a) SD-38.1.1, Appendix A and Appendix E Meeting permit and safety basis constraints are checked using an IWTS Material and Waste Characterization Profile. COMPLIANCE CONSIDERATION Evaluate whether non-conforming waste needs to be addressed in the facility's WAC and procedure.</p>
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p>

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
low-level waste may be managed at those facilities.	
(2) Waste with No Identified Path to Disposal. Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:	NA; this facility is not generating LLW that does not have an identified path to disposal.
(a) Programmatic need to generate the waste;	See (2) above.
(b) Characteristics and issues preventing the disposal of the waste;	See (2) above.
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
I. <u>Waste Characterization</u> . Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.	MCP-17000 RSWF-OI-003 § 4 and Appendix A PER-116, Module II.C PER-116, Attachment 2 SD-38.1.1, Appendix A and Appendix E
(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.	Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.
(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste: From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.	MCP-17000, including §§ 4.2, 4.3, and 4.4, provides waste characterization requirements. Information on absorbent media is required in §§ 4.5 and 4.7. MCP-17000 also specifies the use of IWTS, which documents characterization data in an IWTS profile. RSWF-OI-003 §3, 4, and Appendix A PER-116, Module II.C PER-116, Attachment 2 SD-38.1.1, Appendix A and Appendix E

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
	IWTS Material and Waste Characterization Profile
(a) Physical and chemical characteristics;	See I. and (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See I. and (2) above.
(c) Weight of the container and contents;	See I. and (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See I. and (2) above.
(e) Characterization date;	See I. and (2) above.
(f) Generating source; and	See I. and (2) above.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See I. and (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>MCP-17000 cites a waste certification program for LLW destined for NNSS. For waste destined for locations other than NNSS, the waste disposition specialist is responsible for certifying the waste stream by ensuring the waste, as characterized, falls within the limitations of the WAC of the treatment, storage, or disposal facility (§2).</p> <p>Container procurement is addressed in MCP-17000 § 4.6.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSS.</p> <p>RSWF-OI-003 § 3, 4, and Appendix A</p> <p>RSWF-OI-003 § 1 states that “to the extent possible, the WAC for RSWF complies with the WAC for various treatment or disposal facilities that could be the ultimate destination of the waste. Since there is not a disposal facility with waste acceptance criteria for some of the types of waste stored at RSWF, compliance with this procedure does not ensure</p>

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
	compliance with all transport systems or treatment/disposal facility acceptance criteria.”
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	<p>See J. above. MCP-17500 §§ 2 and 5 address certification records for shipments to NNSS.</p>
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above. MCP-17500 § 4.3.6 addresses controls for certification before transfer for LLW to be disposed of at NNSS.</p>
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	<p>See J. above. Pre-certification checklists are cited in MCP-17000 and MCP-17500. Surveillances also are addressed in MCP-17500.</p> <p>LWP-15011 §5 provides general radioactive storage area requirements.</p>
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following</p>	<p>MCP-17000 § 4.8.15 specifies requirements for interfacility transfers.</p> <p>MCP-17500 § 4 addresses LLW to be transferred to</p>

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>NNSS.</p> <p>RSWF-OI-004.</p>
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	<p>See K. above.</p>
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	<p>See K. above.</p>
<p><u>L. Packaging and Transportation.</u> The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].</p>	<p>See (1) and (2) below.</p>
<p>(1) Packaging. If containers are used:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repackage the waste one time after it is retrieved and</p>	<p>MCP-17000 § 4 addresses packaging requirements.</p> <p>RSWF-OI-003 § 4</p> <p>PER-116, Module II.C and V</p> <p>PER-116, Attachment 1 § D-5</p> <p>SD-38.1.1, Appendix A and Appendix E</p> <p>SAR-407</p>

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.	
(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.	See (1) above.
(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.	See (1) above.
(c) Containers of low-level waste shall be marked such that their contents can be identified.	See (1) above.
(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized. From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.	NA; waste is not shipped for offsite disposal from this facility.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities or modifications to existing facilities.
(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:	See M. above.
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.	See M. above.
(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.
N. <u>Storage and Staging</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste	MCP-17000 RSWF-OI-003 § 4 PER-116, Module II.C and V PER-116, Attachment 1 § D-1(a); Attachment 2 § C-2(a) SD-38.1.1, Appendix A and Appendix E

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.</p>	<p>The HWMA/RCRA permit (PER-116, Module V.B.1) allows ignitable (D001) and reactive (D003) hazardous waste to be stored.</p> <p>This waste was considered in the safety analysis (SAR-407).</p>
<p>(2) Storage Limit. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager.</p> <p>From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place.</p> <p><u>Mixed waste.</u> Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p>	<p>MCP-17000 § 4.8.16 addresses storage time limits and waste that is to be stored longer than 1 year.</p> <p>MCP-17000, Appendix F addresses storage time limits.</p> <p>RSWF-OI-003, Appendix A, “RSWF Material Acceptance Checksheet,” includes a requirement to note whether DOE Idaho Operations Office has approved LLW that is to be stored longer than 1 year and to provide supporting documentation.</p> <p>Storage longer than 1 year for mixed waste is allowable under the Site Treatment Plan.</p> <p>COMPLIANCE CONSIDERATION</p> <p>DOE approval for storage longer than 1 year will be requested for continued storage of the remote-handled legacy LLW.</p>

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>1) the radioactive waste management basis allows for storage for no more than one year.</p> <p>2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis.</p> <p>3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>From DOE G 435.1-1 Chapter IV: However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	<p>MCP-17000</p> <p>RSWF-OI-003 § 4</p> <p>PER-116, Module V</p> <p>PER-116, Attachment 1 § D-5</p> <p>SD-38.1.1, Appendix A and Appendix E.</p> <p>This waste is considered in the safety analysis (SAR-407).</p>

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(4) Waste Characterization for Storage.	See below.
(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.	RSWF-OI-003 § 1 states that “to the extent possible, the WAC for RSWF complies with the WAC for various treatment or disposal facilities that could be the ultimate destination of the waste. Since there is not a disposal facility with waste acceptance criteria for some of the types of waste stored at RSWF, compliance with this procedure does not ensure compliance with all transport systems or treatment/disposal facility acceptance criteria.”
(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.	MCP-17000 RSWF-OI-003 § 4 PER-116, Module V.G PER-116, Attachment 1 § D; Attachment 2 SD-38.1.1, Appendix A and Appendix E
(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.	LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year. MCP-17000 For mixed LLW: RSWF-OI-006 § 2.3 requires weekly inspection of the cathodic protection system. PER-116, Module V.F PER-116, Attachment 4, F-2(b)(3); Attachment F-3. (this attachment includes examples of facility-specific inspection forms to be used) SD-38.1.1, Appendix A and Appendix E. LWP-15011 does not include a requirement for inspection.
(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.	Waste is segregated by container. MCP-17000 § 4.7, requires the use of a unique IWTS bar code for each container. RSWF-OI-003 § 4.1.5
(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and	NA; LLW is not staged at this facility.

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.</p>	
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	NA; treatment is not performed at this facility.
<p>P. <u>Disposal</u>. Low-level waste disposal facilities shall meet the following requirements.</p>	NA; LLW is not disposed of in this facility.
<p>(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:</p>	See P. above.
<p>(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.</p>	See P. above.
<p>(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv)</p>	See P. above.

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
in a year total effective dose equivalent, excluding the dose from radon and its progeny.	
(c) Release of radon shall be less than an average flux of 20 pCi/m ² /s (0.74Bq/m ² /s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.	See P. above.
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	See P. above.
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	See P. above.
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.	See P. above.
(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional	See P. above.

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.	
(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.	See P. above.
(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	See P. above.
(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	See P. above.
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	See P. above.
(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves	See P. above.

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements include:	
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	See P. above.
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	See P. above.
(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	See P. above.
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; LLW is not disposed of in this facility.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility	See Q. above.

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	See (1), (2), and (3) below.
(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed. From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation	Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities. PER-116, Attachment 1 § D and Attachment 4 § F describe facility monitoring and inspection requirements. RSWF-OI-006 includes requirements for inspecting the cathodic protection system. SAR-407

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the “routine sheet” and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>
<p>(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p>	<p>These parameters are known for the NaK liquid waste stored at the facility. Additional waste with free liquids will not be accepted.</p> <p>The HWMA/RCRA permit (PER-116, Module V.B.4) prohibits storage of waste containing free liquids, other than the NaK described at Module V.B.3.a.</p> <p>RSWF-OI-003 § 4.2.2 states that no free liquids (including NaK or mercury) are allowed in newly received waste.</p>
<p>(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.</p>	<p>NA; LLW is not disposed of in this facility.</p>
<p>(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.</p>	<p>See (3) above.</p>
<p>(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.</p>	<p>See (3) above.</p>

Table 10. (continued).

MFC-771, Radioactive Scrap and Waste Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.	See (3) above.

4.7 MFC-774, Electron Microscopy Laboratory

1. **Facility description:** MFC-774, Electron Microscopy Laboratory, is a user facility dedicated to materials characterization using as its primary tools, electron and optical microscopy. The Electron Microscopy Laboratory is located within MFC at INL. MFC-774 is a radiological materials area, permitting characterization work to be performed on both radioactive and non-radioactive materials. A limited number of microscopy laboratories in the country provide this unique capability, making the Electron Microscopy Laboratory an enviable laboratory for research (internal and external to the DOE complex) for characterization of radioactive materials. A portion of the laboratory is dedicated to sample preparation, providing the researcher with facilities support, equipment, safety systems, and procedures to prepare samples of diverse materials for analysis.

The three primary instruments in MFC-774 are a JEOL 2010 scanning transmission electron microscope, a JEOL JSM-7000f scanning electron microscope, and a Fixed Ion Beam microscope. The transmission electron microscope is capable of operating at 200 kV and is capable of magnifications from 2,000 to 1,500,000 X. It is equipped with an Oxford Instruments energy dispersive x-ray spectrometer that can be used to gather information about the elemental make-up of a sample. Crystallographic information can be obtained by recording the diffraction patterns formed by electrons as they pass through the sample.

The JEOL scanning electron microscope is a field emission instrument capable of operating at 30 kV and is capable of magnifications from 15 to 500,000 X. It is equipped with Oxford Instruments energy dispersive and wavelength dispersive x-ray spectrometers that can be used to obtain quantitative information about the elemental composition of a sample. It also is equipped with an electron back scattered diffraction camera that can be used to obtain crystallographic information about a sample by recording the diffraction patterns formed by electrons when they tunnel through a sample at glancing angles.

The Zeiss scanning electron microscope is capable of operating at 30 kV and is capable of magnifications from 6 to 200,000 X. It is equipped with Oxford Instruments energy dispersive and wavelength dispersive x-ray spectrometers and an electron back scattered diffraction camera.

The Fixed Ion Beam microscope is similar to a scanning electron microscope except it also uses an ion milling process (internal to the machine) to section samples for further examination.

In addition to the transmission electron microscope and scanning electron microscope, MFC-774 also has several optical microscopes. Some of these are used to support sample preparation and others are used for optical characterization of samples.

Capabilities for sample preparation include cutting, grinding, and polishing, as well as specialized methods such as ultramicrotomy (cutting ultrathin slices of material with a special machine using a diamond knife); chemical and ion milling to produce thin, electron-transparent samples; etching; and coating. Fume hoods (radiological and non-radiological) and a glovebox are available to protect workers and the environment from hazardous materials.

Activities and projects that have used or are currently using resources in MFC-774 include the Spent Fuel Treatment Project of the Advanced Fuel Cycle Initiative, the Reduced Enrichment Research and Test Reactor project, the Radioisotope Power Source Program, and a variety of other activities that examine irradiated steels, experimental reactor fuels, waste forms, and waste materials. The types of analyses performed include microstructure and chemical analysis, crystallographic analysis, failure analysis, and microhardness and fracture toughness analysis. Since MFC-774 is a user facility, each program defines and manages its own quality assurance requirements. Facility management provides work control and safety oversight to safely and efficiently conduct simultaneous operations.

2. **Hazard category:** LTHC3
3. **Radioactive waste managed at this facility:** CH LLW and mixed CH LLW are generated and staged at this facility.
4. **RWMB documents/programs:**
 - a. Safety basis/hazard analysis:
 - EDF-7030, “Inventory Analysis of Radiological Facilities at the Materials and Fuels Complex (MFC)”
 - b. Laboratory-wide:
 - Form 435.39, “Waste Determination and Disposition Form (WDDF)”
 - Form 435.42, “Radioactive Waste Inventory Sheet”
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - LI-435, “Waste Management Routine Field Activities”
 - LRD-15001, “Radiological Control Manual”
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”
 - LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
 - LWP-17000, “Waste Management”
 - MCP-139, “Radiological Surveys”
 - MCP-17000, “Waste Generator Services Waste Management”
 - MCP-17410, “Management of Waste Storage Areas”
 - MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
 - PDD-17000, “Waste Management Program”
 - PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
 - PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”
 - c. Facility-specific:
 - EML-OI-416, “Circulating, Sampling, and Draining of Suspect Liquid Waste in EML (Bldg. 774) Holding Tanks”
 - LI 1219-07-MFC, “Sample Preparation in the Electron Microscopy Laboratory”
 - SD-38.1.1, “Treatment, Storage, and Disposal Facilities (TSDF) Environmental Compliance”
 - TSD-OI-004, “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control.”

LLW is managed at this facility. Table 11 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 11. MFC-774, Electron Microscopy Laboratory, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>A. <u>Definition of Low-Level Waste</u>. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>(From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>This requirement provides the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See below.</p>
<p>(1) <u>Mixed Low-Level Waste</u>. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>This facility may manage mixed LLW.</p> <p>Compliance with RCRA regulations is addressed by WGS in its waste management services role in MCP-17000.</p> <p>LI 1219-07-MFC § 2, Table 2.03 and § 5 address generation of mixed LLW and accumulation in an SAA.</p> <p>Individual projects also would have project-specific laboratory instructions that would address the management of mixed LLW in accordance with RCRA regulations.</p>
<p>(2) <u>TSCA-Regulated Waste</u>. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i>, as amended, DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not manage TSCA-regulated waste.</p>
<p>(3) <u>Accelerator-Produced Waste</u>. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual, and all applicable Federal or State requirements.</p>	<p>NA; this facility does not manage accelerator-produced waste.</p>
<p>(4) <u>11e.(2) and Naturally Occurring Radioactive Material</u>. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material</p>	<p>NA; this facility does not manage naturally occurring radioactive material.</p>

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.	
C. <u>Complex-Wide Low-Level Waste Management Program</u> . A complex-wide program and plan shall be developed as described under <i>Responsibilities</i> , 2.B and 2.D, in Chapter I of this Manual.	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.
D. <u>Radioactive Waste Management Basis</u> . Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:	The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste. This facility is a LTHC3 facility (EDF-7030).
(1) Generators. The waste certification program. From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.	See J. below.
(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [<i>sic</i>] From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis. A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis. As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.	NA; LLW is not treated at this facility. Containerized elementary neutralization is performed at this facility as provided by LWP-8000. As stated in § 4.118, elementary neutralization of corrosive hazardous waste may take place at any location at which the waste is generated or stored, and neither a generator treatment plan nor a permit is required. Solidification of liquid LLW for the purpose of staging (not for treating the radioactive constituents) also may be performed. Therefore, this facility is not considered to be a treatment facility.

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>NA; this facility stages waste in accordance with N.(7) to facilitate treatment or disposal, but does not store LLW.</p>
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste</p>	<p>NA; liquid LLW is not stored or treated in a tank system at this facility.</p>

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.	
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	NA; liquid LLW is not stored or treated in a tank system at this facility.
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a</p>	See F. above.

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.	
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.</p>	The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.
G. <u>Waste Acceptance</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
<p>(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.</p>	NA; this facility generates LLW but does not receive radioactive waste from other sources.
(a) Allowable activities and/or concentrations of specific radionuclides.	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	See (1) above.

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	NA; this facility is not a LLW disposal facility.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (d) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (d) above.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (d) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (d) above.
5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]	See (d) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved. From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.	NA; this facility does not accept waste from other facilities.
(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the	NA; this facility does not accept waste from other facilities.

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) <u>Life-Cycle Planning</u>. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p> <p>LI 1219-07-MFC § 2, Table 2.03 lists the waste anticipated to be generated, the container type, and disposal method.</p> <p>LI 1219-07-MFC § 2 states that WGS should be contacted if a waste generating process will result in a new radioactive or mixed waste to verify that the waste has an approved path forward.</p> <p>Laboratory instructions also are prepared for specific tasks and projects. These laboratory instructions would include descriptions of expected waste and disposition plans.</p>
<p>(2) <u>Waste with No Identified Path to Disposal</u>. Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:</p>	<p>NA; this facility is not generating LLW that does not have an identified path to disposal.</p>
<p>(a) Programmatic need to generate the waste;</p>	<p>See (2) above.</p>
<p>(b) Characteristics and issues preventing the disposal of the waste;</p>	<p>See (2) above.</p>

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
<p>I. <u>Waste Characterization</u>. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.</p>	<p>MCP-17000 addresses waste characterization.</p> <p>LI 1219-07-MFC § 2, Table 2.03 states that the facility's mixed LLW is stored in an SAA until the waste is ready for disposition by WGS. SAAs are addressed in MCP-17410 and characterization is addressed in MCP-17000 § 4.3.</p> <p>LI 1219-07-MFC § 2, Table 2.03 indicates that suspect liquid waste is contained in a tank. EML-OI-416 is being prepared to address suspect liquid waste.</p> <p>Disposal of the facility's rinse water generated in the radiological contamination area to industrial waste or to the RLWTF will be based on sampling and analysis.</p>
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.</p>	<p>MCP-17000, including §§ 4.2, 4.3, and 4.4, provides waste characterization requirements. Information on absorbent media is required in §§ 4.5 and 4.7. MCP-17000 also specifies the use of IWTS, which documents characterization data in an IWTS profile.</p>
(a) Physical and chemical characteristics;	See I. and (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See I. and (2) above.
(c) Weight of the container and contents;	See I. and (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See I. and (2) above.
(e) Characterization date;	See I. and (2) above.

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
(f) Generating source; and	See I. and (2) above.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See I. and (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>MCP-17000 cites a waste certification program for LLW destined for NNSS. For waste destined for locations other than NNSS, the waste disposition specialist is responsible for certifying the waste stream by ensuring the waste, as characterized, falls within the limitations of the WAC of the treatment, storage, or disposal facility (§ 2).</p> <p>Container procurement is addressed in MCP-17000 § 4.6.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSS.</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	See J. above. MCP-17500 §§ 2 and 5 address certification records for shipments to NNSS.

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above. MCP-17500 § 4.3.6 addresses controls for certification before transfer for LLW to be disposed of at NNSS.</p>
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	<p>See J. above. Pre-certification checklists are cited in MCP-17000 and MCP-17500. Surveillances also are addressed in MCP-17500.</p> <p>LWP-15011 § 5 provides general radioactive storage area requirements.</p>
<p>K. Waste Transfer. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>MCP-17000 § 4.8.15 specifies requirements for interfacility transfers.</p> <p>TSD-OI-004 includes MFC-703 and MFC-797 requirements for receiving transferred waste.</p> <p>MCP-17500 § 4 addresses LLW to be transferred to NNSS.</p>
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having</p>	<p>See K. above.</p>

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.	
(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.	See K. above.
L. <u>Packaging and Transportation</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].	See (1) and (2) below.
(1) Packaging. If containers are used: From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repack the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.	MCP-17000 § 4 addresses packaging requirements.
(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.	See (1) above.
(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.	See (1) above.
(c) Containers of low-level waste shall be marked such that their contents can be identified.	See (1) above.
(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments	MCP-17000 § 4 addresses transportation. The waste disposition specialist coordinates with packaging and

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>shall be minimized.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.</p>	<p>transportation personnel for waste shipped offsite from this facility.</p> <p>Waste is shipped directly to NNSS from this facility. MCP-17500 specifies waste certification official and waste disposition specialist responsibilities and coordination with packaging and transportation personnel.</p>
<p>M. <u>Site Evaluation and Facility Design</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>NA; this requirement addresses new radioactive waste management facilities or modifications to existing facilities.</p>
<p>(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.</p>	<p>See M. above.</p>
<p>(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:</p>	<p>See M. above.</p>
<p>1 Located to accommodate the projected volume of waste to be received;</p>	<p>See M. above.</p>
<p>2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and</p>	<p>See M. above.</p>
<p>3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.</p>	<p>See M. above.</p>
<p>(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.</p>	<p>See M. above.</p>
<p>(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.</p>	<p>See M. above.</p>
<p>(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:</p>	<p>See M. above.</p>
<p>(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.</p>	<p>See M. above.</p>
<p>(b) Ventilation.</p>	<p>See M. above.</p>

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.</p>	See M. above.
<p>(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.</p>	See M. above.
<p>(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.</p>	See M. above.
<p>N. <u>Storage and Staging</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].</p>	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
<p>(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.</p>	NA; LLW is not stored at this facility.
<p>(2) Storage Limit. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager.</p> <p>From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place.</p>	NA; LLW is not stored at this facility.

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p><u>Mixed waste.</u> Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <ol style="list-style-type: none"> 1) the radioactive waste management basis allows for storage for no more than one year. 2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis. 3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives. 4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of 	

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>From DOE G 435.1-1 Chapter IV: However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	NA; LLW is not stored at this facility.
<p>(4) Waste Characterization for Storage.</p>	NA; LLW is not stored at this facility.
<p>(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.</p>	See (4) above.
<p>(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.</p>	See (4) above.
<p>(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container</p>	LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.</p>	<p>Inspections are performed for TAAs and SAAs as required by WGS procedures (MCP-17000 and MCP-17410).</p>
<p>(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.</p>	<p>NA; LLW is not stored at this facility.</p>
<p>(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.</p>	<p>LLW and mixed LLW is staged for the purpose of accumulation to facilitate treatment and disposal. Mixed LLW is staged in SAAs in accordance with MCP-17000 and MCP-17410. LLW is staged in TAAs in accordance with MCP-17000 and MCP-17410.</p> <p>MCP-17000, Appendix F restricts staging LLW to 90 days maximum at any generator or treatment facility prior to acceptance by a storage facility.</p> <p>LI 1219-07-MFC § 2, Table 2.03 states that the facility's mixed LLW is stored in an SAA until the waste is ready for disposition by WGS.</p> <p>Individual projects also would have project-specific laboratory instructions that would address the management of mixed LLW in accordance with RCRA regulations.</p>
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	<p>NA; treatment is not performed in this facility.</p> <p>Containerized elementary neutralization is performed at this facility as provided by LWP-8000. As stated in § 4.118, elementary neutralization of corrosive hazardous waste may take place at any location at which the waste is generated or stored, and neither a generator treatment plan nor a permit is required. Solidification of liquid LLW for the purpose of staging (not for treating the radioactive constituents) also may be performed. Therefore, this facility is not considered to be a treatment facility.</p>

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
P. <u>Disposal</u> . Low-level waste disposal facilities shall meet the following requirements.	NA; LLW is not disposed of in this facility.
(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:	See P. above.
(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.	See P. above.
(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.	See P. above.
(c) Release of radon shall be less than an average flux of 20 pCi/m ² /s (0.74Bq/m ² /s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.	See P. above.
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	See P. above.
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	See P. above.
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond	See P. above.

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the	See P. above.

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
need for future corrective or remedial actions to adequately protect the public and the environment.	
(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.	See P. above.
(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.	See P. above.
(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	See P. above.
(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	See P. above.
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and	See P. above.

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	
(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements include:	See P. above.
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	See P. above.
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	See P. above.
(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	See P. above.
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; LLW is not disposed of in this facility.

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	See (1), (2), and (3) below.

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility’s radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the “routine sheet” and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>
<p>(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p>	<p>NA; liquid waste is not stored at this facility.</p>
<p>(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.</p>	<p>NA; LLW is not disposed of in this facility.</p>

Table 11. (continued).

Facility Name: MFC-774, Electron Microscopy Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.	See (3) above.
(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.	See (3) above.
(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.	See (3) above.

4.8 MFC-775, Zero Power Physics Reactor Workroom

1. **Facility description:** MFC-775, the ZPPR vault/workroom, is a rectangular concrete building that has approximate dimensions of 110-ft long by 42-ft wide by 14-ft high. MFC-775 was constructed in 1968 and consists of a 14-in.-thick concrete-slab floor, 12-in.-thick concrete walls, and a 7-in. concrete-slab roof over precast T-beams. The wall between the fuel storage vault and the workroom is 9 in. of reinforced concrete and the floor of the vault is 18 in. of heavily-reinforced concrete. Earth fill is compacted around the walls. The roof is covered by 4 ft of washed and dried sand. Fill materials are protected from the weather by an asphalt membrane. The seismic design of MFC-775 was performed in accordance with the Uniform Building Code Zone-2 requirements. In 1972, a seismic study of MFC-775 was completed. This study used a horizontal zero-period acceleration of 0.2 g and also a vertical zero period acceleration of 0.2 g. As a result of that study and an additional analysis performed by Argonne National Laboratory-W personnel in March 1973, the connections of the roof beams to the north wall were strengthened to meet the 0.2 g vertical and horizontal seismic accelerations.

The ZPPR workroom is located adjacent to the vault in MFC-775 and provides a space to inspect fuel material. The workroom has access through seal doors to the outside of the mound area into MFC-784, to the support wing, and to the reactor cell. Seal doors 65 and 66 are protected by fire doors. This area is not protected by an automatic fire sprinkler system. The walls of the workroom are constructed of reinforced concrete and the roof is made of pre-stressed concrete beams with an overlay of 7 in. of concrete. An earthen-fill material is compacted around the walls and the roof is covered with washed and dried sand.

Inside the workroom is a barrel-opening hood near the entrance to the vault and two centrally located four-station loading tables. These hoods and tables are treated as suspect contaminated areas and are integrated into the high-efficiency particulate air-filter air-handling system of the mound area. Air is drawn from the room into the hood and is exhausted from the hood to the atmosphere outside of the mound area through high-efficiency particulate air filters.

2. **Hazard category:** Hazard Category 2 nuclear facility

3. **Radioactive waste managed at this facility:** CH and mixed LLW is generated and staged in this facility subsequent to routine facility operations. The mixed LLW is accumulated in an SAA for disposition.
4. **RWMB documents/programs:**
 - a. Safety Basis/Hazards Analysis:
 - DSA-006-ZPPR, “ZPPR Documented Safety Analysis”
 - IAG-265, “INL Authorization Agreement for the Materials and Fuels Complex (MFC) Zero Power Physics Reactor (ZPPR)”
 - LST-306, “Safety Basis List for the Materials and Fuels Complex (MFC) Zero Power Physics Reactor (ZPPR)”
 - b. Laboratory-wide:
 - Form 435.39, “Waste Determination and Disposal Form (WDDF)”
 - Form 435.42, “Radioactive Waste Inventory Sheet”
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - LRD-15001, “Radiological Control Manual”
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”
 - LWP-17000, “Waste Management”
 - MCP-139, “Radiological Surveys”
 - MCP-17000, “Waste Generator Services Waste Management”
 - MCP-17410, “Management of Waste Storage Areas”
 - MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
 - PDD-17000, “Waste Management Program”
 - PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
 - PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”
 - c. Facility-specific:
 - TSD-OI-004, “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control”
 - TSM-OI-003, “Transfer of Hazardous Material in Non-DOT-Certified Packaging between MFC Nuclear Facilities”
 - ZPPR-OI-009, “ZPPR General Facility Waste.”

LLW is managed at this facility. Table 12 shows the facility compliance information for DOE Manual 435.1-1, Chapter IV, “Low-level Waste Requirements.”

Table 12. MFC-775, Zero Power Physics Reactor Workroom, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
A. <u>Definition of Low-Level Waste</u> . Low-level	This requirement proves the criteria for determining

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See (1), (2), (3), and (4) below.</p>
<p>(1) <u>Mixed Low-Level Waste</u>. Low-level waste determined to contain source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>This facility manages mixed LLW in SAAs. Management of SAAs is addressed in MCP-17410, and overall management of mixed waste is addressed in MCP-17000.</p>
<p>(2) <u>TSCA-Regulated Waste</u>. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i>, as amended, DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not manage TSCA-regulated waste.</p>
<p>(3) <u>Accelerator-Produced Waste</u>. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual, and all applicable Federal or State requirements.</p>	<p>NA; this facility does not manage accelerator-produced waste.</p>
<p>(4) <u>11e.(2) and Naturally Occurring Radioactive Material</u>. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.</p>	<p>NA; this facility does not manage naturally occurring radioactive material.</p>
<p>C. <u>Complex-Wide Low-Level Waste Management Program</u>. A complex-wide program and plan shall be developed as described under <i>Responsibilities</i>, 2.B and 2.D, in Chapter I of this Manual.</p>	<p>DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.</p>
<p>D. <u>Radioactive Waste Management Basis</u>. Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of</p>	<p>The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing</p>

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:</p>	<p>documents for the generation, storage, treatment, and disposal of radiological waste.</p>
<p>(1) Generators. The waste certification program. From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.</p>	<p>See J. below for waste certification program requirements. DSA-006-ZPPR determines and documents the hazard category for this facility as a Hazard Category 2 nuclear facility.</p>
<p>(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic] From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis. A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis. As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>NA; this facility does not treat LLW.</p>
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program. From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis. A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g.,</p>	<p>NA; this facility does not store LLW.</p>

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility does not dispose of LLW.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>NA; this facility does not store liquid LLW.</p>
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-</p>	<p>NA; this facility does not store liquid LLW.</p>

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic] From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system. Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.</p>	<p>See F. above.</p>
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.</p>

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.	
G. <u>Waste Acceptance</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].	DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following: From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.)	NA; this facility does not accept LLW from other facilities.
(a) Allowable activities and/or concentrations of specific radionuclides.	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	See (1) above.
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	See (1) above.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (1) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the	See (1) above.

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (1) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (1) above.
5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]	See (1) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved. From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.	See (1) above.
(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established. From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs	See (1) above.

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.	
H. <u>Waste Generation Planning</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].	DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.
(1) <u>Life-Cycle Planning</u> . Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams. From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.	PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.
(2) <u>Waste with No Identified Path to Disposal</u> . Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:	This facility is not generating radioactive waste that does not have an identified path to disposal.
(a) Programmatic need to generate the waste;	See (2) above.
(b) Characteristics and issues preventing the disposal of the waste;	See (2) above.
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
I. <u>Waste Characterization</u> . Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data	MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste characterization information. ZPPR-OI-009 § 3.2 provides instructions for the waste generator to characterize the routine LLW generated subsequent to facility operations in cooperation with WGS. This is done using Form 435.39. The facility also uses Form 435.42 to characterize and serve as the characterization record for this waste.

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
acquired through the use of direct or indirect methods.	
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.)</p>	<p>MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.</p> <p>ZPPR-OI-009 § 3.2 provides instructions for the waste generator to characterize the routine LLW generated subsequent to facility operations.</p>
(a) Physical and chemical characteristics;	See (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See (2) above.
(c) Weight of the container and contents;	See (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See (2) above.
(e) Characterization date;	See (2) above.
(f) Generating source; and	See (2) above.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records</p>	<p>MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste certification information.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Container procurement is addressed in MCP-17000 § 4.6.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste</p>

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSS.</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	<p>See J. above.</p>
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above.</p>
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site</p>	<p>See J. above.</p>

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	
<p>K. Waste Transfer. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>MCP-17000 specifies the requirements for preparing an IWTS profile that captures waste certification data, transfer information, and associated authorizations.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>TSD-OI-004 specifies requirements and provides instructions for accepting LLW and mixed LLW at the MFC treatment, storage, and disposal facilities.</p>
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	<p>See K. above.</p>
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	<p>See K. above.</p>
<p>L. Packaging and Transportation. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].</p>	<p>DOE Manual 435.1-1 §I.1.E(11) applies to field element managers.</p>
<p>(1) Packaging. If containers are used:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the</p>	<p>MCP-17000 § 4 addresses packaging requirements.</p>

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repackage the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.)</p>	
<p>(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.</p>	See (1) above.
<p>(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.</p>	See (1) above.
<p>(c) Containers of low-level waste shall be marked such that their contents can be identified.</p>	See (1) above.
<p>(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.</p>	NA; waste is not shipped to an offsite facility for final disposition from this facility.
<p>M. <u>Site Evaluation and Facility Design</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	NA; this requirement addresses new radioactive waste management facilities.
<p>(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.</p>	See M. above.
<p>(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal</p>	See M. above.

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
facility, the capability of the site to demonstrate, at a minimum, whether it is:	
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed	See M. above.

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
decommissioning method or a conversion method leading to reuse shall be described.	
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.	See M. above.
(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.
N. <u>Storage and Staging</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].	DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(2) Storage Limit. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager.</p> <p>From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place.</p> <p><u>Mixed waste.</u> Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in</p>	<p>See (1) above.</p>

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <p>1) the radioactive waste management basis allows for storage for no more than one year.</p> <p>2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis.</p> <p>3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p>	<p>See (1) above.</p>

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.	
(4) Waste Characterization for Storage.	See (1) above.
(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.	See (1) above.
(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.	See (1) above.
(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.	LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.
(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.	See (1) above.
(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual. From DOE G 435.1-1 Chapter IV: The staging of low-	Routine LLW, such as personnel protective equipment, is accumulated at this facility for disposal. MCP-17000, Appendix F restricts staging LLW to 90 days maximum at any generator or treatment facility prior to acceptance by a storage facility. As stated in DOE Guide 435.1-1 §IV.N.(7), staging waste in accordance with this requirement allows waste

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.</p>	<p>to be accumulated without being considered storage and being bound by the associated storage requirements.</p>
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	<p>NA; this facility does not treat LLW.</p>
<p>P. <u>Disposal</u>. Low-level waste disposal facilities shall meet the following requirements.</p>	<p>NA; this facility does not dispose of LLW.</p>
<p>(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:</p>	<p>See P. above.</p>
<p>(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.</p>	<p>See P. above.</p>
<p>(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.</p>	<p>See P. above.</p>
<p>(c) Release of radon shall be less than an average flux of 20 pCi/m²/s (0.74Bq/m²/s) at the surface of the</p>	<p>See P. above.</p>

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.	
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	See P. above.
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	See P. above.
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance	See P. above.

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
assessment shall include an assessment of impacts to water resources.	
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.	See P. above.
(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.	See P. above.
(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility	See P. above.

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.	
(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	See P. above.
(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	See P. above.
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	See P. above.
(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements include:	See P. above.
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that	See P. above.

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	See P. above.
(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	See P. above.
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this facility does not dispose of LLW.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of	See Q. above.

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
the facility.	
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	DOE Manual 435.1-1 §I.1.E(7) applies to field element managers.
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the</p>	<p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>LRD-15001 and specifically MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the "routine sheet" and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>

Table 12. (continued).

Facility Name: MFC-775, Zero Power Physics Reactor Workroom	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	
<p>(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p>	<p>NA; this facility does not store liquid LLW.</p>
<p>(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.</p>	<p>NA; this facility does not dispose of LLW.</p>
<p>(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.</p>	<p>See (3) above.</p>
<p>(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.</p>	<p>See (3) above.</p>
<p>(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.</p>	<p>See (3) above.</p>

4.9 MFC-784, Zero Power Physics Reactor Material Control Building

1. **Facility description:** The ZPPR materials control building (MFC-784) is a 150-ft by 48-ft by 16-ft high (9 ft at eaves) building containing a 20-ft by 60-ft sodium storage room. The building was constructed with steel posts and beams and is covered by corrugated steel panels. This building was relocated from the Test Area North site on the INL to MFC in 1975. The roof also is covered with

corrugated steel. The sodium storage room (located within MFC-784) is constructed of concrete blocks and is covered with a concrete roof. The facility is used to store nonfissile ZPPR core materials, reactor equipment, experimental apparatus, and structural mockup materials. The facility has an automatic fire-sprinkler system with fire and smoke detectors. The inner sodium storage room is not sprinkler protected; dry chemicals are used in event of a fire.

2. **Hazard category:** Hazard Category 3 non-reactor nuclear facility
3. **Radioactive waste managed at this facility:** CH LLW is generated and staged in this facility subsequent to routine facility operations.
4. **RWMB documents/programs:**
 - a. Safety Basis/Hazards Analysis:
 - DSA-006-ZPPR, “ZPPR Documented Safety Analysis”
 - b. Laboratory-wide:
 - Form 435.39, “Waste Determination and Disposal Form (WDDF)”
 - Form 435.42, “Radioactive Waste Inventory Sheet”
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - LI-435, “Waste Management Routine Field Activities”
 - LRD-15001, “Radiological Control Manual”
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”
 - LWP-17000, “Waste Management”
 - MCP-139, “Radiological Surveys”
 - MCP-17000, “Waste Generator Services Waste Management”
 - MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
 - PDD-17000, “Waste Management Program”
 - PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
 - PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”
 - c. Facility-specific:
 - TSD-OI-004, “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control”
 - TSM-OI-003, “Transfer of Hazardous Material in Non-DOT-Certified Packaging between MFC Nuclear Facilities”
 - ZPPR-OI-009, “ZPPR General Facility Waste.”

LLW is managed at this facility. Table 13 shows the facility compliance information for DOE Manual 435.1-1, Chapter IV, “Low-level Waste Requirements.”

Table 13. MFC-784, Zero Power Physics Reactor Material Control Building, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>A. <u>Definition of Low-Level Waste</u>. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>This requirement proves the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See (1), (2), (3), and (4) below.</p>
<p>(1) <u>Mixed Low-Level Waste</u>. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not manage RCRA mixed waste.</p>
<p>(2) <u>TSCA-Regulated Waste</u>. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i>, as amended, DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not manage TSCA-regulated waste.</p>
<p>(3) <u>Accelerator-Produced Waste</u>. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual, and all applicable Federal or State requirements.</p>	<p>NA; this facility does not manage accelerator-produced waste.</p>
<p>(4) <u>11e.(2) and Naturally Occurring Radioactive Material</u>. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.</p>	<p>NA; this facility does not manage naturally occurring radioactive material.</p>
<p>C. <u>Complex-Wide Low-Level Waste Management Program</u>. A complex-wide program and plan shall be developed as described under <i>Responsibilities</i>, 2.B and 2.D, in Chapter I of this Manual.</p>	<p>DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.</p>
<p>D. <u>Radioactive Waste Management Basis</u>. Low-level waste facilities, operations, and activities shall have a</p>	<p>The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically</p>

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:</p>	<p>identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste.</p>
<p>(1) Generators. The waste certification program. From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.</p>	<p>See J. below for waste certification program requirements.</p> <p>DSA-006-ZPPR determines and documents the hazard category for this facility as a Hazard Category 2 nuclear facility.</p>
<p>(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic] From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>NA; this facility does not treat LLW.</p>
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program. From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g.,</p>	<p>NA; this facility does not store LLW.</p>

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility does not dispose of LLW.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>NA; this facility does not store liquid LLW.</p>
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform</p>	<p>NA; this facility does not store liquid LLW.</p>

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic] From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system. Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.</p>	<p>See F. above.</p>
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis,</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.</p>

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
including shutdown of the facility.	
G. <u>Waste Acceptance</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].	DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following: From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.)	NA; this facility does not accept LLW from other facilities.
(a) Allowable activities and/or concentrations of specific radionuclides.	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	See (1) above.
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	See (1) above.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (1) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (1) above.

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.</p>	See (1) above.
<p>4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.</p>	See (1) above.
<p>5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]</p>	See (1) above.
<p>(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved.</p> <p>From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.</p>	See (1) above.
<p>(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform</p>	See (1) above.

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
to the waste acceptance criteria is received at the facility.	
H. <u>Waste Generation Planning</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].	DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.
(1) <u>Life-Cycle Planning</u> . Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams. From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.	PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.
(2) <u>Waste with No Identified Path to Disposal</u> . Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:	This facility is not generating radioactive waste that does not have an identified path to disposal.
(a) Programmatic need to generate the waste;	See (2) above.
(b) Characteristics and issues preventing the disposal of the waste;	See (2) above.
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
I. <u>Waste Characterization</u> . Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.	MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste characterization information. ZPPR-OI-009 § 3.2 provides instructions for the waste generator to characterize the routine LLW generated subsequent to facility operations in cooperation with WGS. This is done using Form 435.39. The facility also uses Form 435.42 to characterize and serve as the characterization record for this waste.
(1) <u>Data Quality Objectives</u> . The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and	Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	<p>documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.)</p>	<p>MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.</p> <p>ZPPR-OI-009 § 3.2 provides instructions for the waste generator to characterize the routine LLW generated subsequent to facility operations.</p>
(a) Physical and chemical characteristics;	See (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See (2) above.
(c) Weight of the container and contents;	See (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See (2) above.
(e) Characterization date;	See (2) above.
(f) Generating source; and	See (2) above.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated</p>	<p>MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste certification information.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Container procurement is addressed in MCP-17000 § 4.6.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete</p>

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>the appropriate training/qualifications to disposition waste to NNSS.</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	<p>See J. above.</p>
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above.</p>
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	<p>See J. above.</p>

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>K. Waste Transfer. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>MCP-17000 specifies the requirements for preparing an IWTS profile that captures waste certification data, transfer information, and associated authorizations.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>TSD-OI-004 specifies requirements and provides instructions for accepting LLW and mixed LLW at the MFC treatment, storage, and disposal facilities.</p>
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	<p>See K. above.</p>
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	<p>See K. above.</p>
<p>L. Packaging and Transportation. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].</p>	<p>DOE Manual 435.1-1 §I.1.E(11) applies to field element managers.</p>
<p>(1) Packaging. If containers are used:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed</p>	<p>MCP-17000 § 4 addresses packaging requirements.</p>

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
containers for waste previously placed in storage. For those containers, the goal is to only have to repackage the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.)	
(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.	See (1) above.
(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.	See (1) above.
(c) Containers of low-level waste shall be marked such that their contents can be identified.	See (1) above.
(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized. From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.	NA; waste is not shipped to an offsite facility for final disposition from this facility.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities.
(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:	See M. above.
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are	See M. above.

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
predictable and erosion and surface runoff can be controlled.	
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection	See M. above.

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.	See M. above.
(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.
N. <u>Storage and Staging</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].	DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level	NA; this facility does not store LLW. See N. (7) below for staging requirements.

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.	
<p>(2) Storage Limit. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager.</p> <p>From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place.</p> <p><u>Mixed waste.</u> Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <p>1) the radioactive waste management basis allows for storage for no more than one year.</p> <p>2) the radioactive waste management basis allows for</p>	See (1) above.

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis.</p> <p>3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	See (1) above.
<p>(4) Waste Characterization for Storage.</p>	See (1) above.
<p>(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum</p>	See (1) above.

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.</p>	
<p>(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.</p>	<p>See (1) above.</p>
<p>(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p>
<p>(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.</p>	<p>See (1) above.</p>
<p>(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the</p>	<p>Routine LLW, such as personnel protective equipment, is accumulated at this facility for disposal. MCP-17000, Appendix F restricts staging LLW to 90 days maximum at any generator or treatment facility prior to acceptance by a storage facility.</p> <p>As stated in DOE Guide 435.1-1 §IV.N.(7), staging waste in accordance with this requirement allows waste to be accumulated without being considered storage and being bound by the associated storage requirements.</p>

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.	
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	NA; this facility does not treat LLW.
P. <u>Disposal</u> . Low-level waste disposal facilities shall meet the following requirements.	NA; this facility does not dispose of LLW.
(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:	See P. above.
(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.	See P. above.
(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.	See P. above.
(c) Release of radon shall be less than an average flux of 20 pCi/m ² /s (0.74Bq/m ² /s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.	See P. above.
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	See P. above.

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	See P. above.
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.</p>	See P. above.
<p>(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.</p>	See P. above.
<p>(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.</p>	See P. above.
<p>(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.</p>	See P. above.
<p>(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or</p>	See P. above.

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
composite analysis.	
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	See P. above.
(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements include:	See P. above.
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	See P. above.
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	See P. above.
(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	See P. above.

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this facility does not dispose of LLW.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	DOE Manual 435.1-1 §I.1.E(7) applies to field element managers.
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>LRD-15001 and specifically MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the "routine sheet" and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>

Table 13. (continued).

Facility Name: MFC-784, Zero Power Physics Reactor Material Control Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.	NA; this facility does not store liquid LLW.
(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.	NA; this facility does not dispose of LLW.
(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.	See (3) above.
(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.	See (3) above.
(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.	See (3) above.

4.10 MFC-785, Hot Fuel Examination Facility

- Facility description:** MFC-785, HFEF, is a hot cell complex built in the early 1970s for the preparation and examination of irradiation experiments in support of nuclear reactor development programs and process demonstrations. A wide range of remote operations and examinations may be performed in this facility with its shielded cells, support areas, and equipment. Two general types of programs are considered: (1) fuel-related programs that may include metal or oxide fuels and various test trains and test loops, and (2) waste-related programs that include characterization or processing of various waste forms. The dominant near-term program considered in the SAR is the Spent Fuel Treatment Program.

HFEF consists primarily of two adjacent shielded cells, the main cell and the decontamination (decon) cell, in a three-story building. The decon cell contains an air atmosphere. The main cell contains an argon atmosphere for work involving materials such as sodium, plutonium, and other materials that would react chemically with air. Both cells are surrounded by 4-ft thick, high-density concrete to protect workers from the high radiation levels present in the hot cells. There are 21 work stations in HFEF, all equipped with shielded windows and remote manipulators. All in-cell equipment is carefully designed to permit remote operation and maintenance. Offices, laboratories, and other personnel-related areas are located on the operating floor, which is slightly above grade level. A truck lock at the west end of the cell complex also is at this level. The service floor below

contains the subcell tunnels and most of the building support equipment. The second floor contains additional building support equipment and offices.

A high-bay area covering the entire cell complex and serviced by a 40-ton bridge crane provides access to the tops of the cells for bottom opening casks. This area contains the repair rooms, change room, and access room, and provides space for clean equipment repair and mockup. The Waste Characterization Area also is located in the high-bay area. The Waste Characterization Chamber is an enclosure with a controlled environment that provides the primary confinement for the CH TRU waste during characterization. The characterization operations are performed through sealed glove openings or using robotic manipulators in order to protect personnel, the process, and the environment.

2. **Hazard category:** Hazard Category 2 nuclear facility
3. **Radioactive waste managed at this facility:** CH TRU waste, mixed-TRU waste, and RH TRU waste are generated and stored at this facility. CH LLW, mixed LLW, RH LLW, mixed RH-LLW, and liquid LLW are generated and staged at this facility. The mixed LLW is accumulated in an SAA for disposition.
4. **RWMB documents/programs:**
 - a. Safety Basis/Hazards Analysis:
 - DSA-003-HFEF, “Final Safety Analysis Report for the Hot Fuel Examination Facility”
 - IAG-266, “INL Authorization Agreement for the Materials and Fuels Complex (MFC) Hot Fuel Examination Facility (HFEF)”
 - LST-307, “Safety Basis List for the Materials and Fuels Complex (MFC) Hot Fuel Examination Facility (HFEF)”
 - b. Laboratory-wide:
 - Form 435.83, “Idaho National Laboratory Contact-Handled Transuranic Waste Disposition - TSR Related (Checklist - Requirements - Certification)”
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - LI-435, “Waste Management Routine Field Activities”
 - LRD-15001, “Radiological Control Manual”
 - LWP-8300, “Transuranic Waste Handling”
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”
 - LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
 - LWP-17000, “Waste Management”
 - MCP-139, “Radiological Surveys”
 - MCP-17000, “Waste Generator Services Waste Management”
 - MCP-17410, “Management of Waste Storage Areas”
 - MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
 - PDD-17000, “Waste Management Program”
 - PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
 - PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”

- PLN-8300, “Materials and Fuels Complex Contact-Handled TRU Waste Certification Program Plan”
- c. Facility-specific:
 - ANL-NT-192, “The Defense Programs Origin of Transuranic Waste at Argonne National Laboratory-West, H. F. McFarlane, 11/1/2001”
 - HFEF-OI-1302, “Mass Tracking System”
 - HFEF-OI-6601, “Waste Handling”
 - HFEF-OI-6602, “Radiological Smearing for Waste Characterization”
 - HFEF-OI-6801, “Hazardous Waste/Mixed Waste (HW/MW) Requirements”
 - INL/EXT-10-17600, *Process Knowledge Summary Report for Materials and Fuels Complex Contact-handled Transuranic Waste*
 - LST-337, “Approved Container/Payload List for Inter-Facility Transfer Operations at MFC”
 - PER-116, “HWMA/RCRA Storage and Treatment Permit for the Materials and Fuels Complex”
 - RL-OI-1, “Radioactive Liquid Waste Collection”
 - RSWF-OI-003, “Material Acceptance for Storage”
 - RSWF-OI-004, “Administrative Requirements/Process for Material Transfers”
 - TSD-OI-004, “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control”
 - TSM-OI-003, “Transfer of Hazardous Material in Non-DOT-Certified Packaging between MFC Nuclear Facilities”

TRU waste and LLW are managed at this facility. Table 14 shows the facility compliance information for DOE Manual 435.1-1 Chapter III, “Transuranic Waste Requirements,” and Table 15 presents the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 14. MFC-785, Hot Fuel Examination Facility, DOE Manual 435.1-1 transuranic waste requirements and facility compliance information.

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>A. <u>Definition of Transuranic Waste</u>. Transuranic waste is radioactive waste containing more than 100 nanocuries (3700 becquerels) of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years, except for:</p> <p>(From DOE G 435.1-1 Chapter III: The determination of transuranic waste should be made at the time of waste certification, that is, each time the waste is transferred to another person or facility.)</p>	<p>This requirement proves the criteria for determining which DOE radioactive waste is to be managed as TRU waste in accordance with DOE Manual 435.1-1, Chapter III.</p> <p>See J. below.</p>
(1) High-level radioactive waste;	See A. above.
(2) Waste that the Secretary of Energy has determined, with the concurrence of the Administrator of the Environmental Protection Agency, does not need the degree of isolation required by the 40 CFR Part 191 disposal regulations; or	See A. above.

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
(3) Waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with 10 CFR Part 61.	See A. above.
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as transuranic waste in accordance with the requirements in this Chapter:</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with these requirements is demonstrated if RCRA, state-hazardous, and TSCA-regulated radioactive wastes are being managed in compliance with applicable requirements and agreements or in accordance with a consent order, and consistent with the Transuranic Waste Requirements of DOE M 435.1-1.)</p>	See (1), (2), and (3) below.
(1) Mixed Transuranic Waste. Transuranic waste determined to contain both a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, and a radioactive component subject to the <i>Atomic Energy Act of 1954</i> , as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	<p>The documents cited below seem to demonstrate compliance with this requirement.</p> <p>PER-116 provides RCRA regulation of the hazardous component of the waste managed at this facility.</p> <p>HFEF-OI-6601 addresses management of mixed TRU waste at this facility.</p> <p>HFEF-OI-6801 implements the HFEF-specific requirements of PER-116.</p> <p>LWP-8300 defines the requirements and establishes the process associated with the generation, handling, characterization, and storage of CH, mixed, and RH mixed TRU waste.</p>
(2) TSCA-Regulated Waste. Transuranic waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i> , as amended, DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	NA; TSCA-regulated TRU waste is not managed at this facility.
(3) Pre-1970 Transuranic Waste. Transuranic waste disposed of prior to implementation of the 1970 Atomic Energy Commission Immediate Action Directive regarding retrievable storage of transuranic waste is not subject to the requirements of DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	NA; pre-1970 TRU waste is not managed at this facility.
C. <u>Complex-Wide Transuranic Waste Management Program</u> . A complex-wide program and plan shall be developed as described under <i>Responsibilities</i> , 2.B and 2.D, in Chapter I of this Manual.	DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the presence of a Complex-Wide Transuranic Waste Management Program which includes the appropriate interfaces, technical information, data inputs, and other elements described in Chapter I of this Manual.</p>	
<p>D. <u>Radioactive Waste Management Basis</u>. Transuranic waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated if, the radioactive waste management basis is documented and signed by the Field Element manager or a designee (see DOE M 435.1-1, Section I.1.A, Delegation of Authority) for each transuranic waste management facility, operation, or activity. Using a graded approach, it may be possible to include multiple activities under a single radioactive waste management basis, but it should be possible to objectively identify which activities are covered. Further, the radioactive waste management basis includes or references the controls that are established on a facility-specific basis to address the unique waste management requirements and circumstances for each facility, operation, and/or activity.)</p>	<p>The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste..</p>
<p>(1) Generators. The waste certification program.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>For a facility that generates transuranic waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.</p>	<p>See J. below for waste certification program requirements.</p> <p>The documentation cited below reflects the best understanding obtainable at the time of this analysis due to the pending modifications and revisions being conducted on the safety basis documentation for this facility.</p> <p>DSA-003-HFEF serves as the safety basis documentation for the facility and establishes it as a Hazard Category 2 nuclear facility.</p> <p>HFEF-OI-1302 specifies material accountability requirements for managing special nuclear material in HFEF and provides the instructions necessary to meet the requirements using the Mass Tracking System database.</p>

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic]</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Facilities that store or treat transuranic waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section III.G) prior to the issuance of a radioactive waste management basis. The waste acceptance requirements will usually suffice as documentation of the radiological, physical, and chemical limitations on waste that can be safely received at the facility, provided they are developed correctly with consideration of the hazards of the waste to be managed, and are kept up to date. Controls on the radiological, physical and chemical limitations need to include considerations of the potential effects of radiolysis.</p> <p>A facility that stores or treats waste is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel should implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>NA; waste is not treated at this facility.</p>
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Facilities that store or treat transuranic waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section III.G) prior to the issuance of a radioactive waste management basis. The waste acceptance requirements will usually suffice as documentation of the radiological, physical, and chemical limitations on waste that can be safely received at the facility, provided they are developed correctly with consideration of the hazards of the waste to be managed, and are kept up to date. Controls on the radiological, physical and chemical limitations need to include considerations of the potential effects of radiolysis.</p>	<p>See G. and J. below for waste acceptance and waste certification program requirements.</p> <p>DSA-003-HFEF serves as the safety basis documentation for the facility and establishes it as a Hazard Category 2 nuclear facility.</p> <p>HFEF-OI-1302 specifies material accountability requirements for managing special nuclear material in HFEF and provides the instructions necessary to meet the requirements using the Mass Tracking System database.</p>

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>A facility that stores or treats waste is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel should implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(4) Disposal Facilities. The performance assessment, disposal authorization statement, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with these requirements is demonstrated by having adequate spare capacity and transfer equipment exists for emergency transfers of all liquid transuranic waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving liquid transuranic waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated transuranic waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not generate, store, or treat liquid TRU waste.</p>
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of liquid waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive</i></p>	<p>NA; this facility does not generate, store, or treat, liquid TRU waste.</p>

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<i>Waste Management</i> , and this Manual.	
F. <u>Corrective Actions</u> . I of this Manual. The following requirements are in addition to those in Chapter [sic]	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility's or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system exists which addresses noncompliant or hazardous situations associated with transuranic waste management and in a systematic fashion, and allows identification of problems by all personnel.</p>	See F. above.
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by documented evidence of systematic, routine reviews to determine whether waste management activities and facilities under are operating in accordance with an approved radioactive waste management basis. In addition, the documentation should show that limitations (which may include shutdown) have been placed on activities and operations that do not have or are operating outside the conditions of an approved radioactive waste management basis.</p>	The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.
G. <u>Waste Acceptance</u> . The following requirements are in addition to those in Chapter I of this Manual.	DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
(1) Technical and Administrative. Waste acceptance requirements for all transuranic waste storage,	NA; this facility does not accept TRU waste from other facilities.

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with these requirements is demonstrated if waste acceptance requirements are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the transuranic waste. Waste acceptance requirements are to also contain a clear description of the process and bases for obtaining an exception or deviation to the acceptance criteria for transuranic waste to be received at the facility.</p>	
(a) Allowable activities and/or concentrations of specific radionuclides;	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal;	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance;	See (1) above.
(d) Requirement to identify transuranic waste as defense or non-defense, and limitations on acceptance; and	See (1) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved.	See (1) above.
<p>(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with these requirements is demonstrated if</p>	See (1) above.

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>there is a procedure or process for evaluating and accepting incoming waste which ensures the acceptance criteria of the facility receiving the waste are met by one or a combination of: (1) testing, sampling, and analysis of representative samples of incoming waste upon receipt; (2) testing, sampling, and analysis of samples of waste taken at the generator facility; (3) evaluation of testing, sampling, and analysis of data provided by the generator; or (4) audits, reviews, or surveillances of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment, or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) <u>Life-Cycle Planning</u>. Prior to waste generation, planning shall be performed to address the entire life cycle for all transuranic waste streams.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of [transuranic] waste prior to its generation, including the identification of [transuranic] wastes with no path to disposal and appropriate records justifying the newly generated [transuranic] waste stream(s), and site personnel possessing planning information showing the location(s) where [transuranic] waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the [transuranic] waste may be managed at those facilities.</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p>
<p>(2) <u>Waste with No Identified Path to Disposal</u>. Transuranic waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with requirement is demonstrated by the waste generation organization having documentation concerning the decision to generate a transuranic waste stream that does not have an identified path to disposal. This documentation needs to include the cognizant Field Element Manager or designee</p>	<p>NA; this facility does not generate TRU waste with no identified path to disposal.</p>

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
approval to generate the waste, an explanation of the need for the process that generates the transuranic waste, a discussion of the reason it cannot be disposed of, the proposed management plan for the waste, and an up-to-date schedule of activities being pursued to resolve constraints to the disposal of the subject waste. Consistent with the use of a graded approach for applying DOE M 435.1-1 requirements, the schedule and plans for disposing of nondefense waste can defer to the complex-wide resolution of the issue.)	
(a) Programmatic need to generate the waste;	See (2) above.
(b) Characteristics and issues preventing the disposal of the waste;	See (2) above.
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
<p>I. <u>Waste Characterization</u>. Transuranic waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of transuranic waste characterization data acquired through the use of direct or indirect methods.</p>	<p>LWP-8300 § 4.2 provides general INL-wide requirements for containerization and characterization documentation requirements.</p> <p>HFEF-OI-6601 addresses characterization requirements for CH TRU, mixed TRU, and RH TRU waste generated in the facility.</p> <p>HFEF-OI-6602 provides radiological smear analysis characterization instructions for development of characterization data for radiologically-contaminated or mixed TRU waste generated in the facility.</p> <p>HFEF-OI-6801 specifies the requirements for evaluation and acceptance, storage, treatment, characterization, and shipping preparation of CH TRU waste. This document complies with the MFC-785 specific sections of PER-116 and the CH TRU WAC for the Waste Isolation Pilot Plant.</p> <p>TRU waste transferred for onsite storage to MFC-771, RSWF, is characterized in accordance with RSWF-OI-003.</p> <p>When certified in accordance with the RSWF WAC, MFC TRU waste is, to the extent possible, in compliance with the WAC for various treatment or disposal facilities that could be the ultimate destination of the waste (RSWF-OI-003)</p>
(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.	Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage transuranic waste.</p>	
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the existence of a program or procedures for determining and records that document characterization of transuranic waste consistent with the minimum characterization data requirements.)</p>	<p>LWP-8300 § 4.2 provides general INL-wide requirements for containerization and characterization documentation requirements.</p> <p>HFEF-OI-6601 addresses characterization requirements for CH TRU, mixed TRU, and RH TRU waste generated in the facility.</p> <p>HFEF-OI-6602 provides radiological smear analysis characterization instructions for development of characterization data for radiologically-contaminated or mixed TRU waste generated in the facility.</p> <p>HFEF-OI-6801 specifies the requirements for evaluation and acceptance, storage, treatment, characterization, and shipping preparation of CH TRU waste. This document complies with the MFC-785 specific sections of PER-116 and the CH TRU WAC for the Waste Isolation Pilot Plant.</p> <p>MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.</p>
(a) Physical and chemical characteristics;	See (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See (2) above.
(c) Weight of the container and contents;	See (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See (2) above.
(e) Characterization date;	See (2) above.
(f) Generating source;	See (2) above.
(g) Packaging date; and	See (2) above.
(h) Any other information which may be needed to prepare and maintain the disposal facility performance assessment or demonstrate compliance with applicable performance objectives.	See (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving transuranic waste for storage, treatment, or disposal are met.</p>	<p>HFEF-OI-6601 addresses certification requirements for CH TRU, mixed TRU, and RH TRU waste generated in the facility.</p> <p>PLN-8300 provides MFC-wide certification of CH</p>

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when the appropriate personnel are trained, and have and follow the procedures that govern their part of the waste certification process. Acceptable performance also requires that the waste certification plan and procedures are current and controlled in accordance with a document control program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>TRU waste.</p> <p>LWP-8300 § 4.2 provides general INL-wide requirements for containerization and characterization documentation requirements.</p> <p>TRU waste transferred for onsite storage to MFC-771, RSWF, is certified in accordance with RSWF-OI-003 § 3.1.</p> <p>MCP-17000 specifies the requirements for preparing an IWTS profile that captures waste certification information.</p> <p>When certified in accordance with the RSWF WAC, MFC TRU waste is, to the extent possible, in compliance with the WAC for various treatment or disposal facilities that could be the ultimate destination of the waste (RSWF-OI-003). Procedural documentation other than this statement regarding certification of TRU waste destined for Waste Isolation Pilot Plant disposition was not found.</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that each container of waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	<p>See J. above.</p>
<p>(2) Certification before Transfer. Transuranic waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated</p>	<p>See J. above.</p>

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
records showing that waste was certified before being transferred.	
<p>(3) Maintaining Certification. Transuranic waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the existence of a program or procedure reflecting this requirement and site personnel able to show that the storage of containers of waste is in a facility or manner where the containers are not damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	See (1) above.
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of transuranic waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers are available and accurate, and that documented transfer of responsibility occurs.</p>	<p>RSWF-OI-003 specifies requirements and provides instructions for accepting mixed waste, radioactive waste, and radioactive material for storage at RSWF. Appendix A serves as the record document to be maintained for each container going to that facility.</p> <p>RSWF-OI-004 provides the administrative process used by RSWF management for approval of material transfer activities at RSWF.</p> <p>TSD-OI-004 specifies requirements and provides instructions for accepting CH TRU and mixed CH TRU waste at the MFC treatment, storage, and disposal facilities.</p> <p>LWP-8300 § 4.3 provides instruction on containerization of CH TRU waste going to the Advanced Mixed Waste Treatment Plant and prescribes the use of Form 435.83 as the documented record of container data and transfer.</p> <p>PLN-8300 provides MFC-wide certification of CH TRU waste.</p> <p>MCP-17000 specifies the requirements for preparing an IWTS profile that captures waste transfer information and associated authorizations.</p>
<p>(1) Authorization. Transuranic waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by</p>	See K. above.

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for transuranic waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each waste transfer and documented records of transfers show that the information is being provided.</p>	<p>See K. above.</p>
<p>L. <u>Packaging and Transportation</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	<p>See (1)(a) through (2) below.</p>
<p>(1) Packaging.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with the packaging requirement is demonstrated by procedures which document proper packaging protocols, including documented evidence that, where feasible, non-defense transuranic waste has been packaged separately from defense transuranic waste and by never having to repackage transuranic waste that is packaged after issuance of DOE O 435.1 in order to maintain containment. However, the above protocol may not be satisfied by containers that were placed in storage prior to issuance of the DOE O 435.1. For those containers, the goal is to only have to repackage the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information. Successful performance of this requirement is also demonstrated by a record of container performance in which failure has not routinely occurred.</p>	<p>See (1)(a) through (2) below.</p>
<p>(a) Transuranic waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste is removed from the container.</p>	<p>LWP-8300 and the various documents cited below address packaging requirements for TRU waste managed at this facility.</p> <p>PLN-8300 addresses this requirement for CH TRU waste generated at this facility.</p> <p>HFEF-OI-6601 addresses packaging requirements for CH TRU, mixed TRU, RH TRU and mixed RH TRU waste generated in the facility.</p>

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
	<p>HFEF-OI-6801 addresses appropriate container usage for the mixed TRU waste generated in this facility.</p> <p>LST-337 prescribes the appropriate container as approved by waste type.</p> <p>RSWF-OI-003 specifies requirements and provides instructions for accepting mixed waste, radioactive waste, and radioactive material for storage at RSWF. Appendix A serves as the record document to be maintained for each container going to that facility.</p> <p>TSM-OI-003 prescribes the appropriate packaging for intra-facility movements of TRU waste.</p>
<p>(b) Vents or other mechanisms to prevent pressurization of containers or generation of flammable or explosive concentrations of gases shall be installed on containers of newly-generated waste at the time the waste is packaged. Containers of currently stored waste shall meet this requirement as soon as practical unless analyses demonstrate that the waste can otherwise be managed safely.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>In developing the radioactive waste management basis, site personnel need to consider the hazards associated with drums of transuranic waste which have not been provided with vents or been proven to not need vents through an approved safety analysis. For unvented containers in earthen-covered storage, the facility itself may mitigate the hazards associated with the accumulation of gases. For above-grade storage of transuranic waste containers, the radioactive waste management basis needs to include controls which mitigate the hazards associated with the accumulation of gases by restricting access to the storage area and providing equipment to protect against fire or explosion.</p>	<p>LWP-8300 §§ 4.2 and 4.3 address packaging ventilation requirements for TRU waste.</p> <p>PLN-8300 addresses this requirement for TRU waste generated at this facility.</p> <p>HFEF-OI-6601 §§ 5.8.11 and 5.10 prescribe the required ventilation protected packaging as appropriate.</p> <p>RSWF-OI-003 provides for use of Appendix A as record of the ventilated or other pressurization protection packaging.</p> <p>HFEF-OI-6801 prescribes the required packaging for both hazardous waste and mixed waste managed at the facility.</p> <p>TSM-OI-003 prescribes the appropriate packaging for intra-facility movements of TRU waste.</p> <p>LST-337 prescribes the appropriate container as approved by waste type.</p>
<p>(c) When transuranic waste is packaged, defense waste shall be packaged separately from non-defense waste, if feasible.</p>	<p>INL/EXT-10-17600 § 3 addresses the defense determination requirement based on ANL-NT-192.</p>
<p>(d) Containers of transuranic waste shall be marked such that their contents can be identified.</p>	<p>LWP-8300 § 4.3.1.7 provides instructions on properly marking/labeling TRU waste containers.</p> <p>PLN-8300 addresses this requirement for TRU waste generated at this facility.</p> <p>HFEF-OI-6801 prescribes the required packaging for both hazardous wastes and mixed wastes managed at the facility.</p> <p>RSWF-OI-003 specifies requirements and provides</p>

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
	instructions for accepting mixed waste, radioactive waste, and radioactive material for storage at RSWF. Appendix A serves as the record document to be maintained for each container going to that facility.
<p>(2) Transportation. To the extent practical, the volume of waste and number of transuranic waste shipments shall be minimized.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that transuranic waste shipments are systematically planned and make optimal use of the shipment system (e.g., TRUPACT II) to the extent practical.</p>	NA; waste is not shipped to an offsite facility for final disposition from this facility.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities.
(1) Site Evaluation. Proposed locations for transuranic waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new transuranic waste facility or expansion of an existing transuranic waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(2) Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Transuranic waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	
1 Design of transuranic waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
2 When conditions exist for generating gases in flammable or explosive concentrations in treatment or storage facilities, ventilation or other measures shall be provided to keep the gases in a non-flammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing transuranic waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of transuranic waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of transuranic waste storage, treatment, and disposal facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
N. <u>Storage</u> . The following requirements are in addition to those in Chapter I of this Manual.	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
(1) Storage Prohibitions. Transuranic waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable. From DOE G 435.1-1 Chapter III: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit waste that is ignitable or explosive from being accepted for storage unless it has been treated.	LWP-8300 § 4.2, addresses the storage prohibitions for TRU waste managed at INL. The documents cited below provide for proper documentation that this requirement is met upon containerization of this waste. PLN-8300 provides MFC-wide certification of CH TRU waste. HFEF-OI-6601 § 5.7 and Appendix A addresses the prohibition of ignitable waste at MFC-785. HFEF-OI-6801 § 5.1.2 addresses the prohibition of explosive contents for hazardous wastes and mixed waste managed at the facility.
(2) Storage Integrity. Transuranic waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure. From DOE G 435.1-1 Chapter III:	LWP-15011 §5 provides general radioactive storage area requirements. LWP-8300 § 4.2 addresses the adequate storage requirements for TRU waste managed at INL.

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
Compliance with this requirement is demonstrated if sites have storage capabilities for transuranic waste that provide protection of waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where transuranic waste is stored.	
<p>(3) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of transuranic waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by a documented process for waste container inspection and maintenance at every facility managing transuranic waste, and documentation for all waste container inspections and maintenance actions performed.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p> <p>HFEF-OI-6801 §§ 5.6, 8.2, and 8.3 address the daily and weekly inspection requirements for only hazardous and mixed wastes managed at MFC-785.</p>
<p>(4) Retrievable Earthen-Covered Storage. Plans for the removal of transuranic waste from retrievable earthen-covered storage facilities shall be established and maintained. Prior to commencing waste retrieval activities, each waste storage site shall be evaluated to determine relevant information on types, quantities, and location of radioactive and hazardous chemicals as necessary to protect workers during the retrieval process.</p>	NA; this facility is not an earthen-covered storage facility.
<p>O. Treatment. Transuranic waste shall be treated as necessary to meet the waste acceptance requirements of the facility receiving the waste for storage or disposal.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by the custodian of transuranic waste maintaining documentation which identifies the plans for treating waste, and maintaining the records that show waste was treated, if necessary, to meet the waste acceptance requirements of the storage or disposal facility to which it was transferred.</p>	NA; this facility is not a TRU waste treatment facility.
<p>P. Disposal. Transuranic waste shall be disposed in accordance with the requirements of 40 CFR Part 191, <i>Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes.</i></p>	NA; this facility is not a TRU waste disposal facility.
<p>Q. Monitoring. The following requirements are in addition to those in Chapter I of this Manual.</p>	See below.
(1) All Waste Facilities. Parameters that shall be	Monitoring requirements at INL radioactive waste

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
<p>sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved, constitutes an exemption to the Manual.</p> <p>Verification activities are part of the radioactive waste management basis and are to be documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with an accuracy, precision, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the “routine sheet” and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>
<p>(2) Stored Wastes. All transuranic wastes in storage shall be monitored, as prescribed by the appropriate facility safety analysis, to ensure the wastes are maintained in safe condition.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated if the monitoring requirements in the facility procedures include, at a minimum, monitoring the systems and parameters as indicated by the safety analysis.</p>	<p>The facility’s safety basis requirements and implementing documents are identified in DSA-003-HFEF. This facility is a Hazard Category 2 Nuclear Facility.</p>
<p>(3) Liquid Waste Storage Facilities. For facilities storing liquid transuranic waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p> <p>From DOE G 435.1-1 Chapter III:</p> <p>Compliance with this requirement is demonstrated by developing operational procedures for monitoring liquid transuranic waste storage tank liquid level, waste volume, and tank chemistry so that waste volume or chemistry changes are detected in a time frame that will allow implementation of corrective measures to limit public and worker doses and to</p>	<p>NA; this facility does not store liquid TRU waste.</p>

Table 14. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter III, Transuranic Waste Requirements	Facility Compliance Information
mitigate unplanned releases of stored liquid waste.	

Table 15. MFC-785, Hot Fuel Examination Facility, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>A. <u>Definition of Low-Level Waste</u>. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>This requirement proves the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See (1), (2), (3), and (4) below.</p>
<p>(1) <u>Mixed Low-Level Waste</u>. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act (RCRA)</i>, as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>This facility manages mixed LLW. The documents cited below seem to demonstrate compliance with this requirement.</p> <p>PER-116 provides RCRA regulation of the hazardous component of the waste managed at this facility.</p> <p>HFEF-OI-6601 addresses management of mixed LLW at this facility.</p> <p>HFEF-OI-6801 implements the HFEF-specific requirements of PER-116.</p> <p>LWP-8300 addresses management of the hazardous component of TRU waste.</p> <p>This facility manages mixed LLW in SAAs. Management of SAAs is addressed in MCP-17410, and overall management of mixed waste is addressed in MCP-17000.</p>
<p>(2) <u>TSCA-Regulated Waste</u>. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i>, as amended, DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not manage TSCA-regulated waste.</p>
<p>(3) <u>Accelerator-Produced Waste</u>. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual, and all applicable Federal or State requirements.</p>	<p>NA; this facility does not manage accelerator-produced waste.</p>
<p>(4) 11e.(2) and Naturally Occurring Radioactive Material. Small quantities of 11e.(2) byproduct</p>	<p>NA; this facility does not manage naturally occurring radioactive material.</p>

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.	
<u>C. Complex-Wide Low-Level Waste Management Program.</u> A complex-wide program and plan shall be developed as described under <i>Responsibilities</i> , 2.B and 2.D, in Chapter I of this Manual.	DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.
<u>D. Radioactive Waste Management Basis.</u> Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:	The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste..
(1) Generators. The waste certification program. From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.	See J. below for waste certification program requirements. DSA-003-HFEF serves as the safety basis documentation for the facility and establishes it as a Hazard Category 2 nuclear facility. HFEF-OI-1302 specifies material accountability requirements for managing special nuclear material in HFEF and provides the instructions necessary to meet the requirements using the Mass Tracking System database.
(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [<i>sic</i>] From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis. A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis. As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or	NA; waste is not treated at this facility.

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
disposal facility.	
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	NA; this facility does not store LLW.
(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.	NA; this facility is not a disposal facility.
E. <u>Contingency Actions</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].	DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste</p>	NA; this facility does not store or treat liquid TRU waste.

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.	
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	NA; this facility does not store or treat liquid TRU waste.
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a</p>	See F. above.

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.	
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.</p>	The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.
G. <u>Waste Acceptance</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].	DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
<p>(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.)</p>	NA; this facility does not accept LLW from other facilities.
(a) Allowable activities and/or concentrations of specific radionuclides.	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	See (1) above.

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	See (1) above.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (1) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (1) above.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (1) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (1) above.
5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]	See (1) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved. From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.	See (1) above.
(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the	See (1) above.

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].</p>	<p>DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) <u>Life-Cycle Planning</u>. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p>
<p>(2) <u>Waste with No Identified Path to Disposal</u>. Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:</p>	<p>This facility does not generate LLW that does not have an identified path to disposal.</p>
<p>(a) <u>Programmatic need to generate the waste;</u></p>	<p>See (2) above.</p>
<p>(b) <u>Characteristics and issues preventing the disposal of the waste;</u></p>	<p>See (2) above.</p>

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
<p>I. <u>Waste Characterization</u>. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.</p>	<p>MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.</p> <p>HFEF-OI-6601 addresses characterization requirements for LLW and mixed LLW generated in the facility.</p> <p>HFEF-OI-6602 provides radiological smear analysis characterization instructions for development of characterization data for radiologically contaminated or mixed waste generated in the facility.</p> <p>HFEF-OI-6801 specifies the requirements for evaluation and acceptance, storage, treatment, characterization, and shipping preparation of LLW waste. This document complies with the MFC-785 specific sections of PER-116 and the CH TRU WAC for the Waste Isolation Pilot Plant.</p> <p>Appendices A, B, and C of RL-OI-1 provide documented characterization of the liquid LLW generated at the decontamination spray chamber.</p>
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.)</p>	<p>MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.</p> <p>HFEF-OI-6601 addresses characterization requirements for LLW and mixed LLW generated in the facility.</p> <p>HFEF-OI-6602 provides radiological smear analysis characterization instructions for development of characterization data for radiologically contaminated or mixed waste generated in the facility.</p> <p>HFEF-OI-6801 specifies the requirements for evaluation and acceptance, storage, treatment,</p>

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
	<p>characterization, and shipping preparation of LLW waste. This document complies with the MFC-785 specific sections of PER-116 and the CH TRU WAC for the Waste Isolation Pilot Plant.</p> <p>Appendices A, B, C of RL-OI-1 provide documented characterization of the liquid LLW generated at the decontamination spray chamber.</p>
(a) Physical and chemical characteristics;	See (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See (2) above.
(c) Weight of the container and contents;	See (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See (2) above.
(e) Characterization date;	See (2) above.
(f) Generating source; and	See (2) above.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See (2) above.
<p><u>J. Waste Certification.</u> A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>HFEF-OI-6601 addresses certification requirements for LLW and mixed LLW generated in the facility.</p> <p>MCP-17000 cites a waste certification program for LLW destined for NNSS. A waste certification program for other storage, treatment, or disposal facilities is not addressed.</p> <p>MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste certification information.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Container procurement is addressed in MCP-17000 § 4.6.</p> <p>RSWF-OI-003 specifies requirements and provides instructions for accepting mixed waste, radioactive waste, and radioactive material for storage at RSWF. Appendix A serves as the record document to be maintained for each container going to that facility.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval</p>

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
	<p>authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSS.</p> <p>The facility completes a Liquid Waste Generator Certification Form that is featured as Appendices A and C of RL-OI-1 to support certification of the liquid LLW generated their prior to transfer to RLWTF.</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	<p>See J. above.</p>
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above.</p>
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized</p>	<p>See J. above.</p>

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>MCP-17000 specifies the requirements for preparing an IWTS profile that captures waste certification data, transfer information, and associated authorizations.</p> <p>RSWF-OI-003 specifies requirements and provides instructions for accepting mixed waste, radioactive waste, and radioactive material for storage at RSWF. Appendix A serves as the record document to be maintained for each container going to that facility.</p> <p>RSWF-OI-004 provides the administrative requirements/process used by RSWF management for approving material transfer activities into and out of RSWF.</p> <p>TSD-OI-004 specifies requirements and provides instructions for accepting LLW and mixed LLW at the MFC treatment, storage, and disposal facilities.</p> <p>The facility completes a Liquid Waste Generator Certification Form (no form number on the form), which is featured as Appendix C of RL-OI-1.</p>
<p>(1) <u>Authorization</u>. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	<p>See K. above.</p>
<p>(2) <u>Data</u>. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	<p>See K. above.</p>
<p>L. <u>Packaging and Transportation</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].</p>	<p>DOE Manual 435.1-1 §I.1.E(11) applies to field element managers.</p>

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(1) Packaging. If containers are used:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repack the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.)</p>	MCP-17000 § 4 addresses packaging requirements.
<p>(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.</p>	See (1) above.
<p>(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.</p>	See (1) above.
<p>(c) Containers of low-level waste shall be marked such that their contents can be identified.</p>	See (1) above.
<p>(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.</p>	NA; waste is not shipped to an offsite facility for final disposition from this facility
<p>M. <u>Site Evaluation and Facility Design</u>. The following requirements are in addition to those in Chapter I of this Manual.</p>	NA; this requirement addresses new radioactive waste management facilities.
<p>(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.</p>	See M. above.
<p>(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste</p>	See M. above.

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:	
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are	See M. above.

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.	See M. above.
(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>N. <u>Storage and Staging</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.</p>
<p>(1) <u>Storage Prohibitions</u>. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(2) <u>Storage Limit</u>. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager.</p> <p>From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place.</p> <p><u>Mixed waste</u>. Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste</u>. As discussed above, the intention of the requirement is not to force malicious compliance or</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <p>1) the radioactive waste management basis allows for storage for no more than one year.</p> <p>2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis.</p> <p>3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>However, in making a decision to use a facility for storage and in developing a radioactive waste</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>management basis for the activity, particular attention to protection of workers is needed.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	
(4) Waste Characterization for Storage.	NA; this facility does not store LLW. See N. (7) below for staging requirements.
(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.	NA; this facility does not store LLW. See N. (7) below for staging requirements.
(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual.	NA; this facility does not store LLW. See N. (7) below for staging requirements.
<p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.</p>	
(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised.	LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.
<p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.</p>	
(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.	NA; this facility does not store LLW. See N. (7) below for staging requirements.
(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this	Routine LLW, such as personnel protective equipment, is accumulated at this facility for disposal. MCP-17000, Appendix F restricts staging LLW to 90 days maximum at any generator or treatment facility prior to acceptance by a storage facility.

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>Manual.</p> <p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.</p>	<p>As stated in DOE Gude 435.1-1 §IV.N.(7), staging waste in accordance with this requirement allows waste to be accumulated without being considered storage and being bound by the associated storage requirements.</p>
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	<p>NA; this facility does not treat LLW.</p>
<p>P. <u>Disposal</u>. Low-level waste disposal facilities shall meet the following requirements.</p>	<p>NA; this facility does not dispose of LLW.</p>
<p>(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:</p>	<p>See P. above.</p>
<p>(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.</p>	<p>See P. above.</p>
<p>(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.</p>	<p>See P. above.</p>

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(c) Release of radon shall be less than an average flux of 20 pCi/m ² /s (0.74Bq/m ² /s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.	See P. above.
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	See P. above.
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	See P. above.
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.	See P. above.
(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.	See P. above.

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.	See P. above.
(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	See P. above.
(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	See P. above.
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	See P. above.
(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements	See P. above.

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
include:	
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	See P. above.
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	See P. above.
(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	See P. above.
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this facility does not dispose of LLW.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and</i>	See Q. above.

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<i>the Environment.</i>	
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	DOE Manual 435.1-1 §I.1.E(7) applies to field element managers.
(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed. From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the	Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities. LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the "routine sheet" and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and method.

Table 15. (continued).

Facility Name: MFC-785, Hot Fuel Examination Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	
<p>(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p>	<p>NA; this facility does not store liquid LLW.</p>
<p>(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.</p>	<p>NA; this facility does not dispose of LLW.</p>
<p>(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.</p>	<p>See (3) above.</p>
<p>(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.</p>	<p>See (3) above.</p>
<p>(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.</p>	<p>See (3) above.</p>

4.11 MFC-787, Fuels and Applied Sciences Building

1. **Facility description:** MFC-787, Fuels and Applied Science Building, is a radiological facility that provides for development of low enriched uranium fuel as an alternative for research reactors, spent fuel treatment, and the conduct of other experimental projects. Equipment and operations in MFC-787 include the following:
 - West development glovebox contains a molten salt furnace that is used to perform elementary electrometallurgical research on nuclear materials.
 - East development glovebox contains a prototype of a metal waste form furnace that is installed in HFEF. The metal waste form furnace is a passively-cooled, high-temperature induction furnace, which is designed to consolidate cladding hulls resulting from operation of the electrorefiners in FCF. The prototype furnace will be used in the future to resolve any operational issues that may arise in the HFEF furnace during checkout and ingot production.
 - Bench-scale casting development system is used for small-scale materials and process development tests, including benchmarking. Recent interest in recycling of minor actinides through scalable remote fuel fabrication processes, with very low material losses, has spurred effort to improve the technology in the areas of (1) elimination of losses of high vapor-pressure minor actinides, (2) elimination of quartz mold waste, and (3) elimination of crucible cleaning, recoating, and associated waste.
 - Gamma irradiator contains a large, shielded Co-60 source used for irradiation of samples to evaluate the effects of gamma-ray doses on those samples.
 - X-ray diffraction is performed as a nondestructive analytical test to determine information about the crystallographic structure, chemical composition, and physical properties of materials and thin films. This is based on observing the scattered intensity of an x-ray beam hitting a sample as a function of incident and scattered angle, polarization, and wavelength or energy.
 - Reduced Enrichment Research and Test Reactors main glovebox operations include (1) uranium alloy atomization (conversion of a solid uranium alloy pin into a powder form), (2) uranium fuel powder handling, processing, and compacting, (3) arc melting metals to produce alloys, (4) hydride/dehydride processing to form uranium alloy powder.
 - Reduced Enrichment Research and Test Reactors small glovebox operations include preparation, fabrication, testing, and sampling of metal or ceramic materials.
 - The hot isostatic press is a Reduced Enrichment Research and Test Reactors project that uses high temperature and high pressure to bond metallic fuels and claddings.
 - Friction bonding is a Reduced Enrichment Research and Test Reactors fuel fabrication process that is used to clad aluminum with the uranium alloy foils through applying pressure to a tool that generates heat and softens material. The softened material produces a plastic flow that stirs metal from both sides, creating a weld.
 - Tensile testing is performed to determine the failure strength of the monolithic foils and fuel plates in fuel development.
 - Ultrasonic testing is performed to evaluate/inspect fuel and other materials.
 - Newly installed equipment:
 - Tribometer – new capability used for mechanical testing of materials (surface friction, in particular); can be used for multiple programs and materials tested will be primarily U/Mo fuels (high priority for the Reduced Enrichment Research and Test Reactors program).

- Positron Annihilator Spectrometer – new capability used for examining residual stresses of fuels, micro-structural changes to fuels due to irradiation; can examine systems at smaller length scale than a TEM.
 - Laser flash analyzer – measures thermal properties of reactor materials.
 - Differential scanning calorimeter analyzer – measures thermo-physical material properties of materials and supports reactor experiments and new reactor designs.
 - Dilatometer – measures thermo-physical material properties of materials and supports reactor experiments and new reactor designs.
2. **Hazard category:** LTHC3
3. **Radioactive waste managed at this facility:** CH LLW and mixed CH LLW are generated and staged at this facility.
4. **RWMB documents/programs:**
- a. Safety basis/hazard analysis:
 - EDF-7030, “Inventory Analysis of Radiological Facilities at the Materials and Fuels Complex (MFC)”
 - b. Laboratory-wide:
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - LI-435, “Waste Management Routine Field Activities”
 - LRD-15001, “Radiological Control Manual”
 - LWP-8000, Environmental Instructions for Facilities, Processes, Materials, and Equipment
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”
 - LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
 - LWP-17000, “Waste Management”
 - MCP-139, “Radiological Surveys”
 - MCP-17000, “Waste Generator Services Waste Management”
 - MCP-17410, “Management of Waste Storage Areas”
 - MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
 - PDD-17000, “Waste Management Program”
 - PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
 - PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”
 - c. Facility-specific:
 - 1356-07-FASB, “FASB General Laboratory Work”
 - SD-38.1.1, “Treatment, Storage, and Disposal Facilities (TSDF) Environmental Compliance”
 - TSD-OI-004 “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control.”

LLW is managed at this facility. Table 16 shows the facility compliance information for DOE Manual 435.1-1 Chapter IV, “Low-level Waste Requirements.”

Table 16. MFC-787, Fuels and Applied Sciences Building, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>A. <u>Definition of Low-Level Waste</u>. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>(From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>This requirement provides the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See below.</p>
<p>(1) <u>Mixed Low-Level Waste</u>. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>This facility may manage mixed LLW.</p> <p>Compliance with RCRA regulations is addressed by WGS in its waste management services role in MCP-17000.</p> <p>1356-07-FASB § 2, Table 2.03 addresses mixed LLW. Individual projects also would have project-specific laboratory instructions that would address the management of mixed LLW in accordance with RCRA regulations.</p>
<p>(2) <u>TSCA-Regulated Waste</u>. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i>, as amended, DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not manage TSCA-regulated waste.</p>
<p>(3) <u>Accelerator-Produced Waste</u>. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual, and all applicable Federal or State requirements.</p>	<p>NA; this facility does not manage accelerator-produced waste.</p>
<p>(4) <u>11e.(2) and Naturally Occurring Radioactive Material</u>. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.</p>	<p>NA; this facility does not manage naturally occurring radioactive material.</p>
<p>C. <u>Complex-Wide Low-Level Waste Management Program</u>. A complex-wide program and plan shall be</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant</p>

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
developed as described under <i>Responsibilities</i> , 2.B and 2.D, in Chapter I of this Manual.	Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.
D. <u>Radioactive Waste Management Basis</u> . Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:	The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste.. This facility is a LTHC3 facility (EDF-7030).
(1) Generators. The waste certification program. From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.	See J. below.
(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [<i>sic</i>] From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis. A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis. As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.	NA; LLW is not treated at this facility. Containerized elementary neutralization is performed at this facility as provided by LWP-8000. As stated in § 4.118, elementary neutralization of corrosive hazardous waste may take place at any location where the waste is generated or stored, and neither a generator treatment plan nor a permit is required. Solidification of liquid LLW for the purpose of staging (not for treating the radioactive constituents) also may be performed. Therefore, this facility is not considered to be a treatment facility.
(3) Storage Facilities. The waste acceptance requirements and the waste certification program. From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.	NA; this facility stages waste in accordance with N.(7) to facilitate treatment or disposal.

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>NA; liquid LLW is not stored or treated in a tank system at this facility.</p>
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition</p>	<p>NA; liquid LLW is not stored or treated in a tank system at this facility.</p>

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.</p>	<p>See F. above.</p>
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are</p>

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.	conducted in accordance with the approved RWMB.
G. <u>Waste Acceptance</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following: From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.	NA; this facility generates LLW but does not receive radioactive waste from other sources.
(a) Allowable activities and/or concentrations of specific radionuclides.	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	See (1) above.
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	NA; this facility is not a LLW disposal facility.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if	See (d) above.

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
containers are used, between the waste and its container shall be reduced to the extent practical.	
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (d) above.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (d) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (d) above.
5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]	See (d) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved. From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.	NA; this facility does not accept waste from other facilities.
(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established. From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of	NA; this facility does not accept waste from other facilities.

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	
<p>H. Waste Generation Planning. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p> <p>1356-07-FASB § 2, Table 2.03 lists the waste expected to be generated, the container type, and notes on treatment and disposal.</p> <p>1356-07-FASB § 2 states that WGS is responsible for meeting proper storage and disposal requirements of any waste generated that is not identified in Table 2.03 of the procedure.</p> <p>Laboratory instructions also are prepared for specific tasks and projects. These laboratory instructions would include description of expected waste and disposition plans.</p>
<p>(2) Waste with No Identified Path to Disposal. Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:</p>	<p>NA; this facility is not generating LLW that does not have an identified path to disposal.</p>
<p>(a) Programmatic need to generate the waste;</p>	<p>See (2) above.</p>
<p>(b) Characteristics and issues preventing the disposal of the waste;</p>	<p>See (2) above.</p>
<p>(c) Safe storage of the waste until disposal can be achieved; and</p>	<p>See (2) above.</p>
<p>(d) Activities and plans for achieving final disposal of the waste.</p>	<p>See (2) above.</p>
<p>I. Waste Characterization. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the</p>	<p>MCP-17000 addresses waste characterization.</p> <p>1356-07-FASB § 2, Table 2.03 addresses characterization of the facility's LLW.</p>

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.</p>	<p>1356-07-FASB § 2, Table 2.03 states that disposal of the facility’s rinse water generated in the radiological contamination area to industrial waste or to the RLWTF will be based on sampling and analysis.</p>
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.</p>	<p>MCP-17000, including §§4.2, 4.3, and 4.4, provides waste characterization requirements. Information on absorbent media is required in §§4.5 and 4.7. MCP-17000 also specifies the use of IWTS, which documents characterization data in an IWTS profile.</p>
<p>(a) Physical and chemical characteristics;</p>	<p>See I. and (2) above.</p>
<p>(b) Volume, including the waste and any stabilization or absorbent media;</p>	<p>See I. and (2) above.</p>
<p>(c) Weight of the container and contents;</p>	<p>See I. and (2) above.</p>
<p>(d) Identities, activities, and concentrations of major radionuclides;</p>	<p>See I. and (2) above.</p>
<p>(e) Characterization date;</p>	<p>See I. and (2) above.</p>
<p>(f) Generating source; and</p>	<p>See I. and (2) above.</p>
<p>(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.</p>	<p>See I. and (2) above.</p>
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p>	<p>MCP-17000 cites a waste certification program for LLW destined for NNSS. For waste destined for locations other than NNSS, the waste disposition specialist is responsible for certifying the waste stream by ensuring the waste, as characterized, falls within the</p>

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>limitations of the WAC of the treatment, storage, or disposal facility (§2).</p> <p>Container procurement is addressed in MCP-17000 § 4.6.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSS.</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	<p>See J. above. MCP-17500 §§ 2 and 5 address certification records for shipments to NNSS.</p>
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above. MCP-17500 § 4.3.6 addresses controls for certification before transfer for LLW to be disposed of at NNSS.</p>

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	<p>See J. above. Pre-certification checklists are cited in MCP-17000 and MCP-17500. Surveillances are also addressed in MCP-17500.</p> <p>LWP-15011 § 5 provides general radioactive storage area requirements.</p>
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>MCP-17000 § 4.8.15 specifies requirements for interfacility transfers.</p> <p>TSD-OI-004 includes MFC-703, MFC-793, and MFC-797 requirements for receiving transferred waste.</p> <p>MCP-17500 § 4 addresses LLW to be transferred to NNSS.</p>
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	<p>See K. above.</p>
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be</p>	<p>See K. above.</p>

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.	
L. <u>Packaging and Transportation</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].	See (1) and (2) below.
(1) <u>Packaging</u> . If containers are used: From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repackage the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.	MCP-17000 § 4 addresses packaging requirements.
(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.	See (1) above.
(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.	See (1) above.
(c) Containers of low-level waste shall be marked such that their contents can be identified.	See (1) above.
(2) <u>Transportation</u> . To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized. From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.	MCP-17000 § 4 addresses transportation. The waste disposition specialist coordinates with packaging and transportation personnel for waste shipped offsite from this facility. Waste is shipped directly to NNSS from this facility. MCP-17500 specifies waste certification official and waste disposition specialist responsibilities and coordination with packaging and transportation personnel.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities or modifications to existing facilities.

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:	See M. above.
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases	See M. above.

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.	See M. above.
(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.
N. <u>Storage and Staging</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.	NA; LLW is not stored at this facility.
(2) Storage Limit. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager. From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility. Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place. <u>Mixed waste</u> . Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements.	NA; LLW is not stored at this facility.

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <ol style="list-style-type: none"> 1) the radioactive waste management basis allows for storage for no more than one year. 2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis. 3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives. 4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives. <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical</p>	

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
evaluations if storage is to extend significantly beyond the one-year time frame.	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>From DOE G 435.1-1 Chapter IV: However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	NA; LLW is not stored at this facility.
(4) Waste Characterization for Storage.	NA; LLW is not stored at this facility.
(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.	See (4) above.
<p>(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.</p>	See (4) above.
<p>(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p> <p>Inspections are performed for TAAs and SAAs as required by WGS procedures (MCP-17000 and MCP-17410).</p>

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.</p>	<p>NA; LLW is not stored at this facility.</p>
<p>(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.</p>	<p>LLW and mixed LLW is staged for the purpose of accumulation to facilitate treatment and disposal. Mixed LLW is staged in SAAs in accordance with MCP-17000 and MCP-17410. LLW is staged in TAAs in accordance with MCP-17000 and MCP-17410.</p> <p>MCP-17000, Appendix F restricts staging LLW to 90 days maximum at any generator or treatment facility prior to acceptance by a storage facility.</p> <p>1356-07-FASB, Table 2.03 addresses LLW and mixed LLW.</p> <p>Individual projects also would have project-specific laboratory instructions that would address the management of mixed LLW in accordance with RCRA regulations.</p>
<p>O. Treatment. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	<p>NA; treatment is not performed in this facility.</p> <p>Containerized elementary neutralization is performed at this facility as provided by LWP-8000. As stated in § 4.118, elementary neutralization of corrosive hazardous waste may take place at any location where the waste is generated or stored, and neither a generator treatment plan nor a permit is required. Solidification of liquid LLW for the purpose of staging (not for treating the radioactive constituents) also may be performed. Therefore, this facility is not considered to be a treatment facility.</p>
<p>P. Disposal. Low-level waste disposal facilities shall meet the following requirements.</p>	<p>NA; LLW is not disposed of in this facility.</p>
<p>(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:</p>	<p>See P. above.</p>

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.	See P. above.
(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.	See P. above.
(c) Release of radon shall be less than an average flux of 20 pCi/m ² /s (0.74Bq/m ² /s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.	See P. above.
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	See P. above.
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	See P. above.
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved	See P. above.

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.	See P. above.
(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance	See P. above.

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.	
(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.	See P. above.
(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	See P. above.
(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	See P. above.
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	See P. above.
(6) Disposal Facility Operations. The disposal facility	See P. above.

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements include:	
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	See P. above.
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	See P. above.
(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	See P. above.
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; LLW is not disposed of in this facility.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement.	See Q. above.

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
Closure plans shall:	
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	See (1), (2), and (3) below.
(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed. From DOE G 435.1-1 Chapter IV: The minimum	Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities. LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the "routine sheet" and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>
<p>(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p>	<p>NA; liquid waste is not stored at this facility.</p>
<p>(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.</p>	<p>NA; LLW is not disposed of in this facility.</p>
<p>(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.</p>	<p>See (3) above.</p>
<p>(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.</p>	<p>See (3) above.</p>

Table 16. (continued).

Facility Name: MFC-787, Fuels and Applied Sciences Building	
Chapter IV, LLW Requirements	Facility Compliance Information
(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.	See (3) above.

4.12 MFC-792A, Space and Security Power Systems Facility

1. **Facility description:** MFC-792A, Space and Security Power Systems, provides the capability for assembly and acceptance testing of RPSs. The Space and Security Power Systems Facility is comprised of two structures (MFC-792 and 792A). MFC-792 is limited to non-nuclear administrative and support functions. All activities involving handling, assembling, testing, and packaging of fueled RPS components are performed in MFC-792A.
2. **Hazard category:** Hazard Category 2 non-reactor nuclear facility
3. **Radioactive waste managed at this facility:** Routine LLW subsequent to facility operations are generated and staged at this facility.
4. **RWMB documents/programs:**
 - a. Safety basis/hazard analysis:
 - DSA-009-RPSF, “RPSF Documented Safety Analysis”
 - LST-302, “Safety Basis List for the Materials and Fuels Complex (MFC) Space and Security Power Systems Facility (SSPSF)”
 - IAG-261, “INL Authorization Agreement for the Materials and Fuels Complex (MFC) Space and Security Power Systems Facility (SSPSF)”
 - b. Laboratory-wide:
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - LI-435, “Waste Management Routine Field Activities”
 - LRD-15001, “Radiological Control Manual”
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”
 - LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
 - LWP-17000, “Waste Management”
 - MCP-139, “Radiological Surveys”
 - MCP-17000, “Waste Generator Services Waste Management”
 - MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
 - PDD-17000, “Waste Management Program”
 - PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
 - PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”

c. Facility-specific:

- None.

LLW is managed at this facility. Table 17 shows the facility compliance information for DOE Manual 435.1-1 Chapter IV, “Low-level Waste Requirements.”

Table 17. MFC-792A, Space and Security Power Systems Facility, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>A. <u>Definition of Low-Level Waste</u>. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>(From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>This requirement provides the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1 Chapter II or Chapter III.</p>
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See below.</p>
<p>(1) <u>Mixed Low-Level Waste</u>. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not manage mixed LLW.</p>
<p>(2) <u>TSCA-Regulated Waste</u>. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i>, as amended, DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not manage TSCA-regulated waste.</p>
<p>(3) <u>Accelerator-Produced Waste</u>. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual, and all applicable Federal or State requirements.</p>	<p>NA; this facility does not manage accelerator-produced waste.</p>
<p>(4) <u>11e.(2) and Naturally Occurring Radioactive Material</u>. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level</p>	<p>NA; this facility does not manage naturally occurring radioactive material.</p>

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
waste disposal in Section IV.P of this Manual.	
C. <u>Complex-Wide Low-Level Waste Management Program</u> . A complex-wide program and plan shall be developed as described under <i>Responsibilities</i> , 2.B and 2.D, in Chapter I of this Manual.	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.
D. <u>Radioactive Waste Management Basis</u> . Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:	The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste.. IAG-261 documents DOE’s approval of Battelle Energy Alliance’s safety basis defined in LST-302. This facility is a Hazard Category 2 non-reactor nuclear facility (DSA-009-RPSF).
(1) Generators. The waste certification program. From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.	See J. below.
(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [<i>sic</i>] From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis. A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis. As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.	NA; LLW is not treated at this facility.
(3) Storage Facilities. The waste acceptance requirements and the waste certification program.	NA; this facility stages waste in accordance with N.(7) to facilitate treatment or disposal.

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer</p>	<p>NA; liquid LLW is not stored or treated in a tank system at this facility.</p>

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
capability are kept in operating condition.	
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>NA; liquid LLW is not stored or treated in a tank system at this facility.</p>
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and</p>	<p>See F. above.</p>

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
allows identification of problems by all personnel.	
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.</p>
<p>G. <u>Waste Acceptance</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.</p>
<p>(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.</p>	<p>NA; this facility generates LLW but does not receive radioactive waste from other sources.</p>
<p>(a) Allowable activities and/or concentrations of specific radionuclides.</p>	<p>See (1) above.</p>
<p>(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.</p>	<p>See (1) above.</p>
<p>(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.</p>	<p>See (1) above.</p>
<p>(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:</p>	<p>NA; this facility is not a LLW disposal facility.</p>

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (d) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (d) above.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (d) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (d) above.
5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [<i>sic</i>]	See (d) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved. From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.	NA; this facility does not accept waste from other facilities.
(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.	NA; this facility does not accept waste from other facilities.

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) <u>Life-Cycle Planning</u>. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p>
<p>(2) <u>Waste with No Identified Path to Disposal</u>. Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:</p>	<p>NA; this facility is not generating LLW that does not have an identified path to disposal.</p>
<p>(a) Programmatic need to generate the waste;</p>	<p>See (2) above.</p>
<p>(b) Characteristics and issues preventing the disposal of the waste;</p>	<p>See (2) above.</p>
<p>(c) Safe storage of the waste until disposal can be achieved; and</p>	<p>See (2) above.</p>

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
<p>I. <u>Waste Characterization</u>. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.</p>	MCP-17000 addresses waste characterization.
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.</p>	MCP-17000, including §§4.2, 4.3, and 4.4, provides waste characterization requirements. Information on absorbent media is required in §§ 4.5 and 4.7. MCP-17000 also specifies the use of IWTS that documents characterization data in an IWTS profile.
(a) Physical and chemical characteristics;	See (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See (2) above.
(c) Weight of the container and contents;	See (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See (2) above.
(e) Characterization date;	See (2) above.
(f) Generating source; and	See (2) above.

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>MCP-17000 cites a waste certification program for LLW destined for NNSS. For waste destined for locations other than NNSS, the waste disposition specialist is responsible for certifying the waste stream by ensuring the waste, as characterized, falls within the limitations of the waste acceptance criteria of the treatment, storage, or disposal facility (§2).</p> <p>Container procurement is addressed in MCP-17000 § 4.6.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSS.</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	See J. above. MCP-17500 §§ 2 and 5 address certification records for shipments to NNSS.
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the</p>	See J. above. MCP-17500 § 4.3.6 addresses controls for certification before transfer for LLW to be disposed of at NNSS.

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	<p>See J. above. Pre-certification checklists are cited in MCP-17000 and MCP-17500. Surveillances also are addressed in MCP-17500.</p> <p>LWP-15011 § 5 provides general radioactive storage area requirements.</p>
<p>K. Waste Transfer. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>MCP-17000 § 4.8.15 specifies requirements for interfacility transfers.</p> <p>MCP-17500 § 4 addresses LLW to be transferred to NNSS.</p>
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	<p>See K. above.</p>

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	See K. above.
<p>L. <u>Packaging and Transportation</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].</p>	See (1) and (2) below.
<p>(1) Packaging. If containers are used:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repack the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.</p>	MCP-17000 § 4 addresses packaging requirements.
<p>(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.</p>	See (1) above.
<p>(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.</p>	See (1) above.
<p>(c) Containers of low-level waste shall be marked such that their contents can be identified.</p>	See (1) above.
<p>(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with</p>	MCP-17000 §4 addresses transportation. The waste disposition specialist coordinates with packaging and transportation personnel for waste shipped offsite from this facility.

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.	Waste may be shipped directly to NNSS from this facility. MCP-17500 specifies waste certification official and waste disposition specialist responsibilities and coordination with packaging and transportation personnel.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities or modifications to existing facilities.
(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:	See M. above.
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable,	See M. above.

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation	See M. above.

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.</p>	
<p>(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.</p>	See M. above.
<p>(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.</p>	See M. above.
<p>N. <u>Storage and Staging</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].</p>	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
<p>(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.</p>	NA; LLW is not stored at this facility.
<p>(2) Storage Limit. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager.</p> <p>From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place.</p> <p><u>Mixed waste</u>. Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site</p>	NA; LLW is not stored at this facility.

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <ol style="list-style-type: none"> 1) the radioactive waste management basis allows for storage for no more than one year. 2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis. 3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives. 4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives. 	

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>From DOE G 435.1-1 Chapter IV: However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	<p>NA; LLW is not stored at this facility.</p>
<p>(4) Waste Characterization for Storage.</p>	<p>NA; LLW is not stored at this facility.</p>
<p>(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.</p>	<p>See (4) above.</p>
<p>(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.</p>	<p>See (4) above.</p>
<p>(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p>

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.</p>	
<p>(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.</p>	<p>NA; LLW is not stored at this facility.</p>
<p>(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.</p>	<p>LLW is staged for the purpose of accumulation to facilitate treatment and disposal.</p> <p>MCP-17000, Appendix F restricts staging LLW to 90 days maximum at any generator or treatment facility prior to acceptance by a storage facility.</p>
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	<p>NA; treatment is not performed in this facility.</p>

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
P. <u>Disposal</u> . Low-level waste disposal facilities shall meet the following requirements.	NA; LLW is not disposed of in this facility.
(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:	See P. above.
(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.	See P. above.
(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.	See P. above.
(c) Release of radon shall be less than an average flux of 20 pCi/m ² /s (0.74Bq/m ² /s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.	See P. above.
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	See P. above.
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	See P. above.
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond	See P. above.

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the	See P. above.

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
need for future corrective or remedial actions to adequately protect the public and the environment.	
(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.	See P. above.
(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.	See P. above.
(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	See P. above.
(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	See P. above.
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and	See P. above.

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	
(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements include:	See P. above.
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	See P. above.
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	See P. above.
(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	See P. above.
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; LLW is not disposed of in this facility.

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	See (1), (2), and (3) below.

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the "routine sheet" and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>
<p>(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p>	<p>NA; liquid waste is not stored at this facility.</p>
<p>(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.</p>	<p>NA; LLW is not disposed of in this facility.</p>
<p>(a) The site-specific performance assessment and composite analysis shall be used to determine the</p>	<p>See (3) above.</p>

Table 17. (continued).

Facility Name: MFC-792A Space and Security Power Systems Facility	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
media, locations, radionuclides, and other substances to be monitored.	
(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.	See (3) above.
(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.	See (3) above.

4.13 MFC-793, Sodium Components Maintenance Shop (including Metal RCRA Storage Building MFC-793C and 793G)

1. **Facility description:** MFC-793, Sodium Components Maintenance Shop, consists of three buildings used for waste container and tank storage, repackaging, treatment, and bench-scale treatment development work. The three buildings include the following MFC-793, High Bay and Low Bay; MFC-793C, Storage Building; and MFC-793G, Storage Building.

a. Sodium Components Maintenance Shop High Bay

The high bay is used to store, repackage, and treat LLW. The High Bay is a prefabricated steel frame building with insulated metal siding. It has a reinforced concrete floor that is approximately 39 × 66 ft with a ceiling height of 38 ft. The floor is curbed and sealed with an epoxy coating and is sloped toward floor drains that are routed to the low-bay pit (in the low bay). The high bay houses the 90-gal water wash vessel and its associated ventilation system and change room (provides radioactive contamination control); the water wash scrubber tank; the carbonation vessel; the removable melt, drain, and transfer system; and a work tent (radioactive contamination control).

The high bay is serviced by two 15-ton electrically powered hoists on a single, manually powered 30-ton bridge and one 5-ton electrically powered bridge crane installed on the building crane rails. The cranes provide the capability to move large components for removal of waste during storage, repackaging, and treatment. Vehicle and component access into the high bay is through a rolling hanger-type steel door that is located at the west end of the building and a steel roll-up door on the east end. Four personnel doors are provided on three sides of the high bay. One door is located on the south end of the high bay, which allows entry into the low bay. Another door is located on the east end, which allows entry into a vestibule and then out of the building. Two additional doors are on the north side of the building. One door is used as an emergency exit and the other door is used as an entry into an adjoining annex. The door leading into the annex is where a fume hood is located, which is used to carry out a bench-scale recipe development in support of Sodium Components Maintenance Shop full-scale solidification/stabilization of waste. When the rolling doors are fully open, a clear opening of 20 × 32 ft is available. Lighting intensity is a minimum of 50-ft candles at floor level and the bulbs are enclosed in explosion-proof casings. Explosion-proof electrical outlets, 120 volts, are provided at

approximately 15-ft intervals around the inside periphery of the building. The high bay is designed to Seismic Zone 3 of the Uniform Building Code.

b. Sodium Components Maintenance Shop Low Bay

The low bay is used to store, repackage, and treat waste. It is a self supporting building with a standard construction reinforced concrete floor 24×48 ft and a 14-ft high ceiling on the low side. The walls of the prefabricated steel frame building are insulated. It contains a bank of high-efficiency particulate air filters, an exhaust fan for the ventilation of the high bay, and power and motor controls for the fixed solidification station.

The low bay is serviced by a 1,000-lb rated, electrically powered hoist installed on a monorail in the ceiling. This hoist provides the capability to move containers before and after solidification and to remove large components for maintenance, disassembly, and disposal. The low bay also has a pit that contains the carbonate retention vessel and the scrubber water tank. The floor inside the low bay pit slopes toward a sump in the northeast corner of the pit floor and is painted with a waste-compatible epoxy coating. The floor of the pit is sloped to drain liquids to the $1.5 \times 1.5 \times 0.5$ -ft deep sump. The sump pump discharges into containers or to the carbonate retention vessel, as appropriate. The exterior pit walls are coated with waterproofing. The pit is covered by metal grating that allows personnel and equipment movement. At floor level there is a sampling station for the carbonate retention vessel and the scrubber water tank. The low bay contains two personnel doors: one going outside on the west end and one into the high bay. The door on the east end of the building is a double door system that has a large door to accommodate the removal of pallets loaded with drums prior to and following solidification. Lighting intensity and electrical outlets, 120 volts, are of standard construction types. The low bay is designed to Seismic Zone 3 of the Uniform Building Code.

c. Sodium Components Maintenance Shop MFC-793C

MFC-793C is located west of the Sodium Components Maintenance Shop building for the storage of waste. The building size is 40×30 ft with a 16-ft eave height. The floor of the storage building is concrete with a design load of 500 psf, sloping toward the center with two small concrete sumps designed to remove liquid resulting from precipitation. The floor is painted with an epoxy coating; however, the epoxy floor is not maintained as the secondary containment. Waste containing liquids are stored atop spill pallets and non-liquid HW/mixed waste containers are stored on pallets or secondary containment devices. Two 12×12 -ft roll-up freight doors and two personnel doors are provided. The prefabricated metal building has ridge ventilation and a wall louver to provide gravity ventilation. Two electric heaters with thermostatically controlled fan operation provide heat for the storage building. The building is provided with fluorescent lighting, power outlets (120 volts) for using hand tools and a welding outlet (480 volts). All roof and wall panel joints are self sealing to maintain a weather-tight seal. The building is designed to Seismic Zone 2 of the Uniform Building Code.

An $8 \times 10 \times 20$ -ft deep storage pit is located inside the building. The pit is constructed of reinforced concrete and includes a sump in the northeast corner of the pit floor. The floor of the pit is sloping to drain any liquids to the $1.5 \times 1.5 \times 0.5$ -ft deep sump. An 8-mm thick polyethylene vapor barrier is installed under the pit floor and the exterior pit walls are coated with waterproofing.

d. Sodium Components Maintenance Shop MFC-793G

One metal storage building (shed), identified as MFC-793 G is located south of MFC-793C for storage of waste. The metal storage shed was built in the late 1980s to house sodium containers. Shed MFC-793 is 13×25.5 ft, insulated, and has a personnel door and a large overhead roll-up door. The metal storage shed sits on reinforced concrete and is anchored to ensure the integrity in the wind.

2. **Hazard category:** LTHC3

3. **Radioactive waste managed at this facility:** CH LLW and liquid mixed CH LLW are generated at this facility. CH LLW and liquid CH mixed LLW are treated at this facility. CH mixed LLW is stored in this facility. TSCA-regulated CH LLW and mixed LLW also are stored in MFC-793C.
4. **RWMB documents/programs:**
 - a. Safety basis/hazard analysis:
 - EDF-7030, “Inventory Analysis of Radiological Facilities at the Materials and Fuels Complex (MFC)”
 - b. Laboratory-wide:
 - Form 435.39, “Waste Determination and Disposal Form (WDDF)”
 - Form 435.42, “Radioactive Waste Inventory Sheet”
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - FRM-323, “TSD Facilities Material Acceptance Checksheet”
 - LI-435, “Waste Management Routine Field Activities”
 - LRD-15001, “Radiological Control Manual”
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”
 - LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
 - LWP-17000, “Waste Management”
 - MCP-139, “Radiological Surveys”
 - MCP-17000, “Waste Generator Services Waste Management”
 - MCP-17410, “Management of Waste Storage Areas”
 - MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
 - PDD-17000, “Waste Management Program”
 - PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
 - PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”
 - c. Facility-specific:
 - PER-116, “HWMA/RCRA Storage and Treatment Permit for the Materials and Fuels Complex”
 - SCMS-OI-1, “Facility Information and Administrative Requirements”
 - SCMS-OI-6, “Materials Characterization, Segregation, and/or Repackaging in the SCMS Enclosure”
 - SCMS-OI-7, “Water Wash System”
 - SD-38.1.1, “Treatment, Storage, and Disposal Facilities (TSDF) Environmental Compliance”
 - TSD-OI-004, “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control.”

LLW is managed at this facility. Table 18 shows the facility compliance information for DOE Manual 435.1-1 Chapter IV, “Low-level Waste Requirements.”

Table 18. MFC-793, Sodium Components Maintenance Shop, DOE M 435.1-1 low-level waste requirements and facility compliance information.

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>A. Definition of Low-Level Waste. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>(From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>This requirement provides the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. Management of Specific Wastes. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See below.</p>
<p>(1) Mixed Low-Level Waste. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>This facility has a HWMA/RCRA permit to store and treat mixed waste (PER-116). Mixed LLW is stored in MFC-793, 793C, and 793G. Mixed LLW is treated in MFC-793.</p>
<p>(2) TSCA-Regulated Waste. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i>, as amended, DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>TSCA-regulated mixed LLW and radioactive waste may be managed in MFC-793C. Compliance with TSCA regulations is addressed by WGS in its waste management services role. Overall management of mixed waste is addressed in MCP-17000 and temporary storage of polychlorinated biphenyl waste is addressed in MCP-17410.</p>
<p>(3) Accelerator-Produced Waste. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual, and all applicable Federal or State requirements.</p>	<p>NA; this facility does not manage accelerator-produced waste.</p>
<p>(4) 11e.(2) and Naturally Occurring Radioactive Material. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.</p>	<p>NA; this facility does not manage naturally occurring radioactive material.</p>
<p>C. Complex-Wide Low-Level Waste Management Program. A complex-wide program and plan shall be developed as described under <i>Responsibilities</i>, 2.B and 2.D, in Chapter I of this Manual.</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.</p>

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>D. <u>Radioactive Waste Management Basis</u>. Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:</p>	<p>The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste..</p> <p>This facility is a LTHC3 facility (EDF-7030).</p>
<p>(1) Generators. The waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.</p>	<p>See J. below.</p>
<p>(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>See G. and J. below.</p> <p>Treatment is performed in MFC-793.</p> <p>MCP-17000 § 4 specifies the use of IWTS, which tracks the waste inventory.</p> <p>TSD-OI-004 § 3.2.1 addresses the use of IWTS to track waste inventory.</p>
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste</p>	<p>See G. and J. below.</p> <p>MCP-17000 § 4 specifies the use of IWTS, which tracks the waste inventory.</p> <p>TSD-OI-004 § 3.2.1 addresses the use of IWTS to track waste inventory.</p>

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p> <p>The HWMA/RCRA permit also includes a contingency plan (PER-116, Attachment 7, § G).</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>This facility is has a HWMA/RCRA permit to store and treat mixed LLW.</p> <p>Contingency storage is addressed as part of the permit’s condition for MFC-793 container and tank system secondary containment and in the permit’s contingency plan.</p> <p>PER-116 §§ III.F and IV.C</p> <p>PER-116, Attachment 1 §§ D-2 and D-4; Attachment 7 § G-3(n)(2)</p> <p>SD-38.1.1, Appendix A and Appendix F</p>
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition</p>	<p>This facility is has a HWMA/RCRA permit to store and treat mixed LLW.</p> <p>Transfer equipment is addressed in the permit’s</p>

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>contingency plan for MFC-793 (PER-116, Attachment 7 § G-3(n)(2)).</p>
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.</p>	<p>See F. above.</p> <p>This facility is has a HWMA/RCRA permit to store and treat mixed LLW.</p> <p>Corrective actions for waste regulated under this permit are addressed as permit conditions.</p> <p>PER-116, Module VI</p> <p>PER-116, Attachment 4</p> <p>SD-38.1.1 § 2.4, 6, and Appendix A</p>
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are</p>

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.	conducted in accordance with the approved RWMB.
G. <u>Waste Acceptance</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
(1) <u>Technical and Administrative</u> . Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following: From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.	See below.
(a) Allowable activities and/or concentrations of specific radionuclides.	MCP-17000 TSD-OI-004 § 3.2
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	MCP-17000 TSD-OI-004 §§ 3.3 and 3.4 PER-116, Module II.C and III PER-116, Attachment 1 §§ B-2(a), D-1(a), and Attachment 2 § C-2(a) SD-38.1.1, Appendix A and Appendix F
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	MCP-17000 TSD-OI-004 § 3.2 PER-116, Module II.C and III PER-116, Attachment 1 §§ B-2(a), D-1(a) and Attachment 2 § C-2(a) SD-38.1.1, Appendix A and Appendix F

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	NA; this facility is not a LLW disposal facility.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (d) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (d) above.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (d) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (d) above.
5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]	See (d) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved. From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.	Exceptions to the waste acceptance requirements are not permitted.
(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the	MCP-17000 TSD-OI-004 § 3

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	<p>PER-116, Module II.C, III, and IV</p> <p>PER-116, Attachment 1 § D-1(b); Attachment 2 § C-2(a)</p> <p>SD-38.1.1, Appendix A and Appendix F</p> <p>Meeting permit and safety basis constraints are checked using:</p> <p style="padding-left: 40px;">FRM-323</p> <p style="padding-left: 40px;">IWTS Material and Waste Characterization Profile</p> <p>Non-conforming waste is not permitted.</p>
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) <u>Life-Cycle Planning</u>. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p>
<p>(2) <u>Waste with No Identified Path to Disposal</u>. Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:</p>	<p>NA; this facility is not generating LLW that does not have an identified path to disposal.</p>
<p>(a) <u>Programmatic need to generate the waste;</u></p>	<p>See (2) above.</p>
<p>(b) <u>Characteristics and issues preventing the disposal of the waste;</u></p>	<p>See (2) above.</p>
<p>(c) <u>Safe storage of the waste until disposal can be</u></p>	<p>See (2) above.</p>

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
achieved; and	
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
<p>I. <u>Waste Characterization</u>. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.</p>	<p>MCP-17000</p> <p>TSD-OI-004 § 3.2.6 and Appendix C</p> <p>PER-116, Module II.C</p> <p>PER-116, Attachment 2</p> <p>SD-38.1.1, Appendix A and Appendix F</p> <p>SCMS-OI-1 addresses characterization of potentially contaminated waste water resulting from treatment operations in MFC-793.</p> <p>SCMS-OI-6 addresses materials characterization, segregation, and repackaging in the SCMS enclosure.</p>
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.</p>	<p>MCP-17000, including §§4.2, 4.3, and 4.4, provides waste characterization requirements. Information on absorbent media is required in §§ 4.5 and 4.7. MCP-17000 also specifies the use of IWTS, which documents characterization data in an IWTS profile.</p> <p>TSD-OI-004 § 3.2.6 and Appendix C</p> <p>PER-116, Module II.C</p> <p>PER-116, Attachment 2</p> <p>SD-38.1.1, Appendix A and Appendix F</p> <p>FRM-323</p> <p>IWTS Material and Waste Characterization Profile</p>
(a) Physical and chemical characteristics;	See I. and (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See I. and (2) above.
(c) Weight of the container and contents;	See I. and (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See I. and (2) above.

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
(e) Characterization date;	See I. and (2) above.
(f) Generating source; and	See I. and (2) above.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See I. and (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>MCP-17000 cites a waste certification program for LLW destined for NNSS. For waste destined for locations other than NNSS, the waste disposition specialist is responsible for certifying the waste stream by ensuring the waste, as characterized, falls within the limitations of the WAC of the treatment, storage, or disposal facility (§2).</p> <p>Container procurement is addressed in MCP-17000 § 4.6.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSS.</p> <p>TSD-OI-004 §§3.2.4, 3.2.5, 3.3, 3.4, 3.6, and 4</p> <p>PER-116, Module II.C and III</p> <p>PER-116, Attachment 1 §§ B-2(a) and D-1(a); Attachment 2 § C-2(a)</p> <p>SD-38.1.1, Appendix A and Appendix F</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that</p>	<p>See J. above. MCP-17500 §§ 2 and 5 address certification records for shipments to NNSS.</p>

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.	
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above. MCP-17500 § 4.3.6 addresses controls for certification before transfer for LLW to be disposed of at NNSS.</p>
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	<p>See J. above. Pre-certification checklists are cited in MCP-17000 and MCP-17500. Surveillances also are addressed in MCP-17500.</p> <p>LWP-15011 § 5 provides general radioactive storage area requirements.</p>
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>MCP-17000 § 4.8.15 specifies requirements for interfacility transfers.</p> <p>MCP-17500 § 4 addresses LLW to be transferred to NNSS.</p> <p>TSD-OI-004 §§ 3.2, 3.4, 3.6, 3.7, 3.8, and 4</p>
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility</p>	<p>See K. above.</p>

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	See K. above.
<p>L. <u>Packaging and Transportation</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].</p>	See (1) and (2) below.
<p>(1) Packaging. If containers are used:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repackage the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.</p>	<p>MCP-17000 § 4 addresses packaging requirements.</p> <p>TSD-OI-004 § 3.3</p>
<p>(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.</p>	See (1) above.
<p>(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.</p>	See (1) above.

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
(c) Containers of low-level waste shall be marked such that their contents can be identified.	See (1) above.
(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized. From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.	MCP-17000 § 4 addresses transportation. The waste disposition specialist coordinates with packaging and transportation personnel for waste shipped offsite from this facility. MCP-17500 specifies waste certification official and waste disposition specialist responsibilities and coordination with packaging and transportation personnel for waste shipped directly to NNSS from this facility.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities or modifications to existing facilities.
(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:	See M. above.
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste disposal facilities shall	See M. above.

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.	See M. above.
(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.
N. <u>Storage and Staging</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.	MCP-17000 TSD-OI-004 §3.2 PER-116, Module II.C and III PER-116, Attachment 1 § D-1(a); Attachment 2 § C-2(a) SD-38.1.1, Appendix A and Appendix F The HWMA/RCRA permit (PER-116, Module III.B.3) allows ignitable (D001) and reactive (D003) hazardous waste to be stored and treated, and the permit specifies the conditions under which the waste can be stored and treated safely.
(2) Storage Limit. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager. From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.	MCP-17000 § 4.8.16, addresses storage time limits and waste that is to be stored longer than 1 year. MCP-17000, Appendix F addresses storage time limits. MCP-17410 addresses time limits for storage of polychlorinated biphenyl radioactive waste. The procedure states that polychlorinated biphenyl waste that also is radioactive waste is exempt from the 1-year time limit for disposal provided that a written record documenting all continuing attempts to secure disposal

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place.</p> <p><u>Mixed waste.</u> Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <ol style="list-style-type: none"> 1) the radioactive waste management basis allows for storage for no more than one year. 2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis. 3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives. 4) the radioactive waste management basis allows for 	<p>is maintained until the waste is disposed of and this written record is made available for inspection or submission if requested by the Environmental Protection Agency.</p> <p>Storage longer than 1 year for mixed waste is allowable under the Site Treatment Plan.</p>

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>From DOE G 435.1-1 Chapter IV: However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	<p>MCP-17000</p> <p>TSD-OI-004 §§ 3.3 and 3.4</p> <p>PER-116, Module III</p> <p>PER-116, Attachment 1 § D-1(a)</p> <p>SD-38.1.1, Appendix A and Appendix F</p>
<p>(4) Waste Characterization for Storage.</p>	<p>See below.</p>
<p>(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.</p>	<p>This facility does not store LLW that does not have an identified path to disposal.</p>
<p>(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable</p>	<p>MCP-17000</p> <p>TSD-OI-004 §§ 3.8 and 4</p> <p>PER-116, Module III and IV</p> <p>PER-116, Attachment 1 § D; Attachment 2</p> <p>SD-38.1.1, Appendix A and Appendix F</p>

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.</p>	
<p>(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p> <p>MCP-17000</p> <p>For mixed LLW:</p> <p style="padding-left: 40px;">TSD-OI-004 §§ 3.4.7 and 4.3</p> <p style="padding-left: 40px;">PER-116, Module III</p> <p style="padding-left: 40px;">PER-116, Attachment 4 (this attachment includes examples of facility-specific inspection forms to be used)</p> <p style="padding-left: 40px;">SD-38.1.1, Appendix A and Appendix F</p> <p>Inspections are performed in areas storing polychlorinated biphenyl waste as required by MCP-17000 and MCP-17410.</p> <p>LWP-15011 does not include a requirement for inspection.</p>
<p>(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.</p>	<p>NA; LLW is not stored at this facility.</p>
<p>(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging</p>	<p>NA; LLW is not staged at this facility.</p>

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.	
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	<p>Treatment is performed in MFC-793.</p> <p>MCP-17000</p> <p>TSD-OI-004 § 3.6</p> <p>PER-116, Module III and IV</p> <p>PER-116, Attachment 1 §§ B-3(d), D-1(a), and D-4(a); Attachment 2</p> <p>SD-38.1.1, Appendix A and Appendix F</p>
P. <u>Disposal</u> . Low-level waste disposal facilities shall meet the following requirements.	NA; LLW is not disposed of in this facility.
(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:	See P. above.
(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.	See P. above.
(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.	See P. above.
(c) Release of radon shall be less than an average flux of 20 pCi/m ² /s (0.74Bq/m ² /s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.	See P. above.
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	See P. above.

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	See P. above.
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total	See P. above.

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
effective dose equivalent excluding radon in air.	
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.	See P. above.
(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.	See P. above.
(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.	See P. above.
(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	See P. above.
(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance	See P. above.

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	See P. above.
(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements include:	See P. above.
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	See P. above.
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	See P. above.

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	See P. above.
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; LLW is not disposed of in this facility.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the	See Q. above.

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	See (1), (2), and (3) below.
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>PER-116, Attachment 1 § D and Attachment 4 § F describe facility monitoring and inspection requirements.</p> <p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the "routine sheet" and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>

Table 18. (continued).

MFC-793, Sodium Components Maintenance Shop (including MFC-793C and MFC-793G)	
Chapter IV, LLW Requirements	Facility Compliance Information
(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.	See (1) above.
(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.	NA; LLW is not disposed of in this facility.
(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.	See (3) above.
(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.	See (3) above.
(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.	See (3) above.

4.14 MFC-794, Contaminated Equipment Storage Building

- Facility Description:** MFC-794, Contaminated Equipment Storage Building, located in the northeast corner of the MFC site, is classified as a nonreactor, Less Than Hazard-Category-3 radiological facility. MFC-794 is also a HWMA/RCRA permitted facility that operates in accordance with PER-116. It was originally constructed to provide controlled-access, indoor storage for radiologically-contaminated equipment. Use of MFC-794 has been expanded to provide a controlled environment for repairing contaminated equipment and characterizing/repackaging/treating waste.

All waste generators must comply with applicable WAC described in activity-specific instructions for waste that will be stored/characterized/repackaged at MFC-794. MFC-794 has received and receives a variety of material from other MFC and DOE facilities.

The Contaminated Equipment Storage Building is a pre-engineered metal building consisting of two large rooms with painted metal wall panels, metal roof panels, and structural-steel support frames. The west side (room) of the building is the original structure. It was designed and constructed in 1975 and can be accessed through a personnel door or a large roll-up door on the west end of the building. An extension to the original building (east room) was completed in 1983. This east side of the building is taller than the west side and can be accessed by a personnel door or a roll-up door on the east side of the building. The most recent modification to MFC-794 included installation of air

Table 19. (continued).

conditioning units in the east room. The east side of MFC-794 is equipped with a 2-ton bridge crane. The MCCE is equipped with a portable 3-ton, A-frame hoist.

The wall dividing the east and west rooms contains a personnel access door and a large roll-up door.

2. **Hazard category:** Less Than Hazard Category 3 radiological facility
3. **Radioactive waste managed at this facility:** Solid and liquid CH LLW and mixed LLW are treated and stored at this facility.
4. **RWMB documents/programs:**
 - a. Safety basis/hazard analysis:
 - HAD-467, “Contaminated Equipment Storage Building Hazard Categorization”
 - ECAR-1545, “Hazard Categorization for the Contaminated Equipment Storage Building (CESB) MFC-794”
 - b. Laboratory-wide:
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - FRM-323, “TSD Facilities Material Acceptance Checksheet”
 - LI-435, “Waste Management Routine Field Activities”
 - LRD-15001, “Radiological Control Manual”
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”
 - LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
 - LWP-17000, “Waste Management”
 - MCP-139, “Radiological Surveys”
 - MCP-17000, “Waste Generator Services Waste Management”
 - MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
 - PDD-17000, “Waste Management Program”
 - PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
 - PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”
 - c. Facility-specific:
 - PER-116, “HWMA/RCRA Storage and Treatment Permit for the Materials and Fuels Complex”
 - SD-38.1.1, “Treatment, Storage, and Disposal Facilities (TSDF) Environmental Compliance”
 - SD-37.1.5, “Waste and Material Acceptance for CESB Storage and Radioactive-Material Inventory Control.”

LLW is managed at this facility. Table 19 shows the facility compliance information for Chapter IV, “Low-level Waste Requirements.”

Table 19. MFC-794, Contaminated Equipment Storage Building, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>A. Definition of Low-Level Waste. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>(From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>This requirement provides the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. Management of Specific Wastes. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See below.</p>
<p>(1) Mixed Low-Level Waste. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>This facility is has a HWMA/RCRA permit to store and treat mixed waste (PER-116).</p>
<p>(2) TSCA-Regulated Waste. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i>, as amended, DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not manage TSCA-regulated waste.</p>
<p>(3) Accelerator-Produced Waste. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual, and all applicable Federal or State requirements.</p>	<p>NA; this facility does not manage accelerator-produced waste.</p>
<p>(4) 11e.(2) and Naturally Occurring Radioactive Material. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.</p>	<p>NA; this facility does not manage naturally occurring radioactive material.</p>
<p>C. Complex-Wide Low-Level Waste Management Program. A complex-wide program and plan shall be developed as described under <i>Responsibilities</i>, 2.B and 2.D, in Chapter I of this Manual.</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.</p>
<p>D. Radioactive Waste Management Basis. Low-level</p>	<p>The RWMB provides the regulatory framework for</p>

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:</p>	<p>management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste.</p> <p>This facility is a Less Than Hazard Category 3 radiological facility (HAD-467).</p> <p>ECAR-1545 addresses hazard categorization for CESB.</p>
<p>(1) Generators. The waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.</p>	<p>See J. below.</p>
<p>(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>See G. and J. below.</p> <p>MCP-17000 § 4 specifies the use of IWTS, which tracks the waste inventory.</p> <p>SD-37.1.5 addresses the use of IWTS to track waste inventory.</p>
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste</p>	<p>See G. and J. below.</p> <p>MCP-17000 § 4 specifies the use of IWTS, which tracks the waste inventory.</p> <p>SD-37.1.5 addresses the use of IWTS to track waste inventory.</p>

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p> <p>The HWMA/RCRA permit also includes a contingency plan (PER-116, Attachment 7 § G).</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>NA; this facility does not store or treat liquid waste in tanks.</p>
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition</p>	<p>NA; this facility does not store or treat liquid waste in tanks.</p>

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.</p>	<p>See F. above.</p> <p>This facility has a HWMA/RCRA permit to store and treat mixed LLW.</p> <p>Corrective actions for waste regulated under this permit are addressed as permit conditions.</p> <p>PER-116 , Module VI</p> <p>PER-116, Attachment 4</p> <p>SD-38.1.1 § 2.4, 6, and Appendix A</p>
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are</p>

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.	conducted in accordance with the approved RWMB.
G. <u>Waste Acceptance</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
(1) <u>Technical and Administrative</u> . Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following: From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.	See below.
(a) Allowable activities and/or concentrations of specific radionuclides.	MCP-17000 SD-37.1.5
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	MCP-17000 SD-37.1.5 PER-116, Module II.C and III PER-116, Attachment 1 §§ B-2(a) and D-1(a); Attachment 2 § C-2(a) SD-38.1.1, Appendix A and Appendix C.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	MCP-17000 SD-37.1.5 PER-116, Module II.C and III PER-116, Attachment 1 §§ B-2(a) and D-1(a); Attachment 2 § C-2(a) SD-38.1.1, Appendix A and Appendix C.

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	NA; this facility is not a LLW disposal facility.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (d) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (d) above.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (d) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (d) above.
5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]	See (d) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved. From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.	Exceptions to the waste acceptance requirements are not permitted.
(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the	MCP-17000 SD-37.1.5

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	<p>PER-116, Module II.C and III</p> <p>PER-116, Attachment 1 § D-1(b); Attachment 2 § C-2(a)</p> <p>SD-38.1.1, Appendix A and Appendix C.</p> <p>Meeting permit and safety basis constraints are checked using:</p> <p style="padding-left: 40px;">FRM-323</p> <p style="padding-left: 40px;">IWTS Material and Waste Characterization Profile</p> <p>Nonconforming waste is not permitted.</p>
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) <u>Life-Cycle Planning</u>. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p>
<p>(2) <u>Waste with No Identified Path to Disposal</u>. Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:</p>	<p>NA; this facility is not generating LLW that does not have an identified path to disposal.</p>
<p>(a) <u>Programmatic need to generate the waste;</u></p>	<p>See (2) above.</p>
<p>(b) <u>Characteristics and issues preventing the disposal of the waste;</u></p>	<p>See (2) above.</p>
<p>(c) <u>Safe storage of the waste until disposal can be</u></p>	<p>See (2) above.</p>

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
achieved; and	
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
<p>I. <u>Waste Characterization</u>. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.</p>	<p>MCP-17000</p> <p>SD-37.1.5</p> <p>PER-116, Module II.C</p> <p>PER-116, Attachment 2</p> <p>SD-38.1.1, Appendix A and Appendix C</p>
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.</p>	<p>MCP-17000, including §§ 4.2, 4.3, and 4.4, provides waste characterization requirements. Information on absorbent media is required in §§ 4.5 and 4.7. MCP-17000 also specifies the use of IWTS, which documents characterization data in an IWTS profile.</p> <p>SD-37.1.5</p> <p>PER-116, Module II.C</p> <p>PER-116, Attachment 2</p> <p>SD-38.1.1, Appendix A and Appendix C</p> <p>FRM-323</p> <p>IWTS Material and Waste Characterization Profile</p>
(a) Physical and chemical characteristics;	See I. and (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See I. and (2) above.
(c) Weight of the container and contents;	See I. and (2) above.

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(d) Identities, activities, and concentrations of major radionuclides;	See I. and (2) above.
(e) Characterization date;	See I. and (2) above.
(f) Generating source; and	See I. and (2) above.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See I. and (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>MCP-17000 cites a waste certification program for LLW destined for NNSS. For waste destined for locations other than NNSS, the waste disposition specialist is responsible for certifying the waste stream by ensuring the waste, as characterized, falls within the limitations of the WAC of the treatment, storage, or disposal facility (§2).</p> <p>Container procurement is addressed in MCP-17000 § 4.6.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSS.</p> <p>SD-37.1.5</p> <p>PER-116, Module II.C and III</p> <p>PER-116, Attachment 1 §§B-2(a) and D-1(a); Attachment 2 § C-2(a)</p> <p>SD-38.1.1, Appendix A and Appendix C.</p>
(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.	See J. above. MCP-17500 §§ 2 and 5 address certification records for shipments to NNSS.

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above. MCP-17500 § 4.3.6 addresses controls for certification before transfer for LLW to be disposed of at NNSS.</p>
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	<p>See J. above. Pre-certification checklists are cited in MCP-17000 and MCP-17500. Surveillances also are addressed in MCP-17500.</p> <p>LWP-15011 § 5 provides general radioactive storage area requirements.</p>
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that</p>	<p>MCP-17000 § 4.8.15 specifies requirements for interfacility transfers.</p> <p>MCP-17500 § 4 addresses LLW to be transferred to NNSS.</p> <p>SD-37.1.5</p>

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
documented transfer of responsibility occurs.	
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	See K. above.
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	See K. above.
<p>L. <u>Packaging and Transportation</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].</p>	See (1) and (2) below.
<p>(1) Packaging. If containers are used:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repack the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.</p>	<p>MCP-17000 § 4 addresses packaging requirements.</p> <p>SD-37.1.5</p>
<p>(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.</p>	See (1) above.
<p>(b) When waste is packaged, vents or other measures</p>	See (1) above.

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.	
(c) Containers of low-level waste shall be marked such that their contents can be identified.	See (1) above.
(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized. From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.	MCP-17000 § 4 addresses transportation. The waste disposition specialist coordinates with packaging and transportation personnel for waste shipped offsite from this facility. MCP-17500 specifies waste certification official and waste disposition specialist responsibilities and coordination with packaging and transportation personnel for waste shipped directly to NNSS from this facility.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities or modifications to existing facilities.
(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:	See M. above.
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility	See M. above.

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
Design. The following facility requirements and general design criteria, at a minimum, apply:	
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) <u>Stability</u> . Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.	See M. above.
(d) <u>Control of Water</u> . Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.
N. <u>Storage and Staging</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
(1) <u>Storage Prohibitions</u> . Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.	MCP-17000 SD-37.1.5 PER-116, Module II.C and III PER-116, Attachment 1 § D-1(a); Attachment 2 § C-2(a) SD-38.1.1, Appendix A and Appendix C The HWMA/RCRA permit (PER-116, Module III.B.1) allows ignitable (D001) and reactive (D003) hazardous waste to be stored and treated, and the permit specifies the conditions under which the waste can be stored and treated safely. This waste was considered in the safety analysis (DSA-004-CESB; to be superseded by the implementation of HAD-467 in October 2011) ECAR-1545 addresses hazard categorization for CESB.
(2) <u>Storage Limit</u> . Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for	MCP-17000 § 4.8.16 addresses storage time limits and waste that are to be stored longer than 1 year.

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>decay, or as otherwise authorized by the Field Element Manager.</p> <p>From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place.</p> <p><u>Mixed waste.</u> Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <ol style="list-style-type: none"> 1) the radioactive waste management basis allows for storage for no more than one year. 2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis. 3) the radioactive waste management basis allows for storage for more than one year, up to a specified period 	<p>MCP-17000, Appendix F addresses storage time limits.</p> <p>Storage longer than 1 year for mixed waste is allowable under the Site Treatment Plan.</p>

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>From DOE G 435.1-1 Chapter IV: However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	<p>MCP-17000 SD-37.1.5 PER-116, Module III PER-116, Attachment 1 § D-1(a) SD-38.1.1, Appendix A and Appendix C.</p> <p>This waste was considered in the safety analysis (DSA-004-CESB; to be superseded by the implementation of HAD-467 in October 2011)</p> <p>ECAR-1545 addresses hazard categorization for CESB.</p>
<p>(4) Waste Characterization for Storage.</p>	<p>See below.</p>
<p>(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.</p>	<p>This facility does not store LLW that does not have an identified path to disposal.</p>
<p>(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance</p>	<p>MCP-17000 SD-37.1.5</p>

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>with the requirements for Records Management in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.</p>	<p>PER-116, Module III</p> <p>PER-116, Attachment 1 § D; Attachment 2</p> <p>SD-38.1.1, Appendix A and Appendix C</p>
<p>(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p> <p>MCP-17000</p> <p>For mixed LLW:</p> <p style="padding-left: 40px;">SD-37.1.5</p> <p style="padding-left: 40px;">PER-116, Module III</p> <p style="padding-left: 40px;">PER-116, Attachment 4 (this attachment includes examples of facility-specific inspection forms to be used)</p> <p style="padding-left: 40px;">SD-38.1.1, Appendix A and Appendix C.</p> <p>LWP-15011 does not include a requirement for inspection.</p>
<p>(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.</p>	<p>Waste is segregated by container. MCP-17000 § 4.7 requires the use of a unique IWTS bar code for each container.</p>
<p>(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p>	<p>NA; LLW is not staged at this facility.</p>

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.	
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	<p>MCP-17000 SD-37.1.5 PER-116, Module III PER-116, Attachment 1 § D-1(a) SD-38.1.1, Appendix A and Appendix C</p>
P. <u>Disposal</u> . Low-level waste disposal facilities shall meet the following requirements.	NA; LLW is not disposed of in this facility.
(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:	See P. above.
(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.	See P. above.
(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.	See P. above.
(c) Release of radon shall be less than an average flux of 20 pCi/m ² /s (0.74Bq/m ² /s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.	See P. above.
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the	See P. above.

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	See P. above.
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder	See P. above.

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.	See P. above.
(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.	See P. above.
(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.	See P. above.
(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	See P. above.

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	See P. above.
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	See P. above.
(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements include:	See P. above.
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	See P. above.
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within	See P. above.

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	
(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	See P. above.
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; LLW is not disposed of in this facility.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	See (1), (2), and (3) below.
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility’s radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the</p>	<p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>PER-116, Attachment 1 § D and Attachment 4 § F describe facility monitoring and inspection requirements.</p> <p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the “routine sheet” and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>

Table 19. (continued).

MFC-794 Contaminated Equipment Storage Building	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
approved radioactive waste management basis for those specified parameters which are not monitored or sampled.	
(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.	NA; liquid LLW waste is not stored at this facility.
(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.	NA; LLW is not disposed of in this facility.
(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.	See (3) above.
(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.	See (3) above.
(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.	See (3) above.

4.15 MFC-798, Radioactive Liquid Waste Treatment Facility

- Facility description:** MFC-798, RLWTF, receives low-level radioactive liquid waste water generated by other facilities located at MFC. Waste water is fed via an underground line from HFEF. Waste water from other sources, notably, the TREAT facility (MFC-720, MFC-768, MFC-774, MFC-793), is transported via tank trailer and unloaded from the “truck lock.” Waste water is then transferred to one of the four 1,000-gal holding tanks located in the tank room.

Waste is pumped from the holding tanks to one of six shielded hot air drum evaporators located in the evaporator area. Warm air (approximately 220°F) is drawn through the shielded hot air drum evaporators to evaporate the water. The remaining particulate is trapped within the shielded hot air drum evaporator. When the shielded hot air drum evaporators reach a radioactive capacity (for LLW), they are removed and shipped for disposal at NNSS.

The evaporator area also contains a small process vessel referred to as a “surrogate sample cooker.” This process vessel is intended for relatively small waste samples to ensure that they meet process specifications. The facility can process approximately 1,000 gallons of waste water at a time and

operates 24 hours/day seven days a week when in service. The process is highly automatic and controlled from the process control room.

Process air is supplied to the facility from the equipment room. Air is drawn through high-efficiency particulate air filters and exhausted out a stack located atop the facility. This room houses three banks of high-efficiency particulate air filters. One bank (six filters) serves the evaporator process, one bank (two filters) serves the building exhaust system, and one high-efficiency particulate air filter supports the surrogate sample cooker.

The facility is equipped with a 25-kW diesel emergency generator, which is designed to provide emergency power in the event of primary power loss. The generator has a 30-gal diesel fuel tank. Discussions with cognizant personnel indicated that the facility does not meet the threshold of a Hazard Category 3 nonreactor nuclear facility as defined in DOE-STD-3009-94, "Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports" (DOE 1994). Thus, there is no documented safety analysis or safety analysis report for the facility.

2. **Hazard category:** LTHC3 radiological facility
3. **Radioactive waste managed at this facility:** Generation of routine LLW subsequent to facility operations, and solid LLW (treatment product). Treatment of liquid LLW.
4. **RWMB documents/programs:**
 - a. Safety Basis/Hazards Analysis:
 - EDF-7030, "Inventory Analysis of Radiological Facilities at the Materials and Fuels Complex (MFC)"
 - b. Laboratory-wide:
 - Form 441.A34, "INL Radiological Control Required Surveys"
 - LI-435, "Waste Management Routine Field Activities"
 - LRD-15001, "Radiological Control Manual"
 - LWP-13840, "Management of Issues, Observations, and Noteworthy Practices"
 - LWP-14002, "Timeout and Stop Work Authority"
 - LWP-17000, "Waste Management"
 - MCP-139, "Radiological Surveys"
 - MCP-17000, "Waste Generator Services Waste Management"
 - MCP-17410, "Management of Waste Storage Areas"
 - MCP-17500, "Waste Generator Services Certification of Waste Shipments to the Nevada Test Site"
 - PDD-17000, "Waste Management Program"
 - PLN-114, "INL Emergency Plan/RCRA Contingency Plan"
 - PLN-522, "Quality Assurance Program Plan for the Waste Management/Waste Certification Program"
 - c. Facility-specific:
 - RL-OI-1, "Radioactive Liquid Waste Collection"
 - RL-OI-2, "Radioactive Liquid Waste Processing"
 - TSD-OI-004, "Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control."

LLW is managed at this facility. Table 20 shows the facility compliance information for DOE Manual 435.1-1, Chapter IV, “Low-level Waste Requirements.”

Table 20. MFC-798, Radioactive Liquid Waste Treatment Facility, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>A. <u>Definition of Low-Level Waste</u>. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>This requirement proves the criteria for determining which DOE radioactive waste is to be managed as low-level waste in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. <u>Management of Specific Wastes</u>. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See (1), (2), (3), and (4) below.</p>
<p>(1) <u>Mixed Low-Level Waste</u>. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act (RCRA)</i>, as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>This facility manages mixed LLW debris from across the MFC in TAAs. Management of TAAs is addressed in MCP-17410 and overall management of mixed waste is addressed in MCP-17000.</p>
<p>(2) <u>TSCA-Regulated Waste</u>. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i>, as amended, DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>NA; this facility does not manage TSCA-regulated waste.</p>
<p>(3) <u>Accelerator-Produced Waste</u>. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual, and all applicable Federal or State requirements.</p>	<p>NA; this facility does not manage accelerator-produced waste.</p>
<p>(4) 11e.(2) and <u>Naturally Occurring Radioactive Material</u>. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.</p>	<p>NA; this facility does not manage naturally occurring radioactive material.</p>
<p>C. <u>Complex-Wide Low-Level Waste Management Program</u>. A complex-wide program and plan shall be</p>	<p>DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management</p>

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
developed as described under <i>Responsibilities</i> , 2.B and 2.D, in Chapter I of this Manual.	and the Deputy Assistant Secretary for Waste Management, respectively.
D. <u>Radioactive Waste Management Basis</u> . Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:	The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste..
(1) Generators. The waste certification program. From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.	See J. below for waste certification program requirements. EDF-7030 demonstrates that radiological inventory for this facility contains LTHC3 quantities of radiological material. The facility uses IWTS to track the inventory in comparison to the threshold quantities for this hazard classification. MCP-17000 addresses use of the IWTS to track the radiological inventories for LTHC3 facilities.
(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic] From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis. A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis. As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.	See J. below for waste certification program requirements. See (1) above for safety basis documentation identified.
(3) Storage Facilities. The waste acceptance requirements and the waste certification program. From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section	NA; this facility does not store LLW.

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility does not dispose of LLW.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>NA; this facility does not store liquid LLW.</p>
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency</p>	<p>NA; this facility does not store liquid LLW.</p>

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.</p>	<p>See F. above.</p>
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are</p>

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.</p>	<p>scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.</p>
<p>G. <i>Waste Acceptance</i>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].</p>	<p>DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.</p>
<p>(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.)</p>	<p>RL-OI-1 provides the WAC specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations, and prohibitions of the liquid LLW forms the facility can receive. This document also addresses the limits and prohibitions that ensure the waste is compatible with the safety basis of the facility.</p> <p>EDF-7030 demonstrates that radiological inventory for this facility contains LTHC3 quantities of radiological material. The facility uses IWTS to track the inventory in comparison to the threshold quantities for this hazard classification.</p>
<p>(a) Allowable activities and/or concentrations of specific radionuclides.</p>	<p>See (1) above.</p>
<p>(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.</p>	<p>See (1) above.</p>
<p>(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.</p>	<p>See (1) above.</p>
<p>(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:</p>	<p>See (1) above.</p>
<p>1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of</p>	<p>See (1) above.</p>

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	NA; this facility treats liquid LLW only.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (1) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (1) above.
5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]	NA; this facility does not manage LLW in gaseous form.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved. From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.	See (1) above.
(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established. From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility	See (1) above.

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.	
H. Waste Generation Planning. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].	DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.
(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams. From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.	PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.
(2) Waste with No Identified Path to Disposal. Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:	This facility is not generating radioactive waste that does not have an identified path to disposal.
(a) Programmatic need to generate the waste;	See (2) above.
(b) Characteristics and issues preventing the disposal of the waste;	See (2) above.
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
I. Waste Characterization. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to	Regarding the liquid LLW sent to MFC-798 for treatment, RL-OI-1 provides the WAC specifying the radionuclide limits in the form of contents or

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.</p>	<p>concentrations that can be accepted, the limitations, and prohibitions of the liquid LLW forms the facility can receive. This document also addresses the limits and prohibitions that ensure the waste is compatible with the safety basis of the facility.</p> <p>RL-OI-1 § 3 provides the prerequisite process for acquiring and verifying the validity of the characterization data prior to waste acceptance.</p> <p>RL-OI-2 § 5 provides confirmatory characterization sampling of all liquid LLW being transferred to this facility.</p> <p>Regarding the routine solid LLW stream generated subsequent to MFC-798 operations, MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.</p>
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.)</p>	<p>Regarding the liquid LLW sent to MFC-798 for treatment, RL-OI-1 provides the WAC specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations, and prohibitions of the liquid LLW forms the facility can receive. This document also addresses the limits and prohibitions that ensure the waste is compatible with the safety basis of the facility.</p> <p>RL-OI-1 § 3 provides the prerequisite process for acquiring and verifying the validity of the characterization data prior to waste acceptance.</p> <p>RL-OI-2 § 5 provides confirmatory characterization sampling of all liquid LLW being transferred to this facility.</p> <p>Regarding the routine solid LLW stream generated subsequent to MFC-798 operations, MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste characterization information.</p>
<p>(a) Physical and chemical characteristics;</p>	<p>See (2) above.</p>

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(b) Volume, including the waste and any stabilization or absorbent media;	See (2) above.
(c) Weight of the container and contents;	See (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See (2) above.
(e) Characterization date;	See (2) above.
(f) Generating source; and	See (2) above.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>Regarding the liquid LLW sent to MFC-798 for treatment, RL-OI-1 provides the WAC to be “certified” to by those facilities sending liquid LLW to MFC-798 for treatment.</p> <p>Regarding the treated waste form generated subsequent to MFC-798 liquid LLW treatment, which is sent to NNSS for ultimate disposition, MCP-17000 cites a waste certification program for LLW destined for NNSS. A waste certification program for other storage, treatment, or disposal facilities is not addressed.</p> <p>Regarding the routine solid LLW stream generated subsequent to MFC-798 operations, MCP-17000 cites a waste certification program for LLW destined for NNSS. A waste certification program for other storage, treatment, or disposal facilities is not addressed.</p> <p>MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste certification information.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS. Procurement controls do not appear to be addressed. Also, how the procedure is maintained within the site’s document control system is not addressed in the procedure and has not been determined.</p>
(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.	See J. above.

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above.</p>
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	<p>See J. above.</p>
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that</p>	<p>Regarding the liquid LLW sent to MFC-798 for treatment, RL-OI-1, Appendices A, B, and C all require recording of signatures by personnel authorized for transfer of waste ownership.</p> <p>Regarding the treated waste form generated subsequent to MFC-798 liquid LLW treatment, which is sent to NNSS for ultimate disposition, MCP-17000 § 4 specifies the requirements for preparing an IWTS profile that captures waste transfer authorization information.</p> <p>Regarding the routine solid LLW stream generated subsequent to MFC-798 operations, MCP-17000 § 4 specifies the requirements for preparing an IWTS</p>

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
documented transfer of responsibility occurs.	<p>profile that captures waste transfer authorization information.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>TSD-OI-004 specifies requirements and provides instructions for accepting LLW and mixed LLW at the MFC treatment, storage, and disposal facilities.</p>
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	See K. above.
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	See K. above.
<p>L. <u>Packaging and Transportation</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].</p>	DOE Manual 435.1-1 §I.1.E(11) applies to field element managers
<p>(1) Packaging. If containers are used:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repack the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.)</p>	<p>MCP-17000 § 4 addresses packaging requirements for the routine LLW generated at this facility.</p> <p>MCP-17500 provides the WGS waste packaging requirements for the treated LLW to be shipped to NNSS.</p>

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.	See (1) above.
(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.	See (1) above.
(c) Containers of low-level waste shall be marked such that their contents can be identified.	See (1) above.
(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized. From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.	NA; waste is not shipped to an offsite facility for final disposition from this facility.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities.
(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:	See M. above.
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the	See M. above.

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
location of the facility.	
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The	See M. above.

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
following facility requirements and general design criteria, at a minimum, apply:	
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.	See M. above.
(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.
N. <u>Storage and Staging</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].	DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.	NA; this facility does not store LLW.
(2) Storage Limit. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for	NA; this facility does not store LLW. See N. (7) below for staging requirements.

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>decay, or as otherwise authorized by the Field Element Manager.</p> <p>From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place.</p> <p><u>Mixed waste.</u> Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <ol style="list-style-type: none"> 1) the radioactive waste management basis allows for storage for no more than one year. 2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis. 3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that 	

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(4) Waste Characterization for Storage.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>with the requirements for Records Management in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.</p>	
<p>(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p>
<p>(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.</p>	<p>NA; this facility does not store LLW. See N. (7) below for staging requirements.</p>
<p>(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.</p>	<p>Routine LLW, such as personnel protective equipment, is accumulated at this facility for disposal. MCP-17000, Appendix F restricts staging LLW to 90 days maximum at any generator or treatment facility prior to acceptance by a storage facility.</p> <p>As stated in DOE Guide 435.1-1 §IV.N.(7), staging waste in accordance with this requirement allows waste to be accumulated without being considered storage and being bound by the associated storage requirements</p>

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	<p>MCP-17000 cites a waste certification program for LLW destined for NNSS.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p>
<p>P. <u>Disposal</u>. Low-level waste disposal facilities shall meet the following requirements.</p>	<p>NA; this facility does not dispose of LLW.</p>
<p>(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:</p>	<p>See P. above.</p>
<p>(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.</p>	<p>See P. above.</p>
<p>(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.</p>	<p>See P. above.</p>
<p>(c) Release of radon shall be less than an average flux of 20 pCi/m²/s (0.74Bq/m²/s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.</p>	<p>See P. above.</p>
<p>(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.</p>	<p>See P. above.</p>
<p>(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for</p>	<p>See P. above.</p>

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific	See P. above.

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.</p>	
<p>(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.</p>	<p>See P. above.</p>
<p>(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.</p>	<p>See P. above.</p>
<p>(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.</p>	<p>See P. above.</p>
<p>(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.</p>	<p>See P. above.</p>

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.</p>	<p>See P. above.</p>
<p>(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements include:</p>	<p>See P. above.</p>
<p>(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.</p>	<p>See P. above.</p>
<p>(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.</p>	<p>See P. above.</p>
<p>(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.</p>	<p>See P. above.</p>
<p>(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.</p>	<p>See P. above.</p>

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this facility does not dispose of LLW.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(7) applies to field element managers.
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the "routine sheet" and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>
(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also	NA; this facility is not a liquid LLW storage facility.

Table 20. (continued).

Facility Name: MFC-798, Radioactive Liquid Waste Treatment Facility	
Chapter IV, LLW Requirements	Facility Compliance Information
be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.	
(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.	NA; this facility is not a LLW disposal facility.
(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.	See (3) above.
(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.	See (3) above.
(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.	See (3) above.

4.16 MFC-797, Outside Radioactive Storage Area

1. **Facility description:** Outdoor radioactive waste storage area.
2. **Hazard category:** LTHC3
3. **Radioactive waste managed at this facility:** CH LLW and mixed CH LLW are stored at this facility. The mixed LLW is accumulated in an SAA for disposition.
4. **RWMB documents/programs:**
 - a. Safety basis/hazard analysis:
 - EDF-7030, “Inventory Analysis of Radiological Facilities at the Materials and Fuels Complex (MFC)”
 - b. Laboratory-wide:
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - FRM-323, “TSD Facilities Material Acceptance Checksheet”
 - LI-435, “Waste Management Routine Field Activities”
 - LRD-15001, “Radiological Control Manual”
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”

- LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
- MCP-139, “Radiological Surveys”
- MCP-17000, “Waste Generator Services Waste Management”
- MCP-17410, “Management of Waste Storage Areas”
- MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
- PDD-17000, “Waste Management Program”
- PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
- PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”

c. Facility-specific:

- SD-38.1.1, “Treatment, Storage, and Disposal Facilities (TSDF) Environmental Compliance”
- TSD-OI-004, “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control.”

LLW is managed at this facility. Table 21 shows the facility compliance information for DOE Manual 435.1-1, Chapter IV, “Low-level Waste Requirements.”

Table 21. MFC-797, Outside Radioactive Storage Area, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>A. <u>Definition of Low-Level Waste.</u> Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>(From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>This requirement provides the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. <u>Management of Specific Wastes.</u> The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	<p>See below.</p>
<p>(1) <u>Mixed Low-Level Waste.</u> Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	<p>This facility manages mixed LLW in SAAs. Management of SAAs is addressed in MCP-17410, and overall management of mixed waste is addressed in MCP-17000.</p>
<p>(2) <u>TSCA-Regulated Waste.</u> Low-level waste containing polychlorinated biphenyls, asbestos, or other</p>	<p>NA; this facility does not manage TSCA-regulated waste.</p>

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i> , as amended, DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	
(3) Accelerator-Produced Waste. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual, and all applicable Federal or State requirements.	NA; this facility does not manage accelerator-produced waste.
(4) 11e.(2) and Naturally Occurring Radioactive Material. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.	NA; this facility does not manage naturally occurring radioactive material.
<u>C. Complex-Wide Low-Level Waste Management Program.</u> A complex-wide program and plan shall be developed as described under <i>Responsibilities</i> , 2.B and 2.D, in Chapter I of this Manual.	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.
<u>D. Radioactive Waste Management Basis.</u> Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:	The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste.. This facility is a LTHC3 facility (EDF-7030).
(1) Generators. The waste certification program. From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.	NA; this facility does not generate LLW.
(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic] From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis. A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to	NA; this facility does not treat LLW.

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>See G. and J. below.</p> <p>MCP-17000 § 4 specifies the use of IWTS, which tracks the waste inventory.</p> <p>TSD-OI-004 § 3.2.1 addresses the use IWTS to track waste inventory.</p>
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other</p>	<p>NA; this facility does not store liquid waste in tanks.</p>

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>NA; this facility does not store liquid waste in tanks.</p>
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p>	<p>See F. above.</p>

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.</p>	
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.</p>
<p>G. <u>Waste Acceptance</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.</p>
<p>(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.</p>	<p>WGS manages LLW in accordance with MCP-17000. SAAs are managed under MCP-17410 TSD-OI-004 § 2.2, 3.2, 3.3, and 3.4</p> <p>This facility is used primarily for storage of radioactive waste or material that does not contain any hazardous or mixed waste. Mixed waste is placed in the SAA located in the facility.</p>

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(a) Allowable activities and/or concentrations of specific radionuclides.	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	See (1) above.
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	NA; this facility is not a LLW disposal facility.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (d) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (d) above.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (d) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (d) above.
5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]	See (d) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its	Exceptions to the waste acceptance requirements are not permitted.

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>disposition as approved or not approved.</p> <p>From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.</p>	
<p>(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	<p>MCP-17000</p> <p>TSD-OI-004 § 3</p> <p>Meeting permit and safety basis constraints are checked using:</p> <p style="padding-left: 40px;">FRM-323</p> <p style="padding-left: 40px;">IWTS Material and Waste Characterization Profile</p> <p>Nonconforming waste is not permitted.</p>
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) Life-Cycle Planning. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that</p>	<p>NA; LLW is not generated at this facility.</p>

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
the personnel managing the facilities agree that the low-level waste may be managed at those facilities.	
(2) Waste with No Identified Path to Disposal. Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:	NA; this facility is not generating LLW that does not have an identified path to disposal.
(a) Programmatic need to generate the waste;	See (2) above.
(b) Characteristics and issues preventing the disposal of the waste;	See (2) above.
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
I. <u>Waste Characterization</u> . Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.	MCP-17000 TSD-OI-004 § 3.2.6 and Appendix C
(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.	Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.
(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste: From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.	MCP-17000, including §§4.2, 4.3, and 4.4, provides waste characterization requirements. Information on absorbent media is required in §§ 4.5 and 4.7. MCP-17000 also specifies the use of IWTS, which documents characterization data in an IWTS profile. TSD-OI-004 § 3.2.6 and Appendix C FRM-323 IWTS Material and Waste Characterization Profile
(a) Physical and chemical characteristics;	See I. and (2) above.

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(b) Volume, including the waste and any stabilization or absorbent media;	See I. and (2) above.
(c) Weight of the container and contents;	See I. and (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See I. and (2) above.
(e) Characterization date;	See I. and (2) above.
(f) Generating source; and	See I. and (2) above.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See I. and (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>MCP-17000 cites a waste certification program for LLW destined for NNSS. For waste destined for locations other than NNSS, the waste disposition specialist is responsible for certifying the waste stream by ensuring the waste, as characterized, falls within the limitations of the WAC of the treatment, storage, or disposal facility (§2).</p> <p>Container procurement is addressed in MCP-17000 § 4.6.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSS.</p> <p>TSD-OI-004 §§ 3.2.4, 3.2.5, 3.3, 3.4, and 4.</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or</p>	<p>See J. above. MCP-17500 §§ 2 and 5 address certification records for shipments to NNSS.</p>

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above. MCP-17500 § 4.3.6 addresses controls for certification before transfer for LLW to be disposed of at NNSS.</p>
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	<p>See J. above. Pre-certification checklists are cited in MCP-17000 and MCP-17500. Surveillances also are addressed in MCP-17500.</p> <p>LWP-15011 § 5 provides general radioactive storage area requirements.</p>
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>MCP-17000 § 4.8.15 specifies requirements for interfacility transfers.</p> <p>MCP-17500 § 4 addresses LLW to be transferred to NNSS.</p> <p>TSD-OI-004 §§ 3.2, 3.4, 3.7, 3.8, and 4</p>
<p>(1) Authorization. Low-level waste shall not be</p>	<p>See K. above.</p>

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	See K. above.
<p>L. <u>Packaging and Transportation</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].</p>	See (1) and (2) below.
<p>(1) Packaging. If containers are used:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repack the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.</p>	<p>MCP-17000 § 4 addresses packaging requirements.</p> <p>TSD-OI-004 § 3.3</p>
<p>(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.</p>	See (1) above.
<p>(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing</p>	See (1) above.

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
or generating flammable or explosive concentrations of gases within the waste container.	
(c) Containers of low-level waste shall be marked such that their contents can be identified.	See (1) above.
(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized. From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.	MCP-17000 § 4 addresses transportation. The waste disposition specialist coordinates with packaging and transportation personnel for waste shipped offsite from this facility. MCP-17500 specifies waste certification official and waste disposition specialist responsibilities and coordination with packaging and transportation personnel for waste shipped directly to NNSS from this facility.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities or modifications to existing facilities.
(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:	See M. above.
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and	See M. above.

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
general design criteria, at a minimum, apply:	
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) <u>Stability</u> . Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.	See M. above.
(d) <u>Control of Water</u> . Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.
N. <u>Storage and Staging</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
(1) <u>Storage Prohibitions</u> . Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.	MCP-17000 TSD-OI-004 § 3.2 Also, NNSS WAC does not allow ignitable or explosive waste (MCP-17500).
(2) <u>Storage Limit</u> . Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager. From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.	MCP-17000 § 4.8.16 addresses storage time limits and waste that is to be stored longer than 1 year. MCP-17000, Appendix F addresses storage time limits. Storage longer than 1 year for mixed waste is allowable under the Site Treatment Plan. MCP-17410 addresses storage for SAAs and TAAs.

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place.</p> <p><u>Mixed waste.</u> Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <ol style="list-style-type: none"> 1) the radioactive waste management basis allows for storage for no more than one year. 2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis. 3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives. 4) the radioactive waste management basis allows for 	

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>From DOE G 435.1-1 Chapter IV: However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	<p>MCP-17000 TSD-OI-004 §§ 3.3 and 3.4</p>
<p>(4) Waste Characterization for Storage.</p>	<p>See below.</p>
<p>(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.</p>	<p>This facility does not store LLW that does not have an identified path to disposal.</p>
<p>(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable</p>	<p>MCP-17000 TSD-OI-004 §§ 3.8 and 4</p>

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.</p>	
<p>(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p> <p>LWP-15011 does not include a requirement for inspection.</p> <p>MCP-17000</p> <p>For mixed LLW, TSD-OI-004 §§ 3.4.7 and 4.3</p> <p>Inspections are performed for SAAs as required by WGS procedures (MCP-17000 and MCP-17410).</p>
<p>(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.</p>	<p>MCP-17000 § 4.7 requires the use of a unique IWTS bar code for each container</p> <p>TSD-OI-004 § 2.2</p>
<p>(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.</p>	<p>NA; LLW is not staged at this facility.</p>
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with</p>	<p>NA; treatment is not performed in this facility.</p>

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	
<p>P. <u>Disposal</u>. Low-level waste disposal facilities shall meet the following requirements.</p>	<p>NA; LLW is not disposed of in this facility.</p>
<p>(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:</p>	<p>See P. above.</p>
<p>(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.</p>	<p>See P. above.</p>
<p>(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.</p>	<p>See P. above.</p>
<p>(c) Release of radon shall be less than an average flux of 20 pCi/m²/s (0.74Bq/m²/s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.</p>	<p>See P. above.</p>
<p>(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.</p>	<p>See P. above.</p>
<p>(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The</p>	<p>See P. above.</p>

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be	See P. above.

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.</p>	
<p>(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.</p>	<p>See P. above.</p>
<p>(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.</p>	<p>See P. above.</p>
<p>(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.</p>	<p>See P. above.</p>
<p>(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.</p>	<p>See P. above.</p>
<p>(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal</p>	<p>See P. above.</p>

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.</p>	
<p>(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements include:</p>	See P. above.
<p>(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.</p>	See P. above.
<p>(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.</p>	See P. above.
<p>(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.</p>	See P. above.
<p>(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.</p>	See P. above.
<p>(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.</p>	See P. above.
<p>(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility</p>	See P. above.

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; LLW is not disposed of in this facility.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>R. <u>Monitoring</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].</p>	<p>See (1), (2), and (3) below.</p>
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	<p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the "routine sheet" and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>
<p>(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p>	<p>NA; liquid LLW waste is not stored at this facility.</p>
<p>(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions</p>	<p>NA; LLW is not disposed of in this facility.</p>

Table 21. (continued).

MFC-797 Outside Radioactive Storage Area	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
specified in the disposal authorization statement.	
(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.	See (3) above.
(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.	See (3) above.
(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.	See (3) above.

4.17 MFC-799 and 799A, Sodium Process Facility

1. **Facility description:** SD-38.1.1, "Treatment, Storage, and Disposal Facilities (TSDF) Environmental Compliance," includes MFC-799A as part of the Sodium Process Facility. NOTE: This facility is scheduled for transfer of ownership to the DOE Office of Environmental Management.

MFC-799, Sodium Processing Facility, consists of the following process areas in one building:

- a. **Sodium Process Area**

The Sodium Process Area is used for the storage and treatment of HW/mixed waste in both containers and tanks. This area consists of an original four-roomed, L-shaped structure and a later-constructed enclosed, covered, carbon steel-lined concrete pad upon which process equipment is located. The building is supported on a thickened-edge, reinforced-concrete pad. There are three rooms in the Sodium Process Area used for HW/mixed waste storage or treatment: the Barrel Holding Room, Sodium Melting and Draining Room, and Sodium Process Equipment Room. The fourth room is the Sodium Processing Facility Control Room. Each of these rooms is described briefly below. The approximate overall dimensions of the present enclosed Sodium Process Area are 65 × 57 ft. Most of the exterior of the Sodium Processing Facility is constructed of galvanized-steel siding and roof panels on a structural-steel frame. However, the Sodium Melting and Draining Room (the central room along the north wall) has 12-in. thick reinforced concrete block walls and an 8-in. thick reinforced-concrete slab roof.

- b. **Barrel Holding Room**

The Barrel Holding Room is used to receive (store up to) 32 drums of HW/mixed waste. The dimensions of the room are 20 ft 6 in. × 25 ft. The HW/mixed waste is brought into this area through a 10 × 10-ft sliding service door (east exterior wall), removed from the skid on which they were received, and placed onto individual barrel dollies. Once placed on the dollies, the drums are moved into the Sodium Melting and Draining Room (Sodium Processing Facility typically processes sodium and sodium-potassium alloy waste, but may process other alkali metals) through a 6 × 6-ft sliding door on the west wall of the Barrel Holding Room. In addition, the Barrel Holding Room also is the pathway for removal of the drained drums from the Sodium

Melting and Draining Room as discussed below. A 1,000-lb lift capacity jib crane is available for moving full drums (as needed) for sodium processing activities and maintenance support.

c. Sodium Melting and Draining Room

The Sodium Melting and Draining Room is used to melt and drain drums of alkali metal HW/mixed waste. The dimensions of the room are 25 × 22 ft. There are eight barrel container assemblies used to hold the drums of HW/mixed waste (typically sodium and sodium-potassium alloy) while they are melted and drained. There is a bridge crane used to transfer the drums into the barrel container assemblies. The crane has a capacity of 1,000 lb and coverage of 15 ft laterally and 18 ft along the rail. The barrel container assemblies are arranged in two banks of four A barrel draining manifold, which is insulated and serves each of the two banks of four barrel assemblies. A flexible, stainless-steel line is provided at each barrel container assembly to connect the drum to the manifold. Each manifold is constructed of 3/4-in. Series-300 stainless-steel pipe. A nitrogen purge is provided for each of the flexible barrel drain lines. The two barrel draining manifolds are combined into an insulated 1-in. Series-300 stainless-steel pipe, and in turn, connected to the 5,000-gal sodium storage tank. The manifolds and 1-in. pipe are all sloped to drain into the 5,000-gal sodium storage tank. One drum can be drained through each manifold simultaneously.

d. Sodium Process Equipment Area

The Sodium Process Equipment Area is used to store and treat alkali metal HW/mixed waste. The are several major components in the sodium process are, including a 5,000-gal sodium storage tank, two 730-gal sodium day tanks, sodium reaction vessel, 1,000-gal caustic cooling tank, 4,000-gal caustic storage tank, and the caustic off-gas system. The dimensions of the area are approximately 20 × 57 ft in an L-shaped configuration. The process area floor is a concrete pad and the process area secondary containment pits are lined with welded carbon-steel plate. The building is supported on a thickened-edge, reinforced concrete pad.

The sodium storage tank is a carbon-steel tank that receives alkali metal from the barrel drain stations. The storage tank fills the day tanks, which feeds the alkali metal to the reaction vessel at a rate of approximately 0.75 to 1.0 gal/min. The reaction vessel converts the alkali metal to a liquid hydroxide waste form, which is then loaded into drums and allowed to cool to solidify. The caustic cooling tank and the caustic storage tank allow for storage of caustic during reaction vessel shutdowns. The caustic storage tank is used for backup storage only. The caustic storage tank is located in a separate building, just west of the Sodium Process Equipment Area.

The caustic off-gas system is composed of several components designed to remove moisture, entrained caustic vapor and provides a vent path for hydrogen from the reaction vessel. The caustic off-gas system is located on the wall, in the southwest corner of the Sodium Process Equipment Area.

e. Control Room

The dimensions of the Control Room are approximately 20 × 10 ft. The Sodium Processing Facility Control Room houses the control computer and input/output front-end computer. An operator is in attendance whenever the process system is in operation. The control computer is programmed to provide the control and operator interface for the Sodium Processing Facility that will allow control of system pressures, valves, and temperatures.

f. Carbonate Process Area

The Carbonate Process Area is an addition to the Sodium Processing Facility and is adjoined to the original structure to the south. Doors allow access between the original Sodium Processing Facility and the Carbonate Process Area. The Carbonate Process Area accommodates equipment for filling drums and provides storage of the hydroxide solution while it solidifies. The Carbonate Process Area includes the following:

- Approximately 23 × 25 ft of main processing area, with an associated upper mezzanine level
- A shielded staging area of approximately 17 × 16 ft.

The building height in the main processing and staging areas is approximately 31 ft. The other wing of the L-shaped structure adds approximately 30 × 72 ft of drum storage and handling area with room for forklift operations. There are two 5-ton trolley cranes in this area that are used for supporting maintenance operations. The building height in this second wing is approximately 12 ft. The building is placed on a reinforced-concrete pad capable of supporting a uniform live load of 500 lb/ft². All sections of the Sodium Processing Facility meet the requirements of the Uniform Building Code and Seismic Zone 2 or 2B.

Storage of filled hydroxide drums is provided by two storage bays in the southeast area of the Carbonate Process Area. The storage bays are placed on a reinforced concrete pad with cinder block walls. Roll-up doors provide access to the Carbonate Process Area side of each bay, and an external roll-up door is available on the west bay. Permanent carbon-steel pans provide secondary containment for the liquid caustic drums stored in the bays. Poly platforms are placed inside the pans to allow forklift operation in the secondary containment areas and to elevate the caustic drums off the floor.

2. **Hazard category:** LTHC3

3. **Radioactive waste managed at this facility:** Solid and liquid CH mixed LLW are stored at this facility.

4. **RWMB documents/programs:**

a. Safety basis/hazard analysis:

- EDF-7030, “Inventory Analysis of Radiological Facilities at the Materials and Fuels Complex (MFC)”

b. Laboratory-wide:

- Form 441.A34, “INL Radiological Control Required Surveys”
- FRM-323, “TSD Facilities Material Acceptance Checksheet”
- LI-435, “Waste Management Routine Field Activities”
- LRD-15001, “Radiological Control Manual”
- LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
- LWP-14002, “Timeout and Stop Work Authority”
- LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
- LWP-17000, “Waste Management”
- MCP-139, “Radiological Surveys”
- MCP-17000, “Waste Generator Services Waste Management”
- MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
- PDD-17000, “Waste Management Program”
- PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
- PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”

c. Facility-specific:

- PER-116, “HWMA/RCRA Storage and Treatment Permit for the Materials and Fuels Complex”

- SD-38.1.1, “Treatment, Storage, and Disposal Facilities (TSDF) Environmental Compliance”
- SPF-OI-1-B, “Environmental Compliance”
- TSD-OI-004, “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control”

LLW is managed at this facility. Table 22 shows the facility compliance information for DOE Manual 435.1-1, Chapter IV, “Low-level Waste Requirements.”

Table 22. MFC-799 and MFC-799A, Sodium Process Facility, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>A. Definition of Low-Level Waste. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or naturally occurring radioactive material.</p> <p>(From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)</p>	<p>This requirement provides the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the requirements of DOE Manual 435.1-1, Chapter II or Chapter III.</p>
<p>B. Management of Specific Wastes. The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:</p>	See below.
<p>(1) Mixed Low-Level Waste. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i>, as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act (RCRA)</i>, as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	This facility has an HWMA/RCRA permit to store and treat mixed waste (PER-116).
<p>(2) TSCA-Regulated Waste. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i>, as amended, DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p>	NA; this facility does not manage TSCA-regulated waste.
<p>(3) Accelerator-Produced Waste. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual, and all applicable Federal or State requirements.</p>	NA; this facility does not manage accelerator-produced waste.
<p>(4) 11e.(2) and Naturally Occurring Radioactive Material. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of</p>	NA; this facility does not manage naturally occurring radioactive material.

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>this Manual.</p>	
<p>C. <u>Complex-Wide Low-Level Waste Management Program</u>. A complex-wide program and plan shall be developed as described under <i>Responsibilities</i>, 2.B and 2.D, in Chapter I of this Manual.</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.</p>
<p>D. <u>Radioactive Waste Management Basis</u>. Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls shall be part of the radioactive waste management basis:</p>	<p>The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste..</p> <p>This facility is an LTHC3 facility (EDF-7030).</p>
<p>(1) Generators. The waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.</p>	<p>See J. below.</p>
<p>(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>See G. and J. below.</p> <p>MCP-17000 § 4 specifies the use of IWTS, which tracks the waste inventory.</p> <p>TSD-OI-004 § 3.2.1 addresses the use IWTS to track waste inventory.</p>
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to</p>	<p>See G. and J. below.</p> <p>MCP-17000 § 4 specifies the use of IWTS, which tracks the waste inventory.</p> <p>TSD-OI-004 § 3.2.1 addresses the use IWTS to</p>

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>track waste inventory.</p>
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p> <p>The HWMA/RCRA permit also includes a contingency plan (PER-116, Attachment 7 § G).</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, Radioactive Waste Management, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>This facility has an HWMA/RCRA permit to store and treat mixed LLW.</p> <p>Contingency storage is addressed as part of the permit's condition for container and tank system secondary containment and in the permit's contingency plan.</p> <p>PER-116 §§ III.F and IV.C</p> <p>PER-116, Attachment 1 §§ D-2 and D-4; Attachment 7 § G-3(n)(2)</p> <p>SD-38.1.1, Appendix A and Appendix G</p> <p>SPF-OI-1-B §§ 4.3 and 4.4.</p>
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard</p>	<p>This facility has an HWMA/RCRA permit to store and treat mixed LLW.</p>

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>liquid low-level waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>Transfer equipment is addressed in the permit's contingency plan (PER-116, Attachment 7 § G-3(n)(2)).</p>
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system.</p> <p>Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.</p>	<p>See F. above.</p> <p>This facility has an HWMA/RCRA permit to store and treat mixed LLW.</p> <p>Corrective actions for waste regulated under this permit are addressed as permit conditions.</p> <p>PER-116, Module VI</p> <p>PER-116, Attachment 4</p> <p>SD-38.1.1 § 2.4, 6 and Appendix A</p>
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities</p>

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.	are conducted in accordance with the approved RWMB.
G. <u>Waste Acceptance</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
(1) <u>Technical and Administrative</u> . Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following: From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.	WGS manages LLW in accordance with MCP-17000. See below.
(a) Allowable activities and/or concentrations of specific radionuclides.	MCP-17000 TSD-OI-004 § 3.2
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	MCP-17000 TSD-OI-004 §§ 3.3 and 3.4 PER-116, Module II.C and III PER-116, Attachment 1 §§ B-2(a) and D-1(a); Attachment 2 § C-2(a) SD-38.1.1, Appendix A and Appendix G
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	MCP-17000 TSD-OI-004 § 3.2 PER-116, Module II.C. and III PER-116, Attachment 1 §§ B-2(a) and D-1(a); Attachment 2 § C-2(a) SD-38.1.1, Appendix A and Appendix G

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	NA; this facility is not a LLW disposal facility.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (d) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (d) above.
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (d) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (d) above.
5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [sic]	See (d) above.
(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved. From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.	Exceptions to the waste acceptance requirements are not permitted.
(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.	MCP-17000 TSD-OI-004 § 3 PER-116, Module II.C., III, and IV PER-116, Attachment 1 § D-1(b); Attachment 2

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.</p>	<p>§ C-2(a) SD-38.1.1, Appendix A and Appendix G Meeting permit and safety basis constraints are checked using: FRM-323 IWTS Material and Waste Characterization Profile Nonconforming waste is not permitted.</p>
<p>H. <u>Waste Generation Planning</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.</p>
<p>(1) <u>Life-Cycle Planning</u>. Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams. From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.</p>	<p>PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.</p>
<p>(2) <u>Waste with No Identified Path to Disposal</u>. Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:</p>	<p>NA; this facility is not generating LLW that does not have an identified path to disposal.</p>
<p>(a) Programmatic need to generate the waste;</p>	<p>See (2) above.</p>
<p>(b) Characteristics and issues preventing the disposal of the waste;</p>	<p>See (2) above.</p>
<p>(c) Safe storage of the waste until disposal can be achieved; and</p>	<p>See (2) above.</p>
<p>(d) Activities and plans for achieving final disposal of the waste.</p>	<p>See (2) above.</p>

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>I. <u>Waste Characterization</u>. Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.</p>	<p>TSD-OI-004 § 3.2.6 and Appendix C PER-116, Module II.C PER-116, Attachment 2 SD-38.1.1, Appendix A and Appendix G MCP-17000</p>
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.</p>	<p>MCP-17000, including §§4.2, 4.3, and 4.4, provides waste characterization requirements. Information on absorbent media is required in §§ 4.5 and 4.7. MCP-17000 also specifies the use of IWTS, which documents characterization data in an IWTS profile.</p> <p>TSD-OI-004 § 3.2.6 and Appendix C PER-116, Module II.C PER-116, Attachment 2 SD-38.1.1, Appendix A and Appendix G FRM-323 IWTS Material and Waste Characterization Profile</p>
(a) Physical and chemical characteristics;	See I. and (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See I. and (2) above.
(c) Weight of the container and contents;	See I. and (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See I. and (2) above.
(e) Characterization date;	See I. and (2) above.
(f) Generating source; and	See I. and (2) above.

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See I. and (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>MCP-17000 cites a waste certification program for LLW destined for NNSS. For waste destined for locations other than NNSS, the waste disposition specialist is responsible for certifying the waste stream by ensuring the waste, as characterized, falls within the limitations of the WAC of the treatment, storage, or disposal facility (§2).</p> <p>Container procurement is addressed in MCP-17000 § 4.6.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p> <p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSS.</p> <p>TSD-OI-004 §§ 3.2.4, 3.2.5, 3.3, 3.4, 3.6, and 4 PER-116, Module II.C and III</p> <p>PER-116, Attachment 1 §§ B-2(a) and D-1(a); Attachment 2 § C-2(a)</p> <p>SD-38.1.1, Appendix A and Appendix G</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for</p>	See J. above. MCP-17500 §§ 2 and 5 address certification records for shipments to NNSS.

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.	
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	See J. above. MCP-17500 § 4.3.6 addresses controls for certification before transfer for LLW to be disposed of at NNSS.
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.</p>	<p>See J. above. Pre-certification checklists are cited in MCP-17000 and MCP-17500. Surveillances also are addressed in MCP-17500.</p> <p>LWP-15011 § 5 provides general radioactive storage area requirements.</p>
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>MCP-17000 § 4.8.15 specifies requirements for interfacility transfers.</p> <p>MCP-17500 § 4 addresses LLW to be transferred to NNSS.</p> <p>TSD-OI-004 §§ 3.2, 3.4, 3.6, 3.7, 3.8, and 4</p>
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that</p>	See K. above.

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.	
(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.	See K. above.
L. <u>Packaging and Transportation</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].	See (1) and (2) below.
(1) Packaging. If containers are used: From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1) procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repackage the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.	MCP-17000 § 4 addresses packaging requirements. TSD-OI-004 § 3.3
(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.	See (1) above.
(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.	See (1) above.
(c) Containers of low-level waste shall be marked such that their contents can be identified.	See (1) above.
(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized.	MCP-17000 § 4 addresses transportation. The waste disposition specialist coordinates with packaging and transportation personnel for waste shipped offsite from this facility.

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.	MCP-17500 specifies waste certification official and waste disposition specialist responsibilities and coordination with packaging and transportation personnel for waste shipped directly to NNNs from this facility.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities or modifications to existing facilities.
(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a minimum, whether it is:	See M. above.
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of	See M. above.

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.	See M. above.
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.	See M. above.
(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.
N. <u>Storage and Staging</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.
(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.	MCP-17000 TSD-OI-004 § 3.2 PER-116, Module II.C and III PER-116, Attachment 1 § D-1(a); Attachment 2 § C-2(a) SD-38.1.1, Appendix A and Appendix G The HWMA/RCRA permit (PER-116, Module III.B.4) allows ignitable (D001) and reactive (D003) hazardous waste to be stored and treated, and the permit specifies the conditions under which the waste can be stored and treated safely.
(2) Storage Limit. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager. From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility. Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place. <u>Mixed waste</u> . Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by	MCP-17000 § 4.8.16 addresses storage time limits and waste that is to be stored longer than 1 year. MCP-17000, Appendix F addresses storage time limits. Storage longer than 1 year for mixed waste is allowable under the Site Treatment Plan.

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <ol style="list-style-type: none"> 1) the radioactive waste management basis allows for storage for no more than one year. 2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis. 3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives. 4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives. <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker</p>	<p>MCP-17000 TSD-OI-004 §§ 3.3 and 3.4</p>

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>exposure.</p> <p>From DOE G 435.1-1 Chapter IV: However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p> <p>Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.</p>	<p>PER-116, Module III</p> <p>PER-116, Attachment 1 § D-1(a)</p> <p>SD-38.1.1, Appendix A and Appendix G</p>
(4) Waste Characterization for Storage.	See below.
(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.	This facility does not store LLW that does not have an identified path to disposal.
<p>(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.</p>	<p>MCP-17000</p> <p>TSD-OI-004 §§ 3.8 and 4</p> <p>PER-116, Module III and IV</p> <p>PER-116, Attachment 1 § D; Attachment 2</p> <p>SD-38.1.1, Appendix A and Appendix G</p>
<p>(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.</p>	<p>LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year.</p> <p>MCP-17000</p> <p>For mixed LLW:</p> <p style="padding-left: 40px;">TSD-OI-004 §§ 3.4.7 and 4.3</p> <p style="padding-left: 40px;">PER-116, Module III</p> <p style="padding-left: 40px;">PER-116, Attachment 4 (this attachment includes examples of facility-specific inspection forms to be used)</p> <p style="padding-left: 40px;">SD-38.1.1, Appendix A and Appendix G</p> <p>LWP-15011 does not include a requirement for inspection.</p>

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.</p>	<p>NA; LLW is not stored at this facility.</p>
<p>(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.</p>	<p>NA; LLW is not staged at this facility.</p>
<p>O. Treatment. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	<p>MCP-17000 TSD-OI-004 § 3.6 PER-116, Module III and IV PER-116, Attachment 1 §§ B-3(e), D-1(a), and D-4(c); Attachment 2 SD-38.1.1, Appendix A and Appendix G</p>
<p>P. Disposal. Low-level waste disposal facilities shall meet the following requirements.</p>	<p>NA; LLW is not disposed of in this facility.</p>
<p>(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:</p>	<p>See P. above.</p>

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.	See P. above.
(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.	See P. above.
(c) Release of radon shall be less than an average flux of 20 pCi/m ² /s (0.74Bq/m ² /s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l (0.0185 Bq/l) of air may be applied at the boundary of the facility.	See P. above.
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	See P. above.
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	See P. above.
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.	See P. above.
(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be	See P. above.

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.	
(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.	See P. above.
(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	See P. above.
(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	See P. above.
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	See P. above.
(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility	See P. above.

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
radiological performance assessment. Additional requirements include:	
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	See P. above.
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	See P. above.
(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	See P. above.
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. <u>Closure</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; LLW is not disposed of in this facility.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	See (1), (2), and (3) below.
<p>(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.</p> <p>From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that</p>	<p>Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities.</p> <p>PER-116, Attachment 1 § D and Attachment 4 § F describe facility monitoring and inspection requirements.</p> <p>LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the "routine sheet" and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.</p>

Table 22. (continued).

MFC-799 and MFC-799A, Sodium Process Facility [Note: SD-38.1.1 includes MFC-799A as part of the Sodium Process Facility.]	
Chapter IV. Low-Level Waste Requirements	Facility Compliance Information
<p>justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	
<p>(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p>	See (1) above.
<p>(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.</p>	NA; LLW is not disposed of in this facility.
<p>(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.</p>	See (3) above.
<p>(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.</p>	See (3) above.
<p>(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.</p>	See (3) above.

4.18 MFC-1702, Radiochemistry Laboratory

1. **Facility description:** Information regarding a general facility description for MFC-1702, Radiochemistry Laboratory, was not identified at the time of publication of this document. Per a phone conversation with Richard Gunderson and Robert Gomez held on July 17, 2010, facility description information for this facility is yet to be developed pending the facility status change to operational.

2. **Hazard category:** LTHC3
3. **Radioactive waste managed at this facility:** CH LLW and mixed CH LLW are generated and staged at this facility.
4. **RWMB documents/programs:**
 - a. Safety basis/hazard analysis:
 - ECAR-671, “Hazard Categorization Document for the Radiochemistry Laboratory (MFC-1702) at MFC”
 - EDF-7030, “Inventory Analysis of Radiological Facilities at the Materials and Fuels Complex (MFC)”
 - b. Laboratory-wide:
 - Form 441.A34, “INL Radiological Control Required Surveys”
 - LI-435, “Waste Management Routine Field Activities”
 - LRD-15001, “Radiological Control Manual”
 - LWP-8000, Environmental Instructions for Facilities, Processes, Materials, and Equipment
 - LWP-13840, “Management of Issues, Observations, and Noteworthy Practices”
 - LWP-14002, “Timeout and Stop Work Authority”
 - LWP-15011, “Radioactive Material Areas and Radioactive Storage Areas”
 - LWP-17000, “Waste Management”
 - MCP-139, “Radiological Surveys”
 - MCP-17000, “Waste Generator Services Waste Management”
 - MCP-17410, “Management of Waste Storage Areas”
 - MCP-17500, “Waste Generator Services Certification of Waste Shipments to the Nevada Test Site”
 - PDD-17000, “Waste Management Program”
 - PLN-114, “INL Emergency Plan/RCRA Contingency Plan”
 - PLN-522, “Quality Assurance Program Plan for the Waste Management/Waste Certification Program”
 - c. Facility-specific:
 - TSD-OI-004, “Waste and Material Acceptance for Storage/Treatment and Radioactive Material Inventory Control”

LLW is managed at this facility. Table 23 shows the facility compliance information for DOE Manual 435.1-1, Chapter IV, “Low-level Waste Requirements.”

Table 23. MFC-1702, Radiochemistry Laboratory, DOE Manual 435.1-1 low-level waste requirements and facility compliance information.

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>A. <u>Definition of Low-Level Waste</u>. Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the <i>Atomic Energy Act of 1954</i>, as amended), or</p>	<p>This requirement provides the criteria for determining which DOE radioactive waste is to be managed as LLW in accordance with DOE Manual 435.1-1, Chapter IV.</p> <p>Radioactive waste managed at this facility under the requirements of this chapter is not managed under the</p>

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
naturally occurring radioactive material. (From DOE G 435.1-1 Chapter IV: Low-level radioactive waste is defined by what it is not. The guidance on definitions in Chapters II and III should be consulted first for making a determination on how to properly manage a suspect waste stream.)	requirements of DOE Manual 435.1-1, Chapter II or Chapter III.
B. <u>Management of Specific Wastes</u> . The following provide for management of specific wastes as low-level waste in accordance with the requirements in this Chapter:	See below.
(1) Mixed Low-Level Waste. Low-level waste determined to contain both source, special nuclear, or byproduct material subject to the <i>Atomic Energy Act of 1954</i> , as amended, and a hazardous component subject to the <i>Resource Conservation and Recovery Act</i> (RCRA), as amended, shall be managed in accordance with the requirements of RCRA and DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	This facility may manage mixed LLW. Compliance with RCRA regulations is addressed by WGS in its waste management services role in MCP-17000. Individual projects would also have project-specific laboratory instructions that would address the management of mixed LLW in accordance with RCRA regulations.
(2) TSCA-Regulated Waste. Low-level waste containing polychlorinated biphenyls, asbestos, or other such regulated toxic components shall be managed in accordance with requirements derived from the <i>Toxic Substances Control Act</i> , as amended, DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual.	NA; this facility does not manage TSCA-regulated waste.
(3) Accelerator-Produced Waste. Radioactive waste produced as a result of operations of DOE accelerators is low-level waste and shall be managed in accordance with DOE O 435.1, <i>Radioactive Waste Management</i> , and this Manual, and all applicable Federal or State requirements.	NA; this facility does not manage accelerator-produced waste.
(4) 11e.(2) and Naturally Occurring Radioactive Material. Small quantities of 11e.(2) byproduct material and naturally occurring radioactive material may be managed as low-level waste provided they can be managed to meet the requirements for low-level waste disposal in Section IV.P of this Manual.	NA; this facility does not manage naturally occurring radioactive material.
C. <u>Complex-Wide Low-Level Waste Management Program</u> . A complex-wide program and plan shall be developed as described under <i>Responsibilities</i> , 2.B and 2.D, in Chapter I of this Manual.	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.B and §I.2.D apply to the Assistant Secretary for Environmental Management and the Deputy Assistant Secretary for Waste Management, respectively.
D. <u>Radioactive Waste Management Basis</u> . Low-level waste facilities, operations, and activities shall have a radioactive waste management basis consisting of physical and administrative controls to ensure the protection of workers, the public, and the environment. The following specific waste management controls	The RWMB provides the regulatory framework for management of radioactive waste at INL. It specifically identifies facility management and implementing documents for the generation, storage, treatment, and disposal of radiological waste.. This facility is an LTHC3 facility (ECAR-671).

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
shall be part of the radioactive waste management basis:	
<p>(1) Generators. The waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: For a facility that generates low-level waste, the radioactive waste management basis is to include the program for certifying that waste meets the waste acceptance requirements of the facility(ies) to which the waste will be sent.</p>	See J. below.
<p>(2) Treatment Facilities. certification program. The waste acceptance requirements and the waste [sic]</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	<p>NA; LLW is not treated at this facility.</p> <p>Containerized elementary neutralization is performed at this facility as provided by LWP-8000. As stated in § 4.118, elementary neutralization of corrosive hazardous waste may take place at any location at which the waste is generated or stored, and neither a generator treatment plan nor a permit is required. Solidification of liquid LLW for the purpose of staging (not for treating the radioactive constituents) also may be performed. Therefore, this facility is not considered to be a treatment facility.</p>
<p>(3) Storage Facilities. The waste acceptance requirements and the waste certification program.</p> <p>From DOE G 435.1-1 Chapter IV: Facilities that store or treat low-level waste are to have approved waste acceptance requirements (see DOE M 435.1-1, Section IV.G) prior to the issuance of a radioactive waste management basis.</p> <p>A facility that stores or treats waste also is generally expected to have a waste certification program. Waste from these facilities will have to be certified as meeting the waste acceptance requirements of the facility to which it will be transferred, and the facilities have the potential for generating radioactive waste (e.g., secondary processing streams from treatment, monitoring and sampling, radioactive release cleanup). Consequently, storage and treatment facilities should</p>	NA; this facility stages waste in accordance with N.(7) to facilitate treatment or disposal.

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>also have an approved waste certification program as part of their radioactive waste management basis.</p> <p>As part of the radioactive waste management basis, site personnel needs to implement a system or process for tracking the waste inventory at a storage, treatment, or disposal facility.</p>	
<p>(4) Disposal Facilities. The performance assessment, composite analysis, disposal authorization statement, closure plan, waste acceptance requirements, and monitoring plan.</p>	<p>NA; this facility is not a disposal facility.</p>
<p>E. <u>Contingency Actions</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(5)].</p>	<p>Not a facility-specific requirement. DOE Manual 435.1-1 §I.1.E(5) addresses the sitewide emergency management system. The INL plan is provided in PLN-114.</p>
<p>(1) Contingency Storage. For off-normal or emergency situations involving high activity or high hazard liquid low-level waste storage or treatment, spare capacity with adequate capabilities shall be maintained to receive the largest volume of liquid contained in any one storage tank or treatment facility. Tanks or other facilities that are designated low-level waste contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	<p>NA; liquid LLW is not stored or treated in a tank system at this facility.</p>
<p>(2) Transfer Equipment. Pipelines and auxiliary facilities necessary for the transfer of high activity or high hazard liquid low-level waste to contingency storage shall be maintained in an operational condition when waste is present and shall meet the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with these requirements is demonstrated if adequate spare capacity and transfer equipment exists for emergency transfers of all high activity and high hazard liquid low-level waste. In addition, the capability to perform emergency transfers is demonstrated by having waste transfer routings identified, operational procedures to</p>	<p>NA; liquid LLW is not stored or treated in a tank system at this facility.</p>

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>direct transfers, staff trained to the procedures, and records showing that the spare capacity and transfer capability are kept in operating condition.</p>	
<p>F. <u>Corrective Actions</u>. I of this Manual. The following requirements are in addition to those in Chapter [sic] From DOE G 435.1-1 Chapter IV: Compliance with DOE M 435.1-1 §I.2.G.(1) is demonstrated by records showing what corrective actions were taken to remedy situations in the radioactive waste management system. Compliance with DOE M 435.1-1 §I.2.G.(2) is demonstrated by having the necessary procedures, mechanisms, and training in place to effect shutdown or curtailment of activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment.</p>	<p>The INL-wide procedure addressing problem identification as required by DOE Manual 435.1-1 §I.2.G.(1) is LWP-13840, which implements the laboratory's corrective action system.</p> <p>The INL-wide procedure addressing shutdown or curtailment of activities as required by DOE Manual 435.1-1 §I.2.G.(2) is LWP-14002.</p>
<p>(1) Order Compliance. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, <i>Radioactive Waste Management</i>, and this Manual are met.</p> <p>From DOE G 435.1-1 Chapter IV: If a facility or activity can be allowed to operate while a noncompliant or hazardous condition exists, the allowance and any associated limitations must be defined as part of the facility or activity's radioactive waste management basis, identified as a configuration controlled item in a configuration management plan or included in a revision or modification to an operating procedure or similar controlled documentation.</p> <p>Compliance with this requirement is demonstrated if a corrective action system addresses noncompliant or hazardous situations involving low-level waste management facilities in a systematic fashion, and allows identification of problems by all personnel.</p>	<p>See F. above.</p>
<p>(2) Operations Curtailment. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated with a documented system of routine assessments to determine whether waste management activities and facilities are operating in accordance with an approved radioactive waste management basis that provides for graded limitations that can be placed on activities and operations that do not have, or are operating outside of, an approved radioactive waste management basis, including shutdown of the facility.</p>	<p>The approved RWMB establishes the current compliance status at each radioactive waste management facility. Facility assessments are scheduled to ensure waste management activities are conducted in accordance with the approved RWMB.</p>

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
G. Waste Acceptance. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(6)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(6) applies to field element managers.
(1) Technical and Administrative. Waste acceptance requirements for all low-level waste storage, treatment, or disposal facilities, operations, and activities shall specify, at a minimum, the following: From DOE G 435.1-1 Chapter IV: Compliance with these waste acceptance requirements is demonstrated if they are documented, contain clear and precise criteria specifying the radionuclide limits in the form of contents or concentrations that can be accepted, the limitations and prohibitions on waste forms and packages that can be received, and the limits, prohibitions, or instructions concerning any other technical information so that the waste is compatible with the safety basis of the facility, and which will result in acceptable waste at subsequent steps in managing the low-level waste.	NA; this facility generates LLW but does not receive radioactive waste from other sources.
(a) Allowable activities and/or concentrations of specific radionuclides.	See (1) above.
(b) Acceptable waste form and/or container requirements that ensure the chemical and physical stability of waste under conditions that might be encountered during transportation, storage, treatment, or disposal.	See (1) above.
(c) Restrictions or prohibitions on waste, materials, or containers that may adversely affect waste handlers or compromise facility or waste container performance.	See (1) above.
(d) The following are additional waste acceptance requirements that shall be specified in low-level waste disposal facility waste acceptance requirements:	NA; this facility is not a LLW disposal facility.
1 Low-level waste must contribute to and not detract from achieving long-term stability of the facility, minimizing the need for long-term active maintenance, minimizing subsidence, and minimizing contact of water with waste. Void spaces within the waste and, if containers are used, between the waste and its container shall be reduced to the extent practical.	See (d) above.
2 Liquid low-level waste or low-level waste containing free liquid must be converted into a form that contains as little freestanding liquid as is reasonably achievable, but in no case shall the liquid exceed 1 percent of the waste volume when the low-level waste is in a disposal container, or 0.5 percent of the waste volume after it is processed to a stable form.	See (d) above.

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
3 Low-level waste must not be readily capable of detonation or of explosive decomposition or reaction at anticipated pressures and temperatures, or of explosive reaction with water. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.	See (d) above.
4 Low-level waste must not contain, or be capable of generating by radiolysis or biodegradation, quantities of toxic gases, vapors, or fumes harmful to the public or workers or disposal facility personnel, or harmful to the long-term structural stability of the disposal site.	See (d) above.
5 Low-level waste in a gaseous form must be packaged such that the pressure does not exceed 1.5 atmospheres absolute at 20 C. [<i>sic</i>]	See (d) above.
<p>(e) The basis, procedures, and levels of authority required for granting exceptions to the waste acceptance requirements, which shall be contained in each facility's waste acceptance documentation. Each exception request shall be documented, including its disposition as approved or not approved.</p> <p>From DOE G 435.1-1 Chapter IV: Waste acceptance requirements are acceptable if they are documented and contain a clear description of the procedure and bases for obtaining an exception or deviation to the acceptance criteria for low-level waste to be received at the facility.</p>	NA; this facility does not accept waste from other facilities.
<p>(2) Evaluation and Acceptance. The receiving facility shall evaluate waste for acceptance, including confirmation that the technical and administrative requirements have been met. A process for the disposition of non-conforming wastes shall be established.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the waste acceptance requirements for a low-level waste management facility is demonstrated if they include a process for evaluation and acceptance of incoming waste to ensure the acceptance criteria of the facility receiving the waste are met that includes one of or a combination of: (1) testing, sampling, and analysis of representative samples of waste upon receipt; (2) testing, sampling, and analysis of split samples of waste taken at the generator site; (3) evaluation of testing, sampling, and analysis of data provided by the generator, or (4) audits, reviews, surveillance, or observations of generator waste certification programs and characterization activities. Additionally, acceptable waste acceptance requirements for a storage, treatment or disposal facility will have documented procedures</p>	NA; this facility does not accept waste from other facilities.

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
and actions to be taken if a waste that does not conform to the waste acceptance criteria is received at the facility.	
H. <u>Waste Generation Planning</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(7)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(7) applies to field element managers.
(1) <u>Life-Cycle Planning</u> . Prior to waste generation, planning shall be performed to address the entire life cycle for all low-level waste streams. From DOE G 435.1-1 Chapter IV: Compliance with this planning requirement is demonstrated by the individual sites establishing a process for evaluating the life-cycle of low-level waste prior to its generation, including the identification of low-level wastes with no path to disposal and appropriate records justifying the newly generated low-level waste stream(s), and site personnel possessing planning information showing the location(s) where low-level waste will be stored, treated, and/or disposed along with a confirmation that the personnel managing the facilities agree that the low-level waste may be managed at those facilities.	PDD-17000 and LWP-17000 provide direction to the waste generators for waste generation planning to address the entire life cycle.
(2) <u>Waste with No Identified Path to Disposal</u> . Low-level waste streams with no identified path to disposal shall be generated only in accordance with approved conditions which, at a minimum, shall address:	NA; this facility is not generating LLW that does not have an identified path to disposal.
(a) Programmatic need to generate the waste;	See (2) above.
(b) Characteristics and issues preventing the disposal of the waste;	See (2) above.
(c) Safe storage of the waste until disposal can be achieved; and	See (2) above.
(d) Activities and plans for achieving final disposal of the waste.	See (2) above.
I. <u>Waste Characterization</u> . Low-level waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program for documenting and the existence of records that document the process for acquiring and verifying the validity of low-level waste characterization data acquired through the use of direct or indirect methods.	MCP-17000 addresses waste characterization. A procedure addressing all liquid waste (including characterization) at this facility is being developed. Disposal of the facility's rinse water generated in the radiological contamination area to Industrial Waste or to RLWTF will be based on sampling and analysis.

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(1) Data Quality Objectives. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the documented use of a data quality objectives or a comparable process for determining the type, quantity, and quality of characterization data needed to safely manage low-level waste.</p>	<p>Radioactive waste management facilities characterize waste in accordance with the requirements of the receiving storage, treatment, or disposal facility. The documented use of a data quality objectives process, or comparable process, was not identified for this facility.</p>
<p>(2) Minimum Waste Characterization. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the existence of a program or procedure for determining and records that document characterization of low-level waste consistent with the minimum characterization data requirements.</p>	<p>MCP-17000, including §§4.2, 4.3, and 4.4, provides waste characterization requirements. Information on absorbent media is required in §§ 4.5 and 4.7. MCP-17000 also specifies the use of IWTS, which documents characterization data in an IWTS profile.</p>
(a) Physical and chemical characteristics;	See I. and (2) above.
(b) Volume, including the waste and any stabilization or absorbent media;	See I. and (2) above.
(c) Weight of the container and contents;	See I. and (2) above.
(d) Identities, activities, and concentrations of major radionuclides;	See I. and (2) above.
(e) Characterization date;	See I. and (2) above.
(f) Generating source; and	See I. and (2) above.
(g) Any other information which may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with applicable performance objectives.	See I. and (2) above.
<p>J. <u>Waste Certification</u>. A waste certification program shall be developed, documented, and implemented to ensure that the waste acceptance requirements of facilities receiving low-level waste for storage, treatment, and disposal are met.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the development and documentation portion of the certification requirement is demonstrated by a waste certification plan that identifies the organizations involved, assigns responsibilities for implementing the program, and describes or references the quality assurance, training, procurement controls, records management, and procedures to be used by the</p>	<p>MCP-17000 cites a waste certification program for LLW destined for NNSS. For waste destined for locations other than NNSS, the waste disposition specialist is responsible for certifying the waste stream by ensuring the waste, as characterized, falls within the limitations of the WAC of the treatment, storage, or disposal facility (§2).</p> <p>Container procurement is addressed in MCP-17000 § 4.6.</p> <p>MCP-17500 provides the WGS waste certification program for LLW to be shipped to NNSS.</p> <p>Waste certification is performed and tracked using IWTS. Documentation of the IWTS Program is available electronically only.</p>

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>program. Acceptable performance for implementing the program is demonstrated when appropriate personnel are trained and follow the procedures that govern their part of the waste certification. Additionally, acceptable performance is demonstrated if the waste certification plan and procedures are current and controlled in accordance with a document controls program, and records related to certification (e.g., certification statements, training records, procurement records, characterization records, container records) are generated and managed in accordance with the established site program.</p>	<p>PLN-522 requires waste technical specialists and waste disposition specialists to complete the appropriate training/qualification before being granted approval authority for profiles within the IWTS Program. The waste certification official, alternate waste certification official, and NNSS packaging certifiers must complete the appropriate training/qualifications to disposition waste to NNSS.</p>
<p>(1) Certification Program. The waste certification program shall designate the officials who have the authority to certify and release waste for shipment; and specify what documentation is required for waste generation, characterization, shipment, and certification. The program shall provide requirements for auditability, retrievability, and storage of required documentation and specify the records retention period.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure for record keeping and records showing that low-level waste is certified as having met the waste acceptance criteria of the facility to which it was transferred and that the certification statement is supported by additional records regarding the waste source, characterization, and container.</p>	<p>See J. above. MCP-17500 §§ 2 and 5 address certification records for shipments to NNSS.</p>
<p>(2) Certification before Transfer. Low-level waste shall be certified as meeting waste acceptance requirements before it is transferred to the facility receiving the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by the presence of a certification program which includes procedures requiring a signed certification statement prior to the release of waste for transfer, and by dated records showing that waste was certified before being transferred.</p>	<p>See J. above. MCP-17500 § 4.3.6 addresses controls for certification before transfer for LLW to be disposed of at NNSS.</p>
<p>(3) Maintaining Certification. Low-level waste that has been certified as meeting the waste acceptance requirements for transfer to a storage, treatment, or disposal facility shall be managed in a manner that maintains its certification status.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by a program or procedure reflecting this requirement is present and site personnel are able to show that the storage of low-level</p>	<p>See J. above. Pre-certification checklists are cited in MCP-17000 and MCP-17500. Surveillances also are addressed in MCP-17500.</p> <p>LWP-15011 § 5 provides general radioactive storage area requirements.</p>

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
waste containers is in a facility or manner where the containers would not be damaged by normal weather events, and cannot be accessed by unauthorized personnel. Further, each container can be traced to its certification and the information supporting that certification.	
<p>K. <u>Waste Transfer</u>. A documented process shall be established and implemented for transferring responsibility for management of low-level waste and for ensuring availability of relevant data. The following requirements are in addition to those in Chapter I of this Manual.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if facilities have procedures for the receipt of waste and the transfer of waste, as appropriate, which address the acquisition of waste and container data and the transfer of ownership, respectively. Further evidence of acceptable performance is facility records showing that data on the waste containers is available and accurate, and that documented transfer of responsibility occurs.</p>	<p>MCP-17000 § 4.8.15 specifies requirements for interfacility transfers.</p> <p>TSD-OI-004 includes the MFC-703, MFC-793, and MFC-797 requirements for receiving transferred waste.</p> <p>MCP-17500 § 4 addresses LLW to be transferred to NNSS.</p>
<p>(1) Authorization. Low-level waste shall not be transferred to a storage, treatment, or disposal facility until personnel responsible for the facility receiving the waste authorize the transfer.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by sites having procedures that require a confirmation of authorization before releasing waste for transfer, and records showing that transfers are made in accordance with written authorizations.</p>	See K. above.
<p>(2) Data. Waste characterization data, container information, and generation, storage, treatment, and transportation information for low-level waste shall be transferred with or be traceable to the waste.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated if there are procedures requiring that characterization and container data be provided and maintained for each low-level waste transfer and documented records of transfers show that the information is being provided.</p>	See K. above.
<p>L. <u>Packaging and Transportation</u>. The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(11)].</p>	See (1) and (2) below.
<p>(1) Packaging. If containers are used:</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with the packaging requirement is demonstrated by: (1)</p>	MCP-17000 § 4 addresses packaging requirements.

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
procedures which document proper packaging protocols; and (2) no trends of routine repackaging of low-level waste that is packaged after issuance of DOE O 435.1. Successful performance of this requirement is also demonstrated by a record of containers for which failure has not routinely occurred under management conditions. It is recognized that there may be failed containers for waste previously placed in storage. For those containers, the goal is to only have to repackage the waste one time after it is retrieved and characterized. Further, acceptable performance is demonstrated by containers of waste having marking and labeling that allows correlation with waste characterization data and container information.	
(a) Low-level waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.	See (1) above.
(b) When waste is packaged, vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.	See (1) above.
(c) Containers of low-level waste shall be marked such that their contents can be identified.	See (1) above.
(2) Transportation. To the extent practical, the volume of waste and number of low-level waste shipments shall be minimized. From DOE G 435.1-1 Chapter IV: Compliance with this requirement can be demonstrated by a combination of site procedures directing the efficient use of waste container capacity and documentation showing that low-level waste shipments are systematically planned and optimized to the extent practical.	MCP-17000 § 4 addresses transportation. The waste disposition specialist coordinates with packaging and transportation personnel for waste shipped offsite from this facility. Waste is shipped directly to NNSS from this facility. MCP-17500 specifies waste certification official and waste disposition specialist responsibilities and coordination with packaging and transportation personnel.
M. <u>Site Evaluation and Facility Design</u> . The following requirements are in addition to those in Chapter I of this Manual.	NA; this requirement addresses new radioactive waste management facilities or modifications to existing facilities.
(1) Site Evaluation. Proposed locations for low-level waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.	See M. above.
(a) Each site proposed for a new low-level waste facility or expansion of an existing low-level waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities, including for a low-level waste disposal facility, the capability of the site to demonstrate, at a	See M. above.

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
minimum, whether it is:	
1 Located to accommodate the projected volume of waste to be received;	See M. above.
2 Located in a flood plain, a tectonically active area, or in the zone of water table fluctuation; and	See M. above.
3 Located where radionuclide migration pathways are predictable and erosion and surface runoff can be controlled.	See M. above.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.	See M. above.
(c) Low-level waste disposal facilities shall be sited to achieve long-term stability and to minimize, to the extent practical, the need for active maintenance following final closure.	See M. above.
(2) Low-Level Waste Treatment and Storage Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a non-flammable and nonexplosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Consideration of Decontamination and Decommissioning. Areas in new and modifications to existing low-level waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method	See M. above.

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
leading to reuse shall be described.	
(d) Instrumentation and Control Systems. Engineering controls shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.	See M. above.
(e) Monitoring. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of low-level waste treatment and storage facilities to provide rapid identification of failed confinement and/or other abnormal conditions.	See M. above.
(3) Low-Level Waste Disposal Facility Design. The following facility requirements and general design criteria, at a minimum, apply:	See M. above.
(a) Confinement. Low-level waste systems and components shall be designed to maintain waste confinement.	See M. above.
(b) Ventilation.	See M. above.
1 Design of low-level waste disposal facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.	See M. above.
2 When conditions exist for generating gases in flammable or explosive concentrations, ventilation systems or other measures shall be provided to keep the gases in a nonflammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation.	See M. above.
(c) Stability. Low-level waste disposal facilities shall be designed to achieve long-term stability and to minimize to the extent practical, the need for active maintenance following final closure.	See M. above.
(d) Control of Water. Low-level waste disposal facilities shall be designed to minimize to the extent practical, the contact of waste with water during and after disposal.	See M. above.
N. <u>Storage and Staging</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.2.F(13)].	Not a facility-specific requirement. DOE Manual 435.1-1 §I.2.F(13) applies to field element managers.

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>(1) Storage Prohibitions. Low-level waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by having waste acceptance requirements which prohibit low-level waste that is ignitable or explosive from being accepted for storage unless it has been treated, and procedures for properly preparing such materials for safe storage.</p>	<p>NA; LLW is not stored at this facility.</p>
<p>(2) Storage Limit. Low-level waste that has an identified path to disposal shall not be stored longer than one year prior to disposal, except for storage for decay, or as otherwise authorized by the Field Element Manager.</p> <p>From DOE G 435.1-1 Chapter IV: Storage longer than one year can be justified if the conditions for such storage are approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Storage for radioactive decay for a period greater than 1 year for waste that has an identified path to disposal is allowed. Adequate justification and the supporting information for storage for decay is to be documented in the radioactive waste management basis for the facility in which the storage will take place.</p> <p><u>Mixed waste.</u> Under the Federal Facility Compliance Act of 1992, DOE sites were required to develop Site Treatment Plans to bring stored mixed low-level waste into compliance with these requirements. The Site Treatment Plan needs to be consulted and any mixed low-level waste stored for the purpose of accumulation to facilitate treatment must meet Resource Conservation and Recovery Act storage requirements. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement and include appropriate provisions in the radioactive waste management basis for the facility in which it is stored.</p> <p><u>Legacy waste.</u> As discussed above, the intention of the requirement is not to force malicious compliance or heroic actions which would result in increased risk or safety concerns. Rather, the intention is that waste in storage longer than one year receives additional attention to ensure that the public, the workers, and the</p>	<p>NA; LLW is not stored at this facility.</p>

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>environment are protected from the hazards of the waste, and that progress is being made to dispose of the waste. There could be several ways within different scenarios that this requirement can be met, as illustrated by the examples below, however, there are basically four ways to show compliance with the requirement:</p> <p>1) the radioactive waste management basis allows for storage for no more than one year.</p> <p>2) the radioactive waste management basis allows for storage for no more than one year, or for storage for decay only for periods greater than a year, which are specified on a radionuclide basis.</p> <p>3) the radioactive waste management basis allows for storage for more than one year, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>4) the radioactive waste management basis allows for storage for decay (with specifics) and for storage for more than one year for other low-level waste, up to a specified period of time based on a documented technical evaluation that the waste can be stored in a manner that does not cause changes to the waste or waste packages that is detrimental to the safe storage of the waste, the final disposal of the waste or to meeting the disposal performance objectives.</p> <p>Compliance with this requirement is demonstrated by the existence of a radioactive waste management basis for the storage facility approved by the Field Element Manager that includes the time frames that waste are allowed to be stored, the necessary justifications for storage for decay, and the necessary technical evaluations if storage is to extend significantly beyond the one-year time frame.</p>	
<p>(3) Storage Integrity. Low-level waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.</p> <p>From DOE G 435.1-1 Chapter IV: However, in making a decision to use a facility for storage and in developing a radioactive waste management basis for the activity, particular attention to protection of workers is needed.</p>	<p>NA; LLW is not stored at this facility.</p>

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
Compliance with this requirement is demonstrated if sites have storage capabilities for low-level waste that provide protection to waste containers so that their integrity will not be damaged through physical or chemical (corrosion) processes and that keep personnel from spending extended periods of time in the areas where low-level waste is stored.	
(4) Waste Characterization for Storage.	NA; LLW is not stored at this facility.
(a) Low-level waste that does not have an identified path to disposal shall be characterized as necessary to meet the data quality objectives and minimum characterization requirements of this Chapter, to ensure safe storage, and to facilitate disposal.	See (4) above.
(b) Characterization information for all low-level waste in storage shall be maintained as a record in accordance with the requirements for Records Management in Chapter I of this Manual. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by documented procedures for managing waste characterization and container information on low-level waste as a Federal record. The records are managed per the applicable policies and procedures for records management referenced in DOE O 200.1 and established at the applicable Field Element.	See (4) above.
(5) Container Inspection. A process shall be developed and implemented for inspecting and maintaining containers of low-level waste to ensure container integrity is not compromised. From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated by: (1) a documented process for waste container inspection and maintenance; and (2) documentation for all waste container inspections and maintenance actions performed.	LI-435 requires quarterly inspections of radioactive waste containers if waste is stored outdoors or has been in storage for greater than 1 year. Inspections are performed for TAAs and SAAs as required by WGS procedures (MCP-17000 and MCP-17410).
(6) Storage Management. Low-level waste storage shall be managed to identify and segregate low-level waste from mixed low-level waste.	NA; LLW is not stored at this facility.
(7) Staging. Staging of low-level waste shall be for the purpose of the accumulation of such quantities of waste as necessary to facilitate transportation, treatment, and disposal. Staging longer than 90 days shall meet the requirements for storage above and in Chapter I of this Manual. From DOE G 435.1-1 Chapter IV: The staging of low-level waste needs to be addressed in the radioactive	LLW and mixed LLW is staged for the purpose of accumulation to facilitate treatment and disposal. Mixed LLW is staged in SAAs in accordance with MCP-17000 and MCP-17410. LLW is staged in TAAs in accordance with MCP-17000 and MCP-17410. MCP-17000, Appendix F restricts staging LLW to 90 days maximum at any generator or treatment facility prior to acceptance by a storage facility.

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>waste management basis for the facility that is performing the staging. Generators, treatment facilities, and disposal facilities that stage waste must ensure that the action of staging is included and authorized as part of their radioactive waste management basis for the affected facilities, operations, or activities.</p> <p>Staging longer than 90 days must be justified, the conditions for such storage met, and these practices approved by the Field Element Manager as part of the radioactive waste management basis for the facility.</p> <p>Compliance with this requirement is demonstrated by a staging program that limits the temporary storage of waste to only circumstances allowed in the requirement, including justifications for any staging that exceeds the 90-day period, which is documented in the radioactive waste management basis for the facility.</p>	<p>Individual projects also would have project-specific laboratory instructions that would address the management of mixed LLW in accordance with RCRA regulations.</p>
<p>O. <u>Treatment</u>. Low-level waste treatment to provide more stable waste forms and to improve the long-term performance of a low-level waste disposal facility shall be implemented as necessary to meet the performance objectives of the disposal facility.</p> <p>From DOE G 435.1-1 Chapter IV: Compliance with this requirement is demonstrated when a treatment facility or process ensures that treated waste will meet the minimum waste form requirements of DOE M 435.1 and meet additional disposal facility-specific waste acceptance requirements for additional stability or long-term performance of facilities that will receive the treated waste.</p>	<p>NA; treatment is not performed in this facility.</p> <p>Containerized elementary neutralization is performed at this facility as provided by LWP-8000. As stated in § 4.118, elementary neutralization of corrosive hazardous waste may take place at any location at which the waste is generated or stored, and neither a generator treatment plan nor a permit is required. Solidification of liquid LLW for the purpose of staging (not for treating the radioactive constituents) also may be performed. Therefore, this facility is not considered to be a treatment facility.</p>
<p>P. <u>Disposal</u>. Low-level waste disposal facilities shall meet the following requirements.</p>	<p>NA; LLW is not disposed of in this facility.</p>
<p>(1) Performance Objectives. Low-level waste disposal facilities shall be sited, designed, operated, maintained, and closed so that a reasonable expectation exists that the following performance objectives will be met for waste disposed of after September 26, 1988:</p>	<p>See P. above.</p>
<p>(a) Dose to representative members of the public shall not exceed 25 mrem (0.25 mSv) in a year total effective dose equivalent from all exposure pathways, excluding the dose from radon and its progeny in air.</p>	<p>See P. above.</p>
<p>(b) Dose to representative members of the public via the air pathway shall not exceed 10 mrem (0.10 mSv) in a year total effective dose equivalent, excluding the dose from radon and its progeny.</p>	<p>See P. above.</p>
<p>(c) Release of radon shall be less than an average flux of 20 pCi/m²/s (0.74Bq/m²/s) at the surface of the disposal facility. Alternatively, a limit of 0.5 pCi/l</p>	<p>See P. above.</p>

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
(0.0185 Bq/l) of air may be applied at the boundary of the facility.	
(2) Performance Assessment. A site-specific radiological performance assessment shall be prepared and maintained for DOE low-level waste disposed of after September 26, 1988. The performance assessment shall include calculations for a 1,000 year period after closure of potential doses to representative future members of the public and potential releases from the facility to provide a reasonable expectation that the performance objectives identified in this Chapter are not exceeded as a result of operation and closure of the facility.	See P. above.
(a) Analyses performed to demonstrate compliance with the performance objectives in this Chapter, and to establish limits on concentrations of radionuclides for disposal based on the performance measures for inadvertent intruders in this Chapter shall be based on reasonable activities in the critical group of exposed individuals. Unless otherwise specified, the assumption of average living habits and exposure conditions in representative critical groups of individuals projected to receive the highest doses is appropriate. The likelihood of inadvertent intruder scenarios may be considered in interpreting the results of the analyses and establishing radionuclide concentrations, if adequate justification is provided.	See P. above.
(b) The point of compliance shall correspond to the point of highest projected dose or concentration beyond a 100 meter buffer zone surrounding the disposed waste. A larger or smaller buffer zone may be used if adequate justification is provided.	See P. above.
(c) Performance assessments shall address reasonably foreseeable natural processes that might disrupt barriers against release and transport of radioactive materials.	See P. above.
(d) Performance assessments shall use DOE-approved dose coefficients (dose conversion factors) for internal and external exposure of reference adults.	See P. above.
(e) The performance assessment shall include a sensitivity/uncertainty analysis.	See P. above.
(f) Performance assessments shall include a demonstration that projected releases of radionuclides to the environment shall be maintained as low as reasonably achievable (ALARA).	See P. above.

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
(g) For purposes of establishing limits on radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts to water resources.	See P. above.
(h) For purposes of establishing limits on the concentration of radionuclides that may be disposed of near-surface, the performance assessment shall include an assessment of impacts calculated for a hypothetical person assumed to inadvertently intrude for a temporary period into the low-level waste disposal facility. For intruder analyses, institutional controls shall be assumed to be effective in deterring intrusion for at least 100 years following closure. The intruder analyses shall use performance measures for chronic and acute exposure scenarios, respectively, of 100 mrem (1 mSv) in a year and 500 mrem (5 mSv) total effective dose equivalent excluding radon in air.	See P. above.
(3) Composite Analysis. For disposal facilities which received waste after September 26, 1988, a site-specific radiological composite analysis shall be prepared and maintained that accounts for all sources of radioactive material that may be left at the DOE site and may interact with the low-level waste disposal facility, contributing to the dose projected to a hypothetical member of the public from the existing or future disposal facilities. Performance measures shall be consistent with DOE requirements for protection of the public and environment and evaluated for a 1,000 year period following disposal facility closure. The composite analysis results shall be used for planning, radiation protection activities, and future use commitments to minimize the likelihood that current low-level waste disposal activities will result in the need for future corrective or remedial actions to adequately protect the public and the environment.	See P. above.
(4) Performance Assessment and Composite Analysis Maintenance. The performance assessment and composite analysis shall be maintained to evaluate changes that could affect the performance, design, and operating bases for the facility. Performance assessment and composite analysis maintenance shall include the conduct of research, field studies, and monitoring needed to address uncertainties or gaps in existing data. The performance assessment shall be updated to support the final facility closure. Additional iterations of the performance assessment and composite analysis shall be conducted as necessary during the post-closure period.	See P. above.

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
(a) Performance assessments and composite analyses shall be reviewed and revised when changes in waste forms or containers, radionuclide inventories, facility design and operations, closure concepts, or the improved understanding of the performance of the waste disposal facility in combination with the features of the site on which it is located alter the conclusions or the conceptual model(s) of the existing performance assessment or composite analysis.	See P. above.
(b) A determination of the continued adequacy of the performance assessment and composite analysis shall be made on an annual basis, and shall consider the results of data collection and analysis from research, field studies, and monitoring.	See P. above.
(c) Annual summaries of low-level waste disposal operations shall be prepared with respect to the conclusions and recommendations of the performance assessment and composite analysis and a determination of the need to revise the performance assessment or composite analysis.	See P. above.
(5) Disposal Authorization. A disposal authorization statement shall be obtained prior to construction of a new low-level waste disposal facility. Field Elements with existing low-level waste disposal facilities shall obtain a disposal authorization statement in accordance with the schedule in the Complex-Wide Low-Level Waste Management Program Plan. The disposal authorization statement shall be issued based on a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement shall specify the limits and conditions on construction, design, operations, and closure of the low-level waste facility based on these reviews. A disposal authorization statement is a part of the radioactive waste management basis for a disposal facility. Failure to obtain a disposal authorization statement by the implementation date of this Order shall result in shutdown of the disposal facility.	See P. above.
(6) Disposal Facility Operations. The disposal facility design and operation must be consistent with the disposal facility closure plan and lead to disposal facility closure that provides a reasonable expectation that performance objectives will be met. Low-level waste shall be disposed in such a manner that achieves the performance objectives stated in this Chapter, consistent with the disposal facility radiological performance assessment. Additional requirements	See P. above.

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
include:	
(a) Operating procedures shall be developed and implemented for low-level waste disposal facilities that protect the public, workers, and the environment; ensure the security of the facility; minimize subsidence during and after waste emplacement; achieve long-term stability and minimize the need for long-term active maintenance; and meet the requirements of the closure/post-closure plan.	See P. above.
(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.	See P. above.
(c) Low-level waste placement into disposal units shall minimize voids between waste containers. Voids within disposal units shall be filled to the extent practical. Uncontainerized bulk waste shall also be placed in a manner that minimizes voids and subsidence.	See P. above.
(d) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on any other disposal units.	See P. above.
(e) Operations shall include a process for tracking and documenting low-level waste placement in the facility by generator source.	See P. above.
(7) Alternate Requirements for Low-Level Waste Disposal Facility Design and Operation. Requirements other than those set forth in this Section for the design and operation of a low-level waste disposal facility may be approved on a specific basis if a reasonable expectation is demonstrated that the disposal performance objectives will be met.	See P. above.
Q. Closure. The following requirements are in addition to those in Chapter I of this Manual.	NA; LLW is not disposed of in this facility.
(1) Disposal Facility Closure Plans. A preliminary closure plan shall be developed and submitted to Headquarters for review with the performance assessment and composite analysis. The closure plan shall be updated following issuance of the disposal authorization statement to incorporate conditions specified in the disposal authorization statement. Closure plans shall:	See Q. above.
(a) Be updated as required during the operational life of the facility.	See Q. above.
(b) Include a description of how the disposal facility will be closed to achieve long-term stability and minimize the need for active maintenance following closure and to ensure compliance with the requirements	See Q. above.

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
of DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	
(c) Include the total expected inventory of wastes to be disposed of at the facility over the operational life of the facility.	See Q. above.
(2) Disposal Facility Closure. Closure of a disposal facility shall occur within a five-year period after it is filled to capacity, or after the facility is otherwise determined to be no longer needed.	See Q. above.
(a) Prior to facility closure, the final inventory of the low-level waste disposed in the facility shall be prepared and incorporated in the performance assessment and composite analysis which shall be updated to support the closure of the facility.	See Q. above.
(b) A final closure plan shall be prepared based on the final inventory of waste disposed in the facility, the plan implemented, and the updated performance assessment and composite analysis prepared in support of the facility closure.	See Q. above.
(c) Institutional control measures shall be integrated into land use and stewardship plans and programs, and shall continue until the facility can be released pursuant to DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> .	See Q. above.
(d) The location and use of the facility shall be filed with the local authorities responsible for land use and zoning.	See Q. above.
R. <u>Monitoring</u> . The following requirements are in addition to those in Chapter I of this Manual [DOE M 435.1-1 §I.1.E(7)].	See (1), (2), and (3) below.
(1) All Waste Facilities. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed. From DOE G 435.1-1 Chapter IV: The minimum parameters specified in the requirement were selected based on their potential significance for anticipating and identifying undesirable conditions at low-level waste management facilities. Each facility's radioactive waste management basis should include an evaluation of the applicability and significance of the minimum parameters. This evaluation also needs to consider additional parameters to be sampled or monitored to	Monitoring requirements at INL radioactive waste management facilities are tailored for the specific facility to enable timely indication of developing problems. Existing radiological control procedures and assessments are followed/completed to monitor waste facilities. LRD-15001 and MCP-139 specify methods and frequency of radiological control surveys of all radiological areas. MCP-139 specifies the use of Form 441.A34. This form is referred to as the "routine sheet" and is to be used by facility radiological control foremen to list radiological areas that are to be surveyed, the survey periods, and methods.

Table 23. (continued).

Facility Name: MFC-1702, Radiochemistry Laboratory	
Chapter IV, LLW Requirements	Facility Compliance Information
<p>ensure the protection of the public health, the environment, and the workers. If a minimum parameter specified in the requirement is deemed to be not applicable in any way to the active operation of that facility, then that justification should be included in the radioactive waste management basis and when approved constitutes an exemption to the manual.</p> <p>Verification activities are part of the radioactive waste management basis as a condition for operation and documented appropriately.</p> <p>Compliance with this requirement is demonstrated if monitoring or sampling for the stated parameters is performed for all facilities with a precision, accuracy, and frequency consistent with timely identification of developing problems and a justification exists in the approved radioactive waste management basis for those specified parameters which are not monitored or sampled.</p>	
<p>(2) Liquid Waste Storage Facilities. For facilities storing liquid low-level waste, the following shall also be monitored: liquid level and/or waste volume, and significant waste chemistry parameters.</p>	<p>NA; liquid waste is not stored at this facility.</p>
<p>(3) Disposal Facilities. A preliminary monitoring plan for a low-level waste disposal facility shall be prepared and submitted to Headquarters for review with the performance assessment and composite analysis. The monitoring plan shall be updated within one year following issuance of the disposal authorization statement to incorporate and implement conditions specified in the disposal authorization statement.</p>	<p>NA; LLW is not disposed of in this facility.</p>
<p>(a) The site-specific performance assessment and composite analysis shall be used to determine the media, locations, radionuclides, and other substances to be monitored.</p>	<p>See (3) above.</p>
<p>(b) The environmental monitoring program shall be designed to include measuring and evaluating releases, migration of radionuclides, disposal unit subsidence, and changes in disposal facility and disposal site parameters which may affect long-term performance.</p>	<p>See (3) above.</p>
<p>(c) The environmental monitoring programs shall be capable of detecting changing trends in performance to allow application of any necessary corrective action prior to exceeding the performance objectives in this Chapter.</p>	<p>See (3) above.</p>

5. REFERENCES

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AL-5000-LI-003, "Contact-Handled Transuranic Waste Handling"
AL-7000-OI-001, "Facility Conditions"
AWP-2.13, "Radiological Material Inventory Control and Facility Hazard Categorization"
CCN 210728, August 8, 2007, Mr. Brian R. Monson to Mr. David L. Wessman, "Manufacturing Process Unit Exemption for the Fuel Conditioning Facility at the Materials and Fuels Complex, Idaho National Laboratory"
DSA-003-HFEF, "Final Safety Analysis Report for the Hot Fuel Examination Facility"
DSA-004-CESB, "CESB Documented Safety Analysis"
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ECAR-671, "Hazard Categorization Document for the Radiochemistry Laboratory (MFC-1702) at MFC"
ECAR-789, "Hazard Categorization of the Materials and Fuels Complex Laundry Facility MFC-702"
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EDF-7030, "Inventory Analysis of Radiological Facilities at the Materials and Fuels Complex (MFC)"
EDF-7234, "Evaluation of Source Terms in MFC-Building 702"
EML-OI-416, "Circulating, Sampling, and Draining of Suspect Liquid Waste in EML (Bldg. 774) Holding Tanks"
FCF-OI-1302, "Material Control and Accountability"
FCF-OI-6523, "Radioactive Liquid Waste System"
FCF-OI-6605, "In-Cell Waste Tracking and Logging"
FCF-OI-6606, "In-Cell Radiological Smear Data Logging"
FCF-OI-6614, "Contact-Handled Low-Level Waste Handling"
FCF-OI-6620, "In Cell Indirect Waste Handling"
FMF-OI-015, "General Facility Waste"
F0000-0018-AK, "Final Safety Analysis Report for the Fuel Conditioning Facility"
F0000-0026-ES, "Criticality Hazard Control Statement for the Fuel Conditioning Facility"
Form 435.39, "Waste Determination and Disposal Form (WDDF)"
Form 435.42, "Radioactive Waste Inventory Sheet"
Form 435.83, "Idaho National Laboratory Contact-Handled Transuranic Waste Disposition - TSR Related (Checklist - Requirements - Certification)"
Form 441.A34, "INL Radiological Control Required Surveys"
FRM-323, "TSD Facilities Material Acceptance Checksheet"
HFEF-OI-1302, "Mass Tracking System"
HFEF-OI-6601, "Waste Handling"

HFEF-OI-6602, "Radiological Smearing for Waste Characterization"

HFEF-OI-6801, "Hazardous Waste/Mixed Waste (HW/MW) Requirements"

IAG-261, "INL Authorization Agreement for the Materials and Fuels Complex (MFC) Space and Security Power Systems Facility (SSPSF)"

IAG-264, "INL Authorization Agreement for the Materials and Fuels Complex (MFC) Radioactive Scrap and Waste Facility (RSWF)"

INL/EXT-10-17600, *Process Knowledge Summary Report for Materials and Fuels Complex Contact-handled Transuranic Waste*

LI-435, "Waste Management Routine Field Activities"

LI 1219-07-MFC, "Sample Preparation in the Electron Microscopy Laboratory"

LI 1356-07-FASB, "FASB General Laboratory Work"

LRD-15001, "Radiological Control Manual"

LST-302, "Safety Basis List for the Materials and Fuels Complex (MFC) Space and Security Power Systems Facility (SSPSF)"

LST-305, "Safety Basis List for the Materials and Fuels Complex (MFC) Radioactive Scrap and Waste Facility (RSWF)"

LST-329, "Analytical Laboratory Nuclear Safety Basis Implementation Matrix"

LST-337, "Approved Container/Payload List for Inter-Facility Transfer Operations at MFC"

LWP-8000, Environmental Instructions for Facilities, Processes, Materials, and Equipment

LWP-8300, "Transuranic Waste Handling"

LWP-13840, "Management of Issues, Observations, and Noteworthy Practices"

LWP-14002, "Timeout and Stop Work Authority"

LWP-15011, "Radioactive Material Areas and Radioactive Storage Areas"

LWP-17000, "Waste Management"

MCP-139, "Radiological Surveys"

MCP-17000, "Waste Generator Services Waste Management"

MCP-17410, "Management of Waste Storage Areas"

MCP-17500, "Waste Generator Services Certification of Waste Shipments to the Nevada Test Site"

PDD-17000, "Waste Management Program"

PER-116, "HWMA/RCRA Storage and Treatment Permit for the Materials and Fuels Complex"

PLN-114, "INL Emergency Plan/RCRA Contingency Plan"

PLN-522, "Quality Assurance Program Plan for the Waste Management/Waste Certification Program"

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RL-OI-1, "Radioactive-Liquid-Waste Collection"

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RSWF-OI-003, "Material Acceptance for Storage"

RSWF-OI-004, "Administrative Requirements/Process for Material Transfers"

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